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A Systematic Investigation of Two Programs for Improving Seventh Graders Study Skills

Nelson Armour
Loyola University Chicago

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A SYSTEMATIC INVESTIGATION OF TWO PROGRAMS
FOR IMPROVING SEVENTH GRADERS
STUDY SKILLS

by

Nelson Armour

A Dissertation Submitted to the Faculty of the School of
Education of Loyola University of Chicago in partial
Fulfillment of the Requirements for the Degree of
Doctor of Education

January

1983

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A SYSTEMATIC INVESTIGATION OF TWO PROGRAMS

FOR IMPROVING SEVENTH GRADERS

STUDY SKILLS

This study systematically examined the differential effects of two study skills programs, a self-management program by Harris and Ream (Self-Management Program, 1977) and a token economy program by Erken and Henderson (Practice Skills Mastery Program, 1976) on a series of four dependent measures: 1) study skills behaviors (level of preparation for class, level of handing assignments in on-time, time and achievement on an experimental task) and attitudes (self-perception of study habits); 2) classroom behavior; 3) academic achievement (Overall GPA, Subject Area GPA, reading comprehension scores, and task analysis of assignments); and, 4) attribution of academic achievement (IAR scale by Crandall, Katkovsky, and Crandall, 1965). The sample consisted of n=332 non-exceptional seventh grade students of average and above average achievement from four suburban, Chicago area schools. Heterogeneous classes of students were randomly assigned one of three treatment groups, the SMP, PSMP, or CO (Curricular Objectives control group, existing non-systematic approach to study skills). The dependent measures were gathered during the treatment (second academic quarter) and maintenance (third academic quarter) phases of the study.

A split-plot design utilizing an analysis of variance with repeated measures was employed. A priori orthogonal comparisons between the independent variables were specified; where significant interaction effects were found, a test for simple main effects was done. Overall, the results supported the differential effects of treatment conditions on most of the dependent variables. The PSMP showed strength in relationship to levels of student preparation for class and levels of students handing in assignments on time; the SMP and CO groups showed similar patterns of impact on various dependent variables. Furthermore, it appears that divergent results were found across behavioral, academic, and attributional constructs. The results were discussed and suggestions for further research offered.

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VITA

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CHAPTER I

INTRODUCTION

Educational psychologists study numerous components of the teaching and learning process. Subject matter, curriculum, instructional programs, instructional techniques and procedures, and evaluative methods exemplify teaching procedures which are external to learning. Components of teaching and instructional design (Gagne and Briggs, 1974) emphasize the construction of proper contingencies to learning, accounting for students' conceptual levels and styles, and contingencies of reinforcement. Numerous internal, cognitive ingredients (Schuell, 1982) including information processing (Klahr, 1976) mnemonics (Norman, 1976), generative restructuring (Wittrock, 1974), and mathe-
magenics (Rothkoph, 1970) represent some of the student manipulated characteristics of the learning process. Other interesting areas of learner specified components in the learning process include developmental patterns (Nelson, 1977; Brown and Smiley, 1978; Brown, 1978; and, Piaget, 1958), student attributions (Crandall, Katkovsky, and Crandall, 1965) and idiosyncratic learning processes including learning styles. Culturally related issues (Olson, 1977) also appear pertinent.

Topics like motivation can be seen either from the perspective of teacher or student influences. For example, if motivation is conceived to be the proper development of con-

tingencies which prompt behavior, one would study motivation as a teacher designed phenomenon. However, it is also possible to view motivation intrinsically; in this student oriented conception, an individual's self-perception or personal constructs is an important impetus to learning (Weiner, 1972; Crandall, Katkovsky, and Crandall, 1965).

One issue of particular to concern teachers and educators which bridges both elements of the teaching-learning process is the investigation and facilitation of "study skills". How does a student approach educational tasks? What encourages a student to attend to the information at hand? What techniques and procedures assist a student in determining the information to be processed, how to encode this information, and how, and under what circumstances, to retrieve this knowledge? In part answers to these types of questions are addressed through interest with a student's study skills.

Study skills may be conceptualized from at least four different points of view. Traditionally, investigations of study skills have focused upon such factors as the use of reference aids, (dictionary, maps, card catalog, etc.). A second area of investigation associated with study skills is one of counseling. In this approach the paramount concern is with a student's motivation, either in developing awareness of the importance of studying and personal interest in scholastic achievement or in coping with problems pre-

venting a student from studying. A third approach to the investigation of study skills centers upon the notion of "on-task" behaviors in a classroom; usually these on-task behaviors are contrasted with disruptive behavior. Instructional techniques are employed to increase appropriate and decrease inappropriate behaviors. Finally, a fourth type of investigation of study skills focuses on such learning techniques as note taking, reading for comprehension, studying for tests, organizing study time, and procedures for reviewing and remembering.

One recurring complaint voiced by junior high school teachers is the poor quality of study skills among young adolescents. These teachers perceive that their students are disorganized, lack the proper tools for efficient study, and generally lack academic self-discipline. Even though the curriculum guiding these teachers probably establishes goals for the teaching of study skills, teachers more than likely lack specific programs for such instruction. Since school learning is premised upon the ability of students to "study" the material presented in class, it might be assumed that significant research had been accomplished in defining study skills and in developing programs for teaching such skills. It is particularly interesting to note that, in comparison with other important topics in teaching and learning, relatively little research has been designed to focus upon study skills.

The present study was designed to contribute to research on study skills by examining on-task classroom behaviors and learning techniques along with student attributions (motivational constructs) with a large sample of average and above average seventh graders. The development of on-task behavior is usually associated with establishing the proper contingencies for increasing one behavior while decreasing another. The behaviors are mutually exclusive; an increase in one behavior necessitates a reduction in the opposite. Techniques for identifying and reinforcing appropriate behavior are utilized. On the other hand, cognitive researchers concentrate on examining intellectual activity which mediates between particular overt behaviors. Study techniques which parallel or incorporate mental activity are designed and taught to students. This cognitive approach emphasizes awareness and utilization of the ways in which cognition occur. While some may view the two approaches as mutually incompatible, they may not be. It is possible that in the practitioner's world of classrooms and students both the behavioral approach (emphasizing on-task behaviors) and the cognitive emphasis on information processing are viable and necessary. The present research project was designed to systematically examine aspects from both behavioral and cognitive approaches to study skills in an effort to view a variety of issues including short and long term effects (maintenance of learning) on pertinent behavioral,

achievement, and attributional variables.

Basically, the research project described here entails comparing two programs designed for the development of study skills. One program, the Practice Skills Mastery Program or PSMP (Erken and Henderson, 1976), was developed to provide teachers of minimal behavioral training with an efficient token economy program. The program was designed to be effective while being easy to implement properly by the uninitiated. The PSMP provides teachers with various materials: 1) six tapes which cue teachers to provide reinforcements for students emitting proper behaviors; 2) a system to record reinforcement received by students; and, 3) an accounting procedure to assist teachers in administering the program. The various tapes incorporate variable interval schedules of reinforcement ranging from an average of VI 1.8 minutes to VI 15 minutes. The program provides teachers with a mechanism to be consistent and efficient in reinforcing correct behaviors. This program falls directly in the mainstream of behavioral approaches to study skills.

The second program, a Self-Management Program or SMP (Harris and Ream, 1972), emphasizes subject self-control through the learning and self-application of such concepts as awareness of one's behavior, stimulus control, reinforcement and the Premack Principle, encoding and reviewing procedures (SQ3R), the use of punishment, and maintenance. Students are provided with a series of weekly lessons on these

concepts and step by step suggestions for improving study behavior and learning techniques. Simultaneously, the students record and attempt to alter their study behavior. Less intense than the PSMP, the SMP is premised upon behavioral concepts, but with an emphasis on assisting the student to manage his or her own behavior. It would appear that implied in this self-management approach are internal components which direct a student's self-control and behavior change. When a student consciously decides to utilize these lessons, positive results can occur.

Both programs begin with behavioral premises but diverge in application. Embodied in each program are somewhat different views of student motivation. The PSMP suggests that student motivation flows from proper instructional procedures, specifically the consistent application of reinforcement techniques. The concept of student motivation inherent in the SMP suggests that individuals can direct their own behavior. While examining study skill development, it also is possible to incorporate certain aspects of motivation, particularly attributional models of achievement motivation in relationship to these two programs. To what extent does a student attribute academic success or failure to themselves (internal locus of control) or outside of themselves (external locus of control)?

Presently, research performed with the PSMP includes both exceptional (emotionally handicapped adolescents, train-

able mentally retarded, learning disabled) and non-exceptional students, but with an emphasis on the former. The SMP has been used primarily in relationship to poor readers. The present investigation is the first known systematic comparison of these programs. Investigated were a range of behavioral, academic, and attitudinal measures. Furthermore, the present study represents an initial attempt to utilize either program with a large sample of non-exceptional students, specifically average and above average seventh grade pupils.

Informal Hypotheses

This study examined the impact of two study skills programs, the PSMP of Erken and Henderson and the SMP of Harris and Ream, on four dependent measures: 1) study skills behavior and attitudes; 2) classroom behavior; 3) academic achievement; and, 4) attribution of academic functioning.

Study skills behavior and attitudes were assessed in four ways. The first measure of study skills behavior was the percentage of time a student was prepared for class. The second measure was the percentage of assignments handed in on-time as an indicator of study skills. A third measure was tested via a study time and achievement exercise. Students were given a short reading lesson to study. After studying the passage for whatever time the student determined, each seventh grader then was given a short quiz on the lesson. The time used to study the passage and the achievement on the test were measured. Finally, a questionnaire designed by

Harris and Ream was given before and after the treatment phase of the study to assess students' self-perception of their study skills.

The second dependent measure (classroom behavior) was measured by the number of out of class referrals for behavioral problems made by the teacher. Academic achievement, the third dependent measure, was assessed through grade point average (GPA) in all academic areas (overall GPA) and the specific class in which the study skills programs was implemented (subject GPA). GPAs were gathered for the first three quarters of the academic year. Student scores on a standardized reading comprehension test constituted another indicator of academic achievement. In addition, an attempt was made to task analyze the GPA in the study skills class by type of assignment, and length of time permitted to prepare the assignment. The final dependent measure, attribution of academic functioning, was examined by use of the Intellectual Responsibility (IAR) Scale (Crandall, Katkovsky, and Crandall, 1965).

The two study skills programs were utilized by English teachers instructing seventh grade students. The experimental treatment groups received their respective study skills program during the second quarter of the school year. The non-experimental control group students utilized neither study skills program.

Of course, it is recognized that school districts have

incorporated the teaching of study skills into different curricular areas, mainly within the English curriculum. The control group was differentiated from the experimental treatment groups in that no formal study skills program was utilized in the instructional process. Further, control group teachers made no alteration in their existing program or classes. This group was known as the Curricular Objectives, CO, group, suggesting that teachers implemented existing objectives without treatment intervention.

The following general research questions summarize the basic areas of investigation within the study:

1. Is one program more effective than another in improving seventh grade students' study skills behavior? Is one program more effective than the other in developing more conducive student attitudes towards effective study habits?
2. Is there a relationship between the development of study skills and students' classroom behavior?
3. Is one program more effective than the other in helping students improve their academic achievement? Does the development of study skills via either program differentially influence achievement with particular types of assignments, in the subject area class of the treatment effects, or in all academic areas?
4. Is there a relationship between a student's attri-

bution of achievement responsibility and their study skills program?

5. What are the effects of the study skills program beyond the experimental phase of the study? Are any effects of the program maintained?
6. Are the effects of the two study skills programs uniform or differential across the various dependent measures (study skills behaviors and attitudes, classroom behavior, academic achievement, and attribution of academic responsibility)?

These research questions cross the boundaries of a variety of components of teaching and learning, and provide a multidimensional perspective to the systematic investigation of study skills.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The investigation of study skills within educational psychology is more divergent than focused, more scattered than unified. There appear to be two explanations for this spectrum of viewpoints in regards to study skills. In the first place, study skills research is not precisely defined. While some may view cognitive skills (problem solving strategy training) associated with learning as expressions of "study skills", others may concern themselves primarily with library and reference techniques (Gross, 1978; Price, 1978; and, McQuaid, 1971). Other conceptions (motivation/counseling, on-task behaviors) also exist for study skills. Each of these concepts adds dimensions (Robbins and Rogers, 1975) and complexities (Biggs, 1978) to viewing the way in which a learner prepares himself or herself for the school learning process.

Secondly, research on study skills overlaps with existing conceptual frameworks in psychology and education. Information processing techniques (Mayer, 1977; and, Norman, 1976), motivational constructs within social psychology (Shaw and Costanzo, 1970), and shaping appropriate classroom behaviors are general topics which receive considerable

attention outside the preview of study skill research, but also have been utilized for research on study skills. In each case, divergent formulations of the research questions provide potentially new and important insights related to learning and teaching. However, this tendency also leads to an expansion of the conceptualization of study skills rather than to a unification or restriction of the notion. Because of this, it does become important to define the different ways in which study skills are viewed (reference aides, motivational factors, on-task behaviors, and cognitive factors) and to focus upon the formulations utilized in the present study (aspects of attributional or motivational, on-task, and internalized processes definitions). This constitutes the initial section of the literature review.

Subsequent sections of the literature review focus on the following topics: 1) research findings related to the study skills programs used within the present investigation (the SMP and the PSMP); 2) background research related to the basic conceptualizations of the two programs (token economy systems and behavioral self-management) used within the study; and, 3) an introduction to the collateral issue of attribution of academic responsibility.

This review of literature is designed to answer the following conceptual questions: What are study skills? What is the supporting research to date related to the

study skills programs employed within this study? From what traditions of behavioral research do these programs emerge? What is the relationship of attribution of academic responsibility to the present study?

Definitions of Study Skills

Research on study skills appears to have been concentrated over the past two decades. Interest in students' study skills existed on the junior college and college level prior to this period. Turrel (1937) found that a program combining guidance practices and instructional aspects improved students' learning, effecting males and females differentially. Lower division and average ability students gained more than others. Facing apparent student problems at Stanford University, Sharp's (1943) study of effective study methods showed that a seven session course providing assistance with valuing and distributing one's time, reading techniques, note taking and examination techniques, memory and learning tools, and specialized techniques for different subjects had a beneficial impact on students' grades when comparing the treatment with control groups. A review of college programs in the area of study skills by Blake Jr. (1955) spoke of the importance of psychology, research techniques, planning and guidance.

Embodied within these earlier studies were elements of three of the four areas in which research on study skills have been done. One area of interest exemplified above can be identified as reference aides. A second area can be

characterized as a concern for individual motivation, a counseling approach. Thirdly, cognitive skills and specific instructional programs were utilized. A fourth area in which researchers have identified study skills developed subsequent to these studies; the behavioral orientation of strengthening on-task behavior found greater interest amongst researchers at a later date. Investigations on "study skills" have appeared under each of these four areas. This section will present relevant ideas and studies within the areas of reference aides, motivation and self-perception, cognitive skills and instructional programs, and on-task behaviors.

Reference Aides. Three recent dissertations are indicative of the conception of study skills as reference aides. In studying the relationship between reading comprehension, study skills and social studies attainment, Price (1978) construed study skills to entail map reading, using charts, interpreting graphs and tables, utilizing textbooks, and employing reference skills. Findings did not show significant impact on attainment of social studies concepts by improved study skills. Two other studies showed more positive results. While defining study skills as reading maps, interpreting tables and graphs, and exploring reference materials, Gross (1978) found that a combination of study skill scores and reading achievement had predictive value in relationship to a student's work in the content areas;

however, it appeared that reading ability may have been more important than study skills. Finally, McQuaid (1971) suggested that a program designed to strengthen secondary school underachievers to use twenty work-study skills, i.e., listening purposefully and accurately, alphabetization, using graphs, maps, globes, etc., had beneficial effects. In addition to the specific results of each of the studies, these authors demonstrate one concept attached to the notion of study skills.

Motivation. When exploring study skills, areas associated with counseling, i.e., motivation, attitudes and group techniques take on importance in two general ways. On the one hand psychologists caution against viewing study skills solely as "techniques" unaffiliated with personality and motivation. On the other hand, many studies on specific study skill procedures utilize a counseling treatment group within the research. Examples of each of these are given below.

In initial research done on the SMP Beneke and Harris (1972) urged others not to view study skills programs as a "panacea for the unmotivated student." Even though their research demonstrated grade point average (GPA) gains which lasted two semesters, the authors pointed out that this may be related to the self-initiated commitment made by a student to improve his/her study skills. In reviewing evaluations of study skills courses, Entwisle (1960) noted that statistically

significant gains demonstrated by some courses did not always translate into educationally significant gains. She pointed out that controls within these studies did not always exist with regard to student motivation. Entwisle referred to factor analysis done concerning the influence of study skills on college achievement; it appeared that "study mechanics" consisted of one-fourth of the important factors. Morale or self-confidence, scholarly drive, and planning tendencies also were critical.

Scot (1973) utilized an instructional, study skills program to investigate work skills and attitudes towards work with eighth graders. He concluded that little growth was seen in work habits skills development and little change in work habit attitudes due to the program. This would tend to suggest that attitudes towards work are quite important and difficult to alter at this age. In an interesting personality study of high school students which examined the relationship of dogmatism to study time, Robbins and Rogers (1975) concluded that adolescents would "better be wrong than long." Anxiety surrounding decision making situations in academic settings appeared to be alleviated by quick, rather than thoughtful decisions.

In examining the effects of training students in the management of anxiety and counseling sixth and seventh grade students on study skills, Wilson (1980) found that test anxiety possibly could be reduced. The anxiety management training

treatment provided to subjects in Wilson's study had a favorable impact on self-esteem as well. The role of self-concept also was highlighted in Zarb's (1981) study on the non-academic predictors of successful academic achievement. Of a variety of factors, family, peers, and perceived school ability, academic self-concept appeared to be the best predictor of GPA. This theme will re-emerge when discussing Crandall, Katkovsky, and Crandall's (1965) IAR Scale later. It should be noted, though, that the above studies suggest the importance of affective and personality factors when accounting for improvements in academic achievement.

The theme that counseling oriented issues are relevant to study skills was emphasized by Haslan and Brown (1968). Associated with the extensive work of Holtzman and Brown (1968) on an inventory of study skills, habits, and attitudes, Haslan and Brown evaluated this program for developing effective study skills at the high school level. In addition to attempting to assist students in the areas of use of their time, in organizing their study environment, in improving reading and writing, and in improving studying for and taking of tests, their program also was designed to influence a student's motivation to improve study skills, set realistic goals, and understand high school "life" better. The author found improvement in student's knowledge of study skills, study orientation,

and subsequent academic achievement. In critiquing the Holtzman and Brown's inventory, Kahn and Roberts (1969) underlined the importance of non-intellectual factors related to study habits suggesting that counseling and/or motivational techniques might influence these non-academic areas. Shepps and Shepps (1971) also appeared concerned about attitudinal aspects of Holtzman and Brown's work. Interested in whether Holtzman and Brown's inventory would be a valid predictor of academics at the sixth grade level, they found the results to be differentiated by sex. Shepps and Shepps saw counseling implications within their findings.

While most of the studies suggesting the importance of counseling, motivation, personality, etc., also dealt with other techniques for study skills improvement, Thweatt (1976) attempted to apply solely attitudinal factors, in this case transactional analysis concepts, to a model constructed to understand study problems. It was his general analysis that as students attempted to solve their study problems with rigid, unmanageable plans they found themselves in an unavoidable "vicious circle." Thweatt postulates that awareness, flexible study strategies, and positive recognition of improvement are each important in improving study skills. These studies all tend to underline one essential aspect of study skills: technique alone can not account for improving study skills. Internal, motiva-

vational elements are worthwhile considerations when examining the improvement of study skills.

Numerous studies on questions related to study skills employed counseling techniques to influence these skills or to compare with other possible treatments. In the latter case, preferred treatments were compared with counseling approaches and control groups. Garrison (1971) studied three treatment effects (counselor reinforcement, counselor reinforcement and peer models, peer models) and two control groups on the modification of study skills, attitudes, and achievement of high school students. Generally, he did not find significant differences in the group means with several exceptions. Brown and Holtzman's inventory detected differences between the counselor reinforcement condition and a placebo control group. Further, academic achievement differences were found when comparing the placebo control group with either the peer model condition or the counselor reinforcement condition. When comparing group counseling, individual counseling, and no counseling, Light and Alexander (1970) found that the group counseling technique had the biggest impact of the three groups on study habits. The importance of the counselor's sensitivity was noted when analyzing the results; some raters differentially interpreted changes in student's behavior. The above series of studies illustrate a trend of study skills research which emphasizes counseling techniques in relationship to improving study skills.

In this section on motivation two types of research were highlighted. One strand of investigation encourages researchers and practitioners to include motivation and counseling issues when examining student's study skill problems. These authors acknowledge the importance of "technical" factors on the development of proper study skills, but encourage others to be more than "technique oriented." Counseling also enters the study skills picture in the form of different treatment groups employed within given studies. Group and individual counseling are examples of types of treatment groups used in some of these studies.

On-Task Behaviors. As study skills are viewed by some in terms of affective elements influencing a student's school oriented behaviors, others conceive of study skills as behavioral constructs. Generally speaking, this research revolves about defining objective behaviors construed as appropriate, study directed actions. The main thrust for these researchers is to shape on-task appropriate behaviors while extinguishing off-task, inappropriate behaviors. Whether the investigation uses reinforcement techniques, modeling variations, and/or token economy systems, these approaches to study skills emphasize the formation of "study-like" behaviors which are observable and measurable. The following studies provide an overview of various behavioral approaches across a wide range of age groups attempting to investigate

study skills behavior.

Hall, Jackson, and Lund (1968) examined the effects of teacher attention on the study behavior of first and third grade students; study behavior was defined as the student orientation to such classroom events such as teacher lectures, reciting with classmates, class participation and working upon assigned materials. It was found that, even in crowded classrooms, attention from the teacher can effect the attending behaviors of students. Where systematic attention was provided to previously unmotivated students, an increase in appropriate study behaviors was found. In a study on the effects of academic survival skills on low achieving first graders, Cobb and Hops (1973) found major support for their hypothesis. Attending to teacher, following instructions, and volunteering answers were three variables defined as study skills; they correlated with gains in achievement. Various behavioral treatments were utilized including a token economy, teacher praise and attention, self-reinforcements, and individual and group contingencies.

In a study of self-regulation of disruptive classroom behavior, Bolstad and Johnson (1972) predicted that self-regulation would be effective in reducing disruptive behavior and would be more impervious to extinction than externally regulated reinforcement procedures. The first and second graders in the experimental groups showed much less disruptive behavior than those in the control groups. In analyzing

the "difference-scores" between the groups, Bolstad and Johnson found the self-regulation approach more effective than the externally managed systems. They concluded that these young students were capable of self-observation and that self-regulation can be important. On the question of resistance to extinction, no significant results were found. In another study on a similar topic, Johnson (1970) found that self-reinforcement programs with first and second graders can increase discriminations of reinforced behaviors. While both the self-reinforcement and externally reinforced groups maintained a high rate of appropriate responses as compared with the no reinforcement group, the self-regulation treatment proved somewhat more resistant to extinction than the externally managed system. In a follow up study with second graders Johnson and Martin (1973) concluded that even though the difference in extinction rates between the self-reinforcement and externally managed token economy system was not overwhelming, it was consistent in favor of the self-reinforcement techniques. While these studies center mainly on the issue of self-reinforcement vs. external, the self-evaluation skills studies are consistent with the "development" of on-task study behaviors.

In a study of fourth graders developing on-task behaviors in an open classroom Bushell and Bushell (1974) concluded that, of the five treatment procedures compared in their study, a "dual contingency" procedures was most effec-

tive. The "dual contingency" strategy consisted of providing positive reinforcements of praise and continued self-scheduling for completed assignments on the one hand or a return to a strict, teacher determined schedule for specified period of time on the other hand. Other treatment groups consisted of a fixed individual daily schedule with reinforcement contingent upon 80% completion of assignments, a standard weekly assignment with reinforcement at the end of the week, a self-scheduling procedure with reinforcement at the end of the week, a self-scheduling procedure with reinforcements provided as assignments were handed in, and a strict daily schedule with free time and recess contingent upon three pages of assignments completed. The latter treatment group was slightly more effective than the dual contingency model. This later model, though, was considered incongruous with the open classroom setting. Implicit within this study was a concept that completion of appropriate assignments entails proper study skills. In a study of other intermediate age students Sagotsky, Patterson, and Lepper (1978) viewed study skills within the framework of goal setting, checking one's own work, evaluating that work, and self-reinforcement. While raising important questions which will be examined in the section of the literature review on the strengths and weaknesses of the methodologies of the program utilized in the present study, Sagotsky et al. found achievement gains in math for the self-reinforcement group and an increase in behavioral

observations by the students.

Cohn (1978) suggested that a combination of behavioral treatments proved more effective than each separately in influencing the academic and social behavior of underachieving nine to twelve year olds. In a study of seven students Cohn concluded that a combined package of self-monitoring, public praise, and token reinforcement was effective with five of the subjects. Separately, or in various pair combinations, the treatments had little impact in behaviors appropriate to academic and social gains. Utilizing a similar experimental design with only two subjects, Broden, Hall, and Mitts (1971) found that, providing eighth grade students with an extremely simple self-recording system, certain study behaviors were modified in a positive manner. Teacher attention and personal motivation were noted as important factors as well. Study skills were construed in a flexible manner; the elementary idea of "thinking about the subject" during a teacher lecture was seen as a study skill. One student was asked to provide self-recorded responses targeting this behavior. This represents a good example of analyzing the apparent deficiencies in study skills shared by some students. "Thinking" about a lecture might lead to taking notes from the lectures, and so on and so forth.

Another approach to behavioral research consists of the utilization of models and modeling within learning. Anderson, Blue, and Matheny (1976) studied influences of effective

school behavior of students by using 12th grade students as models. It was hypothesized that older students could assist in tutoring others. Specific study skills were not defined carefully, but the implication remained that academically successful models would provide others with examples of attitudes, and approaches and skills helpful in school. Treatments consisting of various counseling discussions, simulation games dealing with career motivation, and specific tutoring in study skills by the models were used. It was found that carefully chosen high school models played an important role in the development of effective behaviors of younger students. Liebert and McMains (1968) pursued the issue of modeling by looking at which type of modeling proved most successful in aiding students to develop internal standards associated with strong study skills. Successful models presented and applied stringent rules for standards of acceptable work. Where the models presented stringent rules but did not adhere to them, subjects demonstrated inconsistent behaviors. This type of research would suggest that older students modeling appropriate study skill behavior can influence younger students.

Behavioral research with college students takes a different tact. Jackson and Van Zoost (1972) studied the effect reinforcement contingencies had on changing student behaviors on college students. Three disparate treatment groups were compared: a counseling group; a reinforcement group; and, a study skills instruction group (videotaped lessons). Stu-

dents in the reinforcement group worked to earn back a ten dollar deposit through contingent behavior. The results indicated that the reinforcement groups showed significant gains in their study habits. This reinforcement was subdivided into a self-administered group and an externally administered group. The former group proved slightly more effective than the latter in terms of study habits improvement.

One additional finding of this study is worth noting. Even though significant differences were found between treatment groups in terms of gains in study habits, no significant difference was found between groups in relationship to final grades. This raises the interesting question concerning the nature of the relationship between study habits and academic achievement. Recalling the admonitions of those researchers concerned about the "counseling" orientation to study skills, it is apparent that study skills may play one role in academic achievement, but that other factors also are at work. The nature of achievement gains or influences is complex as is illustrated by Mahoney, Moore, Moura's, and Wade (1973) research on the "Effects of Continuous and Intermittent Self-Monitoring on Academic Behavior;" finding that continuous self-monitoring is more influential than intermittent schedules, they also noted that self-monitoring appeared to demonstrate positive results on qualitative rather than verbal measures. The strength and implications of these findings were not pursued but it is worth noting that such results

suggest that the relationship between study skills and academic achievement is not directly functional.

This section has pursued the concept of study skills being direct observable behaviors subject to modification by reinforcement procedures. As such, study skills are viewed as on-task behaviors. The basic premise behind this research focus suggests that academic achievement only can be influenced when subjects strengthen task oriented behaviors. However, many researchers acknowledge that study skills involve more than merely "attempting to do" the assignment; thus some include specific study skills programs with their selection of treatment groups. Of concern and interest to many psychologists involved in this research are the relative effectiveness of alternative reinforcement contingencies. This explains the wide interest in comparing self-administered programs with externally administered programs and in examining the utilization of proper student models.

In a subsequent section of this literature review, further related topics will be examined. Research on the PSMP and SMP study skills programs will be reviewed after all four types of study skills have been exemplified. After reviewing research finding on the SMP and the PSMP utilized in this study, the nature of research on self-management and token economies will be highlighted. Finally, the collateral issue of attribution of academic responsibility will be discussed. Thus far three varieties of study skills have been presented:

reference aides; motivational aspects; and, on-task behaviors. Instructional programs and cognitive factors will be the final area of study skill presented.

Instructional Programs and Cognitive Factors. In examining the question of what constitutes study skills, it is important to present both a sample of complete programs designed to improve study skills and to suggest certain cognitive orientations in viewing the nature of study skills. This section is designed to provide an overview of each of these questions rather than comprehensively reviewing the widest variety of study skills programs and cognitive questions. As pointed out earlier in Entwisle's (1960) evaluation of study skills courses, four elements seemed to be present within the programs reviewed: morale or self-confidence; academic motivation; study mechanics; and, planning. It was felt that these ingredients were evidenced in repeated ways. The following programs are examples of those designed to improve study mechanics while differentially incorporating the additional elements.

Present research in cognitive psychology covers an extensive span from cognitive experimental, cognitive developmental, to cognitive instructional psychology. Pertinent to this review of literature are elements from cognitive experimental and cognitive instructional psychology which have been construed as study skills. The function of these references is to help set parameters of understanding one of the four

definitions of study skills rather than to explore fully the trends and areas of recent cognitive research.

One of the most known study skills program is Robinson's (1970) SQ3R technique. This acronym refers to a comprehensive reading and information processing technique incorporating "Survey", "Question", "Read", "Recite", and "Review". It appears that Robinson's procedure anticipated much research which emphasizes the need for an active learner, one who is searching and questioning while attempting to process information. In Robinson's text the rationale for each component to his technique and appropriate ways to implement this component is discussed at length. Basically, Robinson is suggesting that the study of written materials follows a sequence of activity. Initially, the student should familiarize himself or herself with the material to be learned by quickly surveying the chapter or readings. This survey technique permits the development of questions to be posed prior to reading which helps structure the reading and assist in creating topical headings for an outline. These ideas predate research on such topics as adjunct "pre-" and "post-" questions, advanced organizers, etc.

Once the preliminary stage has been set for the actual reading, Robinson's SQ3R techniques moves the learner into the reading process incorporating active description and review periods to assist in complete processing of the information to be learned. In one form or another this technique

has been widely proliferated across grade levels and subject areas. Robinson goes on in his book to describe ways in which to apply the techniques to different subjects and areas. Robinson's approach to the development of study skills has been utilized as the basis of research in the area by numerous authors (Harris and Ream, 1972; Grundle, 1975; Briggs and Tosi, 1971). In each of these cases the SQ3R method was used in conjunction with other independent variables. Harris and Ream paired the SQ3R approach with instruction on self-management of study skills. This focus centered upon teaching students behavioral principles to be applied to reinforce their own study patterns. Likewise, Grundle combined the SQ3R program with a self-management system. In a similar vein Briggs, Tosi, and Morley combined the SQ3R procedures with an application of the Premack Principle in an attempt to shape study skills. These studies will be reviewed further at the end of this section. Suffice it to say that Robinson's approach speaks to important study mechanics and has received much research and curriculum attention.

Without suggesting a specific historical sequence of development it is worthy to point out that a genre of study skills programs has developed embodying similar precepts as Robinson's SQ3R. In a study on "Student Gains in Science Achievement and Self-As-Learner Attitude Produced by Study Skills Instruction", Welsch (1978) hypothesized that the

study skills program used in the study would have a positive impact on science achievement and student as-learner self-concept. This study skills program assists students in setting the purpose for reading, finding main and subordinate ideas within the text, drawing conclusions, understanding cause and effect relationships, increasing reading speed, and developing a study plan for reading. After not finding significant differences in his 7th grade S's due to his treatment groups, Welsch suggested that different approaches to using these programs be employed, i.e., longer periods of time on study skills, interdisciplinary approaches to the topic, implementing such programs in elementary schools, and training teachers in the teaching on study skills. Specific reading techniques seem to follow the same conceptual lines as Robinson. Without delving into the considerable research on the teaching of reading, it must be noted that Thomas (1978) in his "Directed Inquiry Activity" approach to content reading suggests an approach which has students survey their reading, predict answers to six key questions listed by the teacher (who, what, when, where, why, and how), and to elaborate upon their questions with class discussions leading to the reading assignment. Thomas refers to other reading techniques which also share elements of Robinson's approach. The Welsch and Thomas references seem to point to a general type of study skills program technique which shares with Robinson an intellectually active approach to studying (reading and processing

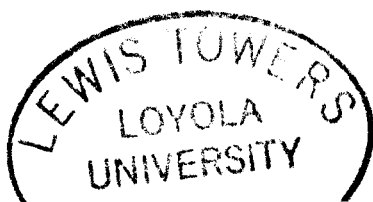
of information).

Two additional study skills programs emphasizing reading techniques should be noted. Colwell (1980) compared a directed reading activity with his direct functional method. The latter method included identifying paragraph patterns, developing interpretive comprehension, and improving content acquisition. Results of the study were modestly in favor of the direct functional method; Colwell suggested that this approach might assist seventh grade students in the transition from a basal reading series to expository reading in the content area. Armbruster (1979) employed a "mapping" strategy stressing the importance of semantic involvement with the text, the reader's ability to perceive the structure and organization of the written material, and the facilitative effect of visual displays on comprehension and recall. The "mapped" ideas were demonstrated to have greater recall in twenty-four hour recall situations.

Other examples of study skills programs follow. The first was referred to earlier and was found in a study done by Brown and Haslam (1968). To examine the effectiveness of study skills instruction on the high school level, Brown and Haslam used a program written by Brown and Holtzman called "Effective Study Courses: High School Level." This course attempts to acknowledge both affective, motivational aspects of studying with "technique" elements. Positive results were found in the area of knowledge of study skills, study orien-

tation, and subsequent academic achievement. This same program was the basis for a study of self-concept designed to investigate whether students with an internal locus of control differ in their perception of study skills once exposed to an effective program of such skills (Gadzella, Goldstone, Seni, and Zimmerman, 1978). These researchers report that students receiving the program had higher scores on this perception than students not receiving the program. Another study based on Brown and Holtzman's program found it to have positive influences on most college students except those with low achievement and mental ability. Gadzella and Goldstone (1977) used Brown's study guides and classroom discussions in their research.

A second study skills program consisting of fifteen slide-tape presentations was the basis for Scott's (1973) research analyzing the effects of the program on eighth graders' work skills and attitudes towards work. In a third example, Brigham and Farnum (1978) examined the issue of study guides as tools to assist student learning at the middle school level. They found that study guides aided students in improving their learning and that students were capable of grading their own study guides without significant problems. The use of such guides can be considered one aspect of effective study. Slansky (1979) found that instructing students in study skills techniques and study habits increased their knowledge of these factors without changing the habits or



influencing their academic achievement.

The study skills programs referred to above do not include the SMP and the PSMP which are the basis of the present study. Both of these programs have been discussed in the introductory chapter and will be analyzed more in depth in the next section of the literature review section. Suffice it to say that Harris and Ream's program brings together behavioral techniques with Robinson's SQ3R approach and that Erken and Henderson have created a study skills program which provides teachers without behavioral training a parsimonious token economy system.

The programs which have been reviewed suggest the types of approaches educational psychologists have chosen when designing curricula for improving student's techniques of study. Each of these programs is an instructional package, created as a learning experience in itself, while hopefully directing other learning as a consequence. The programs attempt to be systematic and provide students with a range of methods applicable across disciplines. While some of these programs incorporate counseling and/or behaviorist approaches, most are viewed instructionally as well.

This instructional and more cognitive orientation of study skills has several additional facets. References to study techniques were found in two additional modes of research. One entails note taking skills and the other encoding, comprehension, and processing research. At the college and

high school level note taking is of interest to educational psychologists. A variety of studies probe the relationship between taking notes and learning. Thomas (1978) found that distributed note taking (taking notes after lecture segments) was superior to parallel note taking (taking notes at the same time as the lecture) as measured by recall; it reduced the interfering effects of simultaneously listening and note taking. However, when it came to testing situations requiring more review of notes, the parallel note takers outscored the distributed note takers. The latter form of note taking was aided by the use of topical outlines provided by the teacher. This notion of a distributed note taking approach also was examined by Aiken, Shennun, and Thomas (1975). They found that when instructors lectured for a short period of time (approximately four minutes) and then gave students an opportunity to take notes, positive results occurred. This spaced lecture format has instructional and learning implications.

In an investigation on listening and note taking DiVesta and Gray (1972) suggest that encoding of information may be facilitated by such strategies as note taking, immediate opportunities for review, and certain types of test situations. Adjunct post-questions appeared to aide retention. Rehearsal opportunities likewise assisted students by helping to consolidate learning; reviewing information after a "setting" and "gelling" time had positive effects on the new learning.

Conceptualizing note taking either as an external memory

device or as a tool to facilitate encoding, Annis (1975) found that the encoding function appeared to be more important than the memory aide. How a student encodes a lecture is extremely important. Pursuing this view of learning as highly individual, Annis and Davis (1978) probed the relationship between a student's preferred mode of study and different study techniques. It was found that note taking from readings was superior to underlining what was read; both of these approaches were stronger than just reading the passage without additional study. One conclusion of this study suggested that note taking and underlining represents more time processing information; this additional time provides noticeable benefits. Kulhavy, Dyer, and Silver (1975) also found that note taking from reading improves content memory; underlining was the next best choice over just reading. Note taking represented an increase in study time. Entwistle (1977) proposed that there are two approaches to reading, a surface-level processing orientation aimed at reproductive learning and a deep-level processing directed at what the material signifies. This distinction suggests two study strategies. On the one hand there is a "serialist" method aimed at narrow questions and specific hypotheses. On the other hand a "holistic" approach concerns itself with broad relations and a hypothesis about the generalization of knowledge. Each approach infers different study skills.

Gadzella (1977) compared different teaching methods

to determine their effects on objective and essay tests. Lecturing, discussion, and individual study were compared resulting in the conclusion that students develop different cognitive structures dependent upon teaching methods. The individual study group had certain strengths on the objective tests whereas the lecture and discussion group appeared stronger on the essay test.

Another area of cognitive experimental psychology which relates to the notion of study skills concerns mathemagenics, or those behaviors undertaken by the learner to facilitate learning. Frase (1970) suggested the boundary conditions for mathemagenics noting that such behaviors are modified by prior "encounters" with a text and the characteristics of a text. He suggests that pre- and post questions serve different roles, the former to select relevant and to reject incidental information for the learner and the latter to confirm information read. He postulates that these questions structure the information by providing a general orienting of the student to the material. Further, these questions also can serve as motivational stimuli. Frase and Schwartz (1975) queried whether teacher produced questions or learner produced questions were superior. They hypothesized learner generated questions would provide higher recall, and that the learner would learn more by generating their own questions than answering the teachers. Their results showed that question production helped recall more than just studying

only targeted items. Improved recall due to question asking by students appeared to show little difference when compared to "answering" questions. However, whether the learner "questioned" or "answered", his or her recall was greater than if s/he just "studied" the information. Recall rates did not seem to vary significantly if the learner produced either five or ten questions.

Brown and Smiley (1978) found that subject generated strategies were superior to teacher generated strategies when it came to note taking or re-reading a text. They also found developmental factors related to cognitive growth which influenced approaches to study. Brown and Smiley described how they were able to predict the organizational properties and essential elements of texts as well as using extra time well in relationship to developmental trends.

Each of these factors, development, learner generated strategies, processing techniques with reading, note taking, etc., have a place in examining study skills. What one author may view as a problem of encoding, another might describe as a function of study techniques. It is from this perspective that an overview of instructional programs and themes from cognitive psychology have been introduced. It is not the function of this literature review to provide an exhaustive review of research on learning from texts, memory, etc. Rather, it has been the purpose of this section to demonstrate the various ways people conceive of study

skills. Since study skills have no uniformly defined parameters, it has been important to categorize the way in which different researchers discuss study skills.

This section of the literature review has examined the question of what are study skills. Four areas have emerged from the literature on study skills: reference aides; motivational factors; on-task behaviors; and, instructional programs and cognitive factors. Within each of these areas research has examined numerous components and categories of types of study skills. These areas are not necessarily mutually exclusive. Some researchers (Beneke and Harris, 1972; Briggs, Morley, and Tosi, 1971; Grundle, 1975; Harris and Trujillo, 1975; and McReynolds and Church, 1975) utilize multi-dimensional research in regards to the above four areas of study skills. Specifically, each of these studies combined at least some form of behavioral research on self-management or self-reinforcement with Robinson's SQ3R method. The Beneke and Harris (1972) and Harris and Trujillo (1975) studies were premised upon the SMP while the other studies were unrelated. However, this type of research does indicate that study skills and their development may be cross-categorical, needing more cohesion and integration rather than fragmentation in their conceptualization. In the section on motivation and self-perception it was stressed that affective and attitudinal factors cannot be avoided when attempting to alter study skills. This helps to provide the

rationale for incorporating the collateral issue of attribution of academic responsibility into the present study. This area potentially will help provide a broad conceptual basis to the study.

In reviewing the variety of research on the nature of study skills one researcher questions the validity of focusing on study skills as a major determinant in learning for college students. Biggs (1978) suggested that the difference between students has little to do with study skills per se, but with a combination of "personalogical" factors (personality, IQ, background) and institutional factors (subject, teaching method, mode of evaluation). Biggs suggests that the determinants influencing academic achievement on the college level are vastly complex and necessitate in depth views of personality structures as well as cognitive structures. For example, he described three types of cognitive strategies employed by students. Each strategy promotes different values, suggests divergent motives, and entails different methods.

The first strategy is labeled "reproducing" by Biggs. A student utilizing this approach studies as a means to an end, trying to avoid failure by using a "minimax" strategy (a class dependent, rote learning approach). "Internalising" is seen as a second possibility. Here a student is looking for self-growth, is intrinsically motivated, and is looking at a wide scope of reading. Finally, "organizing" is con-

strued as a third method. This type of student is concerned with competing and winning and appears to be motivated by the need to achieve; structuring, and organizing is the method employed by this type of student. Biggs views these three types as possibly interconnected suggesting a more intricate analysis.

Biggs' model conceptualizes the influence on academic achievement using the above constructs. Certain personality/personalogical factors impact on learning strategies. It is possible that non-dogmatic introverts, divergent in their intellectual approaches to things, might use more meaningful learning strategies than more extroverted, dogmatic students whose emphasis would probably be towards rote learning. One's personality orientation may influence the cognitive strategies described above. Another influence on those process strategies includes unique factors related to the college and/or university at which the student is enrolled. Biggs' discussion raises important questions when examining the issue of study skills at the college level. At the least it suggests that study skills play a negligible function in assisting students in their learning.

Biggs' argument underlines some of the issues raised in the section on motivation and self-perception. At the college level it would be intuitively reasonable to assume that one's personality, goals, and cognitive strategies might be formed to a greater extent than at the junior high level.

As such, one's approach to assisting students would have to incorporate a wider range of concerns. However, it is conversely apparent that young adolescents have academic study skills and strategies less established and refined than their older counterparts. Further, issues related to identity and personality consolidation are far from resolved. Biggs' views and his model of study processes offer a broad view of influences of academic achievement. Yet, questions related to the improvement of study skills at the junior high level are important and should be explored.

This section has provided an overview of the definitions of what constitutes a study skill. The next topic will examine the research done to date on the two programs employed within this study, Harris and Ream's SMP and Erken and Henderson's PSMP.

Research on the PSMP and SMP

Four research studies have examined the PSMP (Erken and Henderson, 1976). Each of these studies reveal positive benefits from this token economy. The program has been used with different age groups and with exceptional and non-exceptional students. One of the authors (Henderson, 1981) has described the success classroom teachers have had with the program.

In a study of the validity of the PSMP Swatsenbarg (1978) examined a series of issues concerning both exceptional and non-exceptional sixth grade students:

- 1) the impact of the program on the time spent on

- skills;
- 2) the effects of the program on disruptive behavior;
 - 3) the influence of the program on mathematics achievement;
 - 4) the correlations between study time, disruptive behavior, and mathematics achievement; and,
 - 5) teacher preferences regarding the program.

Data were collected through behavioral observation reports and standardized testing. Study skills were defined as actions related to classroom involvement in math instruction, i.e., writing answers to problems, responding to arithmetic flash cards, and obtaining instructional materials from the proper location.

Swatsenbarg found positive results with the PSMP in the areas of strengthening study skills and decreasing disruptive behavior. Achievement in arithmetic did not seem to be influenced. Non-exceptional students showed less gain in study skills than did exceptional students. Swatsenbarg interpreted this to suggest that the reinforcers had a more powerful effect on exceptional students whose school history involved little success of positive reinforcement. As for the lack of significance change in math achievement, Swatsenbarg proposed three possible explanations including the nature of the test used, the short period of the study, and interruptions to the classroom. Finally, the author noted that as study skills grew stronger, disruptive behavior decreased. Swatsenbarg concluded

that the PSMP was a valid approach to strengthening certain study behaviors in children and assisting in altering inappropriate behavior.

A study of nine elementary school students by Lampe (1978) posed the question concerning the impact of the PSMP, as a variable interval reinforcement schedule, on student behavior. "On-task" behaviors for students in reading and arithmetic included such elements as properly obtaining instructional supplies, reading sounds and words correctly, working independently, responding to math instructions correctly, etc. Lampe found that the PSMP and its variable interval schedule had beneficial effects in increasing on-task behaviors. Each subject also showed gains in reading achievement measured by the Wide Range Achievement Test. Lampe attributed positive results both to program's schedule of reinforcement as well as to the overall design of the program. The PSMP lends itself to consistent and positive reinforcement.

Two other studies researched the effects of Erken and Henderson's program on exceptional students. Basarich, Ferrara, and Rudrud (1981) examined the validity of the program with emotionally handicapped adolescents. The students within this study previously had been exposed to a token economy which had met with but limited success. Of interest in this study was the possible growth of on-task behaviors and completion rates of daily assignments. The five junior high students in

the study were enrolled in a self-contained classroom for emotionally disturbed children. The authors found that on-task behaviors increased during the treatment phase of the study and that, as leaner and leaner schedules of reinforcement were introduced, the student's on-task behaviors stayed well above the baseline period, even though it fell below the intervention phase. This suggests that the program had the desired effects of increasing on-task behaviors.

Basarich et al. were extremely pleased with the PSMP as compared with previous token systems. They concluded that the PSMP successfully could be implemented by staff unfamiliar with behavioral programs. The PSMP permitted the staff to be more accurate and timely when presenting reinforcements and that few procedural problems occurred on account of the PSMP. The variable interval schedule of reinforcement used by the PSMP appeared to be particularly strong and had the desired effects on the students. Throughout the treatment phase of the study students worked for lengthening periods of time between reinforcements as the schedule became "leaner".

In a study of the PSMP with trainable mentally retarded students, Davidsmeyer (1980) found the program to be useful in increasing on-task behaviors. During the treatment phases of the study, the six TMR students in the study showed significant gains in their on-task behaviors for reading and arithmetic instructions. The PSMP did not seem to have a direct impact on decreasing student requests for assistance.

Even though the number of requests did subside, Davidsmeyer could not conclude with certainty that the PSMP prompted this decline. The mean percent of work accuracy of students in the study rose significantly during the intervention phases of the study. Both on-task behaviors and performance levels were improved due to the use of the PSMP.

These four studies confirm that the PSMP can be a particularly effective tool to increase on-task behaviors. In some cases the PSMP also had an impact on the performance level of students. Much latitude exists with regards to further research with the PSMP. The present study focused on a normal population and will examine a wider range of dependent variables than previous studies.

The Self-Management Program, SMP, designed by Harris and Ream has shown some positive results in the limited research undertaken to date. In the initial study on the program Harris and Ream (1972) were plagued with numerous problems. The study took place in a summer school setting. Student apathy combined with the voluntary nature of the summer session did not permit the authors an opportunity to collect extremely valuable data. However, given a successful previous study (Beneke and Harris, 1972) with college students, Harris and Ream were hopeful that the program and its application could assist students in changing their motivational patterns and study skills.

In a follow up study, Harris and Trujillo (1975) found that the SMP did succeed in helping low achieving, junior high students improve in their self-reported study habits and in their grades. This also was true of the discussion group treatment within the study. However, students in the SMP showed greater changes in study skills in such areas as finding a regular study place, studying at a regularly appointed time, length of time spent studying, and efficiency of studying. The authors felt that the results warranted further research of self-control techniques with students having other types of problems. The limited research with the SMP provides the basis for additional work with this program.

In summary both programs have demonstrated modest results. Research on the PSMP consistently has shown positive results, but more with exceptional than non-exceptional students. The present study viewed regular classrooms and provided new data with the junior high age students. The limited work done with the SMP suggests that the program can be helpful with low achieving students; care must be taken with the implementation of the SMP to avoid the pitfalls uncovered by Harris and Ream (1972). Since the present study occurred during the regular school year and was implemented as a standard aspect of the curricula, the problem of utilizing summer school volunteers was avoided. One outcome of this procedure was to increase the likelihood that students would record and hand in the data of their own study habits. In

this study the self-reports of study habits were secondary to more objective criteria of study skills. Students were asked to maintain personal data in accordance with the SMP. However, this student collected data was not greatly considered when analyzing changes in study habits. Straightforward and independent sources of data, i.e., students being prepared for class, students handing in assignments on time, will provide an unobtrusive view of pertinent study skills.

Given the development of research in this area, the present study provided data in new avenues for both programs. This research hopefully contributed to a better understanding of each study skills program and provided further clarification and insight into the whole area of the development of student study skills. The next section of the literature review will explore the lines of behavioral research from which each program has emerged.

Conceptual Background Concerning the PSMP and SMP

Both the SMP and PSMP are based upon behavioral principles and research. Yet, the field of behaviorism has sprung different research directions. Investigators have devised new and different questions, research designs, and instructional practices. Out of two divergent topics of behavioral research have emerged the two programs in question. Each program is premised upon the importance of reinforcement principles to shape behavior. On the one hand the PSMP looks to the external structure of a token economy to establish the consistent

and clear application of reinforcement based upon proper contingencies. On the other hand the SMP devises a method by which the individual can learn to identify reinforcement contingencies and to provide appropriate reinforcers under the proper conditions.

The PSMP is an easily administered behavioral program based upon the strengths of a variable interval reinforcement schedule. The PSMP has thoughtfully constructed generalization and maintenance procedures into the program. Rather than theorize about the possibility of reducing student's dependency on token economy, the PSMP provides a specific and clear progression of both shaping behavior and shifting to learner variable interval schedules of reinforcement. Since the PSMP follows in the tradition of token economies, it is pertinent to review some findings concerning the applicability of such behavioral programs to classroom settings.

The major studies and reviews of literature on token economies have spoken to the positive results of such programs. Allen and Breyer (1975) report that a token economy can increase time on-task in educational settings. Gains in the amount of student work completed were indicated by Richard, Melven, Creel, and Creel (1973). Others have demonstrated that token economies can increase the percent of assignments correctly completed and reduce disruptive behavior (Ashby, Hant, Koniarski, Krams, Sulzer, 1971), can maintain writing, reciting, and participating behaviors (Bushell, Michaels, and

Wrobel, 1968), can increase the percentage of assignments completed above baseline data (McLaughlin and Malaby, 1972), can help shape high levels of accuracy and rates of study behavior (Birnbrauer, Kidder, Tague, and Wolf, 1965), can significantly increase on-task behavior (Buckley and Walker, 1968), can improve study skills actions (Breyer and Koch, 1974), and can decrease inappropriate and disruptive behavior (Boegli and Wassik, 1978; Main and Munro, 1977).

Many of these studies use methods (single subject investigations), populations (preschoolers, retarded children, primary students, etc.), or a time frame (short term) disparate from the present study. However, the work of McLaughlin and Malaby (1972) is of note. Their research project was conducted with fifth and sixth grade students over an entire year. The token economy used in their research consisted of a point exchange program; results showed an increase in assignments completed and a decrease in the variability of student performance. They found that the worst student was more affected by the program than the best student, that assignments completed appeared to be maintained, and that the back-up reinforcers utilized by the teachers came from the natural classroom and were virtually costfree. This study is noteworthy due to objections voiced about token economies which revolve about artificial reinforcers and small group settings. They used a large class size (between 25-30) and reinforcers acceptable to most people.

In Bootzin's and Kazdin (1972) extensive review of token economies they reported positive findings. In articles reviewed they noted that token economies appeared to alleviate some classroom problems, to increase student attention and proper seating arrangements, to help raise student grades with those students in a remedial education program, and, generally, to improve academic behaviors and decrease disruptive student actions. They found that even teachers with minimal training in the theory and application of token economies had positive results with such programs. Further, it appeared that a token economy was more effective than classroom rules alone and lesson structure in shaping some types of behaviors. These results tend to verify that a token economy can be an effective tool for assisting teachers in obtaining important classroom goals and objectives.

The token economy system is not without its problems. As reported by researchers (Becker, Kuypers, and O'Leary, 1968; Bootzin and Kazdin, 1972; and O'Leary and Drobermann, 1971), the problems with this behavioral tool can be categorized as follows: teacher training and implementation weaknesses; student response alternatives; and, design flaws within the programs. Token economies are generally used in classrooms in which teachers are not extensively trained in behavioral psychology and its application. Because of this, numerous problems can arise in the successful implementation of such a program. Many projects appear to provide a minimal amount

of training to staff both in the mechanics of the token economy system and in the proper discrimination of reinforcement contingencies. A typical teacher problem arises out of the usual response of untrained teachers to reinforce inappropriate behavior and ignore appropriate behavior. This habit is difficult to shed. Because of this, some faculty fail to properly distinguish contingent behavior and continue to reinforce incorrect responses.

Other staff associated problems include delays in providing tokens and failure to acknowledge sequential steps toward more appropriate student behavior. Any system of reinforcements necessitates timely response to correct student behavior. Many times teachers do not respond quickly enough to improvements made by students. Without consistent and timely token reinforcement student behaviors fail to be shaped in accordance with the design of the system. Further, at times staff using token systems tend to expect "quick and easy" results. With improper training these teachers maintain the incorrect notion that long standing student behavior, reinforced and strengthened over many years, can swiftly be extinguished. Rather, these teachers should be taught to expect positive, incremental changes in student behaviors. It is these sequential steps towards improved responses to which faculty need to attend. Faculty need support, assistance, and feedback on their use of such programs.

A second problem associated with token economies is the unanticipated, alternative responses students can demonstrate to such systems. In some cases students circumvent reinforcement contingencies either due to a design problem in the program or improper management of the program. If students can obtain reinforcement for "beating the system", it is no wonder that proper student responses will remain unchanged while unplanned for behaviors will be strengthened instead. It is important to monitor the implementation of any token economy to detect this type of student response.

A final problem reported in the literature relates to the question of generalization and maintenance of student behavior. Few token economy systems appear to be designed towards behavioral maintenance without the benefits of a highly structured system. Even though Bootzin and Kazdin (1972) suggest that we "teach only those behaviors that will be continued to be reinforced after training", it does not appear that considerable work has been done in this area. Therefore, the comprehensive nature of a token economy may result in effective, short-lived gains; left unexplored is whether teachers can "wean" students off this successful approach onto more natural, lifelike maintenance of behavior. The above authors point in the direction of self-reinforcement as a possibility in this area. They suggest that subjects can be trained to reward themselves and that self-development conditions may be more effective than ex-

ternal conditions; they point out, though, that self-reinforcement may not be more effective than external reinforcement. Regardless, the area of generalization and maintenance of behavior and resistance to extinction are areas needing further attention when considering token economies.

This later point is not to be minimized. It is the experience of this investigator that teachers in the field are skeptical of behavioral technology on exactly this point. Many appear to feel that artificial reinforcers and the inability to move off such systems are sufficient weaknesses to warrant little consideration of such programs. Even though classroom teachers have reward structures, sometimes highly intricate systems for determining reward opportunities, these same teachers may suggest a lack of philosophical agreement with behavior modification and an unwillingness to use such systems in the classroom. It appears that proponents of token economies and other behavioral approaches have failed to convince teachers that comprehensively tight management systems can be relaxed and that teachers can shape student behavior based upon natural and acceptable reinforcers. Extensive research in these areas is essential to overcome the perceptions of teachers and above listed problem areas with token economies.

In designing the PSMP Erken and Henderson appear to have taken account of some of the above criticisms. They purposely designed a system for those teachers with little

or no experience or training in behavioral psychology. Their system is easy to implement and comes with all mechanics, minus "reinforcers", necessary for successfully operating the system. Using a point accumulation approach, the PSMP can provide teachers with accurate daily records of the response rates of their students. The PSMP is designed to be individualized to the specific needs of the teacher in question; target study behaviors for particular classes are determined by the classroom teacher. Therefore, the PSMP becomes a useful tool for the teacher to obtain their stated objectives. Where teachers can become unsystematic in identifying appropriate behaviors and reinforcing them, the PSMP assists the teacher in this area. The system uses recorded tones prompting the teacher to survey students in the class and indicate the number of points on-task students should receive. These points also are variable and are found on a "pay sheet" provided with the PSMP. This technique "reminds" teachers when to look for appropriate behaviors and helps them provide all deserving students with appropriate reinforcements. This procedure can help teachers overcome inconsistencies in application.

As to the problem of alternative student responses to a token economy, Erken and Henderson do note that problems may arise from students incorrectly noting points. They suggest to the teacher a procedure for overcoming this problem. Certainly, no system can be constructed which totally avoids

this problem from a "design" point of view. This potential weakness only can be overcome in the implementation phase of the project. Teacher training and proper monitoring of the system will do more to reduce this problem than any other single factor. Proper in-service training of faculty and follow-up in-service during the treatment phase of the study will be included in this study.

The problem of generalization and maintenance of learning is directly dealt within the PSMP. It appears to be a real strength of the program. The PSMP is based upon the strengths of variable interval reinforcement; research has confirmed the benefits of this schedule in classroom settings (Becker, Engelmann, and Thomas, 1975). At the outset of the PSMP, students will have twenty-five opportunities within the class period to receive reinforcement. These intervals occur randomly but on an average rate; if on-task for each interval, the student can receive up to a total of one hundred points for the class period. Each interval assigns different strengths, i.e., number of points, of reinforcement, but the student will not know the possible number of points to be earned at any single interval. As student behavior is strengthened, the teacher then can move from the twenty-five interval chart to a twenty interval chart, a fifteen, ten, five and finally a three interval chart. This sequence puts students on a generalization and maintenance route; they must wait longer between intervals to receive reinforcement points.

The maximum of 100 points remains constant so students receive more reinforcement per interval as the schedule becomes leaner. Eventually, the teacher takes the final step and removes the class from the thinnest interval schedule away from the external management tool; points are not utilized to obtain reinforcement. The teacher could use the PSMP after that point on an as needed basis. Given this basic design, Erken and Henderson appear to have responded to this entire area of criticism in a viable and meaningful manner.

Concerning the nature of reinforcements used for point exchange, it is up to the teacher in question to devise possibilities which are reasonable and acceptable. The PSMP comes with numerous suggestions, many of which are aimed more at the primary grades more so than the junior high level. Natural classroom reinforcers of little or no cost could easily be employed. It would seem that PSMP provides the strengths of a token economy while potentially overcoming many of the criticisms and weaknesses of previous programs. It is up to this and other research efforts to confirm or deny this hypothesis.

The other program in this study is the SMP written by Harris and Ream (1972). The basis of this instructional unit is the behavioral concept of self-management or self-reinforcement. Unlike the external reinforcement system of a token economy, the SMP is based upon the view that the learn-

er can apply reinforcement contingencies through discriminating his or her own behavior and, subsequently, self-administer appropriate reinforcements. The SMP provides the student with the definitions of those target behaviors, clear definitions of the contingencies for those behaviors, and teaches the student how to reinforce his/her behavior. The learner is not asked to establish his/her own criteria for reinforcement contingencies even though the actual delivery of reinforcements is controlled by the subject. This general orientation to behavioral change is referred to under different names: self-control, self-reinforcement, self-management, or self-monitoring. Regardless of its name or title, this approach represents a theoretically and practically divergent approach to behavioral change than the token economy system. The discussion on self-management will include three aspects: an examination of the meaning of the concept; problems associated with research in this area; and, design features of the present study associated with these difficulties.

What constitutes behavioral self-management? In a thorough discussion on this issue Mahoney and Thorsen (1974) suggest that an individual is under behavioral

...self-control when in (the) absence of external variables s/he engages in those behaviors whose previous probability has been less than that of alternatively available behaviors.

They follow this explanation with a "dynamic" model (see Figure 1, Dynamic Model of Behavioral Self-Management) sug-

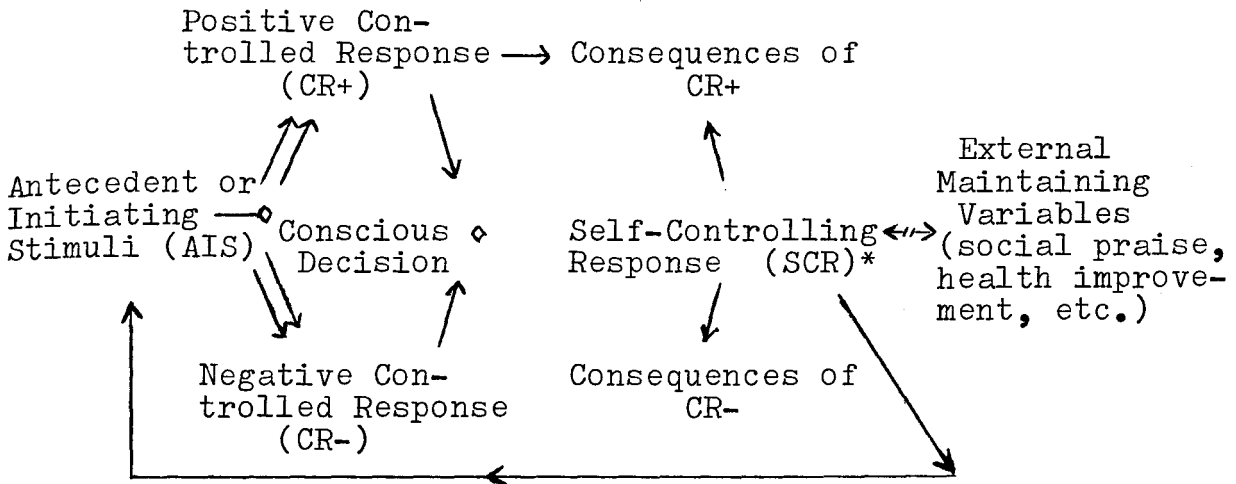
gesting the theoretical components of self-management.

Insert Figure 1 about here

Mahoney and Thorsen compress the integral components of a self-management system into this model. As with any modification of behavior three aspects are present: an antecedent stimuli; a response; and, a consequent stimuli. However, a new feature enters the self-management model i.e., "conscious decision". Usually such a factor does not play a prominent role in behavioral change; however, it is a key element in the conceptualization of self-reinforcement. The individual must exert a purposeful influence on his or her behavior because there is no external source of reinforcement. In a normal behavioral system the subject's singular role is in choosing to respond to appropriate contingencies in order to obtain a reinforcement. In a self-management system the individual has the additional critical roles of discriminating contingencies of responding, and of applying the positive or negative consequences to the performed behavior. This model allows for the positive aspects of the individual's involvements in the total program; inherent, though, in this system are considerable problems of application. Mahoney and Thorsen's model suggests that an individual works with two self-control strategies, environmental planning and behavioral programming.

Figure 1

Dynamic Model of Behavioral Self-Management



*Self-Controlling Responses (SCRs):

1. Environmental Planning
 - A. AIS modification (stimulus control) and preprogramming of CR consequences
 - B. Self-regulated stimulus exposure (e.g., self-administered desensitization)
 - C. Self-instructions
2. Behavioral Programming
 - A. Self-observation
 - B. Self-reward (positive and negative, overt and covert)
 - C. Self-punishment (positive and negative, overt and covert)

Both are important in developing a thorough and consistent system of self-management of behavior. Research reviewed by these authors provide some evidence that self-control strategies can provide positive results.

Jeffrey (1974) provides an additional dimension to examining self-management concepts. He relates this research approach to the concept of locus of control, a subject's perception of personal control or influence over the environment (internal locus of control) versus external factors influencing or controlling the subject (external locus of control). Jeffrey suggests that an individual more internally oriented might be more successful with self-management in that they would be more attentive to aspects of the environment which would provide them with helpful information for their future actions. This type of individual might well be more assertive in what Mahoney and Thorsen describe as environmental planning. Jeffrey suggests that the internally oriented subject might be more confident about his/her own ability and thus place greater emphasis on his/her own skill and achievement. Jeffrey infers that such an individual might be better equipped to negotiate a self-management system which intuitively appears to be better suited to individuals more self-directed than externally directed.

Both Jeffrey and Kazdin (1974) report a variety of positive findings in this general area of research. Kazdin summarizes the variety of areas in which self-management re-

search has occurred: auditory hallucinations; reducing multiple tics; obsessions; hair pulling; social anxiety; weight control; eating habits; cigarette smoking; and, nail biting. Self-management research dealing with study skills has been referred to within this review generally showing positive results when comparing treatment groups either exclusively using self-management techniques or using them in conjunction with other techniques, i.e., instructional programs. Kazdin underlines the importance of providing feedback to subjects involved in self-management systems or research. He feels that many motivational effects accrue from knowledge of the results. Kazdin also emphasizes the need of training subjects in self-observation procedures; the ability to assess accurately one's own behavior improves the subject's ability effectively to monitor and to reinforce their own behavior.

In summarizing their analysis of self-management, Mahoney and Thorsen assess the various aspects of behavioral self-management, i.e., self-observation, self-reward, and self-punishment. As for self-observation, they suggest that people are not naturally accurate observers of their own behavior, that accuracy varies greatly between individuals, that the effects of self-observations alone are variable and short-lived, and that explicit goals may or may not improve the effects of self-observation. However, they note that self-observation is crucial in successful self-management. They found self-reward to be highly successful under certain

circumstances, especially with a model, but stressed the importance of being clear and consistent. In reviewing other research Mahoney and Thorsen suggest that in certain types of artificial learning tasks self-reward may improve maintenance. Little has been done on self-punishment and few apparent conclusions have been reached.

When analyzing self-management research, researchers point to numerous related difficulties. These problems can be seen as falling into one of several categories, questions on validity, questions on self-reporting procedures, questions on reinforcing procedures, and questions on general logic or philosophy. For Mahoney and Thorsen the main question on validity refers to the true accuracy of self-reports. Indicating that accuracy can be improved by training and feedback, they also suggest two important procedures, the use of unobtrusive measures, i.e., GPA and the use of indirect evidence. Both of these factors will be enlarged upon later.

Jeffrey points to the concern over "drift", or the possible change or deviation over time from the target behavior to a redefined behavior. This problem would occur when the subject did not properly discriminate his or her own behavior. Lack of training and feedback to the subject and inconsistent independent monitoring of the subject's behavior would contribute to this problem. Kazdin (1974), Gottman and McFall (1972), Johnson and Martin (1973), Broden, Hall, and Mitts (1971) and others raise the issue of reactivity. This occurs

when the subject's behavior is altered due to his/her awareness of assessing their own behavior as opposed to changes in behavior due to reinforcement contingencies. These researchers suggest that the act of monitoring one's own behavior may in itself alter the behavior regardless of the reinforcing stimuli. Interpretations of results may be less than precise if reactivity is not addressed. Mahoney and Thorsen point to the possibility of subject selection bias in some research; individuals may volunteer themselves for self-management approaches. A "pre-selected" population of this nature constitutes unique design problems; for research purposes, rather than therapeutic goals, such practice can lead to difficulties in generalizing the results of research.

Another factor pointed out by Sagotsky, Patterson, and Lepper (1978), Kazdin (1974), and Mahoney and Thorsen (1974) is called "experimental demand" or "demand expectation". When a subject is monitoring his or her own behavior, it would appear that they are very knowledgeable of the expectations of the experiment. The impact this information has on the subject and the results of the investigation must be addressed. Finally, Jeffrey (1974) points to "evaluation apprehension", or the subject's concerns about evaluations of his or her own behavior. The subject is aware that his or her self-monitorings will be monitored. Validity concerns are underscored by examining drift, reactivity, subject select on bias, reactivity, and evaluation apprehension.

Several other problems also have been addressed. Glynn (1970), Jeffrey (1974), and Mahoney and Thorsen (1974) point to reinforcement procedures as a potential area of concern. Will the subject reinforce the proper behaviors under the proper contingencies? It is difficult to exert experimental control into this area. Mahoney and Thorsen also suggest that one form of reinforcement, the Premack Principle, may present concerns not found in other reinforcement procedures. They suggest that the subject may confuse high frequency behaviors with behaviors which might have an effect on response probabilities. In other words, a subject may select a behavior to reinforce a targeted behavior due to the fact that it is a high frequency behavior in the subject's repertoire; however, that behavior may not have the same reinforcing effects as other behaviors.

Finally, Catania (1976) points to what he feels is a logical problem with self-management or self-reinforcement techniques. He argues that, if a self-administered reinforcement increases the likelihood of a response and it is therefore strengthened, a self-management procedure may be at work. However, he suggests that it is more likely that what the subject is really doing is more a "discrimination of one's own behavior" than an actual self-reinforcement; he suggests that the reinforcing effects of self-reinforcement have not adequately been studied and he suggests that experimental extinction procedures would be an appropriate vehicle.

The complexity of the issue manifests itself quite distinctly. An extinction type procedure can be effectively used in standard behavioral research, but can it be here? Once an individual's "conscious decision" has entered the behavioral modification sequence, is it possible to reverse that process without a "conscious decision" in an alternate direction? This position is quite logical. Yet it must be acknowledged that the self-management procedure by bringing the subject into partnership with the behavioral change limits the full range of experimental methodology, including extinction, to research questions.

Before suggesting how the present study attempts to control for numerous of the problems raised above, it is important to point out the self-management procedure employed in this study incorporates both self-management and instructional approaches. The SMP is based upon the theory of self-management but combines this general approach with specific instruction on both self-management techniques and cognitive skills. In this sense the SMP is not a "pure" self-management system. This might be considered a research weakness if the intent of the study was primarily to resolve theoretical and design issues related to the field of self-management research. However, since the intent of the study is to compare two programs designed for the purpose of improving study skills, the fact that the SMP incorporates both self-management principles and information processing, i.e., SQ3R, skills should be con-

strued merely as a research characteristic.

It is possible to take into account many of the problems referred to by previous researchers. Mahoney and Thorsen suggest three ways to improve the validity of results: improve training of subjects in self-reports; use unobtrusive measures, i.e., GPA; and, use indirect measures. Each of these suggestions are incorporated into the present study. First, teachers utilizing the SMP will be instructed on the importance of teaching their students proper self-reporting procedures and will be asked to provide students with feedback to assist subjects in improving their self-observation skills. Emphasis will be given to helping students understand the importance of observing their own behavior and to do so with increasing accuracy. Teachers will collect observation forms weekly and will provide students with feedback concerning these forms. It is anticipated that students will initially be casual and undisciplined about observing their own behaviors. Many will probably fill out their forms at the last minute. However, teachers will continue to impress on students the basic rationale for the program---each student will be able to change their own study habits if they are willing to take personal responsibility by using the SMP properly. Still, it must be acknowledged that the results of the students' self-observation forms and graphs will be suspect as an essential data base. For this reason the self-reports of students will not constitute a dependent variable. Students will be lead to think

that these self-reports are an important data base for the study; however, they will be used solely as a verification procedure that the SMP is being properly administered.

This approach takes into account Mahoney and Thorsen's third and fourth suggestions, using unobtrusive measures and indirect evidence. The dependent measures utilized in the study meet the following criteria. Each is either objective by definition (% time assignments handed in on time; % time prepared for class; number of out of class referrals), unobtrusive (GPA, standardized test scores), or indirect (study time and achievement; task analysis of assignments; student perception of study habits; and, attribution of academic achievement). These measures will not be subject to problems of experimental validity in the way that the utilization of the weekly self-report forms would have been. The dependent measures chosen for this study hopefully will yield information pertinent to study skills of students and to distinguishing the benefits and drawbacks of divergent study skills programs. This study also takes into account Jeffrey's suggestion that between subject designs are stronger with self-management research than within subject approaches. He points out that comparing different treatments dealing with larger samples of subjects is preferable when looking at behaviors which are complex and unwise to reverse.

Problems associated with "drift" also should be considered within the design of the SMP. Since students will

be reviewing and learning a lesson once each week for seven weeks, it will be more likely that they will refine their understanding of the "target behavior" rather than alter or drift from an original definition. The latter would be probable if the target behavior was defined at one time and there were few subsequent reviews of instructional opportunities. Reactivity should not be a serious problem within this study for the following reason. The major concern in the study is whether or not the students' study skills behavior improved regardless of whether it was due to the reinforcements given by students to themselves or due mainly to a self-observation procedure. In either regard one will be able to conclude that the SMP was the treatment influencing the behavioral change. Since both self-reporting and self-administered reinforcements are integral to the SMP, they will be reflected as a part of the entire program. It is true that the present study will not answer the question as to which of these two factors is more important. If the present study was fundamentally an examination of technical aspects of self-management, the problems of reactivity with regards to self-management procedures would be considerably more important.

Two other problems, subject selection bias and experimental demand, also are not major factors in this study. Subjects did not volunteer for the study; they were randomly assigned one of three groups, the SMP, the PSMP, and a control

group. It is true that subjects using the SMP will be aware that an effort is underway to improve his/her study skills; however, he/she will be unaware of the complete range of measures which will be utilized to study the question. Thus, even if one measure would be more susceptible to experimental demand, the full range of measures will not be. Concerning the issue of whether the subjects will properly administer reinforcements should not be a significant impediment to this study. As pointed out above, the present study is fundamentally a comparison of two programs, rather than an examination of the separate aspects of the SMP. It is possible that a subject will improperly administer reinforcements. This could happen for one of three reasons: 1) lack of training; 2) inadvertence; and, 3) by design. Training or instruction is built into the SMP and teachers will review these issues with students. If students are trying to administer reinforcements properly and are inadvertently doing so improperly, it is possible that the students will still benefit from the SMP. In this case it will not be possible to detect the problem this individual student had. If students are misusing this procedure, it is likely that they will not be benefiting from what the SMP has to offer and their dependent measures will reflect lack of improvement of study skills. If a large number of students fall into this category, it is assumed that the SMP will demonstrate little in the way of positive results. It may not be possible to attribute this problem as

the sole reason for insignificant results, but it would be considered one of several plausible explanations. Since students' grades will not be contingent to the SMP, it is considered that evaluation apprehension will not pose a serious problem to this study.

Finally, it must be pointed out that Catania's logical and somewhat philosophical criticism of self-management procedure is not addressed within the context of experimental research. In part he is suggesting that since it is not possible to "reverse" self-managed behavioral changes in the same manner as you can external behavioral change, it is impossible to demonstrate confidently that self-administered reinforcement is occurring. It is true that reverse design experiments cannot effectively be utilized to study this question. However, does this mean that either the procedure does not exist or that it cannot be studied. If this was true, we would have to assume that if a method did not exist for studying a problem, the problem likewise did not exist. The absurdity of this position should be self-apparent.

This section of the literature review endeavored to examine the research traditions from which the two programs utilized in this study, the PSMP and SMP, have emerged. Important problems within these research areas have been presented and suggestions given for how the present study attempts to deal with these problems. The final section of

the literature review addresses the issue of attribution of academic achievement and its relationship to the study.

Attribution of Academic Responsibility

This final section of the review of literature examines the way in which children prescribe to themselves or others the causation for school achievement. Given the approaches of the two programs, SMP and PSMP, it appears reasonable to examine the potential impact either program may have on the ascriptions students make concerning their achievement in school.

The framework for this genre of analysis comes from attribution theory and its relationship to achievement, achievement motivation, and education in general. Major reviews (Weiner, 1972; Bar-Tal, 1978) and analysis (Weiner, 1974) have set forth the significant research and concepts of this area. It is pointed out that several dimensions exist concerning the perceived causes of success and failure, mainly internal and external ascriptions. These attributions are formed through attending to antecedent cues, synthesis of pertinent information, the development of "causal" schemata, and particular predispositions individuals may have (Weiner, 1974).

The internal and external ratings may be multi-dimensional including intentionality and stability. Factors identified as "stable" refer to a student's "ability" or the "task difficulty"; these are seen as "stable" given both are some-

what objective in nature and not prone to swift or unpredicted change. Seen as unstable factors are "lack of effort" or "bad luck"; since these factors may be more illusory than ability or task difficult, it is possible to foresee change in an individual's attribution if they are related to the "unstable" factor. Weiner (1974) suggests, though, that the relationships are complex. He goes on to propose that causal attributions may influence achievement activity, particularly the intensity of work; developing programs to induce "achievement-enhancing attributions" is seen as a distinct possibility. Importance is placed on the learning of cognitive structures related to "effort" as an internal construct. Consistent with this analysis but viewing the questions from a different perspective, Dweck and Reppucci (1973) found that failure oriented children held far different beliefs than others. They tended to be less persistent and took less responsibility. These authors suggested that responsibility for intellectual achievement is strongly related to performance.

Crandall, Katkovsky, and Crandall (1965) developed the IAR scale. Unlike a variety of other measures utilized by attribution oriented researchers, the IAR scale bears specific importance to the present endeavor. One, it was developed as part of larger research on the question of the development of children's achievement. Therefore, it was aimed at "assessing children's beliefs in reinforcement responsibility exclusively in intellectual-academic achievement

situations." Two, only persons directly in contact with children are maintained as possible sources of "control". Three, the IAR scale was designed for children, rather than adults. Given its direct relationship to academic achievement and attribution theory, the IAR scale appears well suited to examine possible influences of students' perception of causality in relationship to school achievement.

The IAR scale is divided into two sub-scores. I+ relates to student attribution over successes while I- relates to failures. In other words, children may view greater personal causality over successes they face than over failures. It is highly recommended to subdivide the analysis of the IAR to include I+, I-, and T (total score).

In developing the IAR scale, Crandall, Katkovsky, and Crandall obtained normative data on children at the 3rd, 4th, 5th, 6th, 8th, 10th, and 12th grade levels. They found their scale to be reliable (for T, total score, at a correlation of .65; I+ at .47; and, I- at .69). At the sixth and eighth grade level significant relationships between the IAR sub-scores also were found. By sex, they found at the sixth and eighth grade level that girls had higher internal responses and higher levels of responsibility for negative events than boys. In relationship to intelligence, only moderate relationships were found suggesting that the IAR was more than just another IQ measure. Only a small variance of the IAR score was found to be related to SES.

Of all relationships studied the strongest convergence existed on achievement measures. For younger students the IAR scores and the various sub-tests of the Iowa Test of Basic Skills were significantly related. However, the 6th, 9th, and 10th grade scores had only "occasionally significant" relationships to the California Achievement Test scores. Whether this was an age or test factor was unknown. When it came to report card grades, the IAR total score, T, was significantly related. The authors suggested that the belief in self-responsibility appeared to have a motivational influence on students.

The present study examines the question as to whether two particular study skills programs have a bearing on a variety of measures including academic performance. Since embodied in both programs are motivational components (and constructs), the degree to which student motivation is altered has a potential impact on the analysis of either approach. Will students' attribution of their respective levels of academic functioning change according to the influence of either program? The IAR scale is uniquely prepared to assist in this attributional analysis.

This section of the literature review examined the final component of the study. General concepts related to attributional theory were presented and a specific discussion of the IAR scale was presented. The relationship of the IAR scale to the present study was discussed.

Recapitulation

Study skills is a diverse topic. Lack of a singular definition of study skills and overlapping conceptual frameworks make the investigation of the topic of study skills difficult and in need of careful definition.

This review of literature has examined four basic areas. The first section demonstrated the four ways in which researchers define the topic of study skills-reference aides, motivational constructs, on-task behaviors, and instructional programs. The second part of this review examined the two programs used in this study. The third area examined the conceptual backgrounds of both the PSMP and SMP. Finally, this review of research provided an introduction to the topic of attribution theory, and specially the applicability of the IAR scale to this study.

CHAPTER III

METHOD

HYPOTHESES

The following hypotheses are grouped according to four categories. Hypotheses 1-4 (Ho 1 - Ho 4) relate to study skills behavior and attitudes. Hypotheses Ho 5, Ho 6, Ho 7, and Ho 10 relate to academic achievement: the first two reflect grade point averages; the third, a standardized reading comprehension measure; and, the final one, to a task analysis of student achievement. Hypothesis Ho 8 refers to the attribution of academic achievement and Ho 9 to classroom behavior.

Formal statement of hypotheses

The following null hypotheses were tested:

Ho 1: There will be no significant difference in study skills behavior across treatment conditions as measured by the percentage of time a student was prepared for class.

Ho 2: There will be no significant difference in study skills behavior across treatment conditions as measured by the percentage of assignments handed in on-time.

Ho 3: There will be no significant difference in study skills behavior due to experimental treatment as measured by the time and achievement obtained on a reading comprehension task (study time and achievement task).

Ho 4: There will be no significant difference in study skills attitudes across treatment conditions.

Ho 5: There will be no significant difference in academic achievement across treatment conditions as measured by grade point average in all academic classes.

Ho 6: There will be no significant difference in academic achievement across treatment conditions as measured by grade point average in the treatment condition class only.

Ho 7: There will be no significant difference in academic achievement across treatment conditions as measured by by students' scores on the reading comprehension sub-test of the appropriate standardized achievement test.

Ho 8: There will be no significant difference in the attribution of academic achievement by students across treatment conditions.

Ho 9: There will be no significant difference in classroom behavior across treatment conditions.

Ho 10: There will be no significant difference in academic achievement across treatment conditions as measured by a task analysis of student assignments in the subject class (task analysis).

Subjects

Subjects of this study were seventh grade students of average ability selected from four Chicago area suburban school districts. Students whose main academic program was implemented in either a special education or gifted setting

were not utilized in this study. In total eleven teachers, sixteen classes, and three hundred thirty-two students participated in the study. Students by class were randomly assigned to each of the treatment conditions. Initially, three hundred fifty-nine students were involved in the study. Of these, fifteen students transferred either out of their school or out of the treatment condition class. The data from twelve other students were not included in the statistical analysis due to difficulties experienced by the teacher of these students in implementing the randomly assigned treatment condition; data collected could not be considered valid. Data from three hundred thirty-two subjects were analyzed statistically. In each of the cooperating schools, classes of students were heterogeneously grouped for the treatment condition class.

The SES background of the students fell into two categories dependent on the district. Approximately 60% of the students reside in school districts with a relatively homogeneous, high SES background. The remaining students reside in a school district with students of varied SES background. The racial composition of subjects within this study was homogeneous.

Procedures

Description of treatment conditions

The study incorporated three experimental groups, SMP, PSMP, and CO:

SMP. The Self-Management (Harris and Ream, 1972) program consists of ten lessons on the following topics:

- 1) awareness of study behavior;
- 2) reasons to study and stimulus control;
- 3) rewards and the Premack Principle;
- 4) positive reinforcement;
- 5) punishment;
- 6) remembering what you read;
- 7) taking effective notes;
- 8) additional study skills;
- 9) examination skills; and,
- 10) maintaining good study habits.

Also included are a questionnaire on study habits and a study habits record sheet. Each student received a booklet with each lesson and received copies of the questionnaire and study habits record sheet as needed. The basic SMP plan was modified in two ways. First, changes in vocabulary were considered. Second, to insure that the program was completed in the time frame, some of the lessons were taught in the same week.

Teachers who utilized the SMP taught weekly units to the students. Follow-up to these lessons consisted of reviews of essential concepts and assistance to students in tallying their study skills behaviors. It was found (Harris and Trujillo, 1975) that student reports of their study behavior were not dependable. Efforts were made to monitor and assist students in keeping these records. It was anticipated that experimental

reliability would not be attained; however, greater efforts than in previous research were made to remind students to fill out the sheets, to structure times to fill out the forms, and to encourage students to review this procedure.

PSMP. In the case of the PSMP, Practice Skills Mastery Program, (Erken and Henderson, 1976) cooperating teachers used the program on a daily basis. These teachers were provided with all appropriate materials necessary for the implementation of the program. The PSMP program consists of a variety of items: 1) six tapes with tones recorded at various interval schedules; 2) different forms used for recording student behavior and distribution of reinforcements; and, 3) a teacher manual. Each cooperating teacher received a set of these materials.

On a daily basis the teacher presented the appropriate tape after typical "housekeeping" tasks of a class were accomplished. As the tape sounded a tone, the teacher had on-task students note their point values from a chart available to the teacher on a record sheet. At the end of the day students tallied on-task points and "achievement" points related to the work accomplished that period. These points were used as the basis of the token economy system for the distribution of reinforcements. As students' level of on-task behaviors increased, new tapes with fewer tones were utilized. It was assumed that students' behavior would strengthen to a point where the system would be discontinued.

CO. This group has been labeled "Curricular Objectives"

to refer to the fact that in the cooperating districts study skills objectives exist within the curriculum. In the case of each district the English teacher is expected to implement many of the general district goals for study skills. However, no systematic program of the teaching of study skills exists in these districts; teachers are without the potential benefit of a formal program. Students in these classes were considered a control group in comparison to those students receiving either of the above formal programs as experimental treatments.

General Procedures

Time frame

The study covered three quarters of a school year. During the first quarter of the year, certain baseline measures were gathered. It was during the second quarter of the year that the experimental treatment conditions (SMP, PSMP, and CO) were implemented. This phase of the study was called the "experimental phase". The final period of the study was named the "maintenance phase" and continued for the quarter following the experimental treatment.

The maintenance phase component of the study was particularly important in ascertaining possible longer-term or carry-over effects of the programs. The acquisition of study skills is best served when, and if, skills, behaviors, and attitudes are changed and incorporated into a student's repertoire of academic responses. The following sections present

information related to the training of teachers and follow-up procedures.

Description of teacher procedures

Teacher volunteers underwent an in-service program appropriate to their experimental group (SMP, PSMP, or CO). This training was designed to accomplish several goals: 1) familiarize teachers with their responsibility during the study; and, 2) instruct the faculty on the use of their study skills program, if assigned. These in-service procedures helped to insure the uniform application of each program and provided staff with an opportunity to have a professional involvement in the study. Faculty began to utilize their programs shortly after this in-service session. The SMP and PSMP programs are self-contained. In other words, once faculty were trained in the procedures of each program, it was relatively easy for each teacher to continue with the programs without difficulty.

To further insure control on the teacher implementation of these programs, the investigator prepared a teacher's manual for the SMP. Since a manual existed for the PSMP and no standardized procedures or instructions existed for the SMP, this investigator concluded that a teacher's manual was necessary. This manual provided teachers using the SMP treatment with the same benefits as teachers using the PSMP. Teachers of both programs were provided all necessary materials for implementing the respective systems.

Follow-up

Through the experimental phase of the study, teachers were monitored in a variety of ways to help insure proper implementation of their programs. This follow-up included:

- 1) monitoring procedures integral to each program. In each program weekly data were gathered by the teacher. These data were essential in the case of the PSMP for teachers to implement the reinforcement aspect of the program and, in the case of the SMP, to help students more closely examine their own behavior. These "record sheets" did not contain valid data for statistical analysis; however, they did serve collateral purposes. They permitted a direct view of students' use of the system, and they provided an excellent weekly, indirect, and unobtrusive view of teachers' use of their respective programs;
- 2) Visitations to observe and discuss the experimental treatment programs used by faculty;
- 3) a follow-up formal in-service session with each set of faculty to review program procedures;
- 4) frequent phone conversations with cooperating faculty to discuss the study; and,
- 5) a regular schedule of providing faculty with the proper forms to gather specific data and to have these forms returned shortly thereafter. Given the variety of measures employed in this study, it was necessary to structure the data gathering in a manner that was experimentally sound and feasible for the classroom teacher.

Data Gathering

Obtaining data on each of the measures was done in the

following manner:

Ho 1

On five randomly selected and unannounced days during the experimental phase of the study and five similar days during the maintenance phase, each cooperating teacher received a list of students in their class and a set of instructions (see appendix). At the beginning of class, the teachers checked an appropriate box next to a student's name at the beginning of class if the student was prepared for class. "Classroom preparation" was operationally defined by each teacher. At the outset of the study, each faculty member listed their requirements for classroom preparation. Therefore, students were assessed in direct relationship to the expectations of their specific teachers, even though the specifics of preparation were different in relation to the everyday criteria they faced.

Ho 2

The percentage of graded assignments handed in on-time was obtained from each teacher's grade book. Faculty maintained a notation in their grade books indicating those assignments handed in "late" or past the required deadline. At the completion of the treatment phase of the study and at the end of the maintenance phase of the study, a copy was made of the grade book. Information found in the grade book included student's grades of each assignment, the number of graded assignments, and the number of assignments where students handed in

late work. Teachers also were asked to provide a brief written explanation of each assignment.

Ho 3

Twice during the experimental phase of the study and twice during the treatment phase of the study, students took a "study time and achievement" experimental task. This task consisted of students reading a short social studies selection (approximately 600 words) taken from a junior high text not used by any of the districts; the text's reading level was assessed to be at the seventh grade level by means of the Frye readability formula. Students received a different passage for each trial.

The following instructions were read by the teacher:

Read the following lesson. When you are finished, look it over and study it for as much time as you like. When you feel you know the material, raise your hand and I (your teacher) will give you a short quiz on the lesson. You will hand in the lesson before you take the quiz. Remember, you may study the material as long as you want provided that you take the quiz during the class period.

The reading comprehension lesson was chosen so that the average junior high student could read it in approximately five to ten minutes. In order to take the quiz, students handed in their passage. The quiz consisted of seven questions, including literal and inferential comprehension questions. Each teacher was asked to time all students without their knowledge on the length of time each student chose to study the material. For each trial students received a score in minutes on the time

they studied and an achievement score (0-7) on the number of correct responses on the quiz.

Ho 4

The self-assessment of students' study habits and attitudes was made through the study habits questionnaire designed by Harris and Ream. One week prior to the initiation of the experimental treatment and at the conclusion of the experimental phase of the study, each student responded to the questionnaire. These responses were considered pre- and post-measures of students' self-assessment of their study habits.

Ho 5

At the completion of the maintenance phase of the study, each student's grades were obtained from their cumulative records at the respective school. Letter grades in the major academic courses were translated into a 4 point scale and a grade point average compiled. At one school students were on a trimester grading system rather than a quarterly system. These teachers were asked to "estimate" the letter grade students would receive as of the end of each quarter; teachers examined their grade books and provided a letter grade as of that date. Grades were obtained for the first three quarters of the year providing pre-treatment GPA, experimental phase GPA, and maintenance GPA.

Ho 6

Grade point averages also were recorded in the treat-

ment condition class only. This provided a grade point average per student in the English class in which the experimental treatments were utilized.

Ho 7

Students' reading comprehension scores were obtained from the achievement testing taken in the Spring of 1981. This score represented students' reading comprehension achievement at the end of sixth grade. At the completion of the experimental phase of the study, students were given a separate form of the reading comprehension achievement test given in their respective school districts. These tests were considered pre- and post-measures of students' reading comprehension achievement. Of the four districts cooperating in the study, three different achievement tests were used - the Comprehensive Test of Basic Skills (CTBS), the California Achievement Test (CAT), and the Stanford Achievement Test (SAT). Separate forms of the seventh grade reading comprehension sub-test only were obtained from the respective testing companies along with the norming and technical bulletins (California Achievement Tests: Technical Bulletin 1, 1979; Madden, Gardner, Rudman, Karlson & Merwin, 1975; Technical Bulletin No. 1: CTBS, Form S, All Levels, 1974) needed for obtaining appropriate measures. Each cooperating teacher administered the proper achievement test following the standard instructions and procedures for testing.

Ho 8

Prior to and directly after the experimental phase of the

study, students were given the Intellectual Responsibility (IAR) Scale (Crandall, Katkovsky, and Crandall, 1965). This instrument has been accepted as one measure of students' internal and external locus of control in relationship to attributions of academic achievement.

The IAR Scale consists of 34 forced-choice items between answers suggesting internality and those implying externality. The items are subdivided according to positive and negative event items. Positive, or success, event items suggest belief in personal responsibility or not for successes while negative event items reflect acceptance or not for failures. There are seventeen questions of each type for a total of 34. A student's score was obtained for positive items (I+), negative items (I-), and for the total (T).

Ho 9

Formal discipline referrals by teachers were gathered through the appropriate person at each school. A numerical count was examined.

Ho 10

The information needed to attempt a task analysis of GPA by assignment type during the treatment phase of the study was obtained. Each teacher provided a brief description of assignments given, student's grades on each assignment, and the length of time each assignment covered. An attempt was made to categorize assignments according to length of time needed to complete the assignment, the nature of the assign-

ment, and the GPA on each type of assignment. The task analysis was designed to provide more specific information concerning the possible impact of the study skills programs.

Design and Statistical Procedures

Overall, a split-plot design (Kirk, 1968) was utilized with three independent variables (SMP, PSMP, and CO) and four dependent measures (study skills behavior and attitudes, classroom behavior, academic achievement, and attribution of academic responsibility).

For hypotheses Ho 1, Ho 2, Ho 5, Ho 6, Ho 7, Ho 8, and Ho 9, an analysis of variance and covariance for repeated measures was utilized with the calculation of the appropriate F statistic. A priori tests for differences among the means were performed except where significant interaction occurred. The orthogonal comparisons were: SMP X PSMP; SMP X CO; PSMP X CO; SMP X (PSMP/2 + CO/2); PSMP X (SMP/2 + CO/2); and, CO X (SMP/2 + PSMP/2). The appropriate t statistic was calculated for unequal cell numbers. Where significant interaction occurred with the analysis of variance with repeated measures, an F test for simple main effects was calculated.

Ho 3 was tested in the following manner: students' time and achievement on the two experimental phase trials and two maintenance phase trials were averaged respectively. A t test was then performed on the time and achievement, separately comparing each pairwise combination of treatment groups (SMP X PSMP, SMP X CO, and PSMP X CO). Correlations between

study time and achievement within each group were determined for both the experimental and maintenance phases.

Ho 4 was examined by analyzing the frequency distribution of responses for the pre- and post-treatment questionnaires. The data was examined for trends. In the case of the task analysis, Ho 10, student achievement during this experimental phase would be correlated with length of time to do the assignment and assignment type. However, insufficient data was collected for both Ho 10 and Ho 9 to prevent statistical analysis. In the case of Ho 10, lack of similarity between teacher assignment made a statistical analysis inappropriate. With Ho 9, the teachers within the study made virtually no referrals due to student misbehavior.

CHAPTER IV

RESULTS

The study consisted of a split-plot design with repeated measures. On hypotheses Ho 1, Ho 2, Ho 5, Ho 6, Ho 7, and Ho 8, an analysis of variance and covariance for repeated measures was employed utilizing the Statistical Analysis System (1979) program BMDP 2V. A priori orthogonal comparisons among the means were specified prior to data collection. The six comparisons included: 1) $\hat{\psi}_1$ - Ho: $\mu_1(\text{SMP}) = \mu_2(\text{PSMP})$; 2) $\hat{\psi}_2$ - Ho: $\mu_1(\text{SMP}) = \mu_3(\text{CO})$; 3) $\hat{\psi}_3$ - Ho: $\mu_2(\text{PSMP}) = \mu_3(\text{CO})$; 4) $\hat{\psi}_4$ - Ho: $\mu_1(\text{SMP}) = \mu_2(\text{PSMP})/2 + \mu_3(\text{CO})/2$; 5) $\hat{\psi}_5$ - Ho: $\mu_2(\text{PSMP}) = \mu_1(\text{SMP})/2 + \mu_3(\text{CO})/2$; and, 6) $\hat{\psi}_6$ - Ho: $\mu_3(\text{CO}) = \mu_1(\text{SMP})/2 + \mu_2(\text{PSMP})/2$. These comparisons were analyzed with a t test. Where statistically significant interaction was found in the initial analysis of variance test, the F test for simple main effects was run for comparison among the means (Kirk, 1968).

Ho 3 was analyzed in two ways. Average times and achievement were computed for the experimental and maintenance phases per group based on the two trials per phase. Pairwise t tests (SMP X PSMP; SMP X CO; and, PSMP X CO) were run comparing the time and achievement per group per phase of the study. For further analysis correlation coefficients (time X achievement) per phase were computed and examined for signi-

ficance.

Ho 4 was examined by obtaining a frequency distribution per question on the pre- and post-experimental phase questionnaire. Each question was viewed in terms of trends evidenced between the two trials.

The statistical results of the study are presented below by hypothesis:

Ho 1

An analysis of variance and covariance with repeated measures was run to analyze the percentage of time students were prepared for class (dependent variable) under the conditions of the treatment groups (independent variable known as group 1 = SMP, group 2 = PSMP, and group 3 = CO) during the two phases of the study (experimental and maintenance. The angular or inverse sine transformation was performed on the data to achieve homogeneity of error variance.

The results, as indicated in Table 1, demonstrate a

Insert Table 1 about here

highly significant difference in the level of classroom preparation by treatment group, $F(2,328) = 31.51$, $p < .01$, and by phases of the study, $F(1,328) = 9.70$, $p < .01$. No significant interaction was found. Null hypothesis one was rejected.

Table 1

Analysis of Variance with Repeated Measures
 Summary Table for Percentage of Time
 Prepared for Group X Phase

<u>Source of Variation</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Group	2	15.02	31.51**
Error	328	.48	
Phase	1	2.13	9.70**
Group X Phase	2	.20	.92
Error	328	.22	

**p < .01

ted.

The a priori comparisons among the means demonstrated significance in five of the six tests. Statistically significant were the following comparisons:

1. 1 (SMP X PSMP), $t(328) = -5.54, p < .01$
2. 2 (SMP X CO), $t(328) = -3.64, p < .01$
3. 3 (PSMP X CO), $t(328) = 2.31, p < .05$
4. 4 (SMP X $[\text{PSMP}/2 + \text{CO}/2]$), $t(328) = -5.30, p < .01$
5. 5 (PSMP X $[\text{SMP}/2 + \text{CO}/2]$), $t(328) = 4.51, p < .01$

The meaning of these comparisons can be aided by examining the Table 2 showing cell means and standard deviations of the transformed data. Of the three groups, the token economy system, PSMP, had the highest adjusted means of the three groups

Insert Table 2 about here

with the least variability of range of scores; the means varied slightly over the two phases of the study. The self-management system, SMP, had the lowest means of the three groups representing lower general level of classroom preparation. However, of the three groups, the SMP group showed a substantial increase in the level of preparation during the

Table 2

Adjusted Means, Standard Deviations for Percentage
of Time Prepared for Group X Phase

Phases	Groups			<u>Totals</u>
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>	
Experimental	1.71 ^a	2.31	2.05	2.02
Maintenance	1.87	2.35	2.17	2.14
Totals	1.79	2.33	2.12	2.08

Experimental	.80 ^b	.32	.60
Maintenance	.80	.33	.48

^a means

^b standard deviation

maintenance phase of the study. The curricular objectives, CO, group showed an increase in the mean score during the maintenance period of the study.

The results of Ho 1 show that the level of student preparation was significantly influenced by treatment group. Further, significant effects occurred between the two phases of the study. Carry-over or maintenance effects of the treatment groups can be seen in the differential manner in which level of preparation varied over the two phases of the study.

Ho 2

An analysis of variance and covariance with repeated measures was run to analyze the percentage of time students handed in assignments on time for class (dependent variable) under the conditions of the treatment groups (independent variable) during two phases (experimental and maintenance). The angular or inverse transformation was performed on the data to achieve homogeneity of error variance.

Group membership was found to be highly significant, $F(2,325) = 6.72, p < .01$. Table 3 also demonstrates that

Insert Table 3 about here

the interaction between treatment group and phase of study

Table 3

Analysis of Variance with Repeated Measures Summary
 Table for Percentage Assignments On-Time for
 Group X Phase

Source of Variation	df	MS	F
Group	2	1.69	6.72**
Error	325	.25	
Phase	1	.003	.05
Group X Phase	2	.46	7.16**
Error	325	.06	

**p < .01

also was highly significant, $F(2,325) = 7.16$, $p < .01$. Dependent upon the study skills program, students' study skills behavior of handing assignments on-time was differentially effected. Further, treatment group effects interrelated with the phase of the study.

The significant interaction of treatment group X phase was explored further with an F test of simple main effects. Table 4 shows the following statistically significant results:

Insert Table 4 about here

1) during the experimental phase of the study, group membership was significant, $F(1,650) = 20.47$, $p < .01$; 2) during the maintenance phase of the study, group membership was significant, $F(1,650) = 6.22$, $p < .05$; and, 3) students randomly assigned to the PSMP, token economy group, had a statistically higher level of assignments handed in on-time than the other groups, $F(2,325) = 4.12$, $p < .05$. An examination of Table 5, cell means of the transformed data, reveals that the PSMP

Insert Table 5 about here

group had substantially higher levels of preparation, par-

Table 4

Analysis of Variance Summary Table for Simple Main Effects for Percentage of Assignments On-Time for Group X Phase

Source of Variation	df	MS	F
1. Between			
2. Group X Experimental Phase	1	3.24	20.47**
3. Group X Maintenance Phase	1	.98	6.22*
4. Subj. w. groups	650	.16	
5. Within			
6. Phase X SMP	2	.11	1.74
7. Phase X PSMP	2	.28	4.12*
8. Phase X CO	2	.10	1.49
9. Phase X Group	2	.46	7.16**
10. Phase X Subj. w. groups	325	.06	

* $p < .05$

** $p < .01$

Table 5

Adjusted Means, Standard Deviations for Percentage
of Assignments On-Time for Group X Phase

<u>Phases</u>	<u>Groups</u>			<u>Totals</u>
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>	
Experimental	2.38 ^a	2.64	2.52	2.51
Maintenance	2.45	2.53	2.58	2.52
Totals	2.41	2.59	2.55	2.52

Experimental	.45 ^b	.23	.45
Maintenance	.37	.36	.44

^a means

^b standard deviation

ticularly during the treatment phase of the study. While the SMP and CO group showed gains from the experimental to maintenance phase, the changes were not statistically significant. The trend of improvement in levels of handing assignments in on-time, though, is worthy of analysis (see CHAPTER V); and, 4) as was found in the main test of Ho 2, the interaction between group membership and phase of the study was significant, $F(2,325) = 7.16, p < .01$.

Null hypothesis Ho 2 was rejected due to the above tests. The study skill behavior of handing assignments in on-time was significantly influenced by treatment conditions. Simple main effects were found which pointed to the strength of the PSMP, particularly during the experimental phase of the study.

Ho 3

Data for this hypothesis consisted of four trials, two during the experimental phase and two during the maintenance phase of the study. At each trial, a student had two scores: 1) the time in minutes the students read and studied a passage; and, 2) the achievement (0-7 per trial) on a test of the passage. Trials during each phase of the studies were averaged and t tests were run comparing SMP X PSMP, SMP X CO, and PSMP X CO. Finally, correlation coefficients of time X achievement by group per phase of the study were calculated.

In comparing the SMP X PSMP groups, it was found that

significant differences existed, $t(196) = -3.31, p < .01$, in the time studied during the experimental phase of the study. Significant results, $t(191) = -6.43, p < .01$, also appeared when considering the amount of time studied by group during the maintenance of the study. For the SMP group, the mean time for reading and studying the text was 6.12 minutes during the experimental phase, and 5.77 minutes during the maintenance phase. The PSMP group averaged 7.34 and 9.473 minutes respectively. It is obvious that the SMP group decreased in its study time while the PSMP increased in its study time. While both groups increased in the mean achievement levels between phases (SMP from 2.63 correct responses out of 7 to 3.08 and the PSMP from 2.47 to 2.70), the difference between the two groups was significant, $t(189.3) = 2.02, p < .05$, only during the maintenance phase of the study. These results would tend to suggest that a maintenance effect existed in relationship to achievement due to the self-management more so than for the token economy system.

The comparisons made between the SMP group and the CO group were found to be significant, ($t(201.9) = -6.21, p < .01$) only in the time studied during the experimental phase of the study and students' achievement scores were found not to be statistically significant. When examining the group means, the results indicate that the length of time students' studied decreased (for SMP from 6.12 minutes to 5.77 and for CO from 8.29 to 5.59) while their achievement increased (for SMP from

2.63 correct responses out of 7 to 3.08 and for the CO group from 2.69 to 3.21 correct responses). Even though the difference between the achievement levels of students between both groups during the two phases of the study was not statistically significant, the CO group's mean average achievement gain was noticeable. Effects of the CO group in relationship to this hypothesis and others is presented in CHAPTER V.

Finally, in comparing the PSMP group against the CO group, significant differences were found in: 1) time studied during the experimental phase, $t(208.6) = -3.04$, $p < .05$. The PSMP group's mean time studied went from 7.34 minutes studied to 9.47 while the CO group's mean study time went from 8.29 to 5.59; 2) time studied during the maintenance phase, $t(223) = 8.45$, $p < .01$; and, 3) achievement during the maintenance phase of the study, $t(217.8) = -2.89$, $p < .01$. The mean achievement levels differed between phases of the study; the PSMP group went from 2.47 correct responses out of 7 to 2.70, while the CO group went from 2.70 to 3.21. While the difference in achievement levels of both groups was not statistically significant during the experimental phase of the study, the difference was statistically significant during the maintenance phase. Even though both scores showed gains, it appeared that the gains of the CO group were greater than those posted by the PSMP group. It would appear that the CO group experience effected student achievement more so than

did the PSMP group experience on the measure. The above results indicate that the effects of the SMP and CO groups in relationship to the PSMP group were similar. Both showed significant comparative results in time studied and achievement particularly during the maintenance phase of the study. This pattern will be discussed later (CHAPTER V).

Correlation coefficients were calculated comparing the relationship between the time studied and achievement, by treatment group and phase of the study. With one exception the correlations did not approach statistical significance. During the maintenance phase of the study, the CO group had a strong negative correlation between time studied and achievement. This suggests that students had higher achievement when they studied less. Students' achievement increases amounted to a mean difference of .51. These results can be found in Table 6.

Insert Table 6 about here

Ho 3 examined students' study skills behavior on a study time and achievement exercise. More significant results occurred during the maintenance phase of the study. This type of result would indicate that the study skills programs had no direct and immediate impact on students'

Table 6
Correlation Coefficients of Time Studied X
Achievement for Group X Phase

Phases	Groups		
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>
Experimental	-.11 ^a	.12	.07
	.22 ^b	.24	.50
Maintenance	-.07	.07	-.31**
	.51	.50	.00

^a correlation coefficient

^b probabilities of $H_0: R_{Ho} = 0$

** $\underline{p} < .01$

scores on this measure; however, there did appear to be a delayed result noticeable mainly in the SMP and CO groups. Of interest was the similar pattern of results which existed when the SMP and CO groups were individually compared with the PSMP group. It is not possible either to reject or fail to reject $H_0 3$; it is necessary to differentially analyze the results testing $H_0 3$.

Ho 4

Data for this hypothesis was obtained from pre- and post-responses on a questionnaire designed to investigate students' self-assessment of their study habits. The twelve questions on this attitudinal survey are subdivided into thirty-three discrete response items. Frequency distributions by items were performed for both the pre- and post-questionnaire. The results of the survey given prior to and immediately subsequent to the completion of the treatment effects were analyzed to distinguish pertinent trends within the data. Generally speaking, the results did not evidence dramatic shifts in students' attitudes about their own study habits. However, on a number of specific questions, results did occur worth presenting. In each case the overall percentage change appeared less important than the directionality of the change.

In response to self ratings of note taking ability, the PSMP group showed higher ratings after the treatment effects than before. The SMP group dropped while the CO

group remained the same. Students in the CO group answering the question, "How much would more effective study (for the same amount of time you now spend) help?", showed a marked decline in their self-awareness of the importance of effective study habits. A similar reverse of attitudes also was demonstrated by the CO group in response to the question, "Do you have a place to study?". Fewer students in the CO group indicated a specific place to study at the conclusion of rather than before the experimental phase of the study. In response to the question, "Is there a specific time(s) that you usually study?", the CO group showed no change from "yes" to "no" while members of the SMP group demonstrated reasonable gains; losses from "yes" to "no" were found with the PSMP group. A related question inquired as to daily study habits. The SMP group showed a recognizable trend in the direction of greater daily study time whereas the PSMP showed comparable losses. The CO group remained unchanged.

When asked to report how much time a student studied when they initiated a study session, members of the SMP group showed a trend to more time studying per session, the PSMP a trend to less time studying per session, and little change for the CO group. Finally, the SMP reported a trend to more time studying as the semester progressed while the other two groups showed little change.

The frequency distribution representing student self-

assessment reported few definitive trends. This would suggest non-rejection of the null hypothesis four. However, when analyzing the individual response items, there were a limited number but important questions where the SMP group showed gains related to content within the SMP program.

Ho 5

An analysis of variance and covariance with repeated measures was run to analyze student achievement as reported in overall grade point averages (GPA); this GPA represents the average of students' grades in the major academic areas on a 4 point scale. The GPA was analyzed by treatment group over three academic quarters. The first quarter represents a pre-GPA, the second quarter the treatment-GPA, and the third quarter the maintenance-GPA.

Table 7 indicates that the phase of the study was

Insert Table 7 about here

highly significant, $F(2,654) = 24.38, p < .01$. The interaction between treatment and phase also was statistically significant, $F(4,654) = 3.03, p < .05$. It was found that the treatment effect itself had no statistically significant impact on a student's overall GPA.

An F test of the simple main effects was performed to

Table 7

Analysis of Variance with Repeated Measures
 Summary Table for Overall GPA for
 Group X Phase

Source of Variation	df	MS	F
Group	2	2.61	1.54
Error	327	1.70	
Phase	2	2.18	24.38**
Phase X Group	4	.27	3.03*
Error	654	.09	

* $p < .05$

** $p < .01$

further analyze the results. Group membership at each quarter was not found to be significant. However, as found in Table 8, the variation between groups over time was statis-

Insert Table 8 about here

tically significant for the SMP group, $F(2,654) = 7.44$, $p < .01$, the CO group, $F(2,654) = 25.54$, $p < .01$, and the interaction of phase by treatment group, $F(4,654) = 3.03$, $p < .05$.

An examination of Table 9, the cell means and standard

Insert Table 9 about here

deviations of overall GPA X Group X Phase demonstrates the direction of GPA by phase. For each treatment group students' overall GPA increases during the treatment period of the study and subsequently decreases during the maintenance period. The effects of the study skills programs themselves must be analyzed along with other factors, particularly those which might account for overall increases and decreases in GPA. This is especially true given the similar trend in the CO group.

In fact the F test of the simple main effects showed

Table 8

Analysis of Variance Summary Table for Simple
Main Effects of Overall GPA for Group X Phase

<u>Source of Variation</u>	<u>df</u>	<u>MS</u>	<u>F</u>
1. Between			
2. Group X Quarter 1	2	.22	.35
3. Group X Quarter 2 (Experimental Phase)	2	.91	1.46
4. Group X Quarter 3 (Maintenance Phase)	2	.78	1.25
5. Subj. w. groups	981	.63	
6. Within			
7. Phase X SMP	2	.67	7.44**
8. Phase X PSMP	2	.01	.15
9. Phase X CO	2	2.28	25.54**
10. Phase X Group	4	.27	3.03*
11. Phase X Subj. w. groups	654	.09	

* $p < .05$

** $p < .01$

Table 9
Means, Standard Deviations of Overall GPA
for Group X Phase

Phases	Groups			
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>	<u>Totals</u>
1st Quarter	2.73 ^a	2.65	2.74	2.71
Experimental	2.89	2.71	2.99	2.88
Maintenance	2.77	2.64	2.81	2.75
Totals	2.80	2.67	2.85	2.78
<hr/>				
1st Quarter	.88 ^b	.67	.79	
Experimental	.88	.68	.72	
Maintenance	.90	.69	.84	

Note: Maximum GPA = 4.0

^a means

^b standard deviation

statistically important results for both the SMP and CO group but not the PSMP. This gives rise to the question of what similar features might exist between the SMP and CO groups as opposed to the PSMP group. A similar situation arose in the analysis of Ho 3.

The null hypothesis Ho 5 is rejected in relationship to phases of the study and interaction. This suggests that grade point average was influenced over the course of the study and specifically in relationship to the SMP and CO groups.

Ho 6

An analysis of variance and covariance with repeated measures was run to analyze student achievement (dependent variable) as reported by treatment class subject grade point average (GPA): this GPA represents students' grades only in the subject area of the class in which the treatment effects were utilized. The GPA was analyzed over the first three academic quarters of the school year as in Ho 5.

Table 10, Summary Table Analysis of Variance with Repeated Measures for Subject GPA X Group X Phase, showed a statistically significant group effect, $F(2,325) = 5.70$, $p < .01$, and a significant interaction (Group X Phase) effect,

Insert Table 10 about here

Table 10
 Analysis of Variance with Repeated Measures
 Summary Table for Subject GPA for
 Group X Phase

Source of Variation	df	MS	F
Group	2	11.72	5.7**
Error	325	2.06	
Phase	2	.42	1.5
Group X Phase	4	2.61	9.29**
Error	650	.28	

**p < .01

$F(4,650) = 9.29, p < .01$. A more detailed analysis of this interaction found in Table 11, Summary Table of the Test of Simple Main Effects of Subject Area GPA X Group X Phase,

Insert Table 11 about here

showed statistically significant results during the experimental phase of the study, $F(2,975) = 13.46, p < .01$, and during the maintenance period of the study, $F(2,975) = 4.07, p < .05$. Membership in the PSMP group was significant, $F(2,650) = 4.33, p < .05$, as was participation in the CO group, $F(2,650) = 15.35, p < .01$. The interaction effect of Phase by Group also was significant, $F(4,650) = 9.29, p < .01$.

Table 12, Cell Means for Subject Area GPA X Group X Phase,

Insert Table 12 about here

and Figure 2, Cell Means for Subject Area GPA X Group X Phase,

Insert Figure 2 about here

Table 11

Analysis of Variance Summary Table for Simple
Main Effects for Subject GPA for
Group X Phase

Source of Variation	df	MS	F
1. Between			
2. Group X Quarter 1	2	1.50	1.71
3. Group X Quarter 2 (Experimental Phase)	2	11.73	13.46**
4. Group X Quarter 3 (Maintenance Phase)	2	3.55	4.07*
5. Subj. w. groups	975	.87	
6. Within			
7. Phase X SMP	2	.63	2.25
8. Phase X PSMP	2	1.22	4.33*
9. Phase X CO	2	4.31	15.35**
10. Phase X Group	4	2.61	9.30**
11. Phase X Subj. w. groups	650	.28	

* $p < .05$

** $p < .01$

Table 12
Means, Standard Deviation for Subject
GPA for Group X Phase

<u>Phases</u>	<u>Groups</u>			
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>	<u>Totals</u>
1st Quarter	2.96 ^a	2.73	2.79	2.82
Experimental	3.01	2.51	3.15	2.92
Maintenance	2.86	2.63	3.00	2.85
Totals	2.94	2.62	2.98	2.87

1st Quarter	1.08 ^b	.84	.92
Experimental	1.16	.85	.72
Maintenance	1.11	.74	.90

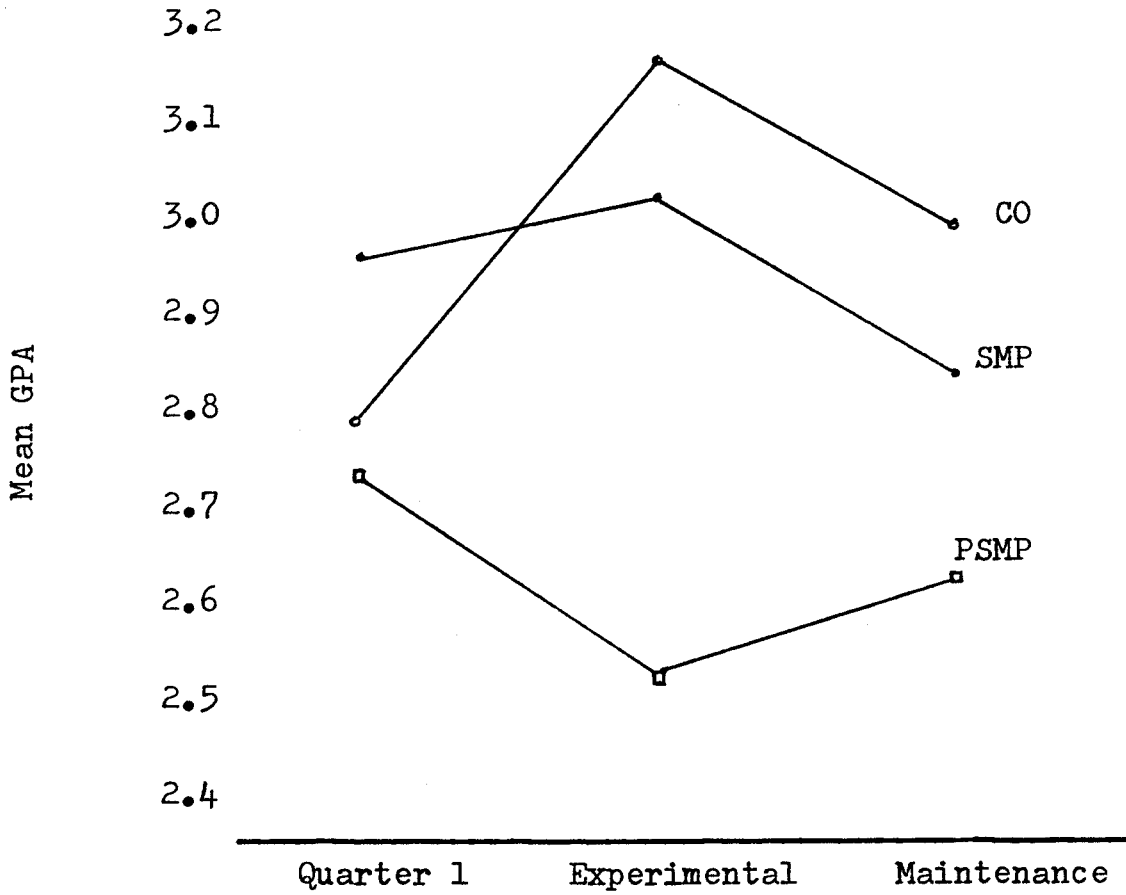
Note: Maximum GPA = 4.0

^a means

^b standard deviation

Figure 2

Means for Subject GPA of Group X Phase



provide further information to assist in the analysis of Ho 6. In Ho 5 it was found that all students' GPA rose during the experimental phase of the study and fell during the maintenance phase. In the case of Ho 6, which relates specifically to the treatment group class, statistically significant results are likewise found but with an interesting variation. Subject area GPA varied greatly according to treatment group membership. The widest range of GPA existed during the treatment phase where the PSMP group and both the SMP and CO group varied over a .5 grade point difference. As in Ho 5, the SMP and CO groups gained in their GPA during the treatment phase; however, contrary to the overall GPA results, the PSMP group lost ground during the second academic quarter. When examining the third academic quarter, the SMP and CO group conformed to the overall GPA trend in Ho 5 by losing a portion of the second quarter gain; again, the PSMP group deviated from this pattern and showed a Subject GPA gain. The grade point average scores at the second and third quarter were statistically significant.

Of the three groups, the PSMP and CO groups showed statistically significant results on the test for simple main effects. Apparently, the changes in the SMP's Subject GPA, measurable in terms of mean score change, were not statistically significant. It would be reasonable to interpret these results as to suggest some type of interference effect occurring during the treatment phase of the study in the PSMP group.

Given the two GPA scores, overall and subject, it is possible to analyze this phenomenon further (CHAPTER V).

The null hypothesis for Ho 6 was rejected. This suggests that students' grade point average was influenced by their group membership over the course of the study.

Ho 7

An analysis of variance and covariance with repeated measures was run to analyze student achievement (dependent variable) as measured by standardized reading comprehension scores for Group X Phase. The basis of these scores was the standardized tests used by each respective district. Scores obtained from each student's end of sixth grade achievement test battery, the reading comprehension sub-test, was compared with a reading comprehension sub-test given at the completion of the experimental treatment. Students from each district were given the seventh grade reading comprehension sub-test from their school district's chosen test battery (either the SAT, CTBS, or CAT). Students' scaled scores were obtained from the before and after treatment measures. These scale scores were transformed into T scores (mean = 50 and standard deviation = 10) to permit appropriate statistical analysis.

Table 13, Summary Table Analysis of Variance with Repeated Measures for Reading Achievement (Comprehension) Scale Scores X Group X Phase yields no statistically significant results. This would suggest that neither the study skills pro-

Insert Table 13 about here

grams nor the phases of the study had an impact on students' reading achievement. While the grade point measures (Ho 5 and Ho 6) were shown to be influenced through the course of the study, it cannot be said that other indications of student achievement were likewise altered. All cell means of transformed scale scores were within 1.2 points. Null hypothesis Ho 7 was not rejected.

Ho 8

An analysis of variance and covariance with repeated measures was run to analyze the attribution of achievement responsibility as measured by the IAR scale by treatment group before and after the treatment phase of the study. The IAR scale consists of 34 forced choice items where students attribute to internal or external factors their school related achievement. Half of the items pose students with choices related to success situations (I+'s) while the other half to failure situations (I-'s). Students' scores were analyzed separately for I+'s, I-'s, and T (total) scores. Tables 14, 15, and 16 present the Summary Table Analysis of Variance with Repeated Measures for I+ (Success, Internal Attributions) for Group X Phase, the Summary Table Analysis of Variance with Repeated Measures for I- (Failure, Internal Attributions) for

Table 13

Analysis of Variance with Repeated Measures
 Summary Table for Reading Comprehension
 Achievement Adjusted Scale Scores
 for Group X Phase

Source of Variation	df	MS	F
Group	2	26.92	.29
Error	296	91.56	
Phase	1	5.62	.29
Group X Phase	2	35.88	1.86
Error	296	19.34	

Group X Phase, and the Summary Table Analysis of Variance with Repeated Measures for T (Total Internal Attributions) for Group X Phase of the study respectively.

Insert Tables 14, 15, and 16 about here

Table 14 showed that, in terms of I+, group membership was not statistically significant while phase of the study was, $F(1,315) = 4.94$, $p < .05$. Group X Phase interaction was not significant. In relationship to I-, refer to Table 15; no statistically significant results were found. These two tables suggest that the phase of the study altered students' success oriented attributions while their failure oriented attributions remained stable. When the sub-scores are combined into the total IAR score, Table 16, it was found that the phase of the study was statistically significant, $F(1,315) = 7.04$, $p < .01$, while the group and interaction effects were not significant.

These overall results can be further analyzed with the assistance of Table 17, Cell Means and Standard Deviations of

Insert Table 17 about here

Table 14

Analysis of Variance with Repeated Measures
 Summary Table for I+ (Success Internal Attributions)
 for Group X Phase

Source of Variation	df	MS	F
Group	2	3.99	.45
Error	315	8.82	
Phase	1	14.15	4.94*
Group X Phase	2	3.51	1.23
Error	315	2.86	

* $p < .05$

Table 15

Analysis of Variance with Repeated Measures
 Summary Table for I- (Failure Internal Attributions)
 for Group X Phase

<u>Source of Variation</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Group	2	13.81	1.3
Error	315	10.60	
Phase	1	11.39	3.59
Group X Phase	2	5.97	1.88
Error	315	3.17	

Table 16

Analysis of Variance with Repeated Measures Summary
 Table for Total (all Internal Attributions, I+ and I-)
 for Group X Phase

Source of Variation	df	MS	F
Group	2	8.25	.29
Error	315	28.14	
Phase	1	50.92	7.04**
Group X Phase	2	17.90	2.48
Error	315	7.23	

**p < .01

Table 17

Means, Standard Deviations of Total
(all Internal Attributions, I+ and I-)
for Group X Phase

<u>Phases</u>	<u>Groups</u>			<u>Totals</u>
	<u>SMP</u>	<u>PSMP</u>	<u>CO</u>	
Experimental	25.05 ^a	25.25	25.27	25.20
Maintenance	26.14	25.90	25.24	25.71
Totals	25.60	25.58	25.26	25.45

Experimental	4.22 ^b	4.15	3.96
Maintenance	3.77	4.66	4.43

Note: Maximum Score = 34

a means

b standard deviations

Total IAR Score X Group X Phase, Figures 3, 4, and 5, I+ Mean IAR Scores X Group X Phase, I- Mean IAR Scores X Group X Phase, and Total Mean IAR Scores X Group X Phase. All three

Insert Figures 3, 4, and 5 about here

figures graphically show the stability of the CO mean score while the SMP and PSMP mean score increases. With Figures 2 and 4 the change in marginal cell mean scores over time were significant. It is possible to conclude that the mean scores for the SMP and PSMP groups rose, be it modestly, while the mean scores for the CO group remained somewhat constant, be it with a slight net loss. These results would tend to suggest that students' attributions of academic responsibility were changed during the maintenance phase of the study. This implies that attribution of academic achievement is not altered quickly and changes are modest. However, the above Figures demonstrate the directionality of change and the trends it represents by Group.

It is interesting to note that the means and standard deviations of the I+, I-, and T scores of Crandall et al.'s norming sample and this study sample were virtually similar.

Therefore, all things considered, hypothesis Ho 8 was rejected.

Figure 3

Means for I+ (Success, Internal Attributions)
for Group X Phase

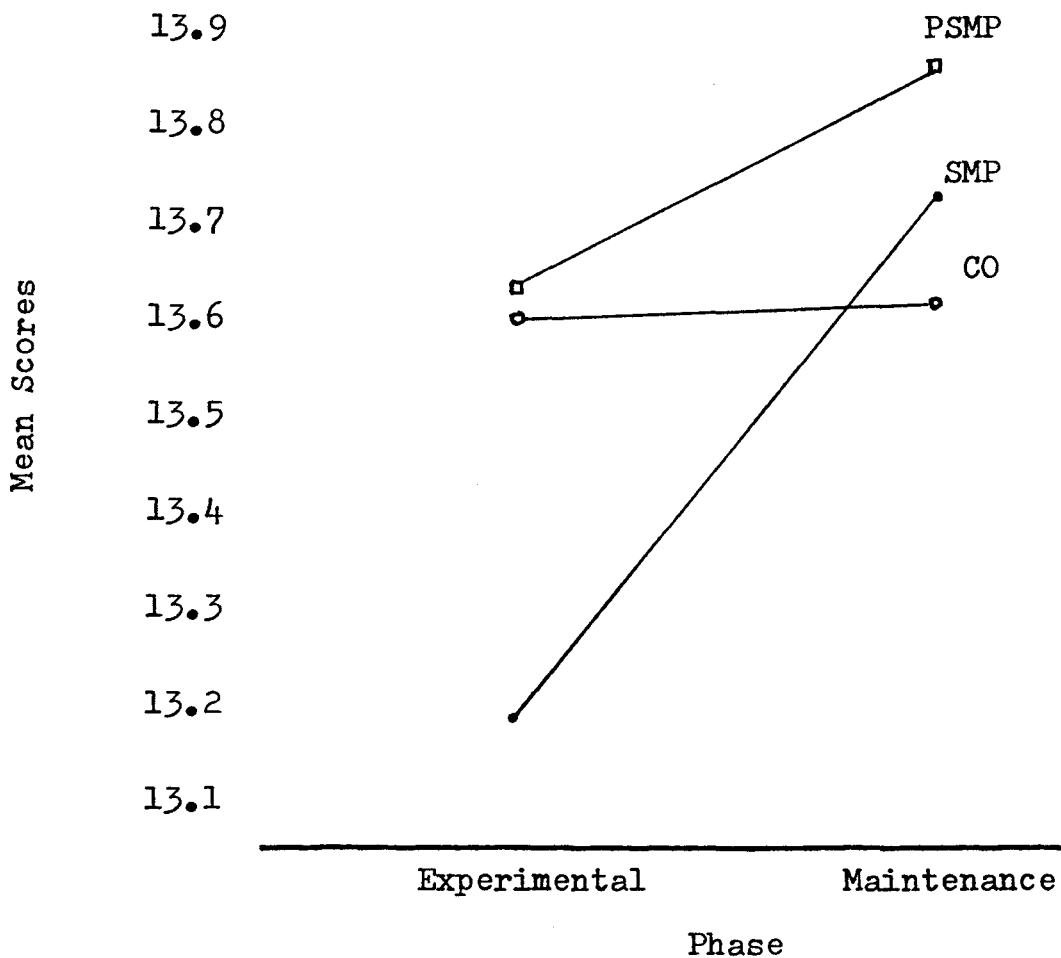


Figure 4

Means for I- (Failure, Internal Attributions)
for Group X Phase

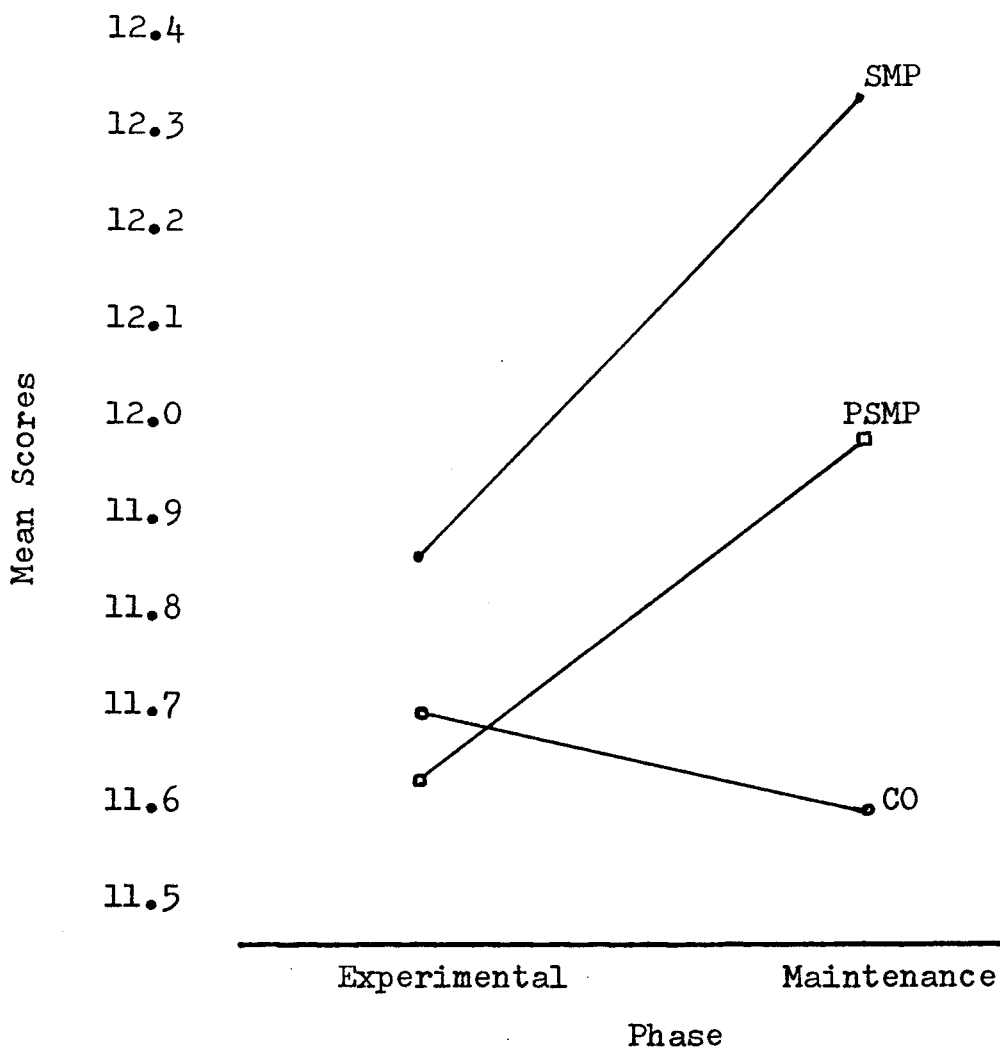
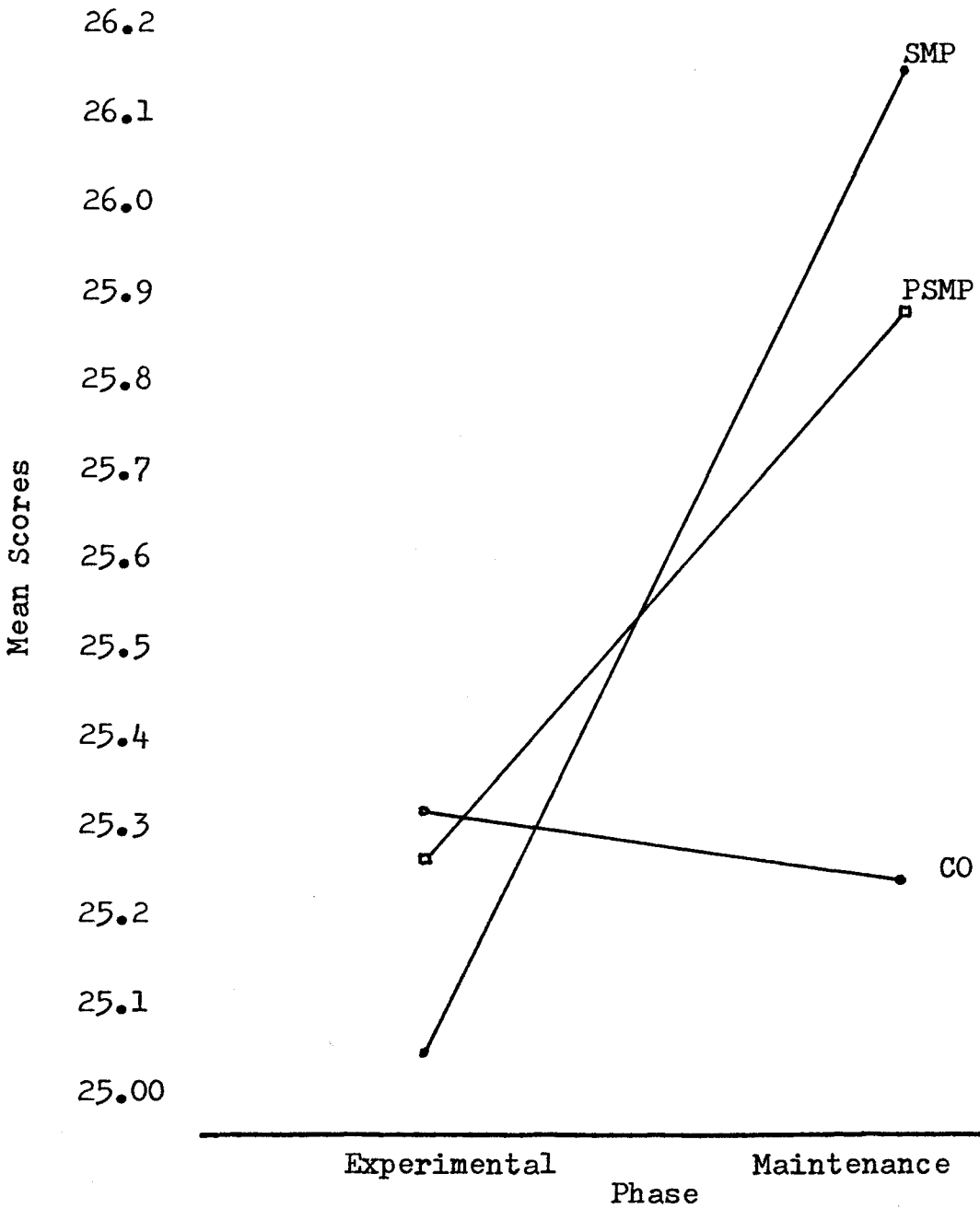


Figure 5

Means for T (Total Internal Attributions, I+ and I-)
for Group X Phase



CHAPTER V

DISCUSSION

Review of research questions

This investigation was a systematic examination of two study skills programs, the SMP and PSMP, on various dependent measures: 1) study skills behavior and attitudes; 2) classroom behavior; 3) academic achievement; and, 4) attribution of academic achievement. The study inspected the relative effectiveness of both programs through the experimental and maintenance phases of the study. This design allowed for an understanding of the short and longer-term effects of the two study skills programs. Previous research efforts have centered on the characteristics of each individual program mainly with samples of exceptional students. However, the present research utilized a large sample of non-exceptional, average and above average seventh grade students.

The study permitted a multi-dimensional analysis of the effects of the two study skills programs. To this end dependent measures probed operationally defined student behaviors, self-perceptions by students of their personal study habits, student achievement in school, and attributions by students for their school related functioning. These measures permitted analysis of on-task student behaviors,

motivational considerations, and student performance. All things considered the results suggest complex differential effects of the study skills programs and the educational process presently at work in schools. The following discussion examines each hypothesis individually, presents a general synthesis of the results, and suggests further areas of possible research and investigation.

Discussion of hypotheses

Ho 1. This hypothesis explored the percentage of time students were prepared for class. Essential to effective study skills and learning is the level of preparation students have for particular classes. For this study preparation was defined in terms of the specific materials and expectations of each particular cooperating teacher. It is assumed in schools that by the seventh grade level students are able to meet the academic requirements of a variety of instructors, all of whom may have divergent procedures and styles. For purposes of the present study each teacher operationally defined "classroom preparation"; students were assessed according to his or her teacher's specific requirements.

The results demonstrate that the level of classroom preparation was significantly influenced by treatment group and phase of the study. It was found that the PSMP group had the highest level of preparation followed by the CO and SMP respectively. This confirms one attribute of a token economy system, the ability to shape certain on-task behaviors. This

finding is consistent with previous research on the PSMP with exceptional students and suggests that the PSMP may have a similar effect with non-exceptional students.

The orthogonal comparisons among the means produced significant findings in the following areas. The difference in the level of preparation between the SMP and CO group was pronounced, with the CO group outperforming the SMP group. The pairwise comparison between the PSMP and CO groups was significant with the cell means of the PSMP group higher than the CO group. When comparing two combined groups against one group, the strengths of the PSMP and CO were statistically demonstrated. Further, the PSMP treatment was strong enough to remain significant in a comparison against the other two. On the other hand, the CO group was unable to overcome the level of preparation of the PSMP group to show significance when compared against a combination of the PSMP and SMP group.

The attributes of the PSMP appear reasonable and anticipated. Unexpected, though, is the high level of preparation of the CO group. This type of finding occurs in other hypotheses as well. It would appear that the existing curriculum, techniques, and strategies employed (by the CO teachers) to assist students in developing certain study skills behavior appear to have strength and effectiveness. One might expect that the SMP students would have shown higher levels of preparation. Yet, the instructional con-

tent within the SMP program relates to topics other than classroom preparation. In the SMP students monitor study behaviors, particularly study time at home. While it might seem logical to suggest that close monitoring of one's study time at home should influence classroom preparation, it appears to have little, and perhaps inverse effects, if any. The SMP fell significantly short of the regular classroom processes in improving students' level of preparation in comparison to the other groups.

In examining the effects on classroom preparation over the two phases of the study, a slightly different pattern emerges. All three groups show gains from the experimental through the maintenance phase. Of the three groups, the SMP showed the greatest increase, followed by the CO, and finally, the PSMP. This pattern is worthy of note. It would suggest that over time the self-management approach, based upon students' developing a more self-directed approach to their study skills, had an impact in the desired direction. Given an attempt to alter study patterns developed over many years, one might propose a "slow start, strong finish" theory. As study skills become more internally directed, one might expect to see persistent gains. The maintenance phase can be viewed as an "indicator" of longer term effects. Caution should be exercised, though, in suggesting either definite or permanent change.

The CO group also showed fairly strong continued growth,

especially in contrast to the PSMP group. To this extent, an interesting similarity begins to emerge between the SMP and CO groups, a similarity which occurs with other hypotheses as well. Implied in this pattern is the possibility that the methodology and content employed outside the realm of the treatment study skills programs had the general impact of a self-management, or internally directed, approach to study skills. This trend will be explored further.

The PSMP group did show modest gains between the experimental and maintenance phases of the study. With many behavioral systems, the absence of the external system leads to a direct loss in the behaviors brought under control by the system. However, the PSMP is designed differently. One of the strengths of the PSMP is the use of variable interval schedules of reinforcements and a "thinning" out of reinforcement contingencies. Under ideal conditions, the PSMP is designed to terminate once students' on-task study skills are well in hand. These results would support the desired impact of the PSMP.

The results from Ho 1 show the positive impact of the token economy system, the surprising strength of the CO group, the maintenance effects of the SMP group, and an interesting similarity between the SMP and CO groups.

Ho 2. This hypothesis explored the percentage of time students handed in their assignments on-time. A second integral part of effective study skills is to demonstrate learning

either on tests or other assignments at the time assigned. All assignments graded by the teachers in this study were viewed in relationship to this hypothesis. Most teachers have numerous ungraded assignments designed to provide reinforcement and practice on skills and concepts learned, as well as to extend learning and incorporate incidental learning. However, this study focused on those assignments which each teacher felt were worthy of being graded; a grade represents the weighting of importance in favor of certain material.

Treatment group membership and interaction between group membership and phase of the study proved to be quite important.

The PSMP showed considerable strength, followed by the CO and, then, SMP group. The token economy system had the desired effects. This was similar to results found in Ho 1. The test of simple main effects showed that only the PSMP had significant effects across time on the level of assignments handed in on-time. The cell means again show that the SMP group lagged behind even though the gap between all three groups was narrower on this measure than with the level of preparation for class. This suggests that students are less likely to hand in assignments late than they are to forget to bring appropriate materials to class each day. This appears reasonable.

Further, significant results occurred across both phases

of the study. Most students showed a small improvement between the experimental and maintenance phase of the study with the exception of the PSMP. The token economy group did show a dip in this behavior. When comparing Ho 1 and Ho 2 in this regard, one might speculate that those behaviors evidenced more frequently and under greater daily observation by a teacher, i.e., having the right materials for class each day, are more susceptible to maintenance than less frequent behaviors. However, even though both the SMP and CO groups showed maintenance period effects, the level of PSMP assignments being handed in on-time was still slightly higher than that of the SMP group. Again, the CO group appeared to have a stronger record than the SMP group. This pattern replicates the responses found in Ho 1. The gains across time, demonstrated by the SMP and CO groups, evidence a reoccurring pattern as well.

The results of Ho 2 show the impact of the PSMP on the percentage of assignments handed in on-time, the differences between the groups at both phases of the study, and the similar pattern of results between the SMP and CO groups.

Ho 3. This hypothesis examined students' study skill behavior in relationship to a study time and achievement experiment task. The task involved reading a short social studies selection, studying the passage for as much time as

the student preferred, and taking a short test on the passage. The task permitted students to utilize any short-term study technique and for whatever time they chose. The relationship between time and achievement (or time or achievement) X Group X Phase was studied. The task created an artificial situation in which the possible impact of on-task study behaviors and/or possible comprehension and note taking skills included within the SMP might be evidenced.

The results indicated that reasonable differences were found on time studied (both during the experimental and maintenance phases) and achievement when comparing the SMP X the PSMP and the CO X the PSMP, but not between the SMP X the CO. Students in the SMP and CO groups shortened their study time from the experimental to maintenance phases of the study and modestly improved their achievement. The PSMP students increased their study time while showing half the achievement gains of the SMP and CO groups. Achievement gains for any group were unimpressive but changes in study time were pronounced. These results may suggest that the SMP and CO group students developed more efficient study techniques which permitted them to cut their study time while showing small gains in achievement. On the other hand the PSMP students appeared to identify no techniques for more efficient study.

It must be pointed out that speed alone is not an important study technique. In fact more thorough study techniques, even those suggested in the SMP, might take students

additional time to employ. However, more thorough study habits also should lead to increases in achievement. Certainly, the unique characteristics of this experimental task do not lend themselves to examining a wide range of study techniques; yet, it does permit a preliminary investigation of the application of certain study skills. A student's "time" on the task may represent a crude indicator of several factors: 1) efficiency of study habits; 2) thoroughness of study skills; and/or, 3) confidence in a student's ability to "learn the material." The obtained results pointed more in the direction of "efficiency" of study habits and "confidence" in skills than the other possible interpretation. If students were more "thorough" in the use of study skills, one might have expected longer study times between the experimental and maintenance phases of the study and increases in achievement. This did not occur. In the one case where study time increased, the PSMP, achievement gains were negligible. This would imply little, if any, impact on learning due to improved study skills. In the case of the SMP and CO groups, the results indicated a diminution of study time and modest achievement gains. For about the same achievement levels, students' study time was shorter; this implies efficiency of study skills. For the CO group, the efficiency argument is strengthened when one examines the significant maintenance phase negative correlation between study time and achievement. The aspect of "confidence" may

be related to Ho 8 which examines students' attributions of academic functioning.

The results obtained in studying this hypothesis point out the trend of similarity between the SMP and CO groups. Since the PSMP program is mainly designed to bolster on-task behaviors, students could not be inherently expected to acquire techniques for improving study efficiency, etc. These results seem to substantiate this analysis.

Ho 4. This hypothesis attempted to view possible shifts in students' self-perceptions of personal study habits. The "Study Habits Questionnaire" was created by Harris and Ream as part of the SMP program. Prior to participating in the program, students were asked to assess their own study habits; this approach incorporated the self-investigation and self-control direction of the SMP. At the completion of the program, students were asked again to fill out the questionnaire. It would be expected that students participating in the SMP program would show the most results from the questionnaire.

Few important results accrued from this measure. The changes in attitudes as represented by the questionnaire occurred on only a few questions, and, then, indicating only slight change. Of interest to this discussion is the fact the questions most directly tied to the SMP itself (effective study, time spent studying, having a place to study, etc.) did tend to show more in favor of the SMP group than other groups.

Given that the SMP program was designed in part to accomplish these results, it is of interest to note that with a sample of non-exceptional students, some change was detected.

However, given the lack of significant attitudinal alterations, one is led to speculate on the attitudinal characteristics of the non-exceptional students within this study as compared with the more low reading type students from the previous research on the SMP. It is possible that non-exceptional, more so than exceptional, students' attitudes are more developed concerning "good" study techniques.

Ho 5. This hypothesis followed students' overall GPA through three of the four academic quarters within a school year. Students' academic achievement as represented by report card grades was examined X Group X Phase. As compared to standardized test score achievement, it might be expected that students' achievement in the immediate school environment might be more susceptible to change. An examination of the results in Ho 5, Ho 6, and Ho 7 confirm this speculation.

Significant results were found when comparing the phases of the study and the interaction between Group X Phase. The initial results demonstrate a highly significant change in overall GPA from quarter to quarter. In all three groups, students' GPA rose during the second quarter of the academic year and fell during the third. This tendency might suggest a general "get tough, ease off" grading approach by teachers. It would appear that teachers are most stringent

with their grades at the beginning of the year. The second quarter found all students improving. This also may result in students' increased familiarity with teacher expectations as well as a possible leniency on the teachers' part during the second quarter. The third quarter might find students in a possible winter lull and teachers slightly stiffening their grading procedures.

An analysis of the test of simple main effects assists in understanding the nature of the study skills programs. Significant interaction effects were found for the SMP and CO groups between the phases of the study. This was not the case with the PSMP group. This would suggest that the gains and losses of overall GPA had a relationship to the treatment group. It would appear that students in the PSMP group were unaffected by the study skills program in relationship to their overall GPA. This would tend to follow from the purpose of this program. The PSMP is designed to demonstrate improvements in the class in which it is employed. Students in the SMP and CO groups did show significant interaction effects between group membership and time. Interestingly, the CO group outgained the SMP group during the second quarter burst and lost no more GPA than the SMP at the third quarter. Once again, the trend towards similar findings between the SMP and the CO group grows stronger.

Ho 6. This hypothesis tracked students' GPA over three quarters in the subject area class in which the treatment ef-

fects were utilized. This permits a more careful examination of the influences of the study skills programs.

Group membership and interaction between Group X Phase were highly significant. This suggests that the GPA changes in the subject area class can be attributed to the programs used rather than time alone. In other words, the lack of a significant difference due to Phase alone suggests that the quarter itself was not as significant in influencing a student's Subject Area Class GPA as was the Group. The test for the simple main effects details a significant second (experimental phase) and third (maintenance) quarter interaction. It further demonstrates that the PSMP and CO groups had significant alterations of GPA between Phases. A more detailed examination of the results reveals an interesting phenomenon.

Whereas the SMP and CO group Subject Area GPA rises during the second quarter and drops off slightly during the third quarter, an inverse event occurred with the PSMP group. Students in the PSMP group found their Subject Area GPA drop slightly during the experimental phase of the study and rise when the PSMP was not being utilized. Unlike the results from Ho 1 and Ho 2, where the PSMP showed positive gains significantly greater than the two other groups, it appears that these students' GPA suffered due to the treatment effect. This is verified by examining the results in Ho 5 as well. Here one can determine that the PSMP Overall GPA showed

the same trend as did the SMP and CO even if not as significantly. This suggests that PSMP students did better in all classes except the treatment group class.

One possible explanation of this phenomenon might relate to the response of non-exceptional students to the use of a token economy system. This would concur with Swatsenbarg's findings (1978) in which non-exceptional students showed little difference in subject area achievement due to the PSMP. Even though classroom behaviors were altered and on-task skills identified, subsequent achievement gains failed to occur. In non-experimental settings some teachers found better results (Henderson, 1981). Whereas on-task behaviors appear to be altered by the PSMP (Basarich, Ferrara, and Rudrud, 1981; Davidsmeyer, 1980; and, Lampe, 1978), concomitant achievement gains are not an inherent corollary of the PSMP process.

Another plausible explanation might relate to possible interference effects in the teaching process as opposed to the learning process. It might be speculated that teachers utilizing the PSMP found that it sufficiently interfered with their normal teaching style to adversely influence the quality of their instruction. Both the design of the study and the construction of the PSMP by Erken and Henderson have attempted to overcome problems associated with token economies (Becker, Kuypers, and O'Leary, 1968; Bootzin and Kazdin, 1972; and, O'Leary and Drobermann, 1971). Additional sensitivity in this

area may be required. Whether the problem related to the loss of GPA was fundamentally a learning dilemma, an instructional flaw, or an interaction of the two, it does not alter the fact that the PSMP showed significant gains on other dependent measures. Taken as a whole, it is apparent that with non-exceptional students the two study skills programs have differential effects. Rather than uncover simple and clear trends in the application of these programs, the above results underline the complex nature of teaching and learning in relationship to the study skills programs in question.

The SMP and CO group again demonstrated a similar trend in their results. The CO group showed greater gains than the SMP group and the same loss in Subject Area GPA while showing greater gains and greater losses than the SMP group in Overall GPA. It must be clearly established by now that the Curricular Objectives group demonstrated important results throughout the study. This would tend to suggest that more attention be given to the processes at work within these classes.

Ho 7. This hypothesis explored the possible effects on reading comprehension achievement test scores due to group membership over the course of the study. Given that the study skills programs were being utilized in an English class, it would have appeared that the choice of a reading comprehension sub-test might be a reasonable indicator of such

change.

The analysis of the adjusted scale scores manifested no significant change in reading comprehension achievement due to the treatment effects, either due to Group or Phase. This would suggest that, unlike report card grades, reading comprehension is not as susceptible to either quick or dramatic change due to study skills programs. Further, normal development or motivation over a half of a year did not seem to significantly alter these findings as well. These results might indicate either that the study skills programs were insufficiently powerful to significantly alter students' achievement scores and/or that standardized test scores more clearly evaluate the content areas than students' general study skills and habits. Standard achievement test batteries do have a sub-test on reference skills which might appear to be a better match for this measure. However, it must be pointed out in relationship to the four definitions of study skills presented early that the reference tests usually examined the "reference aide" definition of study skills rather than the on-task or instructional programs definitions. Because of this, the reference aide sub-test was rejected as a suitable measure of change in study skills in relationship to this study.

The lack of change in reading comprehension should be compared to the clear and thought provoking changes in achievement as measured by GPA.

Ho 8. This hypothesis examined the possible impact by

study skills programs on students' attributions of their academic functioning. Did the students attribute their level of academic functioning more to themselves (internal attributions) or other people or things (external attributions)? The IAR scale permits a detailed analysis of student attributions on success events (does the student attribute successes in school to internal or external forces) and failure events (does the student attribute failures to internal or external forces).

The results clearly conform to the norms established by Crandall, Katkovsky, and Crandall (1965) where students had relatively high internal attributions concerning academic functioning, with more internal attributions for success events than failure events. However, the present study showed a significant change in success oriented attributions as well as the total attributions over the two phases of the study. Of interest is the trend in which the SMP and PSMP groups demonstrate slight gains in their total attribution scores while the CO group showed a net loss. One might suggest that the overall increase in internal attributions with the SMP group was related to the instructional basis to the program. One of the objectives of the SMP program is to assist students in taking on a greater degree of "self-management" with their study skills. To the extent that the program accomplished this purpose, one might expect gains in this area.

With the PSMP group, interpretation may be more complex. The PSMP attempts to help teachers develop more on-task

student behaviors. At such time as levels of on-task behaviors and daily work are accomplished, the formal program is to be discontinued. It may be possible that non-exceptional students utilizing this program also may develop greater internal attributions. Attributions of academic functioning can be independent of actual academic success. In other words, an individual may attribute to themselves their academic performance regardless of the level of that performance, be it excellent, mediocre, or poor. As such, the apparent conflict between the subject area GPA results and the IAR results may have no inter-relationship.

Unlike previous hypotheses, this is the first one where the CO group's results diverged from those of the SMP group. Perhaps of all dependent measures, the case of academic attributions is the one area where the SMP differentiated itself in a positive direction.

Ho 9. This hypothesis focused on the question of students' classroom behavior. Originally, it was thought that the PSMP group might show resultant differences from the other groups on reducing possible levels of disruptive behavior within classes. At the completion of the study, the results indicated that all of the teachers within the study virtually had no disruptive student behaviors that led to referrals out of class.

This "lack" of data tends to suggest that the level of teacher ability to respond to the range of student be-

haviors within their classes was very high. In all cases the faculty cooperating with the study were veteran teachers. Rather than suggest that classroom misbehavior did not occur, it is more likely that occurrences of misbehavior were dealt with by the teacher without assistance from other staff within the school. When this measure was originally construed, it was felt that it might provide an "objective" measure unbiased by the teacher. As such, it was the only measure in the study of which cooperating teachers were unaware. Consideration had been given to having the teachers collect this data, but great reliability questions would be raised by such a procedure.

It is reasonable to suggest that the skill level of the teachers was such to eliminate this measure as a possible means of comparison between the study skills program.

Ho 10. This hypothesis related to academic achievement. Initially, it was proposed that a task analysis of all graded assignments given students during the treatment phase of the study be interpreted for possible trends. The type of assignment, the number of days given to accomplish the assignment, and the students' GPA by type of assignment were to be analyzed in an attempt to distinguish relevant trends. Data were collected from each teacher and coded according to these variables. However, it became apparent that considerable variability existed from teacher to teacher on the types of assignments given students. In fact, insufficient similar-

ity existed to make a coherent and meaningful analysis possible.

Overall discussion and suggestions for further research

The present research effort attempted to test two study skills programs on a major sample of non-exceptional students examining behavioral, achievement, and motivational constructs. Each program had demonstrated varied degrees of success with more limited samples of students whose characteristics were more exceptional than not. The topic of study skills was chosen as important for it appeared to intersect a variety of issues important to teaching and learning within the field of educational psychology.

The study yielded significant data on a spectrum of dependent measures. Generally speaking, it was found that the SMP and CO groups had vastly similar characteristics leading to speculation that: 1) the manner in which teachers incorporate study skills concepts and techniques from their district's curricular objectives into their classroom lessons was as effective, if not more, than the systematic materials of the SMP; and, 2) "self-management" processes were informally utilized by these teachers. On all measures except the attribution of academic achievement, the CO group's scores followed patterns similar to those of the SMP at the same strength or greater.

Harris and Trujillo (1975) did find that a discussion group treatment had noticeable gains in some areas of study skills even though the SMP demonstrated greater changes in

some study skills. From the results of the present study, several important questions may be raised. To what extent were students able to internalize the self-management concepts inherent in the SMP? What type of self-management learning occurred in the CO group and was it incidental or directed? It could prove worthwhile to undertake a more detailed analysis of both the SMP and CO group processes in relationship to Mahoney and Thorsen's model (1974) of behavioral self-management (see Figure 1). Such an analytical examination, perhaps undertaken from a developmental perspective, could pinpoint more precisely factors at work with each approach.

Certainly, the SMP group students appeared to have greater attributions at the end of the maintenance phase of the study than other students. This tends to lend conceptual support to the premises of the SMP program.

These findings suggest a variety of areas for further research. One, it would be of interest to examine more closely the actual curricular objectives school districts have developed concerning study skills, the processes by which these objectives are met, and a comparative analysis of these objectives to the SMP program and others. Further, it would be intriguing to construct a more coherent developmental (seventh through twelfth grade) understanding concerning how self-control, self-management concepts and procedures embedded with the SMP program are influenced. To what extent, if any, was

the SMP limited at the seventh grade level from demonstrating more potential results due to maturational factors? Perhaps the early adolescent period does not lend itself to considerable cognitive self-management of school related study skills?

Initially, it was felt that this age group was manifestly suited to the impact of study skills programs. However, it might be possible that, between seventh grade and the college years, an "optimal" age level exists for influencing study skills. Biggs (1978) had persuasively argued that at the college level a combination of "personalogical" and institutional factors contributed to inter-student variance more so than study skills. General developments in cognition (Brown, 1978; and, Piaget, 1958) occur during adolescence. In addition Annis and Annis (1982) have shown that students' reported preferred study techniques also change during this time. Sixth through eighth graders predominately report reading techniques alone while tenth through twelfth graders report a more diversified approach to studying including either reading, reading and note taking, reading and underlining, or a combination of these three approaches. The self-control aspects of the SMP may accrue greater benefits at one age level than another, particularly with non-exceptional students.

Two, the PSMP demonstrated reasonable success in the areas of assisting students' preparation for class and handing assignments in on-time. Students having experienced the PSMP also showed improvement in their internal attributions during

the maintenance phase of the study. Certain problems appeared to arise for PSMP students in relationship to their GPA in the subject area class suggesting either learner or teacher difficulty with the system. Additional research may help clarify this question. In classrooms of non-exceptional students are there particular characteristics of teachers and/or students which should be considered when recommending the use of this program? Given the differential success of the PSMP in this study with non-exceptional students and the findings of others (McLaughlin and Malaby, 1972) that the "worst" students received greater assistance from a token economy system than other students, it appears reasonable to examine more closely various interaction effects between types of students and types of study skills programs.

Finally, it should be pointed out that the present research effort is but a minor step in developing a more coherent and comprehensive understanding of study skills and techniques programs for developing and improving them. While this research project focused on the comparison of two rather discrepant programs developed for the purposes of improving students study skills, it is also hoped that the effort has assisted in bringing additional clarity and insight into the general area of study skills. Many other programs and approaches exist and should be compared and systematically examined.

REFERENCES

- Aiken, E. G., Thomas, G. S., & Shennun, W. A. Memory for a lecture: effects of notes, lecture rate, and information density. Journal of Educational Psychology, 1975, 62(3), 439-444.
- Allen, G., & Breyer, N. Effects of implementing a token economy system on teacher attending behavior. Journal of Applied Behavior Analysis, 1975, 8, 373-380.
- Annis, L. Effects of encoding and an external memory device on note taking. Journal of Experimental Education, 1975, 44, 44-46.
- Annis, L. F., & Annis, D. B. A normative study of students' reported preferred study techniques. Reading World, 1982, 21(3), 201-207.
- Annis, L., & Davis, J. K. Study techniques and cognitive style: their effect on recall and recognition. Journal of Research, 1978, 71(3), 175-178.
- Armbruster, B. B. An investigation of the effectiveness of "mapping" text as a study strategy for middle school students (Doctoral dissertation, University of Illinois at Urbana-Champaign, 1979). Dissertation Abstracts International, 1980, 40(10-A), (University Microfilm No. 80-08, 962.

- Bar-Tal, D. Attributional analysis of achievement-related behavior. Review of Educational Research, 1978, 48(2), 259-271.
- Basarich, T., Ferrana, J., & Rudrud, E. Learner Validation of the Practice Skills Mastery Program with Emotionally Handicapped Adolescents. Unpublished manuscript, 1981. (Available from Joseph Ferrara, Delzell Education Center, University of South Dakota, Vermillion, South Dakota, 57089).
- Beneke, W. M., & Harris, M. B. Teaching self-control of study behavior. Behavior Research and Therapy, 1972, 10, 35-41.
- Biggs, J. B. Individual and group differences in study processes. British Journal of Educational Psychology, 1978, 48(3), 266-79.
- Birnbrauer, J. S., Wolf, M. M., Kidder, J., & Tague, C. E. Classroom behavior of retarded pupils with token reinforcement, Journal of Experimental Child Psychology, 1965, 2, 219-235.
- Blake, Jr., W. S. Study skills programs. Journal of Higher Education, 1955, 26(2), 97-99.
- Boegli, C., & Wassik, B. Use of token system to intervene on a school wide basis. Psychology in Schools, 1978, 15, 72-78.
- Bolstad, O. D., & Johnson, S. M. Self-regulation in the modification of disruptive classroom behavior. Journal of Applied Behavior Analysis, 1972, 5, 443-454.

- Briggs, R. D., Tosi, D. J., & Morley, R. M. Study habit modification and its effect on academic performance: a behavioral approach. Journal of Educational Research, 1971, 64(8), 347-350.
- Broden, M., Hall, R. V., & Mitts, B. The effect of self-recording on the classroom behavior of two eighth grade students. Journal of Applied Behavior Analysis, 1971, 4, 191-199.
- Brown, A. L. Knowing when, where, and how to remember: a problem in megacognition. In R. Glaser (Ed.), Advances in Instructional Psychology. Hillside: Lawrence Erlbaum Associates, 1978.
- Brown, A. L., & Smiley, S. S. Development of strategies of studying texts. Child Development, 1978, 49(4), 1076-1088.
- Bushell, S. A., & Bushell, D., Jr. A dual contingency procedure to support student self-determination and performance. In T. A. Brigham, R. Hawkins, J. Scott, & T. F. McLaughlin (Eds.), Behavior Analysis in Education: Self-Control and Reading. Dubuque: Kendall/Hunt, 1974.
- Bushell, D., Wrobel, P., & Michaelis, M. Applying group contingencies to the classroom study behaviors of pre-school children. Journal of Applied Behavior Analysis, 1968, 1, 55-62.
- California Achievement Tests: Technical Bulletin 1.
Monterey: CTB/McGraw-Hill, 1979.

- Catania, A. C. The myth of self-reinforcement. In T. A. Brigham, R. Hawkins, J. Scott, & T. F. McLaughlin (Eds.), Behavior Analysis in Education: Self-Control and Reading. Dubuque: Kendall/Hunt, 1974.
- Cobb, J., & Hops, H. Effects of academic survival skill training on low achieving 1st graders. Journal of Educational Research, 1973, 67(3), 108-113.
- Cohen, R. Effects of self-monitoring on academic and social behavior of underachieving children (Doctoral dissertation, University of Indiana, 1978). Dissertation Abstracts International, 1978, 38(12-A), 7275-7276. University Microfilm No. 78-01, 010).
- Colwell, C. G. An investigation of a direct-functional study skill technique on seventh-grade social studies classes (Doctoral dissertation, West Virginia University, 1980). Dissertation Abstracts International, 1980, 41(3-A), 1001-1002. (University Microfilm No. 80-19, 166)
- Crandall, V. C., Katkovsky, W., & Crandall, V.J. Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. Child Development, 1965, 36, 91-109.
- Davidsmeyer, P. L. A study of the effects of the practice skills mastery program on trainable mentally retarded students. Unpublished masters' thesis, Utah State University, 1980.

- DiVesta, F. J., & Gray, G. S. Listening and note taking. Journal of Educational Psychology, 1972, 63(1), 8-14.
- Dweck, C., & Reppucci, N. D. Learned helplessness and reinforcement responsibility in children. Journal of Personality and Social Psychology, 1973, 25(1), 109-116.
- Entwistle, D. R. Evaluation of study skills courses: a review. Journal of Educational Research, 1960, 53(7), 247-51.
- Entwistle, N. Strategies of learning and studying: recent research findings. British Journal of Educational Studies, 1977, 25(3), 225-238.
- Erken, N., & Henderson, H. Practice Skills Mastery Program. Logan: Mastery Programs Unlimited, 1976.
- Farnum, M., & Brigham, T. A. The use and evaluation of study guides with middle school students. Journal of Applied Behavior Analysis, 1978, 11(1), 137-144.
- Frase, L. Boundary conditions for mathemogenic behavior. Review of Educational Research, 1970, 40, 337-347.
- Frase, L. T., & Schwartz, B. J. Effect of question production and answering on prose recall. Journal of Educational Psychology, 1975, 67(5), 628-635.
- Gadzella, B. M. Performance on objective and essay tests by individualized study, lecture, and group discussions in educational psychology. Perceptual and Motor Skills, 1977, 44, 753-754.

- Gadzella, B., & Goldston, J. Effects of study guides and classroom discussion on students' perceptions of study habits. Perceptual and Motor Skills, 1977, 44, 901-902.
- Gagne, R. M., & Briggs, L. J. Principles of Instructional Design, Chicago: Holt, Reinhart, and Winston, 1974.
- Garrison, C. B. A Comparative investigation of behavioral counseling groups techniques used to modify study skills, attitudes, and achievement of selected high school students (Doctoral dissertation, State University of New York, Buffalo, 1971). Dissertation Abstracts International, 1971, 32(3-A), 1271, (University Microfilm No. 71-21, 703.
- Glynn, E. L. Classroom applications of self-determined reinforcement. Journal of Applied Behavior Analysis, 1970, 3, 123-132.
- Gottman, J., & McFall, R. M. Self-monitoring effects in a program for potential high school dropouts: a time series analysis. Journal of Consulting and Clinical Psychology, 1972, 39(2), 273-281.
- Gross, L. Relationship between reading achievement, knowledge of specific study skills, and success in content areas for seventh grade middle school students (Doctoral Dissertation, Temple University, 1978). Dissertation Abstracts International, 1978, 39(4-A), 2116-2117. (University Microfilms No. 78-17, 383.)

- Grundle, Thomas, J. Self-control techniques applied to study behavior (Doctoral dissertation, De Paul University, 1975). Dissertation Abstracts International, 1975, 36(3-8), 1435. (University Microfilms No. 75-19, 891)
- Hall, R. V., Lund, D., & Jackson, D. Effects of Applied Behavior Analysis, 1968, 1, 1-12.
- Harris, M. B., & Ream, F. A program to improve study habits of high school students. Psychology in School, 1977, 2, 325-330.
- Harris, M. B., & Trujillo, A. E. Improving study habits of junior high school students through self-management versus group discussion. Journal of Counseling Psychology, 1975, 22(6), 513-517.
- Haslam, W. L., & Brown, W. F. Effectiveness of study skills instruction for high school sophomores. Journal of Educational Psychology, 1968, 59(4), 223-226.
- Henderson, H. H. Personal meeting, May 29, 1981.
- Holtzman, W. H., & Brown, W.F. Evaluating the study habits and attitudes of high school students. Journal of Educational Psychology, 1968, 59(6), 404-409.
- Jackson, B., & Van Zoost, B. Changing study behaviors through reinforcement contingencies. Journal of Counseling Psychology, 1972, 19(3), 192-195.
- Jeffrey, D. B. Self-control: methodological issues and research trends. In M. J. Mahoney & C. E. Thorsen (Eds.), Self-control: power to the person. Monterey: Brooks/Cole, 1974.

- Johnson, S. M. Self-reinforcement vs. external reinforcement in behavior modification with children. Developmental Psychology, 1970, 3(1), 147-148.
- Johnson, S. M., & Martin, S. Developing self-evaluation as a conditional reinforcer. In B. A. Ashem & E. G. Poser (Eds.), Adaptive Learning: behavior modification with children. New York: Pergamon Press, 1973.
- Kahn, S. B., & Roberts, D. M. Relationships among study habits and attitudes, aptitudes, and grade 8 achievement. Education and Psychological Measurement, 1969, 29(4), 951-955.
- Kazdin, A. E. Self-monitoring and behavior change. In M. J. Mahoney & C. E. Thorsen (Eds.), Self-control: power to the person. Monterey: Brooks/Cole, 1974.
- Kazdin, A. E. The Token Economy: A Review and Evaluation. New York: Plenum Press, 1977.
- Kazdin, A. E., & Bootzin, R. A review of observation data collection and reliability procedures. Journal of Applied Behavior Analysis, 1972, 5, 343-372.
- Kirk, R. E. Experimental Design: Procedures for the Behavioral Sciences, Belmont: Brooks/Cole, 1968.
- Koch, L., & Breyer, N. L. A token economy for the teacher. Psychology in the Schools, 1974, 11, 195-200.
- Klahr, D. (Ed.) Cognition and Instruction. Hillsdale: Lawrence Erlbaum Associates, 1976.

- Kulhavy, R. W., Dyer, J. W., & Silver, L. The effects of note taking and test expectancy on the learning of text material. Journal of Educational Research, 1975, 67(4), 514-520.
- Kuypers, D. S., Becker, W. C., & O'Leary, D. K. How to make a token system fail. Exceptional Children, 1968-69, 35, 101-109.
- Lampe, S. A study of the effects of a variable interval reinforcement program on pupil behavior. Unpublished masters' thesis, Utah State University, 1978.
- Light, L., & Alexakos, C. E. Effect of individual and group counseling on study habits. Journal of Educational Research 1970, 63(10), 450-454.
- Lovitt, T. C., & Curtis, K. A. Academic response rate as a function of teacher and self-imposed contingencies. Journal of Applied Behavior Analysis. 1969, 2, 49-53.
- Madden, R., Gardner, E. F., Rudman, H. C., Karlsen, B., & Merwin, J. C. Stanford Achievement Test: Technical Data Report. New York: Harcourt, Brace, Jovonovich, 1975.
- Main, G., & Monro, B. A token reinforcement in a public junior high school. Journal of Applied Behavior Analysis, 1977, 10, 97-101.
- Mahoney, M. J., Moore, B. S., Wade, T. C., & Moura, N. G. M. Effects of continuous and intermittent self-monitoring on academic behavior. Journal of Consulting and Clinical Psychology, 1973, 41(1), 65-69.

- Mahoney, M. J., & Thorsen, C. E. (Eds.). Self-Control: Power to the Person. Monterey: Brooks/Cole, 1974.
- Matheny, K. B., Anderson, G. L., & Blue, F. R. Development of effective behavior in school through models. Journal of Psychology, 1978, 99(1), 75-81.
- Mayer, R. E. Thinking and Problem Solving. Glenview: Scott Foresman and Co., 1977.
- McLaughlin, T. F., & Malaby, J. Intrinsic reinforcers in a classroom token economy. Journal of Applied Behavior Analysis, 1972, 5, 263-270.
- McMains, M. J., & Liebert, R. M. Influences of discrepancies between successfully modified self-reward criteria on adoption of a self-imposed standard. Journal of Personality and Social Psychology, 1968, 8, 166-171.
- McQuaid, M. L. The development and evaluation of a program designed to strengthen the secondary school underachiever in twenty work-study skills. Dissertation Abstracts International, 1971, 32(4-A), 1946A. (University Microfilms No. 71-26, 716)
- McReynolds, W. T., & Church, A. Self-control, study skills development and counseling approaches to the improvement of study behavior. Behavior Research and Therapy, 1973, 11, 233-235.
- Nelson, K. Cognitive development and the acquisition of concepts. In Anderson, R. C., Spiro, R., & Montague, W. E. (Eds.), Schooling and the acquisition of knowledge. Hillside: Lawrence Erlbaum Associates, 1977.

- Norman, D. A. Memory and attention: an introduction to human information processing, New York: John Wiley and Sons, 1976.
- O'Leary, K. P., & Droberman, R. Token reinforcement in the classroom: a review. Psychological Bulletin, 1971, 75, 379-398.
- Olson, D. R. The language of instruction: on the literate bias of schooling. In R. C. Anderson, R. J. Spiro, & W. E. Montague (Eds.), Schooling and the Acquisition of Knowledge. Hillside, New Jersey: Lawrence Erlbaum Associates, 1977.
- Piaget, J., & Inhelder, B. The growth of logical thinking from childhood to adolescence: an essay on the construction of formal operational structures. New York: Basic Books, 1958.
- Price, P. C. An investigation of disadvantaged eighth grade student's social studies concept attainment, study skills, and reading comprehension (Doctoral dissertation, Georgia State University, 1978). Dissertation Abstracts International, 1978, 38(7-A), 4084. (University Microfilms No. 77-29, 317)
- Richard, H., Melvin, K., Creel, J., & Creel, L. The effects of bonus tokens upon productivity in a remedial classroom for behaviorally disturbed students. Behavior Therapy, 1973, 4, 378-385.

- Robbins, G. E., & Rogers, D. E. Dogmation and study time in high school students - better be wrong than long. Journal of Educational Research, 1975, 69(3), 120-121.
- Robinson, F. P. Effective Study. (14th ed.) New York: Harper & Row, 1970.
- Rothkopf, E. Z. The concept of mathemagenic activities. Review of Educational Research, 1970, 40, 325-336.
- Robyak, J. Study skills vs. non-study skills: a discriminate analysis. Journal of Educational Research, 1978, 71(3), 161-166.
- Sagotsky, G., Patterson, C. J., & Lepper, M. R. Training children's self-control: a field study in self-monitoring and goal setting in the classroom. Journal of Experimental Child Psychology, 1978, 25, 242-253.
- Schuell, T. J. Research trends in educational psychology. Newsletter of Educational Psychology, 1982, 5(1), 5-7.
- Scott, J. L. The effects of a learning program on work skills and attitudes toward work. (Doctoral dissertation, University of Missouri, 1973). Dissertation Abstracts International, 1974, 34(11-A), 7021. (University Microfilms No. 74-9984)
- Seni, C. L., Gadzella, B. M., Goldston, J., & Zimmerman, M. L. Differences and changes of internally oriented students study habits. College Student Journals, 1978, 12(3), 294-298.
- Sharp, S. L. Effective study methods. Journal of Higher Education, 1943, 14, 271-271.

- Shepps, F. P. & Shepps, R. R. Relationship of study habits and school attitudes to achievement in math and reading. Journal of Educational Research, 1971, 65(2), 71-73.
- Slansky, J. A. N. The effectiveness of study skills instruction for seventh grade students (Doctoral dissertation, University of Colorado at Boulder, 1979). Dissertation Abstracts International, 1980, 40(8-A), 5369. (University Microfilms No. 80-03, 016)
- Statistical Analysis System, Version 79.3, SAS User's Guide, Cary, North Carolina: SAS Institute, Inc., 1979.
- Swatsenbarg, P. Validation of a program for increasing study skills and an analysis of its effects on conduct and arithmetic achievement (Doctoral dissertation, 1977). Dissertation Abstracts International, 1978, 38, 7275A-7276A. (University Microfilms No. 78-08, 141)
- Technical Bulletin No. 1: CTBS, Form S, All Levels. Monterey: CTB/McGraw-Hill, 1974.
- Thomas, G. S. Use of student notes and lecture summaries as study guides for recall. Journal of Educational Research, 1978, 71(6), 316-319.
- Thomas, K. J. The directed inquiry activity: an instructional procedure for content reading. Reading Improvement, 1978, 15(2), 138-140.
- Thorsen, C. E., & Mahoney, M. J. Behavioral Self-Control, Chicago: Holt, Reinhart, and Winston, 1974.

- Thweatt, W. H. The Vicious circle in study problems. Personnel and Guidance Journal, 1976, 54(9), 469-471.
- Turrell, A. M. Study methods and scholarship improvement. Junior College Journal, 1937, 7, 295-301.
- Walker, H., & Buckley, N. The use of positive reinforcement in conditioning attending behavior. Journal of Applied Behavior Analysis, 1968, 1, 245-252.
- Weiner, B. Attribution Theory, achievement motivation, and the educational process. Review of Educational Research, 1972, 42(2), 203-215.
- Weiner, B. (Ed.). Achievement Motivation and Attribution Theory, Norristown: General Learning Press, 1974.
- Welsch, W. J. Student gains in science achievement and self-as-learner attitude produced by study skills instruction (Doctoral dissertation, University of Arizona, 1978). Dissertation Abstracts International, 1978, 39(6-A), 3343-3344. (University Microfilms No. 78-23, 775).
- Wilson, N. C. H. The effects of anxiety management training and study skills counseling on test anxiety, test performance, and self-esteem (Doctoral dissertation, University of South Carolina, 1980). Dissertation Abstracts International, 1981, 41,(8-A), 3432. (University Microfilms No. 81-02, 794)
- Wittrock, M. C. Learning as a generative process. Educational Psychologist, 1974, 11, 87-95.

Zarb, J. M. Nonacademic predictors of successful academic achievement in a normal adolescent sample. Adolescence, 1981, 16(64), 891-900.

APPENDIX A

APPENDIX A

STUDY SKILLS PROJECT

Instructions: Being "prepared" for class

To be done during the week of _____.

On either _____ or _____ (choose the day of the week you have not done this on before and circle which day you chose) please do the following:

1. Do not remind the students the day before that you will be checking to see if they are prepared for class.
2. On the day you selected do this tally at the beginning of class without permitting students to go to their lockers to get materials.
3. Ask all students to place on their desks the materials they need for class that day.
4. Using the enclosed criteria which you developed, check to see if students have ALL of the required materials.
5. If a student has ALL of the required materials/supplies, etc., place a check (X) next to his/her name on the enclosed classlist.
6. If a student does NOT have all of the required materials/supplies, place a zero (0) next to his/her name.
7. If a student is absent, place an AB in the box next to his/her name.
8. If any student transferred out of school or is a new student, please indicate.

If you have any questions, please call me at 835-2660/835-4380 (school) or 235-0094 (home).

APPROVAL SHEET

The dissertation submitted by Nelson Armour has been read and approved by the following committee:

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Educational Foundations, Loyola

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

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

Date

12/15/02

Director's Signature

Joy Rogers