GENERALIZATION AND MAINTENANCE OF TREATMENT GAINS OF BEHAVIORALLY/
EMOTIONALLY HANDICAPPED STUDENTS FROM RESOURCE ROOMS TO
REGULAR CLASSROOMS USING SELF-EVALUATION PROCEDURES

by

Ginger Rhode

A dissertation submitted in partial fulfillment
of the requirements for the degree
of
DOCTOR OF PHILOSOPHY
in
Special Education

Approved:

UTAH STATE UNIVERSITY
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1981
DEDICATION

This dissertation is dedicated to my parents, Gail and Margaret Haut, and my son, Jason, who understood how important this goal was to me and provided the support to accomplish it.
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I am especially indebted to Daniel P. Morgan for his initial inspiration, continued guidance, and tireless efforts in providing opportunities for professional growth in all aspects of my doctoral program. It is due largely to his unrelenting demands for the expansion of my knowledge and skills that this dissertation has been produced. Dr. Morgan has filled the roles of major professor, advisor, committee chairman, and friend during my tenure at Utah State.

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Co Brunner is recognized for her staunch, unwavering aid as the manuscript portions of the dissertation were prepared. Never has a doctoral candidate had such a strong ally behind the typewriter.
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ABSTRACT

Generalization and Maintenance of Treatment Gains of Behaviorally/Emotionally Handicapped Students From Resource Rooms To Regular Classrooms Using Self-Evaluation Procedures

by

Ginger Rhode, Doctor of Philosophy

Utah State University, 1981

Major Professor: Dr. Daniel P. Morgan
Department: Special Education

Students who are removed from their regular classrooms for treatment in special education classrooms commonly exhibit positive behavior gains in those settings. Typically, however, the gains do not generalize and maintain when the students are returned to their regular classrooms. The present study initially provided six Behaviorally/Emotionally Handicapped elementary school students with a short-term resource room treatment to bring their behavior under the control of a combination of procedures emphasizing self-evaluation. Once acceptable levels of appropriate behavior were maintained with only minimal external reinforcement and students accurately self-evaluated their own work and behavior, generalization and maintenance of behavior gains were sought in subjects' regular classrooms.

A multiple baseline across pairs of subjects design was used to examine individual subjects' behavior throughout the study. Analysis of the results of the study indicated that once self-evaluation procedures were extended into subjects' regular classrooms, subjects transferred
and maintained high levels of appropriate classroom behavior in those settings. For four of the six subjects, all extratraining components were faded from use. Only two subjects required a modified form of the original intervention to maintain behavior gains in their regular classrooms.

(200 pages)
CHAPTER I

INTRODUCTION

Students are initially referred to and placed in special education programs because they have unique academic, social, emotional or physical needs which require specially designed instructional programs. The primary objective of providing special education services is to lessen the impact or accommodate the effects of students' handicaps on their educational growth (Turnbull & Turnbull, 1978). The ultimate goal of special education is to promote sufficient positive changes in the educational performance of the handicapped that they no longer require or are eligible for special education services (Cartwright, Cartwright, & Ward, 1981).

The success of special education programs, whether they are full-time or part-time programs, is often measured by the extent to which handicapped students' educational improvements transfer or generalize from their special education classrooms to their mainstream settings which, in most cases, are regular classrooms (Reynolds, 1979). Facilitating positive generalization and maintenance of gains from special education settings to regular classrooms, then, is a key ingredient in the overall success of handicapped students' education programs (Asher & Taylor, 1981; Gottlieb & Leyser, 1981). However, there is little evidence to date that gains made in special education programs are consistently transferred to regular classroom settings. In fact, the research literature suggests that the reverse is true. Typically, when
students are removed from their regular classrooms for treatment in resource rooms or other special education settings, they exhibit academic and behavioral improvements in the special education settings but do not maintain the improvements after returning to their regular classrooms (Walker & Buckley, 1972; Wildman & Wildman, 1975).

In recent years, research in psychology and special education has begun to focus on the use of self-control training as a means of facilitating generalization and maintenance of treatment gains (Drabman, Spitalnik, & O'Leary, 1973; Robertson, Simon, Pachman, & Drabman, 1979; Stokes & Baer, 1977; Turkewitz, O'Leary, & Ironsmith, 1975). Self-control training is an appealing means of promoting behavioral improvements in nontreatment or regular classroom settings, since students depend less on their teachers for guidance, reinforcement and control than was required prior to training (Workman & Hector, 1978). Other benefits of self-control training are an assumed increase in students' perceptions of their own competence and the notion of their active participation in and responsibility for obtaining treatment gains (Henker, Whalen & Hinshaw, 1980). It has also been suggested that treatment gains which are regulated by self-control procedures appear more resistant to extinction than those established by externally regulated procedures alone (Johnson, 1970; Kanfer & Duerfeldt, 1967; McLaughlin, 1976; Rosenbaum & Drabman, 1979).

The present study, a modification and extension of three previous studies (Drabman et al., 1973; Robertson et al., 1979; Turkewitz et al., 1975), examined the use of self-control procedures for
Behaviorally/Emotionally Handicapped elementary school students. The focus of the study was on a particular type of self-control training, self-evaluation, and its utility for transferring and maintaining treatment gains from a special education resource room to the subjects' regular classrooms.

Problem Statement

Behaviorally-oriented treatment programs have repeatedly been demonstrated effective for changing the behavior of handicapped students in special education settings (Bandura, 1969; Kazdin & Bootzin, 1972; O'Leary & Drabman, 1971). Typically, however, when handicapped students return to regular classrooms from special education settings because their classroom behavior and/or academic performance have improved, the treatment gains decay (Keeley, Shemberg, & Carbonell, 1976; Turkewitz et al., 1975; Walker, 1979). While self-control training appears to be one viable means of promoting generalization and maintenance of changed behavior in regular classrooms, there have been few studies which have documented a practical application of any of the forms of self-control training with handicapped children for obtaining generalization and maintenance of treatment gains in their regular classrooms. The problem, then, was that there was a lack of research for the use of treatment procedures emphasizing self-evaluation training for obtaining stable behavior changes in handicapped students' regular classrooms after they have received initial treatment in special education settings.
Purpose and Objectives

The purpose of the study was to investigate whether positive behavior changes acquired by Behaviorally/Emotionally Handicapped students during a short-term special education resource room treatment could be generalized to and maintained in regular classrooms utilizing greatly reduced or no treatment procedures. The specific objectives of the study were to determine whether a combination of treatment procedures emphasizing self-evaluation training would be effective in:

1) transferring (generalizing) increased rates of appropriate classroom behavior of Behaviorally/Emotionally Handicapped students from the resource room back to their regular classrooms.

2) transferring (generalizing) reduced rates of inappropriate classroom behavior of Behaviorally/Emotionally Handicapped students from the resource room back to their regular classrooms.

3) maintaining increased rates of appropriate behavior of Behaviorally/Emotionally Handicapped students in their regular classrooms with greatly reduced or no intervention.

4) maintaining reduced rates of inappropriate behavior of Behaviorally/Emotionally Handicapped students in their regular classrooms with greatly reduced or no intervention.

Organization of the Study

Chapter I has presented the statement of the problem and the purpose and objectives of the study. Chapter II presents a review of the literature relevant to this research. Chapter III describes the methods used in conducting the study. Chapter IV presents the results of the study, and Chapter V discusses the major findings, methodological limitations, and implications for teachers and makes recommendations.
for future research.
CHAPTER II

REVIEW OF THE LITERATURE

Chapter II includes sections on generalization and maintenance, promoting generalization and maintenance in the classroom, self-control training in the classroom, maximizing self-control effectiveness, types of self-control training and self-evaluation studies relevant to classroom settings.

Generalization and Maintenance

To date, behavior management programs initiated in special education classrooms which have produced behavior changes in students' regular classrooms are rare. In two literature reviews which together included 159 studies (Keeley, et al., 1976; Workman & Hector, 1978), follow-up data in behavior management studies was strongly encouraged. Keeley, et al., (1976, citing little or no follow-up data on treatment gains, suggested very bluntly that researchers stop flooding the literature with more studies of what is by now obvious--that behavioral treatments can have short-term, situation-specific effects--and, instead, examine how long-term, generalizable changes can be achieved. As Wildman and Wildman (1975) pointed out, maintenance of behavior changes in regular classrooms is usually the precise reason for implementation of special class behavior management programs in the first place. Indeed, Marholin and Siegel (1978) even
go so far as to say that whether treatment effects extend beyond the treatment should be the final criterion for assessing the efficacy of any treatment program.

Historically, generalization has been defined as the extension of newly acquired behavior (i.e., treatment effects) to settings in which the treatment procedures have not been implemented (Wahler, Berland, & Coe, 1979). Maintenance has been defined as the durability of the treatment effects within the treatment setting following withdrawal or termination of the formal intervention procedures (Kazdin & Bootzin, 1972). Both definitions carry the connotation that generalization and maintenance of treatment effects are passive phenomena. That is, they occur as a natural outcome—or, in the words of Stokes and Baer (1977), "something that happened, not something produced by procedures specific to it" (p. 349)—of the behavior change process and are to be "looked for" to help determine the efficacy of systematic behavior management programs.

Stokes and Baer (1977) rejected a passive view of generalization and maintenance in recommending the following definition of generalization:

Generalization will be considered to be the occurrence of relevant behavior under different, non-training conditions... without the scheduling of the same events in those conditions as had been scheduled in the training conditions. Thus, generalization may be claimed when no extratraining manipulations are needed for extratraining changes; or may be claimed when some extra manipulations are necessary, but their cost or extent is clearly less than that of the direct intervention. Generalization will not be claimed when similar events are necessary for similar effects across conditions. (p. 350)
In most cases, program manipulations for facilitating generalization and maintenance outside the intervention setting have been unsystematic or absent altogether when children have been returned to their regular classrooms after receiving special education treatment (Wahler et al., 1979; Wildman & Wildman, 1975).

Walker's (1979) view of behavior change clashes with more traditional, passive conceptualizations of maintenance and generalization and supports Stokes and Baer (1977) in viewing them as active phenomena. Walker (1979) concluded that behavior change is actually a two-stage process:

In stage one, procedures must be implemented to produce changes in behavior. In stage two, a second set of procedures must be implemented to insure such changes endure over the long-term and generalize to other settings. (pp. 286-287)

It is Walker's position that an effective treatment outcome in stage one only documents an effective treatment procedure. The issue of generalization and maintenance of behavior change is a different one entirely, one which requires the development and utilization of additional technology. While Walker considers stage one procedures to be part of an already highly developed and effective technology, he considers those procedures required for stage two to be part of a technology which is only in its infancy. Thus, according to Walker, the issues of behavior change and generalization and maintenance of behavior change are issues which require dissimilar, but equally important and systematic attention.
Promoting Generalization and Maintenance in the Classroom

In recent years, in response to the call for long-term treatment gains, research interest has shifted from viewing special education intervention in isolation to studying generalization and maintenance of treatment gains made by students who have been initially placed in special education classrooms but whose gains are also desired in their regular classrooms (Marholin & Touchette, 1979). As the technology of generalization and maintenance has evolved, rules or suggestions for obtaining them at the desired times or in the desired settings have been offered by various researchers.

For example, existing evidence strongly suggests that behavioral interventions should not be abruptly terminated if generalization of treatment gains to other settings is to occur (Rosenbaum & Drabman, 1979; Walker, 1979; Wildman & Wildman, 1975). A less intense form of the original intervention may be necessary over the long-term in nontreatment settings (Walker, 1979). Specific procedures to enhance generalization and maintenance of changed behavior may need to include systematic fading of intervention procedures, transferring control of changed behavior to reinforcement available in the new setting or to the child himself, or reprogramming the new environment to support the changed behavior (Keeley et al., 1976; Rosenbaum & Drabman, 1979; Stokes & Baer, 1977; Turkewitz et al., 1975; Walker, 1969; Wildman & Wildman, 1975).

In some instances, the suggestions offered by researchers are in agreement with each other, but in many cases they are not. While
there appear to be vast differences in the specific generalization and maintenance recommendations across the various sources, one major area of commonality is that some type of systematic tactic must be implemented by teachers who desire long-term positive gains for their students who receive behavior change treatments (Stokes & Baer, 1977; Walker, 1979; Wildman & Wildman, 1975).

To date, many of the systematically programmed generalization and maintenance studies which have been conducted have not addressed the needs and concerns of the classroom teacher. Most of the studies have taken place in relative "sterile" laboratory environments where researchers could readily control and implement the procedures of their choice (Pressley, 1979). In laboratory studies, the practicality of using the procedures on a day-to-day basis in applied settings has usually not been addressed, and the ecological validity of the experiments referred to by Bracht and Glass (1968) has been absent. Ecological validity refers to the extent to which results of an experiment can be generalized from the environmental conditions in the experiment to other environmental conditions (Borg & Gall, 1979).

Because implementing systematic maintenance procedures requires a large investment of effort and time, many regular classroom teachers have not viewed the level of effort required on their part for obtaining enduring changes as cost-effective when they have considered the possible benefits of their efforts (Walker, 1979). When teachers have actually attempted to carry out procedures recommended by others (e.g., special education resource teachers) to obtain improved student behavior in their classrooms, the procedures have often been
incorrectly or ineffectively implemented to begin with, or even if implemented appropriately, student behavior has returned to preintervention levels once the procedures have been terminated (Walker * Buckley, 1972).

**Self-Control Training in the Classroom**

One of the more promising methods for facilitating generalization and maintenance in the classroom is teaching self-control techniques to children (Drabman et al., 1973; Stokes & Baer, 1977; Turkewitz et al., 1975; Wahler et al., 1979; Wildman & Wildman, 1975; Workman & Hector, 1978; O'Leary & Dubey, 1979; Rosenbaum & Drabman, 1979). Self-control has been viewed by numerous researchers as a vaguely defined inner force similar to willpower and attributable to some supernatural entity or personality trait. However, research based on a searching for inner causes of self-control has contributed little to our knowledge of self-regulatory processes (Thorson & Mahoney, 1974). Skinner's (1953) orientation toward self-control essentially represents an extension of principles of operant behavior. According to Skinner (1953), self-control has been exercised when an individual can effectively influence the variables of which his behavior is a function. Goldfried and Merbaum (1973) concur with Skinner's (1953) view of self-control and further state that,

Self-control can be viewed as a process through which an individual becomes the principal agent in guiding, directing, and regulating those features of his own behavior that might eventually lead to desired positive consequences. (p. 11)
The use of self-control procedures by students in classroom settings involves, in some way, the management or control by the students of their own behavior. While self-control programs and behavioral programs do differ in basic emphasis, they are not opposing sides of a dichotomy. Basically, in self-control training the student himself may be viewed as the major change agent, and in behaviorally oriented interventions a teacher or other external agent may be viewed as the major change agent. However, for almost all self-control training, overlap between the two exists. That is, although the student may have the major role as a change agent particularly in the later stages of self-control intervention, the teacher is frequently the major program implementor initially. The issue of external influences on self-control in classroom settings may thus be "considered a matter of degree where external control is minimal or intermittent" (Kazdin, 1974, p. 207). The objective of a self-control program is to gradually transfer as much control of a student's target behavior as possible from the teacher to the student himself during the course of the program. The purpose of this transfer is to eliminate as much external control over the target behavior as possible (Rosenbaum & Drabman, 1979).

One of the advantages of teaching children to evaluate and monitor their own behavior is that they then need to depend less on the teacher for guidance, reinforcement, and control. Emphasis on this approach for generalization and maintenance of improved behavior responds to teacher concerns regarding the time demands placed on them by procedures which rely solely on teacher efforts (Workman &
Hector, 1978). Other benefits of self-control strategies are the assumed enhancement of self-perceived competence and active participation of students whose treatment gains are the result of their own efforts (Henker et al., 1980).

Additionally, behavioral improvements regulated by self-control procedures appear to be more resistant to extinction than improvements established by externally regulated procedures alone (Johnson, 1970; Kanfer & Duerfeldt, 1967; McLaughlin, 1976; Rosenbaum & Drabman, 1979). Even in a nonsupportive regular classroom environment—that is, one in which the teacher is unwilling or unable to carry out systematic treatment procedures or even to provide appropriate basic classroom management for the class as a whole—self-control strategies have been effective in maintaining increased appropriate classroom behavior for several weeks after treatment has been withdrawn (Epstein & Goss, 1978).

Self-control strategies are "portable strategies" (p. 18, Henker et al., 1980) which can be employed under a variety of conditions, since they rely mainly on the student himself for implementation. In view of the problems related to generalization and maintenance in classroom settings in the past, the advantages of providing the student with training which is not specific to a behavior, a change agent, or setting is evident. Thus, in recent years, the appeal of self-control training as a viable solution to the problem of generalization and maintenance of treatment gains has increased (Coates & Thoresen, 1979; Meichenbaum, 1977).
Types of Self-Control Training

The term self-control has received broad and diverse interpretation in the literature, resulting in the assignment of numerous labels to self-control variations. For example, self-assessment, self-recording, self-determination of reinforcement and self-administration of reinforcement have been identified by Glynn, Thomas, & Shee (1973) as basic types of self-control. Labels such as self-observation (Rosenbaum & Drabman, 1979), self-monitoring, self-recording, (O'Leary & Dubey, 1979), self-determined contingencies (Glynn, 1970), and self-instruction (Barkley, Copeland, & Sivage, 1980; Finch & Spirito, 1980) have also been mentioned.

Reviews of self-control literature have attempted to sort out for whom and under what conditions the basic types of self-control are effective. For example, self-administered reinforcement is viewed by some researchers as one of the more powerful types of self-control. Previous studies suggest that while the effects of self-reinforcement when used alone equal or exceed those of external reinforcement used alone, its effects are even more powerful when combined with external reinforcement (Ballard & Glynn, 1975; Bolstad & Johnson, 1972; Rosenbaum & Drabman, 1979). Self-determined reinforcement has also been demonstrated as effective or even more effective than externally determined reinforcement (Rosenbaum & Drabman, 1979). However, Glynn (1970) cautions that a previous history of inconsistent externally determined reinforcement may detrimentally affect a person's subsequent ability to effectively apply self-determined reinforcement contingencies.
Another type of self-control, self-instruction, consists of "verbal statements to oneself which prompt, direct, or maintain behavior" (O'Leary & Dubey, 1979, p. 450) and has been used successfully for a variety of student tasks. Self-instruction has been found particularly effective when it has been reinforced, when it is applied to behaviors at which the student is already skilled, and when it is focused on the behaviors most subject to consequences. To be effective, there must also be the certainty that the self-instruction is actually carried out (Rosenbaum & Drabman, 1979).

While self-instruction may be used by students to provide stimulus control over their behavior, they may set their own performance standards through the use of self-determined criteria (O'Leary & Dubey, 1979). Although results are not conclusive, it appears that when self-determined criteria are used as the sole source of intervention, experimental students may perform no better than control students. When external reinforcement is added to the self-determination of criteria, experimental subjects generally outperform control subjects who are subjected to neither the criteria nor the reinforcement (Sagotsky, Patterson, & Lepper, 1978). When compared to externally imposed criteria, self-determined criteria are found to be no less effective (Felixbrod & O'Leary, 1974). However, unless external reinforcement is provided, externally imposed criteria do not appear to be particularly effective in influencing students' behavior (Turkewitz et al., 1975).

An area of self-control which has been infrequently addressed in the research literature is that of self-punishment. In one study,
the effects of a mild form of punishment, that of self-criticism, resulted in a lower level of on-task performance than that resulting from the effects of either neutral or positive comments (Masters, Santrock, 1976). Another type of mild punishment, "response cost," involves the withdrawal of positive reinforcers. Two studies which have examined self-determined response cost have found it as effective as self-determined reward when used as either a primary intervention or as a maintenance strategy (Humphrey, Karoly, & Kirschenbaum, 1978; Kaufman & O'Leary, 1972).

In using any type of self-control training, an important initial step is the student's assessment of the quality or quantity of his own behavior. The terms self-monitoring, self-recording, self-observation and self-evaluation have all been used to describe self-assessment (Rosenbaum & Drabman, 1979). Some form of self-assessment is necessary to provide students with systematic data for their behavior so that they may then evaluate or make a judgment of the behavior for change. Self-recording, self-monitoring, and self-observation may be distinguished from self-evaluation in that they are concerned with monitoring, recording or observing behavior objectively with a minimum amount of judgment. The use of self-evaluation would then follow with evaluation of the behavior on a subjective basis, but usually in conjunction with externally provided criteria (O'Leary & O'Leary, 1976). In fact, some researchers claim that external criteria for self-evaluation must be present in order for behavior change to occur (Rosenbaum & Drabman, 1979; Spates & Kanfer, 1977). It may be noted that while external control in the form of matching procedures has been
successfully included in a number of studies to train high levels of accuracy in self-recording and self-evaluation, high levels of accuracy may not be necessary to obtain positive behavior changes (Glynn et al., 1973; Thomas, 1976). According to O'Leary and Dubey (1979), another useful function of self-assessment may be in facilitating maintenance of positive behavior changes once intervention has been removed.

Maximizing Self-Control Effectiveness

It is clear that self-control techniques have successfully enabled children to control and maintain their own academic and social behaviors. However, one caution made by Loper (1980) is that a student's cognitive developmental level may be a relevant variable in determining his ability to use self-control strategies. Keogh and Glover (1980) further support the possible influence of the chronological age of pupils as well as the adequacy and maturity of their cognitive and language skills on self-control techniques. Since a student's age is generally related to his cognitive developmental level, a younger student, then, would be presumed less able than an older one to use such strategies effectively. Introducing a student to a self-control strategy for which he is not yet cognitively ready would be deemed counterproductive. Even though a student's level of cognitive development may be a valid concern in using self-control training, a classification of relevant behaviors and standardized assessment instruments allowing for a match between cognitive developmental level and cognitive strategies have yet to be
developed for most cognitive behaviors (O'Leary, 1980).

If the decision is made to use self-control procedures, research suggests that students must be taught to use the self-control procedures rather than merely being told to use them, and they must implement the procedures correctly for them to be effective (O'Leary & Dubey, 1979). According to Rosenbaum and Drabman (1979), the way to correctly teach self-control procedures to children should include the following basic steps for maximum effectiveness:

1) Students should be taught self-observational procedures.
2) Once self-observation has been established, externally administered contingencies for desirable behavior change can be introduced.
3) The control of these contingencies can then be transferred to the students.
4) At the same time that self-determined contingencies are introduced, students can be taught to provide themselves with instructions and praise designed to guide their behavior.
5) When the students are reliably controlling their academic and social behavior, contingencies can be withdrawn gradually. (p. 480)

The issue of pairing some type of external controls with self-control strategies at least initially and subsequently using appropriate fading procedures to eliminate most of the external controls as suggested by Rosenbaum & Drabman (1979) has been supported by numerous studies (Coates & Thoresen, 1979; Drabman et al., 1973; McLaughlin, 1976;
The introduction of a "matching" component has been mentioned by a number of researchers as one way of gradually transferring program contingencies from teacher to students, thereby eliminating or reducing external control. Matching consists of awarding points to students for exactly matching or awarding themselves points within a specified range of an external agent's evaluation. Once students are controlling their own behavior, external reinforcement for appropriate behavior can be gradually withdrawn entirely or in part (Drabman et al., 1973; Turkewitz et al., 1975; Robertson et al., 1979).

Studies have indicated that self-evaluation skills can effectively maintain desirable levels of behavior if at least some external controls or checks are continued (McLaughlin, 1976; O'Leary & Dubey, 1979; Robertson, et al., 1979). In fact, Coates and Thoresen (1979), in a review of the self-control literature, suggest that generalization and maintenance of self-control programs are dependent upon continued external surveillance. Studies examined in their review reported several problems in the absence of any active treatment or continued external surveillance during maintenance. Most often reported problems included students relaxing evaluation standards for themselves over time and cheating to maximize self-evaluations.

To avoid these problems, O'Leary and Dubey (1979) encourage applied researchers to teach students to control their own behavior on a continuing basis with a minimum amount of external support that will still result in the maintenance of the target behaviors. Other sug-
gestions made by O'Leary and Dubey (1979) for correct teaching of self-control procedures include the same basic steps that Rosenbaum and Drabman (1979) recommend. However, O'Leary and Dubey (1979) further specify the additional step of training covert or self-initiated private skill implementation after external contingencies have been removed to maximize training effectiveness. O'Leary and Dubey (1979) caution that the quality of the training students receive as well as the continued evaluation of the use of the trained skills after external control over their use has been completely or largely eliminated determines the potential effectiveness of the procedures. To date, measurement of the covert use and effects of self-control skills after external controls have been largely withdrawn has not been researched. Therefore, the effects of self-control without some form of external checks and controls is unknown at this point (O'Leary & Dubey, 1979).

Self-Evaluation Studies Relevant to Applied Settings

The present study was an extension and modification of three related studies emphasizing self-evaluation which are frequently cited in the self-control research literature. The three studies are those of Drabman et al., (1973), Turkewitz et al., (1975), and Robertson et al., (1970). These studies were subsequent modifications and extensions of one another and incorporated a number of the procedures recommended by the self-control literature for facilitating generalization of newly learned skills from special education classrooms to regular classrooms (O'Leary & Dubey, 1979).
The use of self-evaluation as a means to gradually transfer reinforcement responsibilities from teacher to student was the purpose of an experiment by Drabman et al., (1973) in which eight disruptive students were taught reading in a special hour-long after school class. After a baseline period, study conditions included externally controlled reinforcement, matching of student self-evaluations with subjective teacher evaluations of students, gradual fading of the matching and external reinforcement components, and self-evaluation without teacher matching of evaluations. Based on the subjective evaluation, the teacher awarded students up to 5 points each for behavior and academic work during each reinforcement interval. The evaluations took place during the three 15-minute reinforcement intervals of each session which were not selected as control intervals. Students received bonus points for exactly matching teacher evaluations, kept the number of points they had awarded themselves if they had rated themselves within one point higher or lower than teacher evaluations, or lost all points if the discrepancy between the two ratings was greater than one point. The matching procedure and matching consequences were then gradually faded.

Results indicated that initial external reinforcement reduced disruptive behavior and that the self-evaluation procedure generalized and maintained behavioral improvements in the randomly selected 15-minute control period in the special class during the hour-long session. Evaluation ratings between the teacher and students were in agreement most of the time during the course of the study. However, generalization and maintenance of improvements were not examined in
students' regular classrooms or at other times of the day. Follow-up in the special class setting conducted for 12 days after intervention was terminated revealed that behavioral improvements maintained at high levels.

A replication of the Drabman et al., (1973) study also examined generalization and maintenance of improved behavior through the use of a self-evaluation technique taught in a special after-school class (Turkewitz et al., 1975). Eight disruptive students, ages 7 to 11 years old were trained to accurately evaluate their behavior and academic work. Although generalization of appropriate behavior was demonstrated in a 15-minute control period during each special class session, only slight decreases in disruptive behavior were present in the experimental setting from baseline to the end of the 5 day period following the special program. Observations made in students' regular classrooms failed to document generalization of improved behavior in those settings. It is likely that the lack of generalization in the regular classrooms was due to the absence of any specific programming efforts to achieve maintenance and generalization in that setting. Additionally, no attempts were made to teach or prompt students to use their self-evaluation skills in their regular classrooms.

A more recent modification and extension of the Drabman et al., (1973) study was conducted with disruptive, mentally retarded students who spent their entire school day in a special class (Robertson et al., 1979). Treatment phases were similar to those of the Drabman et al., (1973) and Turkewitz et al., (1975) studies, but also
included systematic verbal feedback and the provision of more specific evaluation criteria to students for self-evaluation. For each reinforcement interval, a 3 point rating scale was used to evaluate behavior only. A rating of "good" (3 points) represented no disruptive behavior, "okay" (2 points) represented one disruptive behavior, and "not good" (1 point) represented two or more disruptive behaviors. While subjects accurately evaluated their own behavior and disruptions decreased, generalization and maintenance of treatment gains were examined only in students' special classroom at a time of the day other than when training had taken place. Since the self-evaluation procedures had been trained only during the morning, observations made on students' behavior during the afternoon served as generalization and maintenance probes. Improved behavior generalized from morning to afternoons, to days when self-evaluation procedures were not in effect, and when a substitute teacher taught the class. Follow-up data were collected for five days after withdrawal of treatment and documented the maintenance of behavioral improvements.

Taken together, these three studies provide a framework on which to develop a self-evaluation program which improves academic instruction during intervention and which strengthens the self-evaluation procedure by extending it from a special education resource room into students' regular classrooms. Effective components for facilitating generalization and maintenance of treatment gains included in the three studies were external reinforcement, matching student and teacher evaluations of student behavior, gradual transfer of reinforcement from teacher to students by fading the matching component,
and gradual fading of external reinforcement.

Some important limitations were also present, however. In the Drabman et al., (1973) study, generalization and maintenance of improvements were not examined in students' regular classrooms or at other times of the day. The Turkewitz et al., (1975) experiment examined experimental students' behavior in their regular classrooms in comparison to control students but found that improvements for experimental students had not generalized to those settings. No attempts were made by Turkewitz et al., (1975) to prompt or teach the use of self-evaluation skills in subjects' regular classrooms. The Robertson et al., (1979) study examined generalization and maintenance of improvements from morning to afternoon, on days when self-evaluation procedures were not in effect, and when a substitute teacher was present. However, no programming or investigation of generalization and maintenance of gains in other settings were included.

In these three studies, the issue of ecological validity for regular classroom settings was not addressed. A self-evaluation study based on similar components could address ecological validity by providing special education treatment in a resource room in the subjects' school during regular school hours. The goal of the treatment would be to generalize and maintain increased appropriate behavior with greatly reduced or no intervention in the student's natural environment—his regular classroom. Additional ecological validity would be obtained by providing cost-effective resource room training and by developing student self-evaluation procedures for regular classroom use which would require a minimum amount of supervision by the regular
classroom teacher.

Summary

To date, interventions initiated in special education classrooms which have produced behavior changes in students' regular classrooms are rare. Since maintenance of behavior changes in a regular classroom is usually the reason for providing special education services in the first place, the problems inherent in long-term classroom maintenance must be more thoroughly researched. The literature suggests that for generalization and maintenance to occur, some type of systematic programming or extratraining manipulations are necessary.

In recent years, self-control training has gained appeal as a means of promoting behavioral improvements in regular classroom settings. Self-control training has advantages over more traditional interventions in that students serve as the major change agents for the training, requiring them to depend less on the external control of their teachers. Consequently, teachers may spend more time on instruction and less time on managing students' behavior.

Adequate training of self-control skills requires that students be taught, not just told, to use self-control procedures. To use any of the various types of self control effectively, students must be taught to first self-assess their behavior. Self-assessment includes some type of self-monitoring or recording in an objective way and a subjective self-evaluation or judgment of the behavior. Training should also include initial overt use of the skill, reinforcement for the overt use, fading of external controls and training and
measuring covert use of the skill.

Three related studies emphasizing self-evaluation procedures were presented and discussed. Based on these studies, recommendations were made for a self-evaluation study which would strengthen the components of the three related studies and provide for a cost-effective special education treatment. The purpose of the special education treatment would be to train and then extend self-control procedures into subjects' regular classrooms to facilitate generalization and maintenance of their behavioral improvements.
CHAPTER III

METHODS

The purpose of the study was to investigate whether positive behavior changes acquired by handicapped students during a short-term special education treatment emphasizing self-evaluation training could be generalized and maintained in regular classrooms using greatly reduced or no treatment procedures. The methodology used to conduct this investigation will be detailed in this chapter. Topic areas to be presented include an overview of the study, the subjects, treatment procedures, data and instrumentation, recording of observations, observer training and data analysis.

Overview of the Study

From December 1980, through March 1981, six Behaviorally/Emotionally Handicapped students were taught for three hours per week in a resource room setting using self-evaluation procedures combined with external reinforcement to obtain behavioral control. The three hours of training each week took place over four school days. On two of the days, sessions were each one hour long, and on the other two days, sessions were each one half hour. This schedule was adopted to accommodate a university class which required the use of the resource classroom at certain times.

The first phase of treatment in the resource room (Phase I) was not formally a part of the present study. The purpose of the resource
room treatment was to increase students' appropriate classroom behavior to acceptable levels and to train them to use self-evaluation procedures for generalizing and maintaining the behavioral changes in their regular classrooms. The research literature contains ample evidence that gaining behavioral control in the treatment setting is possible and common (Keeley et al., 1976; Wildman & Wildman, 1975; Workman & Hector, 1978). Thus, the means by which behavioral control was obtained was not the major concern. It was assumed that behavioral control could be obtained in the resource room; in fact, such control was a prerequisite for implementation of the present study.

The second phase of the study examined the generalization and maintenance of the changed behavior in subjects' regular classrooms after termination of the resource room treatment. Generalization and maintenance were sought by fading the external reinforcement component of the program in the resource room while gradually transferring behavioral control from the resource teacher to the students through the use of self-evaluation procedures. Once acceptable levels of appropriate behavior were maintaining with only minimal external reinforcement and students were accurately self-evaluating their own work and behavior, the use of the self-evaluation procedures was extended to subjects' regular classrooms. The self-evaluation procedures were then gradually faded in the regular classroom until a less intense form of the initial intervention remained.

Data obtained during resource room treatment (Phase I) in that setting and in the regular classroom were used to evaluate the over-
all effectiveness of the treatment procedures. Observations were made regularly of subjects in both settings so that behavioral changes could be carefully documented. Observations made in subjects' regular classrooms during Phase I served as baseline data for Phase II.

The self-evaluation training involved a matching procedure which required subjects to match or closely approximate the teacher's evaluations of their behavior and academic performance on a 0-5 point scale (Drabman et al., 1973; Robertson et al., 1979; Rosenbaum & Drabman, 1979; Turkewitz et al., 1975). For example, the teacher rated students' work and behavior by giving them 0 (poor) to 5 (excellent) points at designated reinforcement intervals; students also rated their work and behavior in the same way. If student evaluations exactly matched those of the teacher, students received the number of points they had given themselves plus additional bonus points. If student evaluations were within one point higher or lower than those of the teacher, students kept the number of points they had given themselves. However, if student evaluations were more than one point higher or lower than those of the teacher, no points were awarded for that reinforcement interval. The purpose of the matching procedure was to teach students to accurately evaluate and monitor their own behavior.

A detailed description of both Phase I and Phase II program components is provided in the Intervention Procedures section of this chapter.
Subjects

Subject Selection

The subjects included in the study were six Behaviorally/Emotionally Handicapped elementary school boys in grades one through five (ages 6 to 11) who attend the Edith Bowen Laboratory School on the Utah State University campus. Subjects were selected from students who were referred by their teachers for displaying high rates of inappropriate classroom behavior including disruption, noncompliance, out-of-seat occurrences, nonattending to tasks and failure to complete tasks. To document eligibility under the State of Utah guidelines for placement as Behaviorally/Emotionally Handicapped in the study, students were observed in their regular classrooms on at least five occasions for 15 minutes per observation and were administered individual standardized intelligence and achievement tests. Standardized tests used to document placement eligibility included the Peabody Individual Achievement Test, the Woodcock Reading Mastery Tests, the Key Math Diagnostic Arithmetic Test, and the Slossen Intelligence Test. Parents and teachers provided additional information in the form of the Walker Problem Behavior Identification Checklist, a School Problem Behaviors Checklist, a Parent Information Survey and anecdotal reports.

For students warranting special education placement, team meetings were held. Final selection of students who were included in the study was based on the criteria established by the State of Utah Guidelines for Behaviorally/Emotionally Handicapped students as well
as recommendations from teachers, parents, the principal and the researcher as to those students most in need of and likely to benefit from participation in the study. (See Appendix A for State of Utah Guidelines for Behaviorally/Emotionally Handicapped students.) Individualized Education Programs (IEPs) were developed for each of the six students for whom the intervention provided by the study was judged to be an appropriate placement.

Subject Characteristics

Subject 1 was a 6-year old first grade student. His school placement was a self-contained class for Behaviorally/Emotionally Handicapped students, although he was mainstreamed daily in a regular classroom for several academic subjects. During his brief educational history, Subject 1 had already been exposed to several behavior management programs in his previous and present schools, and his mother had sought assistance from the school for managing his behavior at home. For this student, the goal of the study was to obtain the desired generalization and maintenance of treatment gains in his mainstream regular classroom setting. The mainstream setting was a regular first grade classroom in which the subject spent part of each morning receiving group instruction with 26 other first grade students. Initial observations showed that Subject 1 was engaging in appropriate behavior 54% of the time in his mainstream class. His teacher expressed great concern over the highly disruptive nature of the inappropriate behavior he was displaying in that setting.

Subject 2 was a 9-year old fourth grade student placed in a regular classroom on a full-time basis. Academically, he was functioning
at least two years behind his peers. Although he had never received any formal treatment for behavior problems, his school records contained numerous reports of behavioral difficulties throughout his school years. Subject 2's regular teacher and parents were hesitant to agree to special education placement because of its effect on the subject's self-esteem. Referring problems included failure to work independently on or complete assigned tasks, frequent inappropriate talking in class, frequent out-of-seat occurrences, noncompliance with teacher requests, and numerous unneeded trips to the bathroom, pencil sharpener, and drinking fountain. Appropriate behavior averaged 38% in the regular classroom prior to resource room intervention.

Subject 3 was a 7-year-old second grade student who was also placed in a regular classroom full-time. He had no known previous exposure to behavior management programs, although his school records indicated behavior problems had been present in two previous school placements. Inappropriate behavior for which his regular teacher referred Subject 3 included not working during work time, not completing assigned tasks, frequent out-of-seat occurrences, aggression toward peers, and rocking in his chair so violently that he frequently fell out of it. Initially, in his regular classroom, Subject 3 engaged in appropriate behavior 27% of the time.

Subject 4 was a 10-year-old fifth grader placed in a self-contained Behaviorally/Emotionally Handicapped classroom. He was not mainstreamed for any part of the school day. Behavior problems had been evident for several school years, and Subject 4 had received
several forms of behavioral intervention, including a previous placement in another self-contained classroom for Behaviorally/Emotionally Handicapped students in a different school. Problems in the previous school had been so severe (including aggression toward other students, bizarre talk, and refusal to work) that the subject had been sent to his present self-contained classroom when the previous school staff felt they could no longer help nor tolerate his behavior. Subject 4 had been taking Ritalin for several years before being referred to the study. He was permanently taken off the medication two weeks before beginning the present intervention in an effort to gain behavioral control in the resource room without it. Average appropriate behavior was 30% in his current placement.

Subject 5 was a 6-year old first grader in a regular classroom with no history of behavioral intervention. Behavior for which he was referred differed from that of other subjects in several ways. Because Subject 5 appeared "tuned out" in regard to what was going on in his environment much of the time, hearing and vision tests were given to rule out the possibility of interfering problems in these areas. His teacher reported that even though she continually repeated instructions and monitored his work, he seldom accomplished or completed specified tasks when left to work independently. The teacher's impression was that Subject 5 appeared to be functioning in "his own world," assimilating and acting upon little of what occurred around him. Average appropriate behavior was 25% in the regular classroom.

Subject 6 was an 11-year old fifth grader placed full-time in a self-contained Behaviorally/Emotionally Handicapped classroom. His
educational history included many and varied forms of behavioral interventions by school and community agencies. He had been attending weekly therapy sessions in the community for several years and had recently been placed under the jurisdiction of a probation officer for setting a local business on fire. Subject 6's parents had asked for and received assistance in managing his behavior at home from his schools and from community agencies. When referred to the study, Subject 6 was displaying high levels of aggressive, disruptive and noncompliant behavior in his self-contained classroom. His initial average appropriate behavior was 31% in that setting.

In summary, subjects ranged widely in age (6 to 11 years old), grade (first through fifth), and school placements (regular classroom, self-contained Behaviorally/Emotionally Handicapped classroom, and part-time mainstream placement) as well as previous histories of exposure to behavioral interventions of various magnitudes.

Treatment Procedures

A detailed description of the resource room treatment (Phase I) which preceded the proposed study (Phase II) is provided in this section. The first phase of treatment in the resource room was not formally a part of the present study but was necessary in order to gain behavioral control so that generalization and maintenance procedures could be implemented.

Resource Room Treatment (Phase I)--15 to 17 weeks

From December, 1980, until April, 1981, subjects received part-
time special education treatment in the early afternoon for three hours each week in a resource room located in the Edith Bowen Laboratory School but which was separate from their regular classrooms. The 8m x 12m room contained a number of work tables and chairs as well as several large tables on which instructional materials were stored. For use during the resource room sessions of the study, six of the work tables and chairs were placed in two rows of three each, so that students could work individually at the tables on assigned tasks. The teacher for the resource classroom held a master's degree in special education and was certified in the State of Utah to teach Behaviorally/Emotionally Handicapped students.

During the course of resource room intervention, external reinforcement and systematic verbal feedback were initially introduced to gain control of subjects' behavior. The self-evaluation treatment component was then introduced to teach students to manage and evaluate their own behavior.

Condition 1: Academic instruction (days 1-10)

(RESOURCE ROOM BASELINE) Individual academic instruction was implemented in the resource room using a variety of curriculum materials suited to the needs of individual students as determined by inspection of initial norm-referenced and criterion-referenced assessment. Basically, the resource session was viewed as an opportunity for students to drill and practice academic skills to which they had already been exposed, to learn basic skills they were lacking and
increase the rate and accuracy of the skills. Although all students spent most of their resource room time on reading and math related skills, two students also practiced handwriting, and one student worked on and received help with his spelling assignment from his regular classroom.

In addition to the instructional materials used by the students, an assorted supply of library books was available for students to read to themselves at their work tables if they finished their assignments before the allotted time was up. Drill and practice sheets were used daily for math and reading. Students were given time to practice their assigned skills and were then given a 1-minute timing each day for math and reading. Math timings were conducted using sequenced worksheets for addition, subtraction and multiplication. Reading timings were made for word lists constructed from Beginning Reading 1 and Reading 2 - A Professional Guide for the Lay Tutor (Von Harrison, 1974). One student was also timed on handwriting. Rates and accuracy for individual students were graphed on six cycle logarithmic charts for interpretation, decision-making and monitoring of progress. Individual assignments were selected for need and interest from a variety of instructional materials. A list of these ma-
Materials for daily assignments were placed in four numbered manilla folders for every student, and each folder contained that day's assignment for one curriculum area. Students worked for 15 minutes at a time on an assigned folder before being asked to change to another one. The teacher was instructed to use basic classroom management procedures (i.e., contingent praising and ignoring, as well as reprimands when deemed necessary) to manage classroom behavior. No form of external reinforcement or punishment was included.

**Condition 2: External Reinforcement/Systematic Verbal Feedback (days 11-20)**

Classroom rules for the resource room were introduced and discussed with students. The teacher and students modeled and role-played examples and non-examples of the rules. Feedback, correction and clarification by the teacher were provided as necessary to ensure that students understood expectations for them in that setting. The classroom rules were:

1. Sit in your seat unless you have permission to leave it.
2. Do what your teacher asks promptly.
3. Remain quiet unless you have permission to speak.
4. Work when you are supposed to.
5. Do not bother or hurt others.

Once behavioral control was obtained during the course of resource treatment, rule 3 was made less stringent so that it more closely matched expectations in the regular classrooms. The original rule 3 was changed to "Unless you have permission to speak, talk only about your work."

During the second condition, students were given points by the teacher for appropriate classroom behavior and correct academic work. It was explained to students that points could be exchanged for small toys, candy and other snacks at the end of each session (see Appendix C for a specific list of reinforcers used during Phase I and Phase II). Examples of what could be purchased with points were displayed. The teacher explained to students specifically how points would be earned. Students were told that ratings they received for work and behavior were to be converted to a corresponding number of points (e.g., a rating of "5" would convert to 5 points). The 0 to 5 rating scale was used according to the following criteria:

5 = excellent—Followed all classroom rules entire interval; worked entire interval; work 100% correct.
4 = **very good**—Minor infraction of rules (i.e., a talk-out, or out-of-seat occurrences, etc.), but followed rules rest of interval; worked almost entire interval; work approximately 90% correct.

3 = **average**—Didn't follow all rules entire time, but no serious offenses. Followed rules approximately 80% of the time (i.e., inappropriate behavior may have involved talking-out or out-of-seat occurrences).

2 = **below average**—Broke one or more rules to extent that behavior was not acceptable (i.e., higher level misbehavior that may disturb others) but followed rules part of the time. Work approximately 60 to 80% correct.

1 = **poor**—Broke one or more rules almost entire period or engaged in higher magnitude of inappropriate behavior most of the time. Work approximately 40 to 60% accurate.

0 = **totally unacceptable**—Broke one or more rules entire interval. Didn't work at all or work all incorrect.

In explaining the rating scale to students, however, the teacher used language they could more easily understand. For example, the teacher might say, "Your behavior was very good, but I gave you a "4"
because you talked to Bill. You remembered to follow the rules the rest of the time, though. I gave you a "5" for your work because you didn't miss any of your math problems. I'm proud of the job you did on your math!"

Each day students were also given a self-evaluation card for use in each resource room session. (A copy of the card is included in Appendix D). A copy of the classroom rules was printed on the back of each card. On the card spaces were provided for the teacher to mark with a colored pen her award of 0 to 5 points each for academic work and behavior for each reinforcement interval. Sessions were divided into 15-minute intervals so that students were given points and specific feedback for their academic work and behavior four times during each half-hour session. Between the times when points were awarded, the teacher circulated among students, correcting work, providing assistance and praising individuals and the group as a whole for following classroom rules.

Condition 3: **Matching Self-Evaluations with the Teacher/100% (days 21-29)**

The teacher asked students to rate their own academic work and behavior by awarding themselves points for each on the 0 to 5 point scale during special class sessions. The teacher also continued to independently rate students' work and behavior by awarding points in
a similar fashion. The foundation for students' evaluation of themselves had been laid in the previous condition with the teacher furnishing specific feedback to students as to why she had awarded them the number of points for work and behavior that she did. Had students displayed high error rates in awarding themselves points in condition 3, the teacher planned to discuss the rating system further and use modeling and role-playing procedures to demonstrate and clarify correct usage.

During condition 3, each student matched his self-evaluations with the teacher's evaluations of his work and behavior at the end of each reinforcement period. The teacher would first ask each student why he had given himself the number of points he did. She then told him why she had given him the number of points she had given him, according to the rating scale criteria. If a student was within one point of the teacher's ratings (either higher or lower), he kept the number of points he had given himself. If the two ratings were exactly the same, the student earned a bonus point. Bonus points could be earned for both work and behavior for perfect matches with teacher evaluations on each for each reinforcement interval. If there was more that a one point difference (higher or lower) be-
tween a teacher and student rating, no points were earned for that interval.

Teacher ratings were always marked on the self-evaluation cards with a colored pen, while student self-evaluations were marked with a pencil. Teacher praise for student accuracy in self-evaluation and corrective feedback for inaccuracy was provided. An important point to be stressed during this phase is that the subjects were taught to accurately self-evaluate their own behavior, instead of being taught to guess what the teacher's ratings would be. Validity of teacher ratings for points were judged independently by the researcher for at least two special class sessions each week for both behavior and academic work for all special class students and compared to teacher ratings after the session. Discrepancies were discussed with the teacher, and decisions regarding future rating of areas of disagreement were made.

Condition 4: Elimination of Matching/50% (days 30-35)
Only half (three) of the students in the resource room were eligible to match their self-evaluations with the teacher at the end of each reinforcement period. Names were drawn out of a container to determine which students would match. This procedure has been used in a number of studies to avoid an
abrupt transfer of control of contingencies from an external source to students (Bolstad & Johnson, 1972; Drabman et al., 1973; Robertson et al., 1979; Rosenbaum & Drabman, 1979; Turkewitz et al., 1975). Students who did not match self-evaluations with the teacher kept the number of points they gave themselves. Those students who did match evaluations with those of the teacher were asked why they had given themselves the ratings they did. The teacher also continued to explain why she had given them the ratings she had. For students with whom the teacher matched evaluations, teacher ratings continued to be recorded on students' cards with a colored pen. Feedback on accuracy of ratings and praise for accurate ratings continued in all phases in which students matched evaluations with the teacher.

While the teacher did not match her ratings with all students, she continued to privately record her ratings for all students in all phases of the study in which any student self-evaluation was present. For recording her own evaluations of students' work and behavior, the teacher used a printed replica of the student self-evaluation card for each student for each resource room session. While students marked their self-evaluations on their cards with pencils, the teacher recorded her evaluations for students
with a colored pen on her copies of student cards.

To maintain a record of which students matched evaluations with the teacher during each reinforcement interval, an "M" was placed beside the rating on the teacher's copy of the card indicating the reinforcement intervals for which evaluations had been compared. When points were exchanged at the end of resource room sessions, the teacher recorded student self-evaluations onto her copy of their cards with a pencil. The teacher then had a daily record of student and teacher evaluations on her self-evaluation card copy. Teacher ratings were always made with a colored pen, and student ratings were represented with a pencil.

Condition 5: Elimination of Matching/33 1/3% (days 36-40)

This condition was similar to condition 4, except that only two of the students were eligible to match self-evaluations with the teacher. Reinforcement intervals increased from 15 to 20 minutes. Five points for academic work and five points for behavior could still be earned for each 20-minute reinforcement interval. Thus, three reinforcement intervals occurred each hour rather than four, resulting in the fading of backup reinforcement. Feedback on accuracy of ratings and praise for accurate ratings continued.

Condition 6: Elimination of Matching/16 2/3% (days 41-48)

This condition was similar to conditions 4 and 5, ex-
cept that only one of the students was eligible to match self-evaluations with the teacher. Reinforcement intervals remained at 20 minutes. Five points for academic work and five points for behavior could still be earned for each 20-minute reinforcement interval. Feedback on accuracy of ratings and praise for accurate ratings continued.

Condition 7: Elimination of All Matching (days 49-56)

Students initially kept the number of points they gave themselves, and the teacher continued to monitor students' ratings and privately record her own ratings for them. Since students could no longer lose points for inaccurate matching with the teacher and some students began to give themselves the maximum number of points possible even when their work and behavior did not warrant high point awards, an occasional "surprise" match with the teacher was initiated every two or three days for one student. Backup reinforcers continued to be faded by increasing the reinforcement intervals from 20 to 30 minutes. Five points for academic work and five points for behavior could still be earned for each 30 minute reinforcement interval.

Generalization and Maintenance of Treatment Gains in the Regular Classroom (Phase II)--(6 to 8 weeks)

During April and through the end of the school year in May, procedures to achieve generalization and maintenance of the treatment gains
were introduced to one pair of subjects at a time. The pair of subjects receiving resource room treatment whose classroom behavior and academic work reached appropriate and stable levels first were introduced to generalization and maintenance conditions first. An average of at least 80% appropriate classroom behavior in the resource room over a four day period was required before subjects were returned on a full-time basis to their regular classrooms. Additional pairs of subjects were introduced to the Phase II conditions approximately one week apart.

During the week preceding the date that subjects were projected to return to their regular classrooms full-time, their teachers received a general, individual orientation from the researcher. The purpose of the orientation was to review with regular teachers what had occurred in the resource room in Phase I and to share graphed data for both regular and resource settings for Phase I with them. The purpose of the study and the procedures used were described. Teachers were informed of the anticipated date for their referred students' full-time reentry into their classrooms. Procedures to be used in regular classrooms and expectations for teachers in carrying out the Phase II program components were discussed. Teachers were assured that the researcher would be available to answer questions, provide feedback, give new instructions as needed and aid in supporting the teacher's efforts.

Teachers were advised that consistency in following specific program instructions was important, particularly in regard to programmed reinforcement intervals, providing appropriate feedback and supplying
subjects with the proper information concerning condition changes as they occurred. Teachers were also encouraged to frequently praise students' appropriate behavior ("catch them being good") and to ignore inappropriate behavior. Classroom rules for each classroom were again reviewed and clarified to reconfirm teachers' expectations for subjects.

The 0 to 5 rating scale as described for Phase I was also discussed with teachers, and copies of rating criteria were distributed. Written instructions reviewing the regular teachers' role in implementing Phase II procedures were distributed to teachers prior to each condition change for their reference and review. Copies of written instructions for teachers are found in Appendix E. Accuracy of teachers' ratings for academic work and behavior were judged independently by the researcher at least once each week for all subjects and compared to teachers' ratings for that day. Discrepancies were discussed with teachers, and decisions regarding future rating of areas of disagreement were made. Appropriateness of teachers' use of praise and feedback to subjects was also judged by the researcher during classroom visits and discussed with teachers.

The researcher again met individually with teachers on the day before their students returned to their classrooms full-time. The teacher's role in the Phase II intervention was again reviewed and discussed. Self-evaluation cards for students and copies of the cards on which teachers were to privately record their own ratings were distributed to teachers for a week at a time. When unused cards for the coming week were distributed, cards used during the previous week were collected.
Condition 8: Self-Evaluation in the Regular Classroom/30 Minutes

Each school morning, regular teachers asked subjects to rate their academic work and behavior every 30 minutes of a selected hour period during which academic work was performed. (Daily observations of students had been made in the regular classrooms during this hour in Phase I.) Subjects continued their ratings on the same 0 to 5 point scale they had been using in the resource room. The self-evaluation cards on which students marked their ratings in the resource room also continued to be used for self-evaluation in the regular class. Feedback on accuracy of self-ratings were given to subjects by their regular teachers.

Regular teachers privately recorded their own ratings for students just as the resource teacher had recorded them in Phase I. That is, teachers were provided with printed replicas of student self-evaluation cards for each school day. While subjects marked their self-evaluations on their cards with pencils, teachers recorded their evaluations for students with colored pens on their copies of student cards. Teachers also conducted occasional "surprise" matches with student self-evaluations every two or three days at their own discretion. In this way, teachers could conduct "surprise" matches to purposely reinforce par-
icularly good work and behavior or to provide external feedback for particularly poor work and behavior if they wished. To maintain a record of when "surprise" matches were conducted, teachers recorded an "M" beside the reinforcement intervals for which matching took place. On these occasions, students were not aware that matching of evaluations would take place until they actually occurred. When matching occurred, students could either earn bonus points, keep the number of points they had given themselves, or lose all of their points, in accordance with previous matching criteria.

During this phase, except when "surprise" matches took place, students kept the number of points they gave themselves. Points could be exchanged once each day or saved up for special privileges or activities available in the regular classroom. To purchase tangible items, students were required to bring their self-evaluation cards with them to the resource room after they had finished lunch. Points were then recorded and exchanged by the researcher. Several teachers chose the option of adding privileges or special activities which could be enjoyed by the entire class to the reinforcement menu. These reinforcers were managed by the regular teachers but monitored by the researcher.
Condition 9: **Fading Self-Evaluation in the Regular Classroom/60 Minutes**

This condition is similar to 5, except that students rated themselves once every 60 minutes in the regular classroom on their self-evaluation cards during the designated self-evaluation hour. In this way, less reinforcement could be earned, and longer work periods were required for earning it. Points could still be exchanged once each day for reinforcement.

Condition 10: **Points Exchange/Variable Ratio (VR) 2 Days**

This condition is similar to condition 9, except that subjects were allowed to exchange points on only two randomly selected days each week. The days of the week were written on slips of paper and drawn from a container to determine on which days the students would be allowed to exchange points. When teachers received their weekly recording forms for "private" ratings, days on which subjects would be allowed to exchange points were indicated. Subjects were informed ahead of time that they would be allowed to keep and exchange their points on an average of every two days but that they would not know before each day's ratings were completed whether they would be allowed to exchange points for that day. "Surprise" matches occurred approximately once each week. Verbal praise and feedback for accuracy of self-evaluations continued by the teacher.
Condition 11: No Points Exchange

Students were asked to continue to self-evaluate their academic work and behavior on their self-evaluation cards but were told they could no longer trade their points for reinforcers. Students were told by their teachers that they had been working and behaving so well that they no longer needed points to help them. Teacher praise and feedback for accurate ratings continue.

Condition 12: Self-Evaluation Verbally/60 Minutes

Students discontinued marking self-evaluation ratings on their self-evaluation cards and were asked by the teacher to verbally rate their academic work and behavior at the end of the designated 60 minute period using the same 0 to 5 point rating scale they had been using. Teacher praise and feedback on accuracy of ratings continued.

Condition 13: Self-Evaluation Verbally/VR 2 Days

This condition was similar to condition 12, except that students were asked to verbally self-evaluate their academic work and behavior on an average of every two days.

Condition 14: No Verbal Self-Evaluation

Students were no longer asked to self-evaluate their academic work and behavior verbally. However, the benefits and possible outcomes of continued internal
self-evaluation was discussed by teachers with the subjects, and subjects were encouraged to continue self-evaluating on their own. For example, a student was encouraged to say to himself, "I followed all of the classroom rules during the hour. I worked the entire time and did an excellent job on my reading assignment. I would give myself a '5' for behavior and a '5' for my work. I am proud of myself."

**Booster Sessions and Backup Conditions**

While approximate timelines and procedures were delineated ahead of time, it was anticipated that some changes might be necessary in regard to both timelines and procedures used in various study phases. When observational data indicated that the procedures were not working, adjustments were made as needed to prevent further deterioration of student behavior. Thus, if appropriate classroom behavior during Phase II was lower than 80% for three successive school days, booster sessions were given. Whenever behavior deteriorated to the degree that a booster session was indicated, reinforcement, instructional materials and expectations for the student were reexamined with the regular teacher to determine whether they needed to be adjusted also. It was anticipated that in most cases, such intervention could be easily managed by the classroom teacher.

Administration of a booster session began by removing the student to a quiet part of his classroom such as the teacher's office. Classroom rules were reviewed and discussed with the student by the
researcher. The student was asked which rules he had been following well and which ones had given him difficulty. Teacher comments were incorporated with notes made by classroom observers to provide the student with external feedback regarding his work and behavior. Modeling and role-playing were used by the researcher and the student to generate and practice alternatives to the problems the student had been experiencing. Finally, the student was asked to verbalize his plans for handling the problem situations the next time they occurred. Generally a booster session lasted 10 to 15 minutes. During Phase II, subjects were administered the following number of booster sessions: Subject 1, one; Subject 2, three; Subject 3, none; Subject 4, none; Subject 5, one; and Subject 6, six.

For Subjects 1, 3, 4, and 5, Phase II consisted of the seven conditions as specified in this chapter. Two of the subjects, however, Subjects 2 and 6, required a return to earlier, more intensive intervention to maintain treatment gains. For Subject 2, Phase II consisted of the program conditions as specified until condition 14, when he was backed up to condition 9, Self-Evaluate/60 Minutes. During condition 9, Subject 6 was backed up to condition 3. Both Subjects 2 and 6 remained in the backup conditions to which they were returned until the end of the study.

Data and Instrumentation

Two primary dependent measures were included in the study:

1) mean percentage of time engaged in appropriate classroom behavior per 10-minute observation period.
2) mean percentage of time engaged in inappropriate classroom behavior per 10-minute observation period.

Observations for the two dependent measures were made daily for all subjects in the resource room and in their regular classrooms during resource room treatment (Phase I.). During the generalization and maintenance phase of the study, (Phase II), daily observations continued for all subjects in their regular classrooms. Additionally, frequent observations for the dependent measures were made for randomly selected classmates of subjects in the regular classrooms in both Phases I and II.

Observation Codes

Observation codes for the two dependent measures were adapted from Contingencies for Learning Academic and Social Skills (CLASS) (Hops, Beickel, & Walker, 1976) and Program for Academic Survival Skills (PASS) (Greenwood, Nicholes, & Hops, 1974). A description of the codes utilized in assessing the two categories of behavior are as follows:

I. Appropriate Classroom Behavior

1. Attend--The student is looking at the teacher when the teacher is talking or presenting information to the individual or class, looking at materials in the classroom that have to do with the lesson, or looking at a peer who is presenting related academic information to the class. Attending behavior is characterized by eye contact with (and head and body orientation in the direction of) the appropriate classroom objects (teacher
2. Work--The subject is engaged in or is completing teacher-assigned tasks. Work responses are characterized by non-verbal, motor movements, if a written response is required. If the student is reading, progressive eye movement and page turning are evidenced.

3. Volunteer--The subject raises his hand to offer information or otherwise offers an appropriate response related to the on-going academic activity in response to a teacher's question or suggestion.

4. Reading Aloud--The subject is observed to be reading orally in an individual structure during the reading period or when asked to do so by the teacher. The subject can be reading any form of printed material ranging from books, charts, blackboard, word cards, etc.

5. Answering Questions--The subject is answering questions when called upon to do so by the teacher.

6. Asking the Teacher a Question--After raising his hand to gain teacher attention, the subject asks the teacher a question when she calls on him.

7. Other--The subject exhibits appropriate classroom behavior as determined by classroom rules in operation in the classroom.

II. Inappropriate Behavior

1. Talking Out--The subject speaks without permission or
interrupts the teacher and another student who are
talking to each other.

2. Out-of-Chair--Movement of the subject from his chair
when not permitted. Such movement may include leaving
the chair to open the window, remove items or threaten
to remove items from the teacher's or other students'
desks, name-calling and moving around the room.

3. Modified Out-of-Chair--Movement of the subject from
his chair with some part of the body still touching
the chair (exclude sitting on feet).

4. Noise--The subject creates any audible noise other
than vocalization.

5. Rocking--The subject lifts one or more of his chair
legs from the floor while he is seated in his chair.

6. Noncompliance--Failure by the subject to initiate the
appropriate response as requested by the teacher.

7. Aggression--The subject makes movement toward another
person so as to come into contact with him, whether
directly or by using a material object as an exten-
sion of the hand.

8. Other--The subject clearly violates school or class-
room rules or engages in behavior which prevents him
from engaging in learning tasks and which are not
otherwise specifically defined. Such behavior must
be determined by the rules in operation in subjects'
classrooms. Examples of such behavior may include
engaging singly in activities or tasks not approved by the teacher or related to the assigned academic tasks (i.e., combing hair, writing on desk, looking at or handling objects within the immediate area surrounding the subject's desk or work area, not appropriate to the academic task at hand).

While the observation code provided an initial basis for determining whether behavior should be considered appropriate or inappropriate, final determination was made in accordance with the classroom rules and expectations operating in a given setting.

During Phase I in the resource room, observations were made using the observation code already described and on conjunction with a set of classroom rules introduced in that setting. All regular classroom teachers whose students participated in the study were questioned at length regarding what was and what was not permitted in their classrooms. Appropriate and inappropriate behavior were coded in different classrooms taking individual teacher deviations into account. For example, the mainstream teacher of Subject 1 did not care whether students sat on their feet while seated at their desks. The teacher of Subject 2 did not require that students in her classroom raise their hand to talk or ask permission to get drinks or sharpen pencils. Students were also permitted to get drinks or sharpen pencils without asking permission in the classroom of Subject 3. For Subjects 4 and 6, teacher permission was not needed for sharpening pencils, and for Subject 5, there were no deviations from the observation code. In his classroom, permission was required before students could speak or leave their seats for any reason.
Recording Observations

Observations were made for one child at a time on a continuous 10-second observe-and-record schedule, similar to that used by Hops et al., (1976). During each 10-second interval, a student's behavior was coded with an "I" for inappropriate behavior in the designated row on the observation form (see Appendix F for a copy of the form) for any 10-second interval in which one or more of the behaviors specified as inappropriate in the observation code is exhibited. An "A" will denote any 10-second interval in which appropriate classroom behavior was demonstrated for the entire 10-second interval.

Percentages of the two categories of coded behavior for each 10-minute observation period were calculated by dividing the number of 10-second observations coded with an "I" for inappropriate behavior or an "A" for appropriate classroom behavior by the total number of observation intervals (60 and multiplying the obtained number by 100 for that 10-minute observation period.

Percent "I" or "A" = \[
\frac{\text{number of "I" or "A" intervals}}{\text{total "I" plus "A" intervals}} \times 100
\]

During Phase I, each study subject was observed daily for at least one 10-minute interval in both his regular classroom and the resource room. Regular classroom observations took place daily from 9:00 to 10:30 A.M. while academic work was carried out, and resource room observations were conducted from 1:30 to 2:30 P.M. Randomly selected peers of subjects were also observed regularly from 9:00 to 10:30 A.M. in their regular classrooms to provide normative data. During Phase II, daily 10-minute observations for subjects continued in
their regular classrooms from 9:00 to 10:30 A.M. Peers continued to be observed frequently in the regular classrooms during this time period throughout Phase II, also. Thus, mean percentages of the two categories of coded behavior for each condition of Phase I and Phase II were calculated for subjects and their randomly selected peers, based on observations in the regular and resource rooms.

Observers were given a list of subjects and the times at which they were to be observed for one week at a time. When a second observer was present in the regular classroom, observers were not aware of which students (study subjects or their normal peers) other observers were observing. Observers were asked to calibrate their stopwatches at the beginning of observation intervals whenever another observer was present and to avoid any form of communication with each other in regard to their observations. When two observers were present at the same time, they might or might not have been observing the same subject. The list of subjects with which observers were provided weekly were constructed using random selection without replacement to determine which student was to be observed during each 10-minute interval.

Observer agreement checks were made on an average of at least four times during each of the fourteen conditions of Phases I and II for one 10-minute observation interval. Agreement was calculated by dividing the number of perfect agreements on the occurrences of coded behavior categories by the total number of agreements plus disagreements for two observers.

\[
\text{percent agreement} = \frac{\text{number of agreements for } "I" + "A"}{\text{total agreements + disagreements}} \times 100
\]
Observer Selection and Training

Six weeks before the first phase of the study was scheduled to begin, five observers were selected for training from those who responded to posted notices on the Utah State University campus. Observers were selected from the pool of respondents based on their availability for making observations during scheduled hours as needed and their understanding that if hired they were responsible for making scheduled observations or arranging for one of the other observers to assume their responsibilities in the event that unanticipated absence occurred. Observers were paid minimum wage for the hours they spent in training and observation. All of the observers were undergraduate students, and only one had previous observation experience. Two of the observers were majoring in psychology, the third was majoring in special education, and the fourth was majoring in elementary education. During the third week that observations took place, one of the observers majoring in psychology dropped out of the study because of an unexpected schedule conflict and was replaced by another psychology major. All participating observers were the same for the remainder of the study.

Observer training began with discussion and explanation of the observation recording form and observation code to be used in the study. Modeling and role-playing of examples and nonexamples of behaviors included in the observation code and of situations similar to those expected in the study were demonstrated for observer trainees, and the way in which behaviors were to be coded were explained in detail. Variations in classroom rules for the resource room and the
regular classrooms were also explained and then modeled and role-played. Observer trainees then practiced recording behavior in the regular and resource classrooms and were given feedback and clarification as needed by the researcher until reliability was consistently attained at acceptable levels. Observers were required to achieve at least 85% agreement with reliability checkers on three successive trials to participate in the study.

In order to help control for observer drift, the researcher conducted reliability checks with each observer at least once each week during their scheduled observations. The observation code was discussed with observers and revised as unanticipated and unusual behaviors occurred throughout the study, so that the group would continue to observe and record consistently. Observers were encouraged to bring up any questions they had concerning their observations with the researcher. To minimize the presence of observer bias, observers were not informed of the study purpose until the research was completed.

Data Analysis

Research Design

A multiple baseline across pairs of subjects design was used to examine variation of individual subjects' behavior. Demonstration of experimental control in using this design is based on the visualization of the baseline and subsequent study conditions as separate A-B designs for the dependent measures with the A or baseline phase for subsequent subject pairs continuing until the treatment procedures are implemented. The treatment may be credited with control of the chan-
ges which occur when the changes in the levels for the dependent measures do not occur until the treatment is applied to that particular subject pair and when the levels for the dependent measures remain relatively constant until the treatment is applied. Targeted behaviors are assumed to be independent of each other for the changes to occur as described (Hersen & Barlow, 1976).

In the present study, pairs of subjects served as controls for each other, so that treatment effects could be assessed. A multiple baseline design was used, since reinstatement of baseline conditions was considered particularly undesirable in this case. That is, successful reimplementations of baseline would result in a substantial increase in students' inappropriate classroom behavior. The use of frequent measurements in the single subject analysis was expected to provide a clear, reliable description of how individual subjects varied in response to different treatment conditions.

The pair of students receiving resource room treatment whose behavior and academic work reached appropriate and stable levels first were introduced to generalization and maintenance conditions first. An average of at least 80 percent appropriate behavior in the resource room over the last four day period was required for subjects' full-time return to their regular classrooms. Additional pairs of students were introduced to subsequent experimental conditions approximately four days apart. Percentages of the two dependent measures were calculated and graphed daily for all subjects in their regular classrooms throughout the study.
In using the multiple baseline across pairs of subjects design, experimental control over subjects' behavior was demonstrated in the change and maintenance of the change in the dependent measure percentages for subjects from Phase I (resource room treatment) to Phase II (generalization and maintenance in the regular classroom) as Phase II procedures were introduced to pairs of subjects. Conversely, dependent measure percentages for pairs of subjects who had not yet been introduced to Phase II procedures remained relatively constant in their regular classrooms. In this way, percentages for the dependent measures in the regular classroom during Phase I served as a baseline for Phase II and behavior in the resource room for Phase I could be monitored for generalization to and maintenance in the regular classroom during Phase II. Although approximate timelines for study conditions were delineated prior to conducting the study, baseline and treatment condition stability and acceptable levels of appropriate behavior as previously described were required before subsequent conditions were initiated.
CHAPTER IV

RESULTS

The main purpose of this study was to determine whether a combination of intervention procedures emphasizing students' self-evaluation of their own classroom behavior initiated in a short-term resource room treatment and extended into regular classroom settings would be effective in generalizing and maintaining increased rates of appropriate behavior and decreased rates of inappropriate classroom behavior. The major focus of the study was on the generalization and maintenance of treatment gains to subjects' regular classrooms rather than on the means by which those treatment gains were obtained in the resource setting. However, a summary of the treatment data from the resource room will be provided first for comparison with regular classroom data for Phase I and to aid in understanding the generalization and maintenance aspects of the study.

Initially, three dependent measures were used: (1) percentage of disruptive-negative behavior (e.g., aggression, noncompliance, and highly disruptive behavior), (2) percentage of other inappropriate behavior (e.g., talking out, out-of-seat, rocking in chair, and (3) percentage of appropriate behavior (e.g., attending, working, answering questions, volunteering). Because the percentage of disruptive-negative behavior as defined by the observation code was extremely low or
nonexistent for most of the subjects throughout the study, percentages of disruptive-negative and other inappropriate behavior were collapsed for reporting purposes. Thus, results have been examined in terms of two dependent measures: appropriate and inappropriate behavior for both resource room and regular classroom settings. However, only results for appropriate behavior will be reported in this section, since inappropriate behavior figures are a function of the appropriate behavior percentages. That is, inappropriate behavior percentages may be obtained by subtracting reported appropriate behavior figures from 100%. (See Appendix G for average inappropriate behavior percentages for Phase I and Phase II.)

Phase I-Resource Room

Resource Room Conditions

The first study phase took place in a resource room setting. The six subjects were exposed to a baseline period and six subsequent conditions in the resource room over a 15 to 17 week period before being returned to their regular classrooms on a full-time basis. The conditions in Phase I were Baseline (10 days), External Reinforcement/Feedback (10 days), Matching Evaluations with the Teacher/100% (9 days), Matching Evaluations with the Teacher/50% (6 days), Matching Evaluations with the Teacher/33 1/3% (5 days), Matching Evaluations with the Teacher/16 2/3% (8 days) and No Matching with the Teacher (4-8) days.

Summary of Phase I Group Data

Figure 1 and Table 1 present a summary of average appropriate behavior for the group of subjects in both regular classroom and resource
Figure 1. Mean percentage of appropriate behavior for the group of subjects in the regular and resource classrooms during Phase I.
Table 1

Mean Percentage of Appropriate Behavior for the Group of Subjects During Phase I

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<td>45</td>
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</table>
room settings. After completion of the ten day baseline condition with an average of 34% appropriate behavior in the regular classroom, the group as a whole averaged 38% appropriate behavior over the remaining six conditions and 42 treatment days of Phase I. Mean percentages for the group ranged from 26 to 52% after the resource room baseline, and trended upward during the last five conditions.

During this same time period, the behavior for the group as a whole averaged 92% appropriate in the resource room. This represents a 57% increase in appropriate behavior over the baseline average of 35%. Percentages for appropriate behavior in the resource room were stable once intervention began with percentages for the group ranging from 88 to 95% for the six treatment conditions.

Once resource room treatment (External Reinforcement/Feedback) was implemented, the group of subjects averaged well above the preset criterion of 80% appropriate behavior in the resource room throughout Phase I. In the regular classroom, however, the reverse was true with none of the subjects averaging above the 80% average appropriate behavior figure in their regular classrooms during any of the resource room treatment conditions.

Summary of Phase I Data for Individual Subjects

During the 10 day resource room baseline period, average appropriate behavior for individual subjects ranged from 25 to 54% in their regular classrooms. In the resource room, average appropriate behavior was very similar, ranging from 20 to 51% for individual subjects during the same time period. It is interesting to note that Subject 1,
who exhibited the highest appropriate behavior average (54%) in the regular classroom during baseline displayed the lowest average (20%) in the resource room (see Figure 2 and Table 2). Conversely, Subject 5 exhibited the lowest appropriate behavior average (25%) in the regular classroom but displayed the highest appropriate behavior average (51%) in the resource room during baseline (see Figure 3 and Table 3).

Following the resource room baseline, appropriate behavior for Subject 1 averaged 39% in the regular classroom. For all of Phase I, appropriate behavior for Subject 1 was extremely variable in the regular classroom with session percentages ranging from 0 to 90%. In the resource room, his appropriate behavior averaged 92% for the six conditions following baseline, an increase of 72% over the baseline average of 20% appropriate. Percentages for the six conditions ranged from 87 to 97% in the resource room.

Average appropriate behavior for Subject 2 ranged from 19 to 49% for Phase I conditions in the regular classroom, with an average of 38% during baseline. Again, variability was extreme, with session percentages ranging from 0 to 98%. After exhibiting an average of 45% appropriate behavior in the resource room during baseline, average appropriate for Subject 2 ranged from 88 to 98% for the remaining Phase I conditions. Figure 4 and Table 4 summarize Phase I percentages for appropriate behavior. Average appropriate behavior for Subject 3 followed a pattern similar to that for Subject 2 in the resource room with a baseline average of 39% and a range of 94 to 99% average appropriate behavior for the remaining conditions. However, average appropriate
Figure 2. Percentage of appropriate behavior for Subject 1 in the regular and resource classrooms during Phase I.
Table 2
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 1 During Phase I

<table>
<thead>
<tr>
<th>Setting</th>
<th>Phase 1 Conditions</th>
<th>Grand Mean for Conditions 2-7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Baseline (Resource Room)</td>
<td></td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>54</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>(17-90)(^a)</td>
<td>(7-57)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>20</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>(7-57)</td>
<td>(30-100)</td>
</tr>
</tbody>
</table>

\(^a\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Figure 3. Percentage of appropriate behavior for Subject 5 in the regular and resource classrooms during Phase 1.
Table 3
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 5 During Phase I

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>(0-78)³</td>
<td>(0-78)³</td>
<td>(0-58)</td>
<td>(5-25)</td>
<td>(0-45)</td>
<td>(35-63)</td>
<td>(7-100)</td>
<td>(0-100)</td>
<td>(25 26 21 10 14 47 48 28)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>(12-87)</td>
<td>(12-87)</td>
<td>(65-100)</td>
<td>(81-100)</td>
<td>(90-100)</td>
<td>(88-100)</td>
<td>(42-100)</td>
<td>(42-100)</td>
<td>(51 80 92 93 97 94 87 91)</td>
</tr>
</tbody>
</table>

³ Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Figure 4. Percentage of appropriate behavior for Subject 2 in the regular and resource classrooms during Phase I.
Table 4
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 2 During Phase I

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>38 (7-87) (^{a})</td>
<td>49 (20-97)</td>
<td>24 (0-80)</td>
<td>28 (8-57)</td>
<td>19 (2-32)</td>
<td>28 (0-55)</td>
<td>37 (22-67)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>45 (12-95)</td>
<td>91 (62-100)</td>
<td>95 (80-100)</td>
<td>98 (95-100)</td>
<td>87 (72-100)</td>
<td>88 (68-100)</td>
<td>94 (83-100)</td>
</tr>
</tbody>
</table>

\(^{a}\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
behavior for Subject 3 in the regular class during baseline (27%) was somewhat lower than that for Subject 2 during the same time and was more variable, ranging from 3 to 63% average for subsequent conditions. Figure 5 and Table 5 depict this information. During baseline, average appropriate behavior for Subject 6 in the regular classroom (31%) was also comparable to that for Subject 2 for baseline (see Figure 6 and Table 6). The range for Subject 6 for the remaining conditions in the regular classroom for average appropriate behavior was 23 to 60%, roughly comparable to the range of appropriate behavior for Subject 2. While average appropriate behavior for Subject 6 during baseline in the resource room (24%) was considerably below the 45% average in that setting for Subject 2, the average appropriate percentage range for remaining conditions in the resource room (84 to 99%) was much the same as that for Subject 2 (87 to 98%).

Appropriate behavior in the regular classroom for Subject 4 differed from that of other subjects (see Figure 7 and Table 7). While his average appropriate behavior during baseline in his regular class was 30% and was comparable during the next two conditions (34 and 33%, respectively), it increased during the fourth condition (Match Teacher Evaluations/50%) to an average of 74% and remained at similar levels for the remaining three conditions (69, 65, and 71%, respectively). None of the other subjects exhibited a similar behavior pattern in the regular classroom. Appropriate behavior percentages in the regular setting varied widely, however. In the resource room the pattern of appropriate behavior for Subject 4 did not differ from that of other subjects. His baseline average was 32% appropriate, with an average
Figure 5. Percentage of appropriate behavior for Subject 3 in the regular and resource classrooms during Phase I.
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</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
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<td></td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>27 (7-54)(^a)</td>
<td>46 (3-98)</td>
<td>28 (7-63)</td>
<td>3 (0-8)</td>
<td>27 (0-53)</td>
<td>37 (0-73)</td>
<td>63 (0-95)</td>
<td>34 (0-98)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>39 (12-87)</td>
<td>94 (83-100)</td>
<td>96 (87-100)</td>
<td>94 (78-100)</td>
<td>99 (98-100)</td>
<td>95 (88-100)</td>
<td>95 (86-100)</td>
<td>96 (78-100)</td>
</tr>
</tbody>
</table>

\(^a\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Figure 6. Percentage of appropriate behavior for Subject 6 in the regular and resource classrooms during Phase I.
Table 6
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 6 During Phase I

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Setting</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>31 (5-55)^a</td>
<td>28 (0-72)</td>
<td>23 (0-80)</td>
<td>37 (25-57)</td>
<td>43 (25-60)</td>
<td>40 (26-78)</td>
<td>60 (0-87)</td>
<td>39 (0-87)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>24 (2-68)</td>
<td>89 (72-100)</td>
<td>84 (53-100)</td>
<td>87 (58-100)</td>
<td>99 (98-100)</td>
<td>86 (64-100)</td>
<td>92 (75-100)</td>
<td>90 (53-100)</td>
</tr>
</tbody>
</table>

^a Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Figure 7. Percentage of appropriate behavior for Subject 4 in the regular and resource classrooms during Phase I.
Table 7
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 4 During Phase I

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>(10-77)²</td>
<td>(0-83)</td>
<td>(0-70)</td>
<td>(52-93)</td>
<td>(67-73)</td>
<td>(37-100)</td>
<td>(47-100)</td>
<td>(0-100)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>(0-100)</td>
<td>(63-97)</td>
<td>(77-100)</td>
<td>(73-100)</td>
<td>(88-100)</td>
<td>(86-100)</td>
<td>(77-100)</td>
<td>(63-100)</td>
</tr>
</tbody>
</table>

²Parentheses indicate session percentage ranges by condition and across conditions for Phase I.
percentage range from 84 to 96% for subsequent conditions. Appropriate behavior was more stable in the resource room that it was in the regular classroom.

Average appropriate behavior for Subject 5 also differed from that of other subjects in that more extreme variability was evidenced in both regular and resource rooms across Phase I conditions (see Figure 3 and Table 3). In the regular classroom, average appropriate behavior for Subject 5 was 25% during baseline (the lowest of the six subjects) with a range of 0 to 100% for subsequent conditions. After baseline, appropriate behavior for Subject 5 averaged 28% for Phase I as a whole. Appropriate behavior in the resource room averaged 51% during baseline and averaged 91% in that setting for remaining Phase I conditions. Percentages for average appropriate behavior for Subject 5 ranged from 12 to 100% during Phase I in the resource room. The 80% average appropriate figure for Subject 5 for the first treatment condition after baseline was the lowest condition mean for appropriate behavior in the resource room evidenced by any of the subjects for any of the conditions following baseline in Phase I.

Matching of Student Self-Evaluations with Teacher Evaluations

One of the primary objectives of the resource room treatment was to bring the behavior of the subjects under the control of the matching procedure which required subjects to match or closely approximate the teacher's evaluations of their behavior and academic performance on a 0 to 5 point scale. Initially, a token system and evaluative feedback were introduced by the teacher to obtain behavioral control. The match-
ing procedure was then initiated to teach students to monitor and evaluate their own behavior. Once students were displaying high levels of appropriate behavior and were matching the teacher's evaluations for their work and behavior accurately, the matching procedure was gradually faded in several stages until subjects were evaluating their own academic work and behavior and were keeping the number of points they awarded themselves most of the time.

A match between student self-evaluations and teacher evaluations for academic work and behavior was scored if student self-evaluations exactly matched teacher evaluations or were within one point higher or lower than teacher evaluations. Based on these criteria, student self-evaluations matched teacher evaluations 93% of the time during Phase I in the resource room. Average percentages across subjects for matching during Phase I conditions ranged from 82 to 100%.

It should be noted that no actual overt matching of teacher and student evaluations was planned for the No Match condition, and no actual matching took place initially during that condition. However, some students began to give themselves high ratings (and corresponding point awards) even when their work and behavior did not warrant high ratings. To encourage a return to accurate self-evaluation, an occasional "surprise" match with the teacher was staged every two or three days for one reinforcement interval. During the No Match condition when "surprise" matches were not conducted, the teacher continued to rate and record student work and behavior privately and independently of student evaluations. Comparison of student self-evaluations and independent teacher evaluations (including "surprise" matching and no match-
ing) during the No Match condition revealed 89% matching even when students were basically responsible for their own evaluations and teacher matching was unlikely to occur. The mean percentage of agreement for student and teacher evaluation ratings in the resource room for Phase I are listed in Table 8.

### Phase II-Generalization and Maintenance of Treatment

#### Gains in the Regular Classroom

**Generalization and Maintenance Conditions**

The second phase of the study, the major focus of this experiment, was concerned with the extent to which treatment gains achieved in the resource room transferred and maintained in the subjects' regular classrooms after the resource room treatment was discontinued. Seven Phase II conditions were introduced to one pair of subjects at a time over a period of 34 school days (April through May) in a multiple baseline across pairs of subjects design. The conditions in Phase II were Generalization and Maintenance/Evaluation 30 Minutes, Generalization and Maintenance/Evaluation 60 Minutes, Generalization and Maintenance/Evaluation VR 2 Days, Generalization and Maintenance/No Points, Generalization and Maintenance/Verbal Evaluation VR 2 Days, and No Verbal Evaluation. The length of the conditions varied among subjects for different conditions.

While all subjects were exposed to Phase I conditions at the same time, the nature of the multiple baseline across pairs of subjects design necessitated exposure to Phase II conditions for different pairs of subjects over different periods of time so that pairs of subjects
Table 8
Mean Percentage Agreement of Student Ratings With Teacher Ratings in the Resource Room During Phase I

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>No Match</td>
<td>No Match</td>
<td>100</td>
<td>93</td>
<td>96</td>
<td>98</td>
<td>80</td>
<td>93</td>
</tr>
<tr>
<td>1</td>
<td>No Match</td>
<td>No Match</td>
<td>100</td>
<td>100</td>
<td>96</td>
<td>94</td>
<td>100</td>
<td>98</td>
</tr>
<tr>
<td>2</td>
<td>No Match</td>
<td>No Match</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>No Match</td>
<td>No Match</td>
<td>100</td>
<td>93</td>
<td>85</td>
<td>96</td>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>4</td>
<td>No Match</td>
<td>No Match</td>
<td>100</td>
<td>93</td>
<td>72</td>
<td>82</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>5</td>
<td>No Match</td>
<td>No Match</td>
<td>97</td>
<td>95</td>
<td>88</td>
<td>89</td>
<td>71</td>
<td>88</td>
</tr>
<tr>
<td>6</td>
<td>No Match</td>
<td>No Match</td>
<td>97</td>
<td>96</td>
<td>90</td>
<td>93</td>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>Mean for the Group</td>
<td>No Match</td>
<td>No Match</td>
<td>97</td>
<td>96</td>
<td>90</td>
<td>93</td>
<td>89</td>
<td>93</td>
</tr>
</tbody>
</table>
could serve as experimental controls for each other. Individual variability within two of the subject pairs required that their progression through the prescribed fading sequence be tailored to meet their needs. Presentation of the data will describe intervention variations where they occurred with data presented first for the group of subjects and then for individual subjects as they relate to the specific objectives of the study.

Summary of Results for the Group of Subjects

Percentages of appropriate behavior were calculated daily for all subjects in their regular classrooms. Once Phase II began, all subjects exhibited initial increases in their average appropriate behavior in their regular classrooms over Phase I regular classroom data. For the group as a whole, average appropriate behavior in the resource room for Phase I was relatively comparable to that observed in the first condition of Phase II, indicating that appropriate behavior gains had transferred to the regular classrooms. Additionally, all subjects maintained higher appropriate behavior in their regular classrooms during Phase II than they had in Phase I.

As a whole, the group of subjects averaged 92% appropriate behavior in Phase II in their regular classrooms. Appropriate behavior in that setting increased 54% over the Phase I average of 38%. Figure 8 portrays group data, and Table 9 summarizes group data for Phase II.

Summary of Results for Individual Subjects

Figure 9 portrays average appropriate behavior session percentages for individual subjects by intervention sessions as they relate to each
Figure 8. Mean percentage of appropriate behavior for the group of subjects in the regular and resource classrooms during Phase I and in the regular classroom during Phase II.
Table 9

Mean Percentage of Appropriate Behavior for the Group of Subjects During Phase II

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td>89(^a)</td>
<td>98</td>
<td>91</td>
<td>92</td>
<td>90</td>
<td>85(^b)</td>
<td>97</td>
</tr>
</tbody>
</table>

\(^a\)Percentage figure includes Subject 6, who did not meet study criteria in condition 8 and was returned to an earlier condition. Figures for conditions 9-14 do not include Subject 6.

\(^b\)Percentage figure includes Subject 2, who did not meet study criteria in condition 13 and was returned to an earlier condition. Subject 2 is not included in the condition 14 figure.
Figure 9. Summary of Phase I and Phase II session mean percentages of appropriate behavior for individual subjects for the multiple baseline across pairs of subjects design.
other in the multiple baseline across pairs of subjects design. A description of the data for each subject as it corresponds to other subjects and responded to the implementation of Phase II intervention is provided.

During the six treatment conditions of Phase I, Subject 1 averaged 92% appropriate behavior in the resource room (39% in the regular classroom). His average appropriate behavior during the first condition of Phase II, 92%, equals his overall average during Phase I. Average appropriate behavior of 93% for Subject 1 for Phase II as a whole indicates that high levels of appropriate behavior maintained in the regular classroom for the duration of the study. Figure 10 and Table 10 summarize this information.

Overall appropriate behavior for Subject 3 in the resource room during Phase I averaged 96% appropriate and averaged 34% appropriate in the regular classroom. During the first condition of Phase II, his average appropriate behavior in the regular classroom increased to 91%, indicating that the gains had transferred from the resource room. His 94% appropriate average for Phase II as a whole also demonstrates that gains maintained in the regular classroom throughout the study. Figure 11 and Table 11 display this information.

The pattern of average appropriate behavior gains for Subject 5 which transferred from the resource room and maintained in the regular classroom is similar to that for Subjects 1 and 3. During Phase I, appropriate behavior for Subject 5 averaged 91% in the resource room and averaged 28% in the regular classroom. During the first condition of Phase II, appropriate behavior averaged 93%. For all of Phase II,
Figure 10. Mean percentage of appropriate behavior for Subject 1 in the resource and regular classrooms during Phase I and in the regular classroom during Phase II.
Table 10
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 1 During Phase II

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>92</td>
<td>(85-100)</td>
<td>(90-98)</td>
<td>(88-100)</td>
<td>(93-96)</td>
<td>(87-97) (60-100)</td>
<td>(90-100)</td>
<td>(60-100)</td>
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</tr>
</tbody>
</table>

 Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
Figure 11. Percentage of appropriate behavior for Subject 3 in the resource and regular classroom during Phase I and in the regular classroom during Phase II.
### Table II

Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 3 During Phase II

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</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>91</td>
<td>91</td>
<td>94</td>
<td>94</td>
<td>95</td>
<td>95</td>
<td>98</td>
<td>98</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>(80-100)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>(77-98)</td>
<td>(83-100)</td>
<td>(82-100)</td>
<td>(89-100)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>(85-100)</td>
<td>(93-100)</td>
<td>(77-100)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
appropriate behavior likewise averaged 93%. Appropriate behavior gains for Subject 5 thus appeared to transfer to the regular classroom and were maintained for the duration of the study. Figure 12 and Table 12 summarize these data.

In the regular classroom, average appropriate behavior for Subject 4 trended upward in Phase I and was higher (58% appropriate) for Phase I as a whole in the regular classroom than for Subjects 1, 3, and 5. Subject 4 averaged 92% appropriate behavior in the resource room during Phase I. However, his average appropriate behavior during the first condition of Phase II in the regular classroom (97% appropriate) increased still further over the last condition of Phase I. The gain for Subject 4 from Phase I to Phase II was not as great as for Subjects 1, 3, and 5, since his average appropriate behavior in the regular classroom for Phase I was already somewhat higher than their averages. The 91% appropriate behavior figure for Subject 4 for Phase II as a whole demonstrated that appropriate behavior gains maintained in the regular classroom. Figure 13 and Table 13 depict these data.

Subject 2 averaged 92% appropriate behavior in the resource room (31% in the regular classroom) during Phase I. During the first condition of Phase II, his appropriate behavior averaged 88% in the regular classroom, suggesting that increased appropriate behavior gains transferred to that setting at least initially. For the subsequent four Phase II conditions, his behavior remained, on the average, well above the 80% criterion level. During the seven conditions of Phase II, Subject 2 was administered six booster sessions. Because average appropriate behavior decreased to 66% during condition 13 for Subject 2, he
Figure 12. Percentage of appropriate behavior for Subject 5 in the resource and regular classrooms during Phase I and in the regular classrooms during Phase II.
### Table 12

Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 5 During Phase II

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Self-Evaluate/30 Minutes</td>
<td>Self-Evaluate/60 Minutes</td>
<td>Points Exchange/</td>
<td>No Points</td>
<td>Self-Evaluate Verbally/60 Minutes</td>
<td>VR 2 Days</td>
<td>No Self-Evaluation</td>
<td>Conditions 8-14</td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>(85-100)²</td>
<td>(84-100)</td>
<td>(87-100)</td>
<td>(63-100)</td>
<td>(80-97)</td>
<td>(88-97)</td>
<td>(93-100)</td>
<td>(63-100)</td>
</tr>
</tbody>
</table>

²Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
Figure 13. Percentage of appropriate behavior for Subject 4 in the resource and regular classrooms during Phase I and in the regular classroom during Phase II.
<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>97 (92-100)</td>
<td>92 (83-100)</td>
<td>86 (58-97)</td>
<td>89 (80-100)</td>
<td>91 (77-100)</td>
<td>87 (83-92)</td>
<td>98 (93-100)</td>
<td>91 (58-100)</td>
</tr>
</tbody>
</table>

*aParentheses indicate session percentage ranges by conditions and across conditions for Phase II.
was returned to Generalization and Maintenance/Evaluate 60 Minutes, which was the second Phase II condition. The second Phase II condition was selected since the subject had experienced success in meeting the study criterion during that condition and because his teacher and the researcher judged that he would again experience success with that level of intervention. However, with this modification, appropriate behavior still averaged only 76%. For Subject 2, then, behavior gains appeared to transfer initially but did not maintain at that level. Average appropriate behavior for Subject 2 did not meet the study criterion of 80% for all Phase II conditions. However, for Phase II as a whole, appropriate behavior for Subject 2 averaged 82% appropriate, a 51% increase in appropriate behavior in the regular classroom over Phase I. Figure 14 and Table 14 summarize data for Subject 2.

During Phase I, Subject 6's appropriate behavior had averaged 92% in the resource room and 39% appropriate in his regular classroom. With an appropriate behavior average of 73% in the regular classroom for the first condition of Phase II, an increase in appropriate behavior gains was present, even though it did not meet the specified criterion. The decision was made to return the subject to the third condition to which he had been exposed in Phase I, Match Teacher Evaluation/100%, since he had successfully met the study criterion with that level of intervention. Even with the more intensive form of intervention, appropriate behavior was unstable and averaged only slightly higher (82% appropriate) than the criterion. During Phase II conditions, three booster sessions were administered to Subject 6.
Figure 14. Percentage of appropriate behavior for Subject 2 in the resource and regular classrooms during Phase I and in the regular classroom during Phase II.
Table 14
Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 2 During Phase II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td>88</td>
<td>81</td>
<td>90</td>
<td>93</td>
<td>81</td>
<td>66</td>
</tr>
</tbody>
</table>

(78-98)a (45-100) (83-98) (86-100) (73-97) (0-95) (3-97) (0-100)

aParentheses indicate session percentage ranges by conditions and across conditions for Phase II.
bRepresents a return to condition, Self-Evaluate/60 Minutes.
Subject 6 was not moved further through subsequent Phase I or Phase II conditions. His increased appropriate behavior could be maintained in his regular classroom, but only by retaining a higher level of intervention than originally planned. For Phase II as a whole, appropriate behavior for Subject 6 averaged 78% appropriate in the regular classroom, an increase of 39% appropriate behavior over Phase I. A summary of the data for Subject 6 is found in Figure 15 and Table 15.

Matching of Student Evaluations with Teacher Evaluations

During the resource room treatment, subjects were taught to match or closely approximate their teachers' evaluations of their behavior and academic work once their behavior had been brought to acceptable levels with external reinforcement. The matching procedure was then gradually faded until students were evaluating and controlling their own behavior without teacher assistance most of the time. The goal during the generalization and maintenance portion of the treatment was to gradually fade remaining matching occurrences (written and verbal) until teacher intervention was minimal and subjects were in complete control of their own behavior.

During Phase II, an actual match between teacher evaluations and student self-evaluations took place only occasionally at the discretion of regular teachers. These "surprise" evaluations by teachers and students were counted as a match if student self-evaluations exactly matched teacher evaluations or were within one point higher or lower than teacher evaluations. When actual or "surprise" matches
Figure 15. Percentage of appropriate behavior for Subject 6 in the resource and regular classrooms during Phase I and in the regular classroom during Phase II.
Table 15

Mean Percentage and Session Percentage Ranges of Appropriate Behavior for Subject 6 During Phase II

<table>
<thead>
<tr>
<th>Phase II Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Self-Evaluate/30 Minutes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>73 (23-100^a)</th>
<th>82 (53-97)</th>
<th>78 (23-100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.

\(^b\) Represents a return to condition 3, Match Evaluations with Teacher/100%. 

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were not conducted, teachers continued to privately rate and record student work and behavior.

Matching percentage figures for Phase II include data for matching of teacher and student evaluations when both evaluated student work behavior privately and independently as well as when actual matches occurred. During Phase II, student self-evaluations matched teacher evaluations 88% of the time and ranged from 79 to 97% across the different conditions for the group. While the 88% matching for Phase II represented an 8% decrease from the 96% matching present during Phase I, it still represents an acceptable level of performance. Matching percentages for Phase II conditions are listed in Table 16.

Interobserver Reliability Checks

Observations were made by each observer for one child at a time on a continuous 10-second observe-and-record schedule. During each 10-second interval, the subject's behavior was coded with an "A" if appropriate classroom as specified in the observation code had been exhibited for the entire 10-second interval. An "I" denoted any 10-second interval in which inappropriate classroom behavior was demonstrated for the entire 10-second interval.

Interobserver reliability checks were made throughout the study on an average of 4.07 times per condition. Agreement was calculated by dividing the number of perfect agreements on the intervals of coded behavior categories by the total number of agreements plus disagreements for the two observers. For the study as a whole, interobserver reliability averages ranged from 90 to 99% and averaged 94% across all
Table 16
Mean Percentage Agreement of Student Ratings With Teacher Ratings in the Regular Classroom During Phase II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>90</td>
<td>92</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>Match</td>
<td>97</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>67</td>
<td>67</td>
<td>83</td>
<td>75</td>
<td>75</td>
<td></td>
<td>70 (100% for backup)</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>60</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>90</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>5</td>
<td>85</td>
<td>88</td>
<td>83</td>
<td>100</td>
<td>75</td>
<td>83</td>
<td></td>
<td>86</td>
</tr>
<tr>
<td>6</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean for the Group</td>
<td>83a</td>
<td>79</td>
<td>89</td>
<td>97</td>
<td>90</td>
<td>92b</td>
<td>No Match</td>
<td>88</td>
</tr>
</tbody>
</table>

aPercentage figure includes Subject 6, who did not meet study criteria in condition 8 was returned to an earlier condition. Figures for conditions 9-14 do not include Subject 6.

bPercentage figure includes Subject 2, who did not meet study criteria in condition 13 was returned to an earlier condition. Subject 2 is not included in the condition 14 figure.
conditions. Reliability percentages for Phases I and II are summarized in Table 17.

Social Validation

Social validation took two forms: 1) evaluation of behavior change within the framework of normative peer data, and 2) feedback from individuals who had an interest or involvement in the experimental program. These two forms of social validation are recommended by Greenwood, Hops, Walker, Guild, Stokes, Young, Keleman, and Willardson (1979).

Validation with Normative Peer Data

On an average of at least once each day that subjects were observed, observations were also made on randomly selected peers of subjects in their regular classrooms during every study condition. The same observation codes and procedures used to make observations of subjects were used to obtain data for randomly selected peers' appropriate and inappropriate classroom behavior.

The purpose of obtaining normative data was to make comparisons between subjects and their peers in order to estimate the practical importance of the changes produced by the intervention. Following an average for appropriate behavior of 86% during the time of resource room baseline, randomly selected classmates of subjects averaged 90% appropriate behavior in their classrooms during the 42 days of Phase I which followed the resource room baseline period. Thus, appropriate behavior remained essentially unchanged from baseline for Phase I as a whole for peers.
<table>
<thead>
<tr>
<th>Phase I Conditions</th>
<th>Percentage Agreement</th>
<th>Phase II Conditions</th>
<th>Percentage Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Matching/33 1/3%</td>
<td></td>
<td>12. Self-Evaluate Verbally/60 Minutes</td>
<td></td>
</tr>
<tr>
<td>4. Matching/50%</td>
<td></td>
<td>11. No Points</td>
<td></td>
</tr>
<tr>
<td>3. Matching/100%</td>
<td></td>
<td>10. Points Exchange/VR 2 Days</td>
<td></td>
</tr>
<tr>
<td>Grand Mean for Conditions 2-7</td>
<td>95</td>
<td>Grand Mean for Conditions 8-14</td>
<td>95</td>
</tr>
</tbody>
</table>
During Generalization and Maintenance/Evaluate 30 Minutes, the first condition of Phase II, randomly selected classmates of subjects averaged 93% appropriate behavior. For Phase II as a whole, average appropriate behavior was 94%. Average appropriate behavior for randomly selected peers is similar across during Phases I and II, indicating that their initial high level of appropriate behavior maintained throughout the study. Figure 16 and Table 18 summarize average appropriate behavior percentages for peers throughout all the study conditions.

Comparison of data for the group of subjects as a whole with their peers reveals that during the Phase I resource room baseline period, a difference of 52% existed between the two for average appropriate behavior in the regular classroom. During baseline, subjects averaged 34% appropriate behavior, while their peers averaged 86% appropriate. Resource room percentages closely correspond to percentages for subjects' appropriate behavior in their regular classrooms.

Over the 42 days and six treatment conditions of Phase I following baseline, subjects' average appropriate behavior in their regular classrooms was 38% compared to 90% appropriate for their randomly selected classmates. However, in the resource room, for the six treatment conditions of Phase I, subjects averaged 92% appropriate behavior. These resource room figures are comparable to those for randomly selected classmates in their regular classrooms during the same period of time.

Once intervention was programmed into subjects' regular classrooms in the first condition of Phase II, their average appropriate behavior was 89% in that setting. Randomly selected peers averaged 93% appro-
Figure 16. Mean percentage of appropriate behavior for the group of subjects and randomly selected peers for Phase I and Phase II.
<table>
<thead>
<tr>
<th>Phase I Conditions</th>
<th>Percentage Appropriate Behavior</th>
<th>Grand Mean for Conditions 2-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Baseline/Resource</td>
<td>86</td>
<td>90</td>
</tr>
<tr>
<td>2. External Reward/Prompt</td>
<td>91</td>
<td>90</td>
</tr>
<tr>
<td>3. Matching/100%</td>
<td>94</td>
<td>90</td>
</tr>
<tr>
<td>4. Matching/85%</td>
<td>92</td>
<td>90</td>
</tr>
<tr>
<td>5. Matching/77%</td>
<td>77</td>
<td>90</td>
</tr>
<tr>
<td>6. Matching/62/3%</td>
<td>77</td>
<td>90</td>
</tr>
<tr>
<td>7. No Matching</td>
<td>86</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase II Conditions</th>
<th>Percentage Appropriate Behavior</th>
<th>Grand Mean for Conditions 8-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Self-Evaluate/30 Minutes</td>
<td>93</td>
<td>90</td>
</tr>
<tr>
<td>9. Self-Evaluate/60 Minutes</td>
<td>98</td>
<td>90</td>
</tr>
<tr>
<td>10. Points Exchange/VR 2 Days</td>
<td>93</td>
<td>90</td>
</tr>
<tr>
<td>11. No Points</td>
<td>87</td>
<td>90</td>
</tr>
<tr>
<td>12. Self-Evaluate/Verbal 60 Minutes</td>
<td>93</td>
<td>90</td>
</tr>
<tr>
<td>13. Self-Evaluate/Verbal 2 Days</td>
<td>87</td>
<td>90</td>
</tr>
<tr>
<td>14. No Self-Evaluation</td>
<td>96</td>
<td>90</td>
</tr>
</tbody>
</table>
appropriate behavior during the same time. Behavior for both, then, was relatively similar for the Generalization and Maintenance/Evaluate 30 Minutes condition. Implementing the reduced form of self-evaluation intervention in the regular classroom resulted in an increase of 51% appropriate behavior for subjects in that setting over Phase I, while behavior of randomly selected peers remained relatively unchanged.

During Phase II as a whole, subjects averaged 92% appropriate behavior in their regular classrooms while their randomly selected peers averaged 94% appropriate. For both groups of students, behavior percentages are similar for Phase II, suggesting that practical differences for subjects' average appropriate behavior had occurred during the course of the study.

Validation with Reports of Involved Persons

Questionnaires were distributed to subjects' regular teachers and parents to obtain information regarding how they perceived the worth and merit of the study. The subjects themselves were also interviewed to obtain similar feedback. Appendix H contains copies of the teacher and parent questionnaires and subject question/response forms.

All of the questionnaires distributed to subjects' teachers were returned. However, out of the six questionnaires mailed to subjects' parents with stamped, addressed reply envelopes, only two were returned. Follow-up letters ten days later did not result in the return of more questionnaires from parents. Phone calls were made to the four parents who did not respond to the mailed questionnaires. Out of the four, only two were reached, but those two parents agreed to respond to the
questionnaire when the purpose and importance of the information was explained. Subsequent phone calls to the remaining two parents failed to generate further responses. The six subjects were questioned directly by the researcher, using a structured interview format. Their responses were recorded in writing on response forms.

**Student Satisfaction with the Program.** Judgment of satisfaction was based on the Yes/No responses of the six subjects. On the whole, students viewed the self-control training positively. For example, all six students liked earning points with which to purchase treats and toys in the program. Five of the six subjects thought that earning points and using the self-evaluation cards helped them work and behave better in the resource room, although only three thought that the cards also helped in the regular classroom setting. Four of the six students said they still worked and behaved better even after they stopped earning points, and four said the classroom rules helped them behave better in the resource room. Most of the students said they liked coming to the resource room and would want to come again. Since learning to self-evaluate their own work and behavior, five of the six students stated that their regular teachers said nicer things about their work, and four said their regular teachers said nicer things about their behavior.

On the less positive side, five students said they would rather not use their self-evaluation cards in the resource room, and four would rather not use them in the regular classroom either. Only half of the students (three) thought the classroom rules helped them work and behave better in their regular classrooms. Only two of the six
students said that they had rated their work and behavior to themselves even when they were not using self-evaluation cards. Four of the six students said that using the self-evaluation cards in the resource room made them nervous, and three said using them in the regular classroom made them nervous. A frequency distribution of student responses to questions appears in Table 19, and comments made by students regarding the program are included in Appendix I.

**Teacher Satisfaction with the Program.** Based on a 5-point rating scale (1=low, 3=average, 5=high), the average satisfaction ratings for different questionnaire items were very high. Satisfaction with self-control training program as a whole was rated an average of 4.0. Teachers also rated the success of the program high in improving the students' behavior (4.2) and academic performance (4.0) during the hour of the day the self-evaluation card was in use. Somewhat lower ratings were given for times of the day other than when the self-evaluation card was in use for behavior (3.2) and academic performances (3.1) although these ratings were still slightly above average. A frequency distribution of teacher responses to questions appears in Table 20.

High ratings were also given for the verbal instructions (4.4) and the written instructions (4.8) received by teachers in regard to program implementation and for the usefulness of this type of program for students of other teachers they knew (4.6). Less than average ratings were given for the day-to-day work load expected for program implementation (2.3) and for the cumbersomeness of the required procedures (2.7), indicating that teachers did not find implementing the program to be difficult to manage.
Table 19
Frequency Distribution of Student Responses to Interview Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think using the self-evaluation cards helped you work and behave better?</td>
<td></td>
</tr>
<tr>
<td>a. in the special class?</td>
<td>5 Yes</td>
</tr>
<tr>
<td>b. in the regular class?</td>
<td>3 No</td>
</tr>
<tr>
<td>2. Did you like earning points in the program?</td>
<td>6 Yes</td>
</tr>
<tr>
<td>3. Did earning points help you work and behave better</td>
<td></td>
</tr>
<tr>
<td>a. in the special class?</td>
<td>5 Yes</td>
</tr>
<tr>
<td>b. in the regular class?</td>
<td>6 No</td>
</tr>
<tr>
<td>4. If yes, did you still work and behave better after you stopped earning points?</td>
<td>4 Yes</td>
</tr>
<tr>
<td>5. Do you like earning treats and toys with points?</td>
<td>6 Yes</td>
</tr>
<tr>
<td>6. Did you like coming to the special class?</td>
<td>5 Yes</td>
</tr>
<tr>
<td>7. Would you want to come to the special class again?</td>
<td>4 Yes</td>
</tr>
<tr>
<td>8. Since you've learned to evaluate your own work and behavior, does your regular teacher say nicer things about your?</td>
<td></td>
</tr>
<tr>
<td>a. work?</td>
<td>5 Yes</td>
</tr>
<tr>
<td>b. behavior?</td>
<td>4 No</td>
</tr>
<tr>
<td>9. Would you rather not use the self-evaluation cards</td>
<td></td>
</tr>
<tr>
<td>a. in the special class?</td>
<td>1 Yes</td>
</tr>
<tr>
<td>b. in the regular class?</td>
<td>2 No</td>
</tr>
<tr>
<td>10. Do you think the classroom rules helped you work and behave better?</td>
<td></td>
</tr>
<tr>
<td>a. in the special class?</td>
<td>4 Yes</td>
</tr>
<tr>
<td>b. in the regular class?</td>
<td>3 No</td>
</tr>
<tr>
<td>11. Do you ever rate your work and behavior to yourself, even when you're not using a self-evaluation card?</td>
<td>2 Yes</td>
</tr>
<tr>
<td>12. Does using a self-evaluation card make you nervous</td>
<td></td>
</tr>
<tr>
<td>a. in the special class?</td>
<td>4 Yes</td>
</tr>
<tr>
<td>b. in the regular class?</td>
<td>3 No</td>
</tr>
</tbody>
</table>
Table 20

Frequency Distribution and Mean Ratings for Teacher Responses to the Teacher Satisfaction Questionnaire (1=low, 3=average, 5=high).

<table>
<thead>
<tr>
<th>Rating</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In general, how would you rate your satisfaction with the self-control training program as a whole?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>4.0</td>
</tr>
<tr>
<td>2. How successful would you rate the program in improving the student's:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. behavior during the hour of the day he used his self-evaluation card?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>b. behavior at times of the day other than when he used his self-evaluation card?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3.2</td>
</tr>
<tr>
<td>c. academic performance during the hour of the day he used his self-evaluation card?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>d. academic performance at times of the day other than when he used his self-evaluation card?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3.2</td>
</tr>
<tr>
<td>3. How would you rate the usefulness of verbal instructions and feedback given you in regard to implementing the program?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4.4</td>
</tr>
<tr>
<td>4. How would you rate the usefulness of written instructions given you in regard to implementing the program?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>5. How would you rate the usefulness of this type of self-control training for students of other teachers you know?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>4.6</td>
</tr>
<tr>
<td>6. How would you evaluate the day-to-day workload expected of you once the student was using his self-evaluation card in your classroom?</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2.2</td>
</tr>
<tr>
<td>7. How cumbersome would you rate the procedures you were expected to follow?</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2.6</td>
</tr>
<tr>
<td>8. How would you rate the student's satisfaction or enjoyment of the self-control training program a. when he was participating in the hour long special afternoon class?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>b. when he used the program in the regular classroom?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>9. What is the likelihood that you would refer students to this program if it were offered again?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>10. To what extent have you received feedback from parents about the program?</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>11. How would you rate parent satisfaction with the program?</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>12. How would you evaluate your interactions with the data takers in your classroom?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>13. How would you rate your interactions with the program coordinator?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5.0</td>
</tr>
</tbody>
</table>
Teachers perceived high student satisfaction for the resource room component of the intervention (4.1) as well as for the program in the regular classroom (4.0). They indicated the likelihood was also high (4.5) that they would refer students to the program again.

Although teacher ratings were low (2.8) concerning the extent to which they had received parental feedback regarding the program, they still rated parental satisfaction higher than average (3.5). They also rated favorably the required interactions with the data collectors in their classrooms (4.1) and with the program coordinator (5.0).

In general, teachers indicated that they found the self-evaluation program very effective in improving student behavior and academic performance during the time of the day that self-evaluation procedures were in use. For other times of the day, the program was not as effective, although behavior and academic performance were still judged above average. Teachers found the program easy to use and would recommend it for other teachers and use it again themselves for their students with unacceptable classroom behavior. They also said that students liked the program but that they had received little feedback from parents regarding their satisfaction with the program and their children's classroom gains. Specific written comments made by teachers on their questionnaires are found in Appendix I.

Parent Satisfaction with the Program. Responses from the four out of six parents who returned their questionnaires were very favorable. A frequency distribution of parent responses to questions is found in Table 21. Ratings on a 5-point scale (1=low, 3=average, 5=high) for their general satisfaction with the self-control program
Table 21
Frequency Distribution and Mean Ratings for Parent Responses to Parent Satisfaction Questionnaire (1=low, 3=average, 5=high)

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In general, how would you rate your level of satisfaction with the self-control training program in which your child participated (January-May)?</td>
<td>0 0 1 2 1</td>
<td>4.0</td>
</tr>
<tr>
<td>2. How successful do you think the program was in improving your child's academic performance?</td>
<td>0 0 1 2 1</td>
<td>4.0</td>
</tr>
<tr>
<td>b. classroom behavior?</td>
<td>0 0 0 2 2</td>
<td>4.5</td>
</tr>
<tr>
<td>3. How would you rate your child's satisfaction with his participation in the program?</td>
<td>0 0 1 2 2</td>
<td>4.0</td>
</tr>
<tr>
<td>4. What is the likelihood that you would want your child enrolled in this program again if he were experiencing similar difficulties in his regular classroom again?</td>
<td>0 0 0 2 2</td>
<td>4.5</td>
</tr>
</tbody>
</table>
averaged 4.0. In rating the program's success, a 4.0 was given for improving the child's academic performance and a 4.5 for improving behavior. Parents rated their child's satisfaction with the program high (4.0) as well. In the event that their child again experienced classroom difficulties, parents rated the likelihood they would want their child enrolled in the program again high (4.5). Specific comments written by parents on their questionnaires appear in Appendix I.
The field of special education has needed research documenting practical and effective procedures for obtaining stable behavior changes in handicapped students' regular classrooms after they have received initial treatment in special education settings. The present study addressed this need by investigating whether positive behavior changes acquired by Behaviorally/Emotionally Handicapped students during a short-term special education resource room treatment which emphasized self-evaluation procedures could be generalized to and maintained in students' regular classrooms utilizing greatly reduced or no treatment procedures. During the course of the resource room treatment, evaluation and monitoring of students' behavior was gradually transferred from the teacher to the students. Once students were maintaining high levels of acceptable classroom behavior and were accurately using self-evaluation procedures in the resource room, generalization and maintenance of their behavioral improvements were sought by extending use of the self-evaluation procedures to students' regular classrooms. Treatment components were then gradually faded until a reduced form or no form of the intervention remained.

Major Findings

Several questions guided this study: (1) Was there a difference
between subjects' behavior before and after they have received treatment? (2) How big were the differences? (3) Were the differences practical differences? (4) Did treatment effectiveness vary for different individuals?

(1) Was there a difference between subjects' behavior before and after they had received treatment? Large differences were found for subjects' regular classroom behavior before and after they had received treatment. The treatment procedures, which emphasized self-evaluation training, may be viewed as very effective both in obtaining behavioral control in the resource room setting and in transferring and maintaining behavior gains from the resource room to regular classrooms.

It should be pointed out that during the last five Phase I conditions, appropriate behavior percentages for subjects in the regular classrooms trended upward, indicating that something was occurring which was affecting subjects' appropriate behavior in those settings. While it is possible that some generalization of behavior gains to the regular classrooms may have occurred without implementing systematic procedures to promote it, the literature suggests that instances of spontaneous generalization are rare (Stokes & Baer, 1977; Walker, 1979; Wildman & Wildman, 1975). In the present study, however, plausible rival hypotheses to the notion of spontaneous generalization have been discounted by the multiple baseline across pairs of subjects design. If appropriate behavior percentages had continued the upward trend, it is possible that they may have eventually reached acceptable, high levels without implementing generalization and maintenance procedures in subjects' regular classrooms. When and how much more treatment in the resource room would have been required to reach the study criterion of 80% appropriate
behavior may only be conjectured. In view of the duration and severity of subjects' behavior problems and based on the results of previous research which suggests that spontaneous generalization is uncommon, the idea that appropriate behavior would have reached acceptable levels without extending generalization and maintenance procedures to subjects' regular classrooms has been rejected.

(2) How big were the differences? As a group, subjects' average appropriate behavior after treatment was 54% higher in the regular classroom than it had been prior to treatment. For the four subjects who progressed through the program sequence as planned, the percent of average appropriate behavior (97%) exhibited after all forms of intervention were withdrawn was 63% higher than before they had participated in the program. For the two subjects who required some form of intervention to maintain treatment gains, appropriate behavior in the regular classroom was also considerably higher (39% and 51%) than it had been before participation in the program.

(3) Were the differences practical differences? After program participation, the increased percentage of appropriate classroom behavior for the group of subjects reached levels essentially equivalent to that of randomly selected peers. For the four subjects who progressed as planned through the program sequence and maintained their improved behavior after all forms of intervention were withdrawn, the average appropriate behavior exhibited in the last study condition, (97%), actually exceeded that for randomly selected peers (96%). For one of the two subjects who required additional intervention to maintain behavior gains, appropriate behavior was maintained above the study criterion of 80%. The remaining subject averaged 73% appropriate
behavior. These percentages are considerably higher for the two subjects than the percentages representing their behavior prior to treatment.

When differences for subjects' appropriate behavior before and after treatment are examined in terms of satisfaction expressed by regular teachers, parents, and the subjects themselves and when compared with normative peer data, the differences should be viewed as practical differences. Teachers and parents both expressed high levels of satisfaction with the program, in general, and indicated that they would support the use of the program again under similar circumstances. Teachers viewed program components as relatively easy to implement while carrying out their normal classroom duties. Students said they also liked the program and enjoyed trading the points they earned for treats and toys. In general, students thought that program procedures resulted in improved work and behavior in their regular classrooms and that their teachers said nicer things about their work and behavior after they had participated in the program.

(4) Did treatment effectiveness vary for different individuals?
Subjects 1, 3, 4, and 5 proceeded through the program sequence as planned and maintained high levels of appropriate behavior in their regular classrooms during Phase II, even after all forms of intervention were withdrawn. For subjects 2 and 6, however, modifications in the program sequence were necessary to maintain acceptable levels of appropriate classroom behavior. By making modifications, it was possible to maintain appropriate behavior above the preset 80% criterion for Subjects 2 and 6 for Phase II as a whole.

Examination of subject characteristics other than age reveals that
the four subjects who successfully progressed through the entire program sequence as planned varied widely in regard to their current classroom placements and previous exposure to treatment programs. Two of the four subjects were placed full-time in regular classrooms, one in the first grade and the other in the second. A third subject spent his entire school day in a self-contained classroom for Behaviorally/Emotionally Handicapped students as a fifth grader, and the fourth spent approximately half of his school day in a self-contained classroom for the Behaviorally/Emotionally Handicapped and the other half in a regular first grade classroom.

These four subjects had experienced either no previous formal intervention for their behavior or had spent time in a self-contained classroom for Behaviorally/Emotionally Handicapped students other than the one in their current school. One of the subjects had been taking Ritalin for several years prior to his participation in the present study. This student was taken off medication permanently two weeks prior to the beginning of the resource room treatment (Phase I) and still progressed successfully through the program.

School placements for the two subjects who required program modifications were a full-time, regular fourth grade classroom placement and a full-time placement in a self-contained classroom for the Behaviorally/Emotionally Handicapped as a fifth grader. The student in the regular fourth grade classroom, Subject 2, had experienced no previous formal intervention for his behavior. Subject 6, the fifth grade student in the self-contained classroom, however, had experienced a wide variety of school and community interventions, including regular therapy sessions and scheduled contacts with a juvenile probation officer.
It is possible that an inconsistent reinforcement history in past and present school and community interventions may have contributed to the lessened impact of the present program on the behavior of Subject 6. A history of past inconsistent reinforcement has been suggested as influencing the effective use of self-control procedures by students (Glynn, 1973). The extremely deviant nature of the behavior of Subject 6 may have also required a more structured and consistent implementation of behavior management procedures in his self-contained classroom than he presently appeared to be receiving. Subjective observations by the researcher indicated that expectations and contingencies for the program were not clearly explained to the subject on a regular basis in his classroom. Additionally, program components did not appear to be carried out on time or exactly as specified all of the time. Behavior for Subject 6 in the highly structured and consistent resource room setting had been comparable to that for other subjects, indicating that the program components implemented systematically could be effective in bringing the subjects' behavior under control.

For Subject 2, minimal teacher support in his regular classroom may be related to his performance. Observations by the researcher indicated that upon occasion the regular classroom teacher forgot to use the procedures entirely, unless prompted, or that she implemented them incorrectly or at the wrong times. On several occasions, Subject 2 spent a large part of his self-evaluation hour in a setting with no adult supervision (e.g. the school library) and was told he was on the "honor system" well before external control had been programmed for removal from the intervention. In spite of numerous prompts and discussions by the researcher with the teacher, she continued to rely mainly on
reprimands to manage the subjects' behavior and made very little use of praising or ignoring as management tactics.

It is interesting to note that during Phase II, Subjects 2 and 6 self-evaluated their academic work and classroom behavior less accurately than any of the other subjects. For Subjects 2 and 6, accurate matching of self-evaluations with teacher evaluations occurred 70% and 59% of the time, respectively. Subjects 1, 3, 4, and 5, who had progressed through the program without modifications, matched teacher evaluations 97%, 93%, 98%, and 86% of the time. During Phase I in the resource room, Subjects 2 and 6 had matched evaluations with their teacher at levels comparable to those of other subjects.

Examination of subject characteristics as they relate to the successful use of the self-evaluation program suggest: 1) that the program might be most appropriately used for those students whose behavior is not severely deviant, 2) that subjects' regular classroom teachers may also need to provide at least a minimum amount of support in implementing the program as intended, and 3) that accuracy of self-evaluation may be related to the level of appropriate behavior students exhibit.

In general, the results of this study indicate that Behaviorally/Emotionally Handicapped elementary school students can learn to accurately self-evaluate their own academic performance and classroom behavior in one setting and continue to use that skill in another setting. More importantly, the study provides strong evidence that significant improvements made and maintained in a short-term resource room treatment by teaching students to self-evaluate can be transferred and maintained
in students' regular classrooms by implementing a less intense version of the self-evaluation procedures in that setting.

**Relationship to Previous Research**

Most previous studies utilizing self-evaluation training have taken place in laboratory settings or at least in somewhat "sterile" settings over which the researchers have been able to exert a great deal of control. These studies have not dealt with the day-to-day difficulties students experience in managing their own behavior in natural settings (Meichenbaum, 1977; Pressley, 1979). The present study took place in regular classrooms and still resulted in maintenance of high levels of appropriate behavior.

There are additional differences between the present study and the three related studies of which it is a further modification and extension (Drabman et al., 1973; Turkewitz et al., 1975; Robertson et al., 1979). Both the Drabman et al. (1973) and Turkewitz et al. (1975) studies took place in after-school classes rather than in classes which were a normal part of the subjects' school day and documented only limited time generalization for decreased disruptive behavior to randomly selected 15-minute intervals surrounded by external reinforcement periods in the special class setting. The Drabman et al. (1973) study did reduce disruptive behavior to low levels and maintained low rates of disruptive behavior for 12 days in the experimental setting. However, from baseline to the end of the 5 day period following the special program in the Turkewitz et al. (1975) study, only slight decreases in disruptive behavior were present in the experimental
setting. In the regular classroom, there was no difference between
the behavior of experimental and control group subjects. The Robert­
son et al. (1979) study did take place in a special classroom where the
retarded subjects spent their entire school day. Generalization from
morning to afternoon, on days when the self-evaluation program was not
in effect, and on days when a substitute teacher was present were
demonstrated. However generalization to other settings was not exam­
ined.

The basis of the matching procedure to teach students to self-eval­
uate in the present study was similar to that for the Drabman et al.
(1973), Turkewitz et al. (1975), and Robertson et al. (1979) studies.
However, there were other important differences among the studies. In
the Drabman et al. (1973) and Turkewitz et al. (1975) studies, students
were asked to self-evaluate their work and behavior with a subjective
5 point rating scale without specifically being taught how to do so.
Neither were students provided systematic feedback regarding their self­
evaluations. The Robertson et al. (1979) experiment attributed more
accurate student matching to the inclusion of a form of systematic feed­
back and the provision of more specific evaluation criteria to students
for self-evaluation. For each reinforcement interval, a 3 point rating
scale was used to evaluate behavior. A rating of "good" (3 points)
represented no disruptive behavior, "okay" (2 points) represented one
disruptive behavior, and "not good" (1 point) represented two or more
disruptive behaviors.

The matching system of the present study used a 5 point rating
scale for behavior and for academic work and included a more exacting
form of systematic feedback than did previous studies. Additionally,
specific evaluation criteria relating to the 5 point scale were taught to students, and students were asked why they self-evaluated as they did so that teacher feedback on accuracy relating to the rating scale criteria could be given. While the matching percentage for Phase II of the present study for the group of subjects was not as high as that reported by Robertson et al. (1979), maintenance of high levels of appropriate behavior was still present. The research literature suggests that accuracy in self-evaluation may not be a critical factor in obtaining desired behavior changes and that the experience of using self-evaluation in itself may serve a useful function in facilitating the maintenance of treatment gains when all intervention has been terminated (O'Leary & Dubey, 1979; Rosenbaum & Drabman, 1979). However, results of the present study suggest that those students who self-evaluate their academic work and classroom behavior more accurately exhibit higher levels of appropriate classroom behavior.

In examining the effectiveness of the present study, it should be remembered that the group of subjects who participated in the study were not just normal students experiencing minor classroom difficulties. At the time of referral, subjects were experiencing moderate to severe problems in their regular classrooms. For all of the students, the behavior problems had been of some duration. Numerous interventions had already been attempted for four of the six subjects, and some of the subjects had been exposed to fairly sophisticated treatments. The strength of the present program is reflected by its impact on and maintenance of the behavior of the subjects in spite of evidence supporting the failure of previous treatments.

The age of the study subjects is one subject characteristic which
warrants consideration. Although the Drabman et al. (1973) study included students as young as 7 and the Robertson et al. (1979) study as young as 5, other self-control literature has suggested age as an important determinant in a student's ability to effectively use self-control techniques (Keogh & Glover, 1980; Loper, 1980). The present study supports the idea that students as young as 6 years old can accurately self-evaluate and that the behavior changes for children as young as 6 years which come under the control of the self-evaluation procedure can be generalized across time and settings and be maintained. In the present study, the three youngest subjects (two were 6 years old, and one was 7 years old) had the highest average appropriate behavior for the generalization and maintenance phase of the study (Phase II) of the six study subjects.

In regard to characteristics other than age, subjects in previous self-evaluation studies have not been described in detail sufficient to make direct comparisons with the subjects in the present study. In the Drabman et al. (1973) and Turkewitz et al. (1975) experiments, however, subjects were referred from school "adjustment" classes. It is likely that the adjustment classes were somewhat similar to the self-contained classroom of the present study. In the Robertson et al. (1979) study, students were more severely handicapped and spent their entire school day in a special education classroom for mentally retarded students.

In previous related studies, normative data of peers were not collected in the natural setting for comparison purposes, although Turkewitz et al. (1975) included a control group in their experiment. In the present study, when data for subjects were compared with the normative
data of their randomly selected peers, and once self-control procedures were implemented in the regular classrooms, subjects' average appropriate behavior approximated that of the peers and could thereby be viewed as being of practical importance. Increased behavioral changes to a level comparable of peers was generalized not only from one time of the day to another (from the hour-long afternoon resource room session to the regular classroom hour-long academic work time) but also from one setting to another.

Assigned academic tasks were different for the present study than for previous experiments. Students in the Drabman et al. (1973) and Turkewitz et al. (1975) studies only worked on reading from Sullivan programmed readers. A major problem in the use of the Sullivan program was that students cheated by looking at answers instead of actually reading the material. No significant differences in academic gains were found between experimental and control students in Turkewitz et al. (1975). Robertson et al. (1979) did not provide a specific description of academic materials used by subjects. Students were said to have carried on their "regular educational activities."

In the present study, individualized academic materials based on students' needs were used. Since the major interest was on classroom behavior and only its possible indirect influence on academic work (e.g. off-task, out-of-seat, talking out, noncompliance, etc.), academic output and gains were not systematically assessed to determine pretreatment and posttreatment differences. Assigned tasks were monitored daily for appropriateness and interest. One factor which may have aided students in improving their classroom behavior was the interesting nature of their assignments.
Implications for Teachers

The program has the potential to meet the needs of both the special education teacher and the regular teacher by furnishing the special education teacher with a systematic, short-term resource room treatment model for promoting behavior gains in students' regular classrooms. In the past, there has been little carryover from resource room treatments to regular classrooms which have actually resulted in improved behavior in students' regular classrooms.

In the present study, six students of varying characteristics, ages, and abilities were treated at the same time for only three hours per week. With only three hours per week training for the group, systematic procedures necessary to the eventual generalization and maintenance of behavior could be implemented and carried out by the resource teacher and gradually reduced in the resource setting to manageable proportions which could then be taken over by the regular teacher. Once treatment was reduced to a level easily managed by the regular teacher who might have 25 or 30 other students to teach, the regular teacher could then implement the reduced intervention for the subject who was in her classroom.

Teachers who implemented the reduced intervention in their classrooms and continued to fade its use reported that the procedures were easy to use and did not interfere with their normal classroom routines. Since the research literature is replete with evidence that a systematic program of some type is needed initially for behavior change maintenance (Keeley et al., 1976; Stokes & Baer, 1977; Workman & Hector, 1978) and regular teachers may be unequipped with the
skills or time to provide a systematic program while carrying on their normal classroom instruction, the present program may be one practical means of addressing the issues relating to more durable changes in behavior.

Implications for Future Research

It has been suggested by Borg and Gall (1979) that exploration of new, unproven educational techniques should begin with single subject designs and that insights derived from single subject data can then be tested for generalizability in a group design. They recommend that once the strongest possible treatment has been designed and the conditions under which it is effective or ineffective determined by single subject analysis, a group design is then appropriate for providing additional useful information, since most sources of individual variability will have already been explored by means of single case design.

Since the techniques included in the present study had not yet been proven effective as combined and utilized for the study, viewing the investigation as an initial investigation with this aim in mind was appropriate. While replications and modifications using single subject designs may be useful for further program refinement, further studies analyzed by group designs should also be carried out to address the issue of generalizability.

Replications might include special education treatment settings other than resource rooms commonly found in public schools. For example, self-contained classrooms for students with various handicapping conditions might serve as self-evaluation training (Phase I) settings for the program, and additional modifications and extensions of the
present study might then include junior high and high school students. Future studies should also program for and examine generalization and maintenance of gains for the entire school day in regular classrooms, since gains are generally desired throughout the day.

A typical neighborhood school rather than the university laboratory school setting of the present study should be used as a means of providing a more conducive and realistic atmosphere for effective program implementation. It is anticipated that more consistent program management would be possible in a regular public school classroom where one teacher would be the major program implementer and where numerous and varied other school personnel would not be providing instruction on a regular basis.

Benefits might also be derived from initiating the treatment program at the beginning of the school year so that long-term follow-up observations of greater length could be made of subjects before the school year ended. Additional follow-up is recommended for students in the present study and in future experiments for the school years following their program participation. This study only documented relatively short-term effects.

Examination of the cost-effectiveness of using the present program would also be useful. Cost in terms of money, amount of teacher and consultant time, and the number of consultant contacts with regular classroom teachers in relationship to derived benefits should be determined. Documentation of teacher-student interaction patterns might also be helpful in determining the degree of regular classroom support for the program.

The present study used a subjective measure of academic work in
the form of approximate percentages of accuracy and did not measure objectively the quantity of work completed. Further research should more specifically address students' academic output and academic gains during program participation. Objective measurement of actual work completed would give more detailed information regarding how well and how accurately students are working. Whether increases in academic output and academic gains can be made during treatment and maintained in students' regular classrooms through the use of self-evaluation procedures would also be of interest as well as a determination of which gains might specifically be attributed to the program.

Characteristics of students such as age, sex, nature and durability of behavioral or academic difficulties and previous exposure to behavior management treatments should be reexamined in additional studies to document those students for whom the program is or is not appropriate. The use of standardized data collection procedures would also make study comparisons more meaningful.

Summary and Conclusions

The present study provides support for Walker's (1979) view of generalization and maintenance of behavior gains as a two-stage process. In stage one, according to Walker, intervention which produced the behavior changes must be introduced. In stage two, procedures for promoting generalization and maintenance of the behavior changes over time or to other settings must be implemented. In the present study, the Phase I resource room training served as stage one for initial behavior changes. When intervention was introduced in the resource room, appropriate classroom behavior for all subjects increased dramatically
in that setting. Appropriate behavior in the regular classrooms continued at its initial low levels, however.

It was not until stage two procedures were initiated (Phase II of the study) in subjects' regular classrooms that behavior gains transferred to those settings. In Phase II, a reduced form of the initial resource room intervention was extended into the regular classrooms and then gradually faded from use.

In rejecting the traditional conceptualization of generalization as a passive phenomenon, Stokes and Baer (1977) suggest that generalization can be claimed when the behavior changes trained in a treatment setting occur outside of the treatment conditions, with either no form of the treatment remaining or with reduced forms of it still present. According to Stokes and Baer (1977), when some form of the treatment is retained, its cost and extent must be clearly less than that of the original treatment for generalization to be claimed. In Phase I (resource room treatment) of the present study, procedures were implemented which resulted in higher levels of external reinforcement and shorter reinforcement intervals than were present in Phase II (extension of training procedures to the regular classrooms). During Phase I, teacher matching of evaluations with student self-evaluations also occurred more frequently than during Phase II.

In the present study, treatment gains generalized from a training setting to nontraining conditions through the use of a modified, less intense form of the original intervention. While some extratrinaing manipulations were used to promote the transfer of behavior gains to the regular classrooms, their cost in terms of teacher time and effort were clearly less than that of the initial Phase I intervention. For
four of the six subjects, all extratraining components were eventually faded from use. Only two subjects required some form of the original intervention to maintain behavior gains in their regular classrooms.
REFERENCES


Keogh, B. K., & Glover, A. T. The generality and durability of cognitive training effects. Exceptional Education Quarterly, 1980, 1, 75-82.


Appendix A

State of Utah Guidelines for Definition of the 
Behaviorally/Emotionally Handicapped
A. CATEGORY: Behaviorally Handicapped (See Appendices G and H for proposed materials to be considered for future approval.)

B. DEFINITION:

Within the educational setting a behaviorally handicapped child is defined as a child whose behavior and/or emotional condition as determined by an appropriately constituted child study team is such that he/she cannot be adequately or safely educated in the regular class of the public schools without the provisions of special education services.

Behaviorally Handicapped is here used as a generic term covering all types of emotional difficulties, including the terms Behavior Disordered, and Emotionally Disturbed.

C. CHARACTERISTICS AND DESCRIPTORS:

A behaviorally handicapped child is distinguished by the inability or difficulty in handling problems, or by ineffective methods of adjusting and coping.

Behaviorally handicapped children tend to resort to immature, unrealistic, aggressive, acting-out, withdrawal, or avoidance behaviors in trying to find solutions. As a result, when this has occurred over a long period of time, such children become unable to function at full capacity either physically, emotionally, intellectually or socially. These are the children who qualify for special education services.

In general, for education purposes, a behaviorally handicapped child may be described as one who persistently* exhibits one or more of the following characteristics:

1. A child whose behavior is so discordant in relationships with others and cannot effectively pursue and carry on positive educational or social experiences.

2. A child whose behavior manifests either an extreme or persistent failure to adapt and function intellectually, socially, or emotionally at a level commensurate with his/her chronological-development age.

3. A child whose academic achievement may be impaired due to a failure to learn when there is no identified learning or intellectual disability present.

For identification purposes only, an emotionally handicapped child may persistently or chronically exhibit some of the following specific characteristics or behaviors. It must be understood, however, that it is the high frequency and/or the severe degree, as well as the inappropriate-ness of the characteristics or behaviors, that become the important factors in determining whether or not a child qualifies for special education service for the behaviorally handicapped. All children become emotionally upset for a short period of time because of some extreme situations, such as a terrifying experience or the death of a loved one. These are understandable reactions, but do not qualify a child for special education services.

*Persistent means of some duration, not a reaction to an immediate situation (weeks or months).
A child who qualifies will typically exhibit a combination of these behaviors rather than any single one. As noted above, such behaviors will be handicapping the child to a rather severe degree, and they will be of a prolonged nature.

D. SERVICE OPTIONS AND SEVERITY OF HANDICAPPING CONDITION:

While it is absolutely necessary to place each student according to the Individualized Education Program as written by the Child Study Team, some considerations might include:

1. Moderately to severely behaviorally handicapped students probably cannot have their needs met in the regular education setting even with resource room help. These students display a range of behaviors typical of the following:

- Wants to hurt self or others, displays bizarre language behavior, extremely apathetic, phobic, mute, extremely hostile, ritualistic and unusual behavior, extremely sensitive, depressed over a period of time, extremely fearful in normal situations, extremely over-dependent, malicious and enjoys it, repetitive head banging, autism, involuntary defecation for nonmedical reasons, always sits alone, psychosomatic symptoms, severely retarded communications skills, etc.

2. Mildly to moderately behaviorally handicapped students probably can have their needs met in the regular education setting. It should be noted here that resource room service may not offer the time and appropriate setting to utilize management and counseling techniques that are most suitable for mildly to moderately behaviorally handicapped students. These students display a range of behavior typical of the following:

- Often yells out in class, difficulty with memory, never finishes assignments, demands immediate gratification, fights on the playground, seeks inappropriate attention, impulsive, restless, short attention span, temper tantrums, lying, cheating, overly sensitive, doesn't participate with class, destructive, etc.

Intellectually, a primarily behaviorally handicapped child will tend to have a near average or above I.Q. (75 and up); however, such a child may score lower on an individual intelligence test than what would be expected from general observation of the child and may not demonstrate higher ability at all on group intelligence tests or in the regular education setting. On an individual intelligence test, most behaviorally handicapped children tend to have an irregular profile, achieving higher scores on some subtests than on others. The same kind of a profile is often found for the child's academic achievement scores. School achievement may also vary according to the degree of severity of the handicapping condition: average or above grade level for many children; but typically below grade level for more severely disordered children.
E. CLASSIFICATION GUIDELINES:

A psycho-social-education evaluation is required before a Child Study Team may classify a student as behaviorally handicapped. One member of this team, in addition to the requirements for the composition of the Child Study Team (see Rule IV, page 2) must be a certified school psychologist, a licensed psychologist, a licensed psychiatrist, a certified school counselor, a certified teacher of the emotionally handicapped, or a certified social worker. Also, a person designated in writing by the local superintendent as a psychological examiner may serve this function.*

It is recommended that at least 18 semester hours of sociology, psychology, social work or education psychology be completed in college course work or inservice training before a person is considered for this designation. The actual act of classifying a child as primarily behaviorally handicapped should then be made by a Child Study Team, including at least one of those listed above who made the psycho-social-education evaluation. Since many handicapped children have a secondary or overlying emotional handicap in classifying a child as primarily behaviorally handicapped, it will be necessary to determine that:

1. The child is not primarily learning disabled
2. The child is not primarily mentally retarded
3. The child is in such a behavioral condition and cannot be adequately or safely educated in the regular class without special services provided by special education.

Such an evaluation should include, where possible:

1. A social history (including family, medical, and education; community data, e.g., courts, clinics, etc., should be included when appropriate);
2. Intellectual assessment when needed
3. Emotional-developmental assessment
4. Adaptive behavior (social) assessment
5. Tests to screen for disclaimers (L.D., E.M.R., etc.)
6. Consultations with teachers, parents, and the child itself
7. Educational evaluation to determine specific educational strengths and needs of the student

* A local superintendent should not designate anyone as a psychological examiner without verifying college course work and/or in-service training that would qualify such a person.
F. ASSESSMENT:

The following list is not a comprehensive or mandatory list. It does cite a few examples of the kinds of instruments and procedures that could be used. Each school district will need to have its own list of authorized tests and procedures to be used within that district for classifying the behaviorally handicapped.

1. Intellectual Assessment
   - Wechsler Intelligence Scales
   - Stanford-Binet Intelligence Test
   - Leiter International Performance Scale
   - Raven's Progressive Matrices
   - Slosson Intelligence Test

2. Emotional-Developmental Assessment
   - Wechsler Intelligence Scales
   - Bender-Gestalt Test
   - Children's Apperception Test
   - Thematic Apperception Test
   - Picture Word Test
   - Sentence Completion Tests
   - Goodenough-Harris Drawing Test
   - Minnesota Percepto-Diagnostic Test
   - Junior Eysenik Personality Inventory
   - Self-Concept and Motivation Inventory
   - Tennessee Self-Concept Scale
   - Bayley Scales
   - Gesell Developmental
   - Denver Developmental

3. Adaptive Behavior and Social Assessment
   - Child Behavior Rating Scale
   - Devereaux Child Behavior Rating Scale
   - Devereaux Elementary School Behavior Rating Scale
   - Devereaux Adolescent Behavior Rating Scale
   - Walker Problem Behavior Identification Checklist
   - Adaptive Behavior Scales - AAMD
   - Camelot Behavioral Checklist
   - Vineland Social Maturity
   - Classroom, home, playground observations
   - Anecdotal records

4. Screening for Disclaimers
   - See assessment instruments listed under Specific Learning Disabilities and Educable Mentally Retarded

5. Achievement Assessment
   - Peabody Individual Achievement Test
   - Wide Range Achievement Test
   - Durrell Analysis of Reading Difficulty
   - KeyMath Diagnostic Arithmetic Test
   - Spache's Diagnostic Reading Scales
   - Woodcock Reading Mastery Test
Appendix B

Instructional Materials Used in the Resource Room
Reading


Read Carefully (Reading Comprehension Worksheets); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1976.

Sprint Reading Skills Program; Scholastic Book Services, New York, 1978.

Strange and Silly Stories (Reading Comprehension); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1977.

The Practice Workbook of Reading (Grade 3); Treasure Books (Division of Grossett and Dunlap, Inc.), New York, 1969.

Math

Addition Math Mysteries (Level 2); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1978.

Beginning Addition and Subtraction (Grades 1-3); School Zone Publishing Co., Grand Haven, Michigan, 1979.

Math (Grade 4); School Zone Publishing Co., Grand Haven, Michigan, 1979.

Number Magic (Books 1-2); Trade Division of Charles E. Merrill Publishing Co., Columbus, Ohio, 1979.

Subtraction Math Mysteries (Level 2); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1978.

Subtraction Math Riddles (Level 2); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1978.

Understanding What You Read (Level 1); Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1977.

Handwriting

Peter Possum's Practice Papers for Perfect Pencilmanship; Frank Schaeffer Publishing Co., Palos Verdes Peninsula, Ca., 1975.

Transition to Cursive (Books 1-2); Instructional Fair, Inc., Grand Rapids, Michigan, 1976.
Appendix C

List of Reinforcers
<table>
<thead>
<tr>
<th>List of Reinforcers</th>
</tr>
</thead>
<tbody>
<tr>
<td>candy bars</td>
</tr>
<tr>
<td>penny candy</td>
</tr>
<tr>
<td>corn and potato chips</td>
</tr>
<tr>
<td>cheese and crackers</td>
</tr>
<tr>
<td>raisins</td>
</tr>
<tr>
<td>peanuts</td>
</tr>
<tr>
<td>pretzels</td>
</tr>
<tr>
<td>cookies</td>
</tr>
<tr>
<td>jaw breakers</td>
</tr>
<tr>
<td>paddle balls</td>
</tr>
<tr>
<td>matchbox cars</td>
</tr>
<tr>
<td>plastic parachute men</td>
</tr>
<tr>
<td>colored markers</td>
</tr>
<tr>
<td>pencil boxes</td>
</tr>
<tr>
<td>pencil sharpeners</td>
</tr>
</tbody>
</table>
Appendix D

Self-Evaluation Card
**Classroom Rules**

1. Sit in your seat unless you have permission to leave it.
2. Do what your teacher asks promptly.
3. Unless you have permission to speak, talk only about your work.
4. Work when you are supposed to.
5. Do not bother or hurt others.

**Self-Evaluation Card**

**Name:**
**Date:**

**Classroom Rules**

<table>
<thead>
<tr>
<th>Period</th>
<th>Poor</th>
<th>Great II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>0 1 2 3 4 5</td>
<td>BONUS</td>
</tr>
<tr>
<td>Work</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Poor</th>
<th>Great II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>0 1 2 3 4 5</td>
<td>BONUS</td>
</tr>
<tr>
<td>Work</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Poor</th>
<th>Great II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>0 1 2 3 4 5</td>
<td>BONUS</td>
</tr>
<tr>
<td>Work</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Poor</th>
<th>Great II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>0 1 2 3 4 5</td>
<td>BONUS</td>
</tr>
<tr>
<td>Work</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

**Total for Day**

Evaluation every ________ minutes.
Appendix E

Written Teacher Instructions for

Phase II Conditions
Condition 8: Self-Evaluate/30 Minutes

For ______________________

On ___________ ___ _ _____________ _ is scheduled
to begin using the self-evaluation card he has been using in his afternoon training
class in your classroom from ________________ to _______________ each day.

While the procedures involved will be reviewed in person with you before that
time, a brief description of what will take place is included below.

Basically, you will be asking the student to rate his academic work and behavior
every 30 minutes--at ___________ and again at ___________ according to the
same 0-5 rating scale he has been taught to use in his afternoon training class. You
will be asked to provide the student with praise and feedback for accurate self-evalu­
ations.

More specifically:

1) At ___________, when you give __________ his beige self-evaluation
card for that day, say something like, "It's time to begin using your card.
Today you will mark it at __________ and again at __________. Try
to remember all the rules." (Rules are printed on the reverse side of the
card.)

2) Praise the student often for appropriate working and behavior during each
half hour period.

3) At __________ and __________ say something like, "It's time to
mark your card. Try to remember how well you have worked and followed the
rules during this period."

4) Then, independently rate the student's work and behavior on your correspond­
ing white card for that day.

5) When all ratings for the day have been completed, ask the student what he
gave himself and why. Then tell him what you would have given him and why.
Praise him for accuracy in self-evaluating.

6) Periodically, (for 1 rating period every 2 or 3 days), match cards with the
student. That is, show him what you actually gave him for that period and
tell him why. If he matches you exactly, he receives a bonus point (he can
receive 1 bonus point for work and 1 for behavior during these "official
matches." If he is within 1 point either higher or lower than your rating,
he can keep the number of points he gave himself. If he is more than 1
point higher or lower than your rating, he loses all points for that inter­
val for that rating.

7) Right after the student has finished eating lunch, he should bring his beige
card to the afternoon training classroom (reading lab room) so his points can
be recorded and exchanged.
Condition 9: Self-Evaluate/60 Minutes

For ______________________________

Beginning ______________________, __________________ will be evaluating himself for 60 minutes, rather than for 30 on his self-evaluation card. Thus, he will be rating his work and behavior only once during the hour he is using his card.

You should continue to praise him frequently for working and behaving appropriately. At the end of the 60 minutes, after he has rated himself and you have rated him independently, ask him what he gave himself and why. Tell him what you would have given him and why. Praise him for accurate self-evaluation. At this point, however, you will officially "match" evaluations with him only every 3 days or so. The only times that bonus points can be earned are when you officially "match." Do not inform the student ahead of time when you will be officially "matching."
Condition 10: Points Exchange/VR 2 Days

For _________________________________

Beginning ________________________, ____________________ will continue to rate his work and behavior every 60 minutes for the same hour of the day as he has been doing. However, he will now be allowed to keep and exchange his earned points on an average of only every two days. Days on which ______________ can keep and exchange his points have been randomly selected and noted at the bottom of the teacher's white rating card for that day. While the student should be informed ahead of time that he will now be allowed to keep and exchange his points on an average of every two days, he should not know before each day's ratings are completed whether he will be allowed to exchange points on that day.

Verbal praise and feedback for the student's accuracy of self-evaluation should continue with daily ratings. A periodic "official" match with the teacher, where bonus points may be earned by the student about once each week should also be continued.
Condition 11: No Points Exchange

For _____________________________

Beginning _______________________, _______________________

will be asked to continue to self-evaluate his academic work and behavior on his self-evaluation card but should be told that he will no longer be able to trade in his points. He should also be told that he has been working and behaving so well that he no longer needs points to help him.

Your praise and feedback for accurate ratings should continue, as well as praise for good work and behavior.
Condition 12: Self-Evaluate Verbally/60 Minutes

For ______________________

Beginning ______________________, ______________ will discontinue marking self-evaluation ratings on his self-evaluation card. However, you should now ask him to verbally rate his academic work and behavior on the same five point scale he has been using at the end of the designated 60 minute period (___________ to ___________).

You might say something at the beginning of the designated hour each day like, "We won't be using your self-evaluation card any more. However, at the end of the hour I want you to tell me what ratings you would have given yourself for work and behavior, and I will tell you what ratings I would have given you if you had been using the card. Try to remember all the rules." (You may need to review the rules with the student periodically.)

You should continue to give praise for good work and behavior and give praise and feedback for accuracy of the student's ratings.

Please continue to privately record your rating of the student's work and behavior daily on the provided white card, by filling in the appropriate dot completely (i.e., ○). Indicate what the student verbally rated his work and behavior with an X over the appropriate dot (i.e., ☒).
Condition 13: Self-Evaluate Verbally/VR 2 Days

For ________________________________
Beginning ___________________________, _______________________

will continue to rate his work and behavior verbally every 60 minutes for the same hour of the day as he has been doing. However, he will follow this procedure on an average of only every two days.

The student should be told (and reminded daily at the beginning of the customary rating period), "Some days I will be asking you to tell me how you would have rated your work and behavior if you had been using your self-evaluation card, and some days I won't ask. You won't know until __________ whether I am going to ask you to tell me your ratings or not.

Days on which verbal self-evaluations should be carried out and those on which they should not are indicated at the bottom of the teacher's daily white self-evaluation card.

Please continue to privately record your rating of the student's work and behavior daily on the provided white card, by filling in the appropriate dot completely (i.e., ○). Indicate what the student verbally what the student verbally rated his work and behavior on the day he verbally self-evaluates by marking an X over the appropriate dot (i.e., X).
Condition 14: No Verbal Self-Evaluation

For ________________________________

Beginning ____________________________, you should discontinue asking _______________ to verbally self-evaluate his work and behavior between ___________ and ___________. However, the benefits and possible outcomes of continued internal self-evaluation should be discussed with the student, and he should be encouraged to continue self-evaluating his work and behavior on his own.

For example, the student can be encouraged to say to himself, "I followed all of the classroom rules during this hour. I worked the entire time and did an excellent job on my reading assignment. I would give myself a '5' for behavior and a '5' for my work. I am proud of myself."

You will still receive white, teacher self-evaluation forms to use daily for the duration of the program. On this form, you as the teacher, should continue to rate the student's work and behavior from ___________ to ________________, using the same 0 to 5 rating scale you have been using all along.
Appendix F

Behavior Observation Form
Behavior Observation Form

Student __________________________ Observer __________________________

Teacher __________ Activity __________ Setting __________

Structure: Group ______ Individual ______ Transition ______

Time Start: ________ Program Conditions

Time Stop: ________ Baseline: __________________________

Total Time: ________ Other: (specify) __________________________

Coding: D = disruptive-negative behavior
         I = other inappropriate behavior
         A = appropriate classroom behavior

Calculate percent behavior for:

D (total number of D intervals) \[ \times \frac{100}{\text{total number of intervals}} \]

I (total number of I intervals) \[ \times \frac{100}{\text{total number of intervals}} \]

A (total number of A intervals) \[ \times \frac{100}{\text{total number of intervals}} \]

Notes: __________________________

_________________________________________________________________

_________________________________________________________________
Appendix G

Tables Listing Inappropriate Behavior Percentages for Individual Subjects, the Group of Subjects and Randomly Selected Peers During Phase I and Phase II
Table 22

Mean Percentage of Inappropriate Behavior for the Group of Subjects During Phase I

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>66</td>
<td>62</td>
<td>74</td>
<td>68</td>
<td>65</td>
<td>55</td>
<td>46</td>
<td>62</td>
</tr>
<tr>
<td>Resource Room</td>
<td>65</td>
<td>12</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 23
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject I During Phase I

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td></td>
<td>46 (10-83)</td>
<td>59 (20-100)</td>
<td>79 (42-100)</td>
<td>59 (43-82)</td>
<td>63 (43-100)</td>
<td>52 (23-93)</td>
<td>57 (19-100)</td>
<td>61 (13-100)</td>
</tr>
<tr>
<td>Resource Room</td>
<td></td>
<td>80 (43-93)</td>
<td>13 (0-70)</td>
<td>8 (0-35)</td>
<td>11 (0-42)</td>
<td>3 (0-15)</td>
<td>5 (0-12)</td>
<td>7 (0-22)</td>
<td>8 (0-70)</td>
</tr>
</tbody>
</table>

*Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.*
Table 24

Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 2 During Phase I

<table>
<thead>
<tr>
<th>Phase I Conditions</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular Classroom</td>
</tr>
<tr>
<td>1. Baseline (Resource Room)</td>
<td>62 (13-93)</td>
</tr>
<tr>
<td>2. External Reinforcement/Feedback</td>
<td>51 (3-80)</td>
</tr>
<tr>
<td>3. Matching/100%</td>
<td>76 (20-100)</td>
</tr>
<tr>
<td>4. Matching/50%</td>
<td>72 (43-92)</td>
</tr>
<tr>
<td>5. Matching/33 1/3%</td>
<td>81 (68-98)</td>
</tr>
<tr>
<td>6. Matching/2/3%</td>
<td>72 (45-100)</td>
</tr>
<tr>
<td>7. No Matching</td>
<td>63 (33-78)</td>
</tr>
<tr>
<td>Grand Mean for Conditions 2-7</td>
<td>69 (3-100)</td>
</tr>
</tbody>
</table>

*Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.*
Table 25

Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 3 During Phase I

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>73 (46-93)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>54 (2-97)</td>
<td>72 (37-93)</td>
<td>97 (92-100)</td>
<td>73 (47-100)</td>
<td>63 (27-100)</td>
<td>37 (5-100)</td>
<td>66 (2-100)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>61 (13-88)</td>
<td>6 (0-17)</td>
<td>4 (0-13)</td>
<td>6 (0-22)</td>
<td>1 (0-2)</td>
<td>5 (0-12)</td>
<td>5 (0-14)</td>
<td>4 (0-88)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Table 26
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 4 During Phase I

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>70 (23-90)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>66 (17-100)</td>
<td>67 (30-100)</td>
<td>26 (7-48)</td>
<td>31 (27-33)</td>
<td>35 (0-68)</td>
<td>29 (0-53)</td>
<td>42 (0-100)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>68 (0-100)</td>
<td>16 (3-37)</td>
<td>8 (0-23)</td>
<td>8 (0-27)</td>
<td>6 (0-12)</td>
<td>4 (0-14)</td>
<td>5 (0-23)</td>
<td>8 (0-100)</td>
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<sup>a</sup>Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Table 27
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 5 During Phase I

<table>
<thead>
<tr>
<th>Phase I Conditions</th>
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</table>

<table>
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<th>Setting</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
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</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>75</td>
<td>74</td>
<td>79</td>
<td>90</td>
<td>86</td>
<td>53</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>(22-100) (^a)</td>
<td>(2-98)</td>
<td>(42-100)</td>
<td>(75-95)</td>
<td>(55-100)</td>
<td>(37-65)</td>
<td>(0-93)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>49</td>
<td>20</td>
<td>8</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(13-88)</td>
<td>(6-52)</td>
<td>(0-35)</td>
<td>(0-19)</td>
<td>(0-10)</td>
<td>(0-12)</td>
<td>(0-58)</td>
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</table>

\(^a\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase I.
Table 28
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 6 During Phase I

<table>
<thead>
<tr>
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<td>Setting</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Classroom</td>
<td>69 (45-95)</td>
<td>72 (28-100)</td>
<td>77 (20-100)</td>
<td>63 (43-75)</td>
<td>57 (40-75)</td>
<td>60 (22-74)</td>
<td>40 (13-100)</td>
<td>61 (13-100)</td>
</tr>
<tr>
<td>Resource Room</td>
<td>76 (32-98)</td>
<td>11 (0-28)</td>
<td>16 (0-47)</td>
<td>13 (0-42)</td>
<td>1 (0-2)</td>
<td>14 (0-36)</td>
<td>8 (0-25)</td>
<td>10 (0-47)</td>
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</tbody>
</table>

aParentheses indicate session percentage ranges by conditions and across conditions for Phase I.
### Table 29
Mean Percentage of Inappropriate Behavior for the Group of Subjects During Phase II

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td>11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>10</td>
<td>15&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

<sup>a</sup>Percentage figure includes Subject 6, who did not meet study criteria in condition 8 and was returned to an earlier condition. Figures for conditions 9-14 do not include Subject 6.

<sup>b</sup>Percentage figure includes Subject 2, who did not meet study criteria in condition 13 and was returned to an earlier condition. Subject 2 is not included in the condition 14 figure.
Table 30

Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 1 During Phase II

<table>
<thead>
<tr>
<th>Setting</th>
<th>Phase II Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. 30 minutes</td>
</tr>
<tr>
<td></td>
<td>9. 60 minutes</td>
</tr>
<tr>
<td></td>
<td>10. VR 2 days</td>
</tr>
<tr>
<td></td>
<td>11. No Points</td>
</tr>
<tr>
<td></td>
<td>12. 60 minutes</td>
</tr>
<tr>
<td></td>
<td>13. VR 2 days</td>
</tr>
<tr>
<td></td>
<td>14. No Self-Evaluation</td>
</tr>
<tr>
<td></td>
<td>Grand Mean for Conditions 8-14</td>
</tr>
<tr>
<td>8</td>
<td>(0-15)</td>
</tr>
<tr>
<td>5</td>
<td>(2-10)</td>
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<tr>
<td>5</td>
<td>(0-12)</td>
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<tr>
<td>6</td>
<td>(5-7)</td>
</tr>
<tr>
<td>7</td>
<td>(3-13)</td>
</tr>
<tr>
<td>7</td>
<td>(0-10)</td>
</tr>
<tr>
<td>4</td>
<td>(0-40)</td>
</tr>
<tr>
<td>7</td>
<td>(0-40)</td>
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</tbody>
</table>

Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
### Table 31
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 2 During Phase II

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Regular Classroom</td>
<td>12</td>
<td>(2-22)</td>
<td>(0-55)</td>
<td>(2-17)</td>
<td>7</td>
<td>(0-14)</td>
<td>(3-27)</td>
<td>(5-100)</td>
</tr>
</tbody>
</table>

*aParentheses indicate session percentage ranges by conditions and across conditions for Phase II.*
Table 32

Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 3 During Phase II

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td>(0-20)</td>
<td>(2-23)</td>
<td>(0-17)</td>
<td>(0-18)</td>
<td>(0-11)</td>
<td>(0-15)</td>
</tr>
</tbody>
</table>

Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
Table 33
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 4 During Phase II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td>3 (0-8)</td>
<td>8 (0-17)</td>
<td>14 (3-42)</td>
<td>11 (0-20)</td>
<td>9 (0-23)</td>
<td>13 (8-17)</td>
<td>2 (0-7)</td>
</tr>
</tbody>
</table>

\(^a\)Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
Table 34
Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 5 During Phase II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0-15)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(0-16)</td>
<td>(0-13)</td>
<td>(0-37)</td>
<td>(3-20)</td>
<td>(3-12)</td>
<td>(0-7)</td>
<td>(0-37)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.
### Table 35

Mean Percentage and Session Percentage Ranges of Inappropriate Behavior for Subject 6 During Phase II

<table>
<thead>
<tr>
<th>Phase II Conditions</th>
<th>8. Self-Evaluate/30 Minutes</th>
<th>9. Match Teacher/100%</th>
<th>Grand Mean for Conditions 8.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Regular Classroom</td>
<td>27 (0-77)</td>
<td>18 (3-47)</td>
</tr>
</tbody>
</table>

*Parentheses indicate session percentage ranges by conditions and across conditions for Phase II.*
### Table 36
Mean Percentage of Inappropriate Behavior for Randomly Selected Peers in the Subjects' Regular Classrooms

<table>
<thead>
<tr>
<th>Phase I Conditions</th>
<th>Percentage Inappropriate Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Baseline (Room)</td>
<td>14</td>
</tr>
<tr>
<td>2. External feedback</td>
<td>9</td>
</tr>
<tr>
<td>3. Matching/50%</td>
<td>6</td>
</tr>
<tr>
<td>4. Matching/53.3%</td>
<td>5</td>
</tr>
<tr>
<td>5. Matching/33.3%</td>
<td>8</td>
</tr>
<tr>
<td>6. Matching/16.7%</td>
<td>23</td>
</tr>
<tr>
<td>7. No Matching</td>
<td>2</td>
</tr>
<tr>
<td>8. No Points</td>
<td>10</td>
</tr>
</tbody>
</table>

| Grand Mean for Conditions 2-7 | 18.7% |

<table>
<thead>
<tr>
<th>Phase II Conditions</th>
<th>Percentage Inappropriate Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Self-Evaluate/30 Minutes</td>
<td>7</td>
</tr>
<tr>
<td>9. Self-Evaluate/60 Minutes</td>
<td>2</td>
</tr>
<tr>
<td>10. No Points</td>
<td>2</td>
</tr>
<tr>
<td>11. Self-Evaluate</td>
<td>7</td>
</tr>
<tr>
<td>12. Self-Evaluate/60 Minutes</td>
<td>13</td>
</tr>
<tr>
<td>13. Self-Evaluate/2 Days</td>
<td>9</td>
</tr>
<tr>
<td>14. No Self-Evaluation</td>
<td>4</td>
</tr>
</tbody>
</table>

| Grand Mean for Conditions 8-14 | 14.7% |

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Appendix H

Program Satisfaction Questions for Teacher, Student, and Parent Social Validation
The following questions are designed to assess teachers' satisfaction with the Self-Control Training Program in which their students have participated during this school year. Please read each item, evaluate it carefully, and rate the item by checking the number indicative of your opinion. Your assistance in providing feedback for improving the program is greatly appreciated.

1. In general, how would you rate your satisfaction with the self-control training program as a whole?

   1  2  3  4  5  
   Low  Ave.  High

2. How successful would you rate the program in improving the student's

   a. behavior during the hour of the day he used his self-evaluation card?

      1  2  3  4  5  
      Low  Ave.  High

   b. behavior at times of the day other than when he used his self-evaluation card?

      1  2  3  4  5  
      Low  Ave.  High

   c. academic performance during the hour of the day he used his self-evaluation card?

      1  2  3  4  5  
      Low  Ave.  High

   d. academic performance at times of the day other than when he used his self-evaluation card?

      1  2  3  4  5  
      Low  Ave.  High
3. How would you rate the usefulness of verbal instructions and feedback given you in regard to implementing the program correctly?

1  2  3  4  5
Low Ave. High

4. How would you rate the usefulness of written instructions given you in regard to implementing the program correctly?

1  2  3  4  5
Low Ave. High

5. How would you rate the usefulness of self-control training for students of other teachers you know?

1  2  3  4  5
Low Ave. High

6. How would you evaluate the day-to-day work load expected of you once the student was using his self-evaluation card in your classroom?

1  2  3  4  5
Low Ave. High

7. How cumbersome would you rate the procedures you were expected to follow?

1  2  3  4  5
Low Ave. High

8. How would you rate the student's satisfaction or enjoyment of the self-control training program

a. when he was participating in the hour long special afternoon class?

1  2  3  4  5
Low Ave. High
b. when he used the program in the regular classroom?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

9. How would you rate the pressure of tension experienced by the student at any time during the program's implementation, due to program participation (January-May)?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

10. How would you rate the pressure or tension experienced by you at any time during the program's implementation, due to your student's participation?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

11. What is the likelihood that you would refer students to this program if it were offered again?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

12. To what extent have you received feedback from parents about the program?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

13. How would you rate parent satisfaction with the program?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>

14. How would you evaluate your interactions with the data takers in your classroom?

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>High</th>
</tr>
</thead>
</table>
15. How would you rate your interactions with the program director?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Ave.</td>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. What did you like most about the program?

17. What did you like least about the program?

18. The program could be improved/made more practical by:
Student Evaluation of Self-Control Training Program

Name_________________________________________ Date____________________
Teacher_______________________________________ Grade____________________

1. Do you think using the self-evaluation cards helped you work and behave better
   a. in the special class? YES NO
   b. in the regular class?

2. Did you like earning points in the program? YES NO

3. Did earning points help you work and behave better
   a. in the special class? YES NO
   b. in the regular class? YES NO

4. If yes, did you still work and behave better after you stopped earning points? YES NO

5. Do you like earning treats and toys with points? YES NO

6. Did you like coming to the special class? Explain. YES NO

7. Would you want to come to the special class again? YES NO

8. Since you've learned to evaluate your own work and behavior, does your regular teacher say nicer things about your
   a. work? YES NO
   b. behavior? YES NO
9. Would you rather not use the self-evaluation cards
   a. in the special class? YES NO
   b. in the regular class? YES NO

10. Do you think the classroom rules helped you work
    and behave better
    a. in the special class? YES NO
    b. in the regular class? YES NO

11. Do you ever rate your work and behavior to yourself,
    even when you're not using a self-evaluation card? YES NO

12. Does using a self-evaluation card make you nervous
    a. in the special class? YES NO
    b. in the regular class? YES NO
Parent Evaluation of Self-Control Training Program

Name________________________________________ Date________________
Address_______________________________________ Phone________________

The following questions are designed to assess parents' satisfaction with the Self-Control Training Program in which their child has participated during this school year. Please read each item carefully, and rate the item by checking the number indicative of your opinion. Your cooperation in returning this form in the enclosed envelope as soon as possible would be appreciated.

1. In general, how would you rate your level of satisfaction with the self-control training program in which your child participated (January-May)?

   Low 2 3 4 5

2. How successful do you think the program was in improving your child?

   a. academic performance?

   Low 2 3 4 5

   b. classroom behavior?

   Low 2 3 4 5

3. How would you rate your child's satisfaction with his participation in the program?

   Low 2 3 4 5

4. What is the likelihood that you would want your child enrolled in this program again if he were experiencing similar difficulties in his regular classroom again?

   Low 2 3 4 5
5. How would you rate the tension or pressure experienced by your child during any part of the program (due to program participation)?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Ave.</td>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. What have you liked most about the program?

7. What have you liked least about the program?

8. Suggestions for improving the program:
Appendix I

Comments Made by Teachers, Students and Parents Regarding Program Satisfaction
Teacher Comments

Question: What kinds of feelings has the student expressed regarding his participation in the program?

"The boys were excited about earning candy."

"Willing to do his very best."

"He was glad for the afternoon sessions and the rewards. He was reluctant to use the card in the classroom."

"He enjoyed the one-on-one help but felt some embarrassment with the cards and data takers."

"Made more of a conscientious effort."

"Delighted to have an escape from class."

Question: What did you like most about the program?

"The self-evaluation aspect. It's refreshing to have a student share in the judgment of behavior."

"I liked the kids evaluating their performance and seeing if it was the same as an adult who was working with them."

"The help in moving the student toward more independent, self-motivated work and learning."

"Improved negative behavior. Gave direct step-by-step procedures for improving behavior."

"Very easy to use. Does not take time away from other things."

Question: What did you like least about the program?

"I would probably need some more training to be very effective."

"Extra bodies in the classroom. Hard to keep up with everything else in the program."

"I don't know what you did outside the classroom, but the student flaunted it as a play time. Maybe that was a 'cover-up'?"
"Using edible reinforcers."

Question: The program could be improved/made more practical by:

"For this student I felt the program moved too fast, expecting intrinsic discipline when the data showed otherwise."

"Generally we don't have library in the middle of that period except once or twice a year. I might have avoided that if I'd known further in advance what was coming up."

"More diverse reinforcers"
Student Comments

**Question:** Did you like coming to the special class? Explain.

"It was a chance to get out of class, and it was fun. There were only one or two times I didn't like--that was when we were doing something fun in my other class."

"I liked to read the books."

"Sometimes it was boring--you can't chew gum."

"I liked the kinds of things we did."

"I didn't like leaving science."
Parent Comments

**Question:** What kinds of feelings has your child expressed regarding his participation in the program?

"He has to follow the rules. He's excited about himself and the things he can do."

"liked the teacher"

"liked the work in the classroom"

**Question:** What have you liked most about the program?

"The change in the classroom teacher's attitude toward my son."

"I have noticed better behavior and temper control. Much improved."

**Question:** What have you liked least about the program?

(No responses)

**Question:** Suggestions for improving the program--

"Some parental instruction for reinforcement at home"

"None"
VITA

Ginger Rhode

Candidate for the Degree of

Doctor of Philosophy

PRESENT STATUS:

Doctoral Student
Department of Special Education
Utah State University
Logan, Utah 84322
(801) 750-3243

ADDRESS:

830 East 275 North, #4
Logan, Utah 84321
(801) 753-6477

DATE OF BIRTH:

September 12, 1946

PLACE OF BIRTH:

New York City, New York

EDUCATION

Institution
Westminster College
Salt Lake City, Utah
University of Utah
Salt Lake City, Utah
Utah State University
Logan, Utah

Degree/Year
B.A./1967
M.S./1978
Ph.D./August 1981
(Anticipated Completion)

Major Area
English
Special Education
Special Education

PROFESSIONAL EXPERIENCE

Project Associate, "A Project to Train Local Educational Representatives to Serve on IEP Development teams": Dept. of Special Education, Utah State University, USOE/BEH Grant. Responsibilities included assisting project director with planning and conducting the training project, providing technical assistance to project participants, developing and writing materials for distribution to participants, developing slide/sound presentations, conducting workshops and evaluating the project. (1979-present)

Instructor, IEP Inservice training for special education teachers; Cache County School District, Logan, Utah. Inservice consisted of conducting classes on assessment and diagnosis of handicapped students, providing information relevant to developing and implementing appropriate IEPs for handicapped students based on assessment data, and follow-up assistance and supervision in participating teacher's own classrooms. (1979-1980)

Behavior Specialist, self-contained classroom for emotionally handicapped students; Edith Bowen Laboratory School, Utah State University, Logan, Utah. Responsibilities included development and implementation of generalization and maintenance procedures for Behaviorally/Emotionally Handicapped students in a self-contained, elementary classroom as they were mainstreamed into regular classrooms. (Fall, 1979)

Teacher, autistic preschool unit; Children's Behavioral Therapy Unit, Salt Lake City, Utah. Involved conducting individual discrete trial and group learning sessions, including spoken and signed language, personal information, cooperative play, and dressing, eating and other self-help skills. (Summer, 1979)
PROFESSIONAL EXPERIENCE

Teacher, self-contained classroom for behaviorally handicapped students; Rose Park Elementary School, Salt Lake City School District, Salt Lake City, Utah. Duties included full responsibility for educating ten severely behaviorally handicapped students, ages 8 to 12, in all academic areas and social skills. (1978-1979)

Instructional Developer, Dept. of Special Education, Utah State University, Logan, Utah. Responsibilities included developing programmed, self-paced instructional materials to teach educators the proper use and administration of various tests for diagnosing handicapped children. Videotape demonstrations were also scripted and filmed to accompany written materials. (Summer, 1978)

Interdisciplinary Team Internship (Dean's Grant Project); University of Utah/Jordan School District, Salt Lake City, Utah. Included participation with other graduate students and faculty members from five departments in the College of Education at the University of Utah and professionals in the Jordan School District, Salt Lake City, Utah, in developing guidelines for the roles and responsibilities of various interdisciplinary team members in identifying and programming for handicapped students. Actual teaming among project participants took place in elementary and secondary schools in the Jordan School District.

PRESENTATIONS


WORKSHOPS

"Time Management" and "Getting the Most Mileage Out of Your Special Education Program", Utah Elementary Principal's Workshop, Utah State University, 1980.

"The Principal's Role in the Development and Implementation of IEP's". Northeast Service Center (Roosevelt and Park City, Utah, 1980); Box Elder School District (Brigham City, Utah, 1980).

"The Reconstituted Family". University of Utah, Salt Lake City, Utah, 1978.

COURSES TAUGHT

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<th>Title and Number</th>
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<td>Education of Emotionally Disturbed Children (Special Education 622)</td>
<td>Dept. Of Special Education Utah State University</td>
<td>Summer, 1980</td>
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<tr>
<td>Assessment of Learning and Behavior Problems (Special Education 545)</td>
<td>Utah State University Extension Division Idaho Falls, Idaho</td>
<td>Fall, 1980</td>
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<tr>
<td>Education of Exceptional Children (Special Education 301)</td>
<td>Utah State University Extension Division Roosevelt, Utah</td>
<td>Winter, 1981</td>
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PUBLICATIONS


Morgan, D. M. & Rhode, G. Teacher's attitudes toward IEPs: A two-year follow-up. Article submitted for publication.


CERTIFICATIONS
State of Utah Basic Professional Certificate

Endorsements
- Behaviorally/Emotionally Handicapped (K-12) 1983
- Learning Disabled (K-12) 1986

RESEARCH AND SCHOLARLY INTERESTS

Generalization and Maintenance of Treatment Effects—particularly for students with low rates of academic "survival skills" and Behaviorally/Emotionally Handicapped students as they are returned to regular classrooms after receiving some form of special education intervention either in self-contained or resource settings.

Self-Control Training—as a means of enhancing children's academic "survival skills" and social behavior and for obtaining generalization and maintenance of improvements.

Inservice and Preservice Teacher Training—to provide relevant, practical, well-developed (i.e. validated) and well-delivered training to future and current regular and special educators.

Development and Implementation of Quality IEPs—use of an IEP not only as an administrative device but as an effectively developed and utilized instructional "best practice" procedure as well.

Quality Assessment of Handicapped Children—in regard to the technical adequacy of tests utilized to assess handicapped students, the appropriateness of such tests for the students to whom they are given, and the appropriateness of the purposes to which these tests are put.

Grant Writing—particularly in the areas described in this section, to obtain funds for generating and disseminating needed information, materials, and programs.

Program Analysis and Evaluation—as a means of accountability for and feedback to program implementors regarding needed changes in the development of new educational programs and the use of current ones.

Secondary Education—increasing and providing appropriate educational programs for Behaviorally/Emotionally Handicapped and Learning Disabled secondary students in terms of social and academic skills.

Teaching Social Skills—development and dissemination of validated programs for teaching social skills to handicapped children and youth.

GRANTS SUBMITTED
"Generalization and Maintenance of Treatment Gains of Behaviorally/Emotionally Handicapped Students in Their Regular Classrooms Using Self-Control Procedures". Submitted to Education Department/Office of Special Education (student initiated research), October, 1980. Grant approved but not funded.