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**LOCUS OF CONTROL AND BEHAVIOR MANAGEMENT IN THE
CLASSROOM**

The University of Oklahoma

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THE UNIVERSITY OF OKLAHOMA
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LOCUS OF CONTROL AND BEHAVIOR MANAGEMENT
IN THE CLASSROOM

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
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degree of
DOCTOR OF PHILOSOPHY

BY
LORETTA BROWN AUTRY
Norman, Oklahoma
1982

LOCUS OF CONTROL AND BEHAVIOR MANAGEMENT
IN THE CLASSROOM

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with love.

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LOCUS OF CONTROL AND BEHAVIOR MANAGEMENT
IN THE CLASSROOM

Introduction

Most of the behavior "problems" that are dealt with in schools involve essentially trivial matters such as loud talking or unauthorized noisy movements. Many of these behaviors are considered normal and appropriate outside the classroom. Even in the classroom, they are prohibited not because they are inherently "bad," but because they tend to detract from the teaching-learning process. Eliminating the disruptive behaviors of children in classrooms is a goal to which teachers devote a great deal of time and effort. Teachers judge twenty three to thirty one percent of the children in elementary schools to have behavior problems which require the teacher's attention (Rubin and Balow, 1978).

Teachers are forced to contend with the behavior problems that interfere with teaching and learning in the classroom. Their methods are sometimes ineffective and negative and may actually exacerbate the problem. A more effective means of changing behavior involves helping children assume self-responsibility for their own behavior. Attribution theory has significant implications for this process.

Attribution Theory

Attribution theory investigates the perception of causality, the judgement of why a particular incident occurred. The degree to which individuals perceive their own behavior as the controlling factor in receiving rewards or reinforcements is the measure of their internality. Internals believe that the reinforcements they receive are primarily a result of their own behavior, the ability, effort or characteristics they display. Individuals at the external end of the locus of control continuum attribute the control of their reinforcements to forces outside themselves; luck, chance, fate or powerful others (Rotter, 1975).

The assumption of self-responsibility for behavior, an internal perception of control, makes a given behavior more likely to recur than when that behavior is perceived to be controlled externally.

If a person perceives a reinforcement as contingent upon his own behavior, then the occurrence of either a positive or a negative reinforcement will strengthen or weaken potential for that behavior to recur in a similar situation. If he sees the reinforcement as being outside his own control or not contingent, that is, depending on chance, fate, powerful others or unpredictable, then the preceding behavior is less likely to be strengthened or weakened (Rotter, 1966, p. 5).

It therefore seems reasonable to attempt to elicit appropriate behaviors by inducing appropriate attribution in children.

Weiner (1971) has developed an attributional model of achievement motivation. He has focused on the causal explanations people give for their successes and failures, and how those explanations affect subsequent expectancies and behavior. The explanations given for outcomes rely on a combination of four causal elements: ability, effort, task difficulty and luck. Ability and effort are seen as internal qualities, while task difficulty and luck are seen as external qualities. Two of these elements, ability and task difficulty, are seen as relatively stable qualities, whereas effort and luck may vary by situation. These may all be influenced by other cognitions of the individual. The perception that progress is prevented by circumstances beyond one's control can account for behavior deficits (Carver and Scheier, 1981). The importance of cognitions is readily apparent when an environmental event receives differing interpretations from different people.

Most studies of helplessness theories (Miller, 1979) involve expectancies regarding control as significantly influencing behavior. On the basis of attributional contingencies, Abramson et al. (1978) distinguish between "universal" helplessness, (where the subject believes that no one can exert control) and "personal" helplessness (where the

individual perceives the lack of control to be uniquely his or her own). One can be either internally or externally helpless, and the prediction of behavior does not depend directly upon the attributions themselves. Abramson et al. suggest that low self-esteem is associated with personal (self-attributed) helplessness but not with universal (externally attributed) helplessness. This prediction is consistent with the previously cited research.

In contrast, it has been demonstrated that overt behavioral attempts follow outcome expectancies, regardless of the internality or externality of the attributional basis for those expectancies (Chambliss and Murray, 1979). Even in the therapy setting there was evidence that some individuals respond better when gains are attributed externally than when they are attributed to self-efficacy.

Summarizing this brief review of attribution theory, we see that the causal agents to which events are attributed account for many behaviors. The role of attribution in changing behavior is of particular interest because it points out the importance of cognitions regarding observed events. Attributions may play a major role in behavior change.

Locus of Control and Self-Rewards

An important question in understanding behavior change is the effect of having individuals attribute behavior change to themselves rather than to extraneous persons or events. There is evidence that whether or not a behavior is maintained

after reinforcements are withdrawn is related to whether the individuals attribute the changes to themselves or to external forces (Davidson and Valins, 1969).

Individuals may learn to attribute to themselves greater control over their own behavior and view themselves as agents who can affect the world, rather than as passive objects being victimized by environmental commands. This fact is one of the focal issues of Bandura's (1977) self-efficacy theory. Self-efficacy is one's perceived capacity to meet some challenge or perform a particular response. Bandura states that expectations of personal efficacy determine whether coping behavior will be instituted, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences (p. 191).

An area of interest in self-rewarding behavior is self-verbalizations. The assumption that self-instructions guide one's behavior has been widely investigated (Ellis, 1970; Beck, 1976; and Craighead and Craighead, 1980). Changes effected by self-instructional training seem to generalize and are effective in improving performance on diverse perceptual and cognitive tasks. The impact of saying things to oneself to control various behaviors helps defeat self-defeating thoughts and behaviors by making explicit those cognitions and self-verbalizations that account for one's feelings and actions (Craighead, 1980).

Classroom Management

Mechanisms for controlling the behavior of any organization's members are necessary to prevent disorder and to facilitate achievement of the organization's goals (Etzioni, 1965). To the extent that behavior problems interfere with the ongoing operation of a classroom, they may require a response from the teacher. That response is the control strategy the teacher chooses to employ.

Duke (1980) identifies six control strategies for dealing with behavior problems in classrooms, and the specific control procedures used in each. Problem avoidance is the strategy employed in selective ignoring. Problem acceptance involves the elimination of rules, and problem compensation implies restitution and protection. Problem prevention focuses on the prevention of problems anticipated to occur in the future. Problem intervention aims at eliminating existing problems. Problem management strategies seek to reduce behavior problems indirectly by changing organizational factors instead of people.

Problem intervention strategies are the procedures relevant to the present study. Educators need to be able to effectively implement discipline techniques that will lead to fewer instances of undesirable actions (Lundell, 1982). Punishment, an aversive response to disruptive behavior, can be ineffective and self-defeating because the child's response to punishment depends on complex variables (Docking, 1980).

Positive reinforcement, utilizing token economies and other behavioral approaches, is seen as a more effective approach to behavior change in considerable research (Clarizio, 1976; Sloan, 1976; and Thoresen, 1973).

In a token economy system, the child receives something that can be exchanged for a tangible reward that is presumed to be of reinforcing value to the child. When a child behaves as the teacher desires, the child receives a token. Gradually, behavior changes and the tokens are withdrawn. The goal is to have consequences afforded by the natural environment maintain the behavior (Nielsen, 1974).

Problem

The present study attempts to combine the research in the areas of locus of control and problem intervention through self-monitoring to control behavior. One aim is to assess the effect of learning self-monitoring behaviors on the locus of control orientations of children.

The first general hypothesis is that within self-monitoring conditions, students will show increased internal-ity. This hypothesis is based on the assumption that it is possible for individuals to learn to attribute to themselves greater control over their own behavior and to view themselves as performers who can affect their environments. It is expected that students who are taught self-monitoring techniques will come to view their behavior as under personal control.

The second general hypothesis is that within self-monitoring conditions, students' disruptive behaviors will be reduced. It is further hypothesized that the lowered rate of disruptive behaviors achieved through self-monitoring will be maintained longer than lowered rates achieved through external monitoring.

In the third general hypothesis is that within self-monitoring conditions, students' constructive behaviors will be increased. It is not assumed that increased constructive behaviors would necessarily follow lowered disruptive behaviors. Lowered disruptive behaviors are seen as a necessary but not sufficient condition for classroom learning. It is assumed that for learning to take place, the learner must engage in some type of constructive behavior. It is further hypothesized that the increased constructive behaviors achieved through self-monitoring will be more enduring than those achieved through external regulation.

This study was designed to address the question: Does self-regulation increase the likelihood of assuming self-responsibility for behavior, and are behaviors so induced more enduring than behaviors induced by external regulation?

Method

Subjects

This study required the selection of a special population of disruptive students. Students so identified by regular

classroom teachers and categorized in the upper 50% of disruptive behaviors recorded by observers during pre-baseline observations were selected for inclusion in this study. This selection process resulted in including thirteen fourth grade students, fifteen fifth grade students and twelve sixth grade students. The study was limited to students in these grades to control for developmental differences. The total number of subjects in the experiment was forty. Only male subjects were used to control for gender related differences. Subjects were randomly assigned to one of four groups: (1) Self-regulation group to monitor constructive behaviors (SR+), (2) Self-regulation group to monitor disruptive behaviors (SR-), (3) External regulation group (ER), or (4) No regulation group (NR). Ten subjects were assigned to each group. No subjects moved or were dropped from the experiment for any other reason. Absences were treated as missing data in the analysis.

Setting

This study was conducted in a public elementary school in a middle class socio-economic community. Three fourth grade classrooms were involved, with four subjects in two of them and five subjects in the other. Four fifth grade classrooms were involved, with four subjects in three of them and three in the other. Three sixth grade classrooms were involved, with four subjects in each classroom. A measure of the social climate in these classrooms revealed no significant differences (Moos, 1978).

Five observers were used in the classrooms. They observed in the three fourth grade classes and two of the fifth grade classes from 1:00 to 1:30 P.M. each day. They observed in the other two fifth grade classes and the three sixth grade classes from 1:30 to 2:00 P.M. A sixth observer rotated among the classes to obtain observer agreement data. All observers were uninformed regarding the hypotheses of the study. The study was conducted for a period of fifty-six days. There were five days in Phase I, thirteen days in Phase II, fourteen days in Phase III, fourteen days in Phase IV, and ten days in Phase V. No data were collected on the day prior to dismissal for the winter holiday.

Procedure

Prior to effecting the experimental conditions, all subjects were administered the Intellectual Achievement Responsibility Questionnaire (IAR). (Appendix C) This scale was chosen because it is aimed at assessing children's beliefs in reinforcement responsibility exclusively in an academic setting.

The pre-baseline period served as a period of adaptation to the observers' presence. Pre-baseline data analyses revealed that observers were capable of observing and recording the behaviors of the three, four or five students in their classroom with observer agreement scores of 91.6%. The method used for calculating the agreement between the data recorded

by two independent observers was the formula reported by Bijou et al. (1968):

$$\frac{\text{agreements}}{\text{agreements} + \text{disagreements}} \times 100 = \text{percentage of agreement.}$$

An agreement was defined as any five minute interval in which both the regular observer and the rotating observer recorded that a constructive behavior or a disruptive behavior did occur during that interval. Disagreements were intervals in which only one observer recorded that a behavior did occur.

Disruptive behaviors were defined as (1) talking out or making inappropriate noises, (2) physically disturbing other students and (3) leaving one's desk without permission of the teacher. These behaviors may result when children have not worked out a satisfactory personal adjustment and place in the group at school (Dreikurs, 1968).

Constructive behaviors were defined as (1) looking at a book or lessor-related paper, (2) answering a question asked by the teacher and (3) engaging in any activity the teacher specifically requests of the student.

An outline of the procedures for each phase is presented in Appendix D. Beyond baseline, which was Phase I, there were four phases in which some part of the treatment procedure was changed for one or more groups.

Phase II, the beginning of the treatment conditions, lasted thirteen days. All three treatment groups were monitored by the observers, and subjects received reinforcement on the basis of the observers' data. SR+ subjects were instructed

that they could receive tokens redeemable for reinforcements for increased constructive behaviors. Levels of constructive behavior designated for reinforcement were (1) more than ten constructive behaviors = 10 tokens; (2) six to ten constructive behaviors = five tokens; and (3) five or less constructive behaviors = zero tokens.

SR- subjects were instructed that they could receive tokens redeemable for reinforcements for decreased disruptive behaviors. Levels of disruptive behaviors designated for reinforcement were (1) five or less disruptive behaviors = ten tokens; (2) ten to six disruptive behaviors = five tokens, and (3) more than ten disruptive behaviors = zero tokens.

ER subjects were instructed that they could receive tokens redeemable for reinforcements for both increased constructive behaviors and decreased disruptive behaviors. Since it was therefore possible for ER subjects to earn tokens more quickly, the level for reinforcement in each case was increased by five for constructive behaviors and decreased by five for disruptive behaviors. Constructive behaviors were reinforced at the rates of (1) more than fifteen constructive behaviors = ten tokens; (2) eleven to fourteen constructive behaviors = five tokens; and (3) ten or less constructive behaviors = zero tokens. Disruptive behaviors were reinforced at the rates of (1) zero disruptive behaviors = ten tokens; (2) one to five disruptive behaviors = five tokens; and (3) more than six disruptive behaviors = zero tokens.

Reinforcers were items from the school store ranging in value from 10¢ to 50¢, free time during the school day, and activity reinforcers such as being group leader, running errands, taking a class pet home for the weekend or visiting another class. The reinforcers with monetary value were available at the rate of two tokens equaling one cent. Free time was available at the rate of two tokens equaling one minute of free time. Activity reinforcers cost twenty tokens. Subjects were allowed to save tokens if they chose to do so.

In Phase II, SR+ and SR- subjects were trained in self-monitoring procedures. This phase lasted fourteen days. Self-monitoring was defined as when an individual evaluates his or her own behavior and gives his or her own reinforcers contingent with learned criteria.

Both SR+ and SR- subjects were given a sheet of paper each day, marked with rows of squares on which to record their behavior (Figures 1 and 2; Appendix E). Observers continued recording behavior as they had done since Phase I. They used the forms shown in Figures 3, 4, and 5 (Appendix F). At the end of each session in Phase III, both SR groups' subject's cards were matched against the observer's data. If the subject's self-monitoring score fell within three behaviors above or below the observer's score, the subject received tokens as given in Phase II. If the subject was beyond the range of three behaviors above or below the observer's rating, the subject received two tokens less than he would have received for the observer's rating.

A check of the accuracy of the recording of the subjects in Phase III revealed that all of the subjects were able to record their behavior within the permissible range of plus or minus three behaviors at least 86% of the time. Subjects in the SR+ group consistently overestimated their constructive behaviors, while subjects in the SR- group underestimated their disruptive behaviors every day except one.

As part of the training in self-monitoring in Phase III, the observers asked the subjects which behaviors they recorded as constructive or disruptive. The observer gave the subjects the same information regarding behaviors recorded by the observer. Subjects were able to accurately record their own behavior within acceptable error limits, and were not found to engage in any deliberate game-playing.

In Phase IV, both SR groups monitored their own behavior and received tokens based on their self-records. Observers continued their recording, but their records were not a criterion for dispensing points. Subjects continued to record their behavior accurately, and to refrain from any deliberate attempt to misrepresent their records. Phase IV lasted fourteen days.

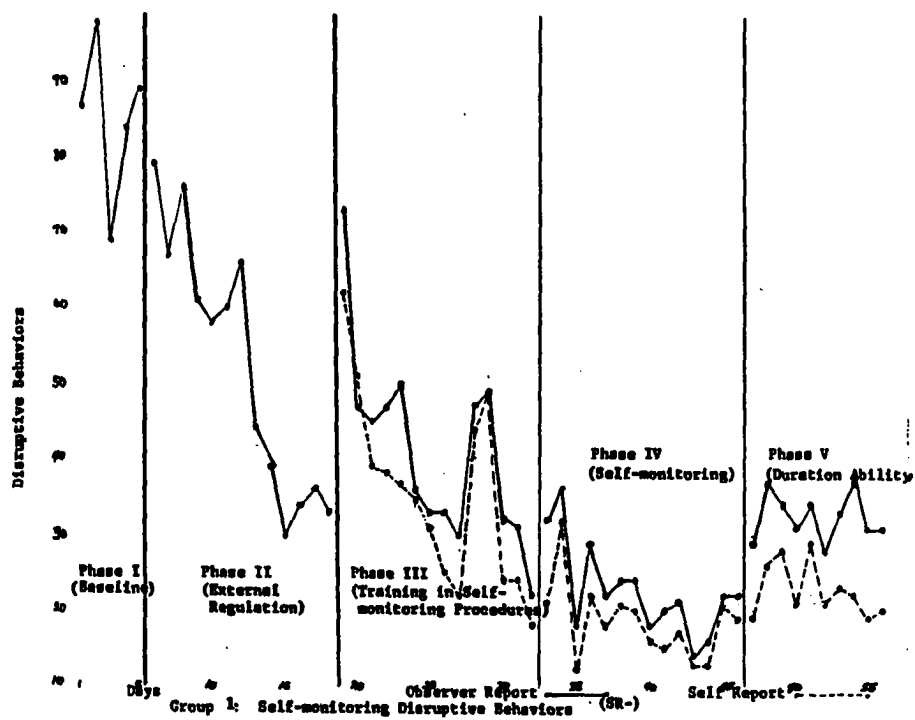
The subjects in the SR+ and SR- groups were neither informed of nor rewarded for the accuracy of their self-observations in this phase. However, 80% of the subjects' self-observation ratings fell within the allowable range of plus or minus three behaviors as recorded by the observers.

Discrepancies that did exist were consistently in the direction of overestimation of constructive behaviors and underestimation of disruptive behaviors by subjects.

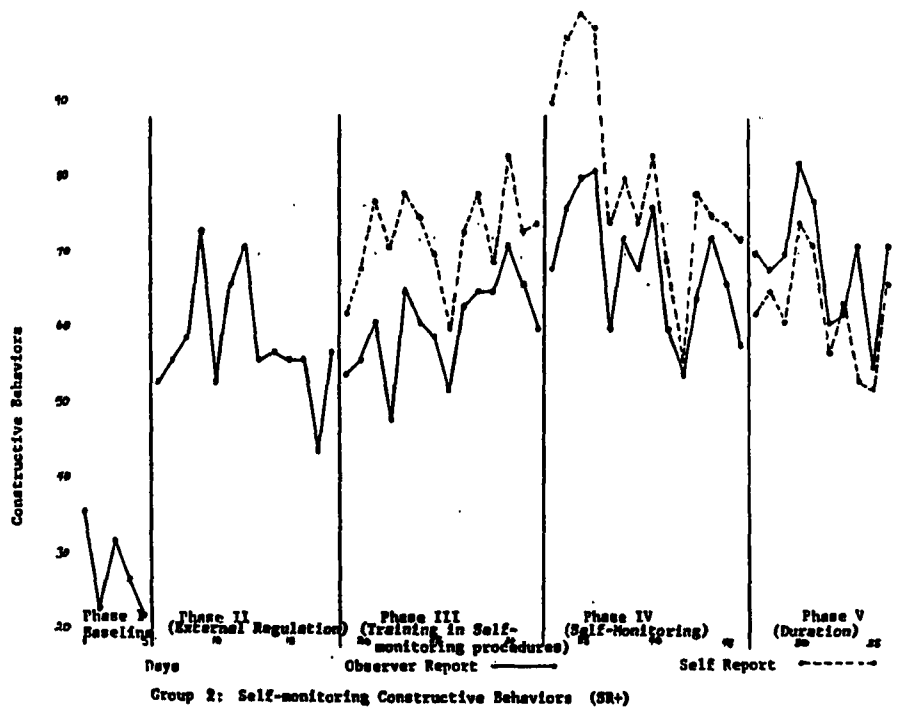
In Phase V, lasting ten days, subjects were told that the reinforcers were no longer available. Observers continued to record the behaviors of all groups.

Graphic presentation of the data is presented on the following four pages.

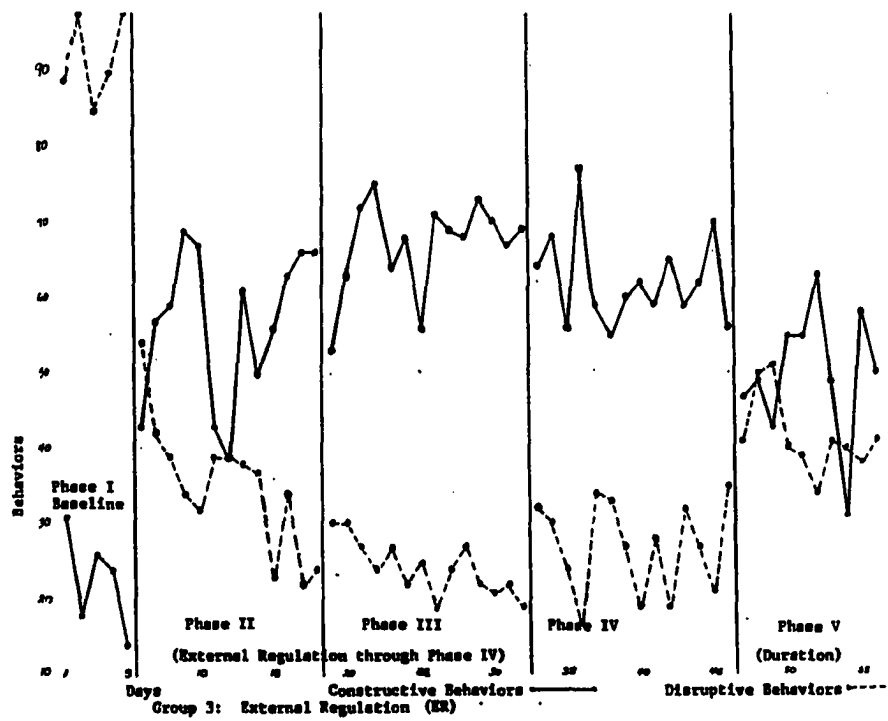
Immediately after Phase V, all subjects were again administered the Intellectual Achievement Responsibility Questionnaire.



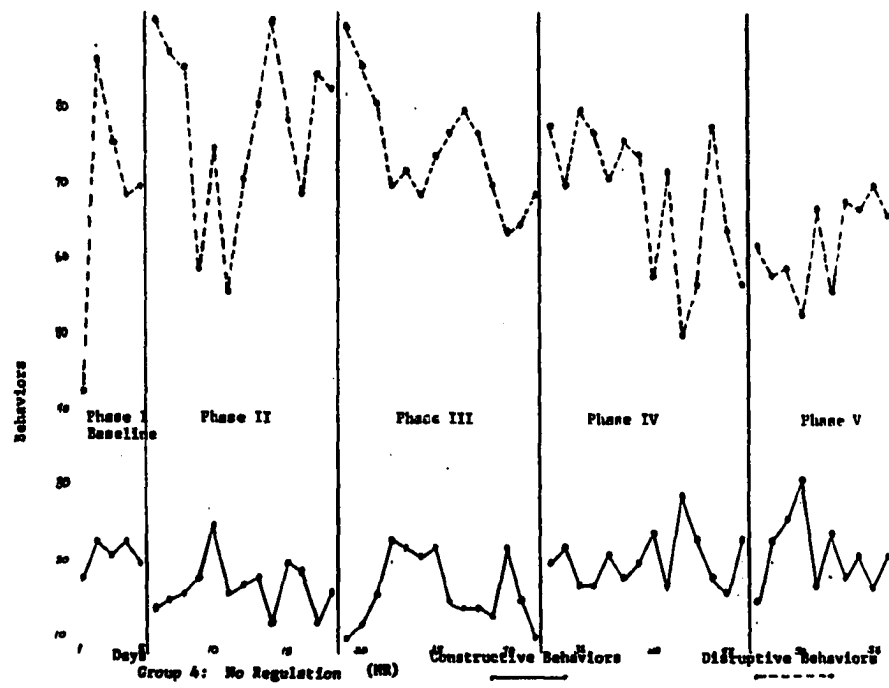
Graphic Presentation of SR- Data



Graphic Presentation of SR+ Data



Graphic Presentation of ER Data



Graphic Presentation of NR Data

Results

The data, summarized in Tables 1, 2, and 3, were analyzed separately for each phase. One way analyses of variance were performed on all the scores of each group in each phase. Mean scores of individual subjects were used. When appropriate, orthogonal comparisons between the treatment groups were made. That is, within each phase, the SR+, SR- and the corresponding ER groups were compared, using the Student's t test, to assess the effects of the two treatments independent of the control (NR) group. To compare the significance of reactions to each treatment, t scores were calculated for the sample means of each phase and the previous phase, as well as with the baseline (Phase I) mean. These mean differences were tested at the 1% level of significance, $t_{crit} = 2.821$. A repeated measures analysis of variance was also conducted, the results of which are presented in Appendix G.

Intellectual Achievement Responsibility

Questionnaire

The analysis yielded significant effects for the locus of control variable. Analysis of variance on the score differences between pre- and post-treatment IAR scores was performed. Significant differences were found when scores of all four groups, SR+, SR-, ER and NR were compared, $F(3,36) = 6.16$ $p < .01$. However, when the control group was not included in the analysis, support was not found for the

predicted superiority of SR+ and SR- treatment groups over ER at changing internality scores, $F(2,27) = 3.24$, $p > .01$.

Table A
Comparison of the IAR Score Differences
for Experimental and Control Groups

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, SR-, ER & NR Groups	3	7.4	3.7	3.24
Within Groups	36	30.9	2.2	
Total	39	38.3		

For the SR+ group, the mean IAR score prior to the treatment conditions was 24.6. The mean post-treatment IAR score for this group was 26.6. This increase is significant at the .025 level, but not at the .01 level ($t = 2.35$). For the SR- group, pre- and post-treatment IAR score means were 24.1 and 26.1, respectively. This increase was also significant at the .025 level ($t = 2.43$) but not at the .01 level. Pre- and post-treatment IAR score means for the ER group were 24.3 and 25.3, a change that was not significant ($t = 1.12$). The IAR score mean for the control group was 25.8 prior to the beginning of the study and at the conclusion of the study was 26.3, also a non-significant change ($t = .79$).

Treatment Conditions

Phase I: Baseline

	Mean	Standard Deviation		Mean	Standard Deviation
SR-	8.97	2.58	SR+	2.86	1.05
ER	9.32	2.67	ER	2.26	.10
NR	8.07	2.04	NR	2.21	.52

One-way analysis of variance comparing SR-, ER and NR groups on the mean frequencies of disruptive behaviors across all five days of baseline revealed no significant differences between groups, $F(2,27) = .232$, $p > .01$. One-way analysis of variance comparing SR+, ER and NR groups on the constructive behaviors across all five days of baseline also failed to reveal significant differences, $F(2,27) = 2.25$, $p > .01$. Thus all groups were essentially the same in their display of disruptive or constructive behaviors prior to the introduction of experimental conditions.

Table B
 Comparison of Behavior Frequency Differences
 for Experimental and Control Groups
 Phase I
 Disruptive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR-, ER & NR Groups	2	8.32	4.16	.23
Within Groups	27	161.34	17.96	
Total	29	169.66		

Constructive Behaviors				
Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, ER, & NR Groups	2	2.65	1.32	2.25
Within Groups	27	15.88	.58	
Total	29	18.53		

Phase II
External Regulation

	Mean	Standard Deviation		Mean	Standard Deviation
SR-	5.33	1.44	SR+	5.83	.97
ER	3.59	1.21	ER	5.86	.67
NR	8.32	1.44	NR	1.68	.27

Analysis of the data in this phase, comparing SR-, ER, and NR groups revealed significant differences in group effects in disruptive behaviors, $F(2,27) = 9.401, p < .01$. Analysis of the data comparing SR+, ER and NR groups also revealed significant group effects in constructive behaviors, $F(2,27) = 30.95, p < .01$. Visual inspection of graphs of the data (see pp. 15-18) reveals the predicted changes in constructive and disruptive behaviors. That is, constructive behaviors increased and disruptive behaviors decreased.

Table C
 Comparison of Behavior Frequency Differences
 for Experimental and Control Groups
 Phase II
 Disruptive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR-, ER & NR				
Groups	2	115.08	57.54	9.40
Within Groups	27	165.44	6.12	
Total	29	280.52		

Constructive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, ER & NR				
Groups	2	108.35	54.17	30.95
Within Groups	27	47.46	1.75	
Total	29	155.81		

Orthogonal comparisons between the types of treatments, SR+, SR-, and ER, revealed no significant differences in SR+ or in SR- in Phase II, the first treatment condition. This

is consistent with predicted findings, as all the treatment groups were receiving the same treatment in this phase, i.e. SR+, SR- and ER were all monitored by an observer and reinforced on the basis of the observer's data.

Comparing the differences between the sample means of Phases I and II revealed a significant decrease ($t = -3.8$) in disruptive behaviors for the SR- group, a 40.6% drop from Phase I. The disruptive behaviors of the ER group declined by 61.5% ($t = -7.07$). The NR group's disruptive behaviors did not change significantly. Significant increases in constructive behaviors of 51% for the SR+ group ($t = 9.0$) and 61% for the ER group ($t = 12.0$) were revealed in comparing Phases I and II. The NR group showed a significant decrease ($t = -3.30$) in constructive behaviors from Phase I to Phase II.

Phase III

Training in Self-monitoring Procedures

	Mean	Standard Deviation		Mean	Standard Deviation
SR-	4.31	1.17	SR+	6.13	4.8
ER	2.52	.84	ER	6.79	.95
NR	7.62	1.67	NR	1.70	.5

In Phase III, one-way analysis of variance comparing SR-, ER and NR groups revealed significant group effects

in the regulation of disruptive behaviors, $F(2,27) = 41.12$, $p < .01$. Analysis comparing SR+, ER and NR groups also revealed significant group effects in the regulation of constructive behaviors, $F(2,27) = 10.02$, $p < .01$. Orthogonal comparisons of the self-regulation and external regulation groups revealed significant differences in the frequencies of disruptive behaviors between groups, $t = 3.29$, $df\ 18$, $p < .01$, and in the frequencies of constructive behaviors between groups, $t = 5.37$, $df\ 18$, $p < .01$. A seeming anomaly here is that it was the ER group that significantly decreased in disruptive behaviors and increased in constructive behaviors.

SR+ subjects obtained an average of 4.07 tokens per day in Phase III, while SR- subjects earned an average of 8.1 tokens per day. This was taken to indicate that it might be more difficult to increase constructive behaviors than to decrease disruptive behaviors. ER subjects earned an average of 5.28 tokens in this phase. All of these tokens for the ER group were earned through decreased disruptive behaviors, the minimum level set for reinforcement.

The observers' records of behavior were used in the analysis of the data in this and all other phases. Self-monitoring data were not seen as comparable to observer data for purposes of analysis. Data collected by different individuals are not considered to be interchangeable.

Table D
 Comparison of Behavior Frequency Differences
 for Experimental and Control Groups
 Phase III
 Disruptive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR-, ER & NR				
Groups	2	134.06	67.03	41.12
Within Groups	27	44.18	1.63	
Total	29	178.24		

Constructive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, ER & NR				
Groups	2	153.2	76.6	10.02
Within Groups	27	206.51	7.64	
Total	29	359.71		

The mean frequency of disruptive behaviors was decreased by 52% from Baseline in Phase III, a significant difference ($t = -5.75$). There was not a significant difference from

Phase II for the SR- group. The externally regulated group decreased disruptive behaviors by 73% ($t = -8.09$) from Baseline in Phase III, a significant difference. But the difference from Phase II was not significant. Disruptive behaviors of the control group were not significantly different from Baseline or Phase II.

The mean frequency of constructive behaviors was increased by 54.4% over Baseline in Phase III, a significant difference ($t = 9.9$), for the SR+ group. The 5% difference in constructive behaviors for the SR+ group from Phase II to Phase III was not significant. The externally regulated group increased constructive behaviors by 66.8% ($t = 15.7$) over Baseline in Phase III, and by 14% ($t = 4.42$) over Phase II frequencies, both significant differences. The control group's constructive behaviors showed a decrease of 24% ($t = -3.3$) by Phase II and a 23.1% ($t = -3.18$) decrease from Baseline in Phase III, both significant differences.

Phase IV
Self-monitoring

	Mean	Standard Deviation		Mean	Standard Deviation
SR-	1.95	.51	SR+	8.00	.81
ER	2.8	.77	ER	6.46	.79
NR	6.87	.64	NR	2.03	.60

In Phase IV, analysis of variance comparing SR-, ER and NR groups revealed significant group effect in the regulation of disruptive behaviors, $F(2,27) = 16.5$, $p < .01$. An orthogonal contrast of raw score means of SR- and ER groups revealed significant differences also, $t = 2.96$. Analysis of variance of frequencies of constructive behaviors also revealed significant differences among the SR+, ER and NR groups, $F(2,27) = 215.97$, $p < .01$. An orthogonal comparison of SR+, and ER groups also showed significant differences, $t = 4.31$. That is, the self-monitoring treatment of constructive behaviors produced significantly different frequencies of constructive behaviors when analyzing SR+, ER and NR groups. When SR+ and ER groups were compared without inclusion of the control group, the self-regulating group still displayed significantly more constructive behaviors than the externally regulated group.

Comparison of Behavior Frequency Differences
for Experimental and Control Groups

Phase IV

Disruptive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR-, ER & NR				
Groups	2	138.3	69.15	165.03
Within Groups	27	11.32	.42	
Total	29	149.62		

Constructive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, ER & NR				
Groups	2	192.23	96.11	215.97
Within Groups	27	12.03	.44	
Total	29	204.26		

Subjects self-regulating constructive behaviors received an average of 4.92 tokens per day in Phase IV. Self-regulating disruptive behavior subjects received an average of 9.89 tokens per day. Externally regulated subjects received an average of 5.1 tokens per day.

The mean frequency of disruptive behaviors continued to decrease for all groups in Phase IV. The SR- group rate was 78.3% less than baseline, a significant difference at $t = -8.66$. A non-significant difference was observed from Phase III. The externally regulated group's disruptive behaviors differed non-significantly from Phase III, but maintained a significant 70% decrease ($t = -7.76$) from baseline. The control group's disruptive behaviors continued to differ from baseline by 14.9%, still a non-significant difference.

The mean frequency of constructive behavior for ST+ continued to increase significantly ($t = 15.57$) in Phase IV to 64.3% above baseline. Constructive behaviors of the externally

regulated group were 65.1% above baseline, a significant difference ($t = 14.0$). This represented a non-significant change of 1.7% from Phase III. The control group's constructive behaviors were not significantly different from baseline or from Phase III in Phase IV.

Phase V
Duration Ability

	Mean	Standard Deviation		Mean	Standard Deviation
SR-	2.51	.5	SR+	6.05	1.22
ER	4.18	.95	ER	5.35	.92
NR	6.29	.92	NR	2.16	.38

In Phase V, both SR- and SR+ groups were predicted to maintain their behaviors as altered longer than the ER group. A significant main effect was obtained for the SR- group, $F(2,27) = 53.58$, $p < .01$, and for the SR+ group, $F(2,27) = 51.74$, $p < .01$. A significant difference was not found when comparing SR+ and ER groups without considering the control group. Orthogonal comparisons of SR- and ER groups revealed significant group effects in this phase, $t = 4.91$.

Table F
 Comparison of Behavior Frequency Differences
 for Experimental and Control Groups
 Phase V
 Disruptive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR-, ER & NR				
Groups	2	71.91	35.95	53.58
Within Groups	27	18.12	.67	
Total	29	90.03		

Constructive Behaviors

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
SR+, ER & NR				
Groups	2	85.90	42.95	51.74
Within Groups	27	22.52	.83	
Total	29	108.42		

SR- subjects continued to under-report their disruptive behaviors in Phase V. SR+ subjects, who had previously over-estimated their constructive behaviors, also began under

reporting their behaviors in this phase.

During Phase V, the constructive behaviors of the SR+ group were significantly 52.8% above their baseline rate ($t = 9.66$). This is a drop of 11.5% from Phase IV, a significant difference ($t = -7.8$). Constructive behaviors of the externally regulated group were significantly 57.8% above their baseline frequency ($t = 10.2$). This indicates a 7.3% drop from Phase IV, a significant difference ($t = -4.4$). The constructive behaviors of the control group were still not significantly different from their baseline. The difference in the rate of constructive behaviors for the NR group from Phase IV to Phase V was not significant either.

The disruptive behaviors of the SR- group in Phase V were 72.1% lower than their baseline frequency, a significant difference ($t = -7.97$). Disruptive behaviors for this group had increased by 6.2% from Phase IV, a significant difference ($t = 3.5$). The frequency of disruptive behaviors of the externally regulated group was significantly 55.2% below their baseline ($t = 6.11$). ER group's disruptive behavior frequency increased significantly ($t = 5.75$) from Phase IV. The control group's frequency of disruptive behaviors showed an overall decrease from baseline of 22.1%, a significant difference.

Table 1
Means and Standard Deviations
Pre and Post Treatment
IAR Scores

	Pre-Treatment		Post Treatment	
	Mean	Standard Deviation	Mean	Standard Deviation
SR+	24.6	2.71	26.6	3.16
ER	24.3	2.62	25.3	2.83
NR	25.8	1.61	26.3	2.0
SR-	24.1	3.69	26.1	3.47
ER	24.3	2.62	25.3	2.83
NR	25.8	1.61	26.3	2.0

Table 2
Means and Standard Deviations
For Each Phase
Disruptive Behaviors

PHASE I (Baseline)

	Mean	Standard Deviation
SR-	8.97	2.58
ER	9.32	2.67
NR	8.07	2.03

PHASE II (External Regulation)

SR-	5.33	1.44
ER	3.59	1.21
NR	8.32	1.44

PHASE III (Training in Self-Monitoring Procedures)

SR-	4.31	1.17
ER	2.52	.84
NR	7.62	1.67

PHASE IV (Self-Monitoring)

SR-	1.95	.51
ER	2.8	.77
NR	6.87	.64

PHASE V (Duration Ability)

SR-	2.51	.5
ER	4.18	.95
NR	6.19	.92

Table 3
Means and Standard Deviations
For Each Phase
Constructive Behaviors

PHASE I (Baseline)		
	Mean	Standard Deviation
SR+	2.86	1.05
ER	2.26	.108
NR	2.21	.521
PHASE II (External Regulation)		
SR+	5.83	.973
ER	5.86	.679
NR	1.68	.272
PHASE III (Training in Self-Monitoring Procedures)		
SR+	6.13	4.8
ER	6.79	.959
NR	1.70	.5
PHASE IV (Self-Monitoring)		
SR+	8.00	.81
ER	6.46	.797
NR	2.03	.608
PHASE V (Duration)		
SR+	6.05	1.22
ER	5.35	.924
NR	2.16	.381

Discussion

The purpose of this study was to explore the possible relationship between locus of control orientations and behavior management in the classroom. The assumption that individuals who perceive their own behavior as the determining factor in securing reinforcements and therefore assume greater responsibility for their behavior has been repeatedly substantiated by others. Since this assumption of self-responsibility for behavior is in part a function of an individual's level of maturity, it was of interest to see if training in self-monitoring of behavior would increase internality in children. The efficacy of self-monitoring to increase constructive behavior and to decrease disruptive behaviors was also of interest.

Results indicate that both the external and the self-monitoring procedures were effective in establishing and maintaining increases in constructive behaviors and decreases in disruptive behaviors. In all phases after baseline, the experimental groups exhibited more constructive behaviors and less disruptive behaviors than the control group.

It was hypothesized that students who were trained in self-monitoring procedures would show increased internality. While they did show gains in their IAR scores, significant differences were not obtained from direct comparison of the raw score data comparing these gains to the ER group gains, therefore we assume that these gains were random. The

difference in expectancy shifts was significant when the control group was included in the comparison with the treatment groups. That is, the increased internality for the SR+ and ER groups was significantly greater than that of the NR group. We may speculate that even though the ER group members were reinforced on the basis of the observers' reports of behavior, the subjects would be expected to realize that by changing their behaviors they changed the level of reinforcement. Thus the ER group had reason to feel some internal control over the situation, because they had been instructed in Phase II that they could receive tokens redeemable for reinforcements for both increased constructive behaviors and decreased disruptive behaviors. This feeling of control have contributed to the increased internality of the ER group.

Lack of superiority of the self-monitoring treatments over the externally monitored treatment in affecting attributions to internal forces has been noted previously. Chambliss and Murray (1979) found that overt behavioral attempts follow outcome expectancies regardless of the internality or externality of the attributional bias for those expectancies. Even in a therapy setting, they found evidence that some individuals respond better when gains are attributed externally than when they are attributed to self-efficacy. Further study of the factors that influence these responses could suggest treatments that would be individually effective.

The second hypothesis predicted that within self-monitoring conditions students' disruptive behaviors would be

reduced. It was expected that low rates of disruptive behaviors achieved through self-monitoring would be maintained longer after reinforcements were withdrawn than those achieved through externally managed procedures. In all phases after baseline, the experimental groups exhibited significantly lower rates of disruptive behaviors than the control group. Both the external and self-monitoring procedures were effective in reducing disruptive behavior rates and in maintaining the lower rate.

The reduction in disruptive behaviors achieved through the self-monitoring treatment did show significantly greater resistance to fading than those achieved through external monitoring. This is interpreted as substantiating the hypothesis that disruptive behaviors changed through self-monitoring training would be more enduring than those changed through observer monitoring.

It is also noted that the externally regulated group's disruptive behaviors dropped markedly in Phase II, showed another slight decline in Phase III, but began to rise in Phase IV, when reinforcements were still being given. The subjects who were trained in self-monitoring showed a further decline in disruptive behaviors between PHases III and IV. This could be an indication that when students are not actively involved in a program they may lose interest as soon as the novelty of the situation is gone. When a student is self-monitoring his or her own behavior, the level of

involvement would necessarily be higher, and commitment to the program might be maintained through that involvement.

Another interesting finding is the marked decline in the disruptive behaviors of the students in the control group who were in the same classrooms as the experimental subjects. This may have been because disruptive behaviors often involve interactions among class members. When the disruptive behaviors of three, four or five students in a classroom were reduced, the others with whom they previously interacted would also show a reduction in disruptive behaviors. It is also possible that the control subjects discovered that some students were receiving reinforcements at the end of the school day for their lowered frequencies of disruptive behaviors and hoped to gain access to the reinforcements for themselves. This suggests that the modification of disruptive behaviors of individual children in classrooms may subdue other disruptive children in the same classrooms. Targeting selected disruptive students for behavior change may affect the entire social system in the classroom.

The third major hypothesis of this study was that within self-monitoring conditions, students' constructive behaviors would be increased. Self-monitoring was predicted to be as effective as externally managed procedures in producing high frequencies of constructive classroom behavior. The increased constructive behaviors achieved through self-monitoring procedures were expected to be more enduring than those achieved

through external regulation. Both the external and the self-monitoring procedures were effective in establishing and maintaining increases in constructive behaviors.

The predicted superiority of the self-monitoring treatment over the externally monitored treatment in increasing constructive behaviors was supported. The significant difference that was found in Phase III was in favor of the externally monitored group. At that point, the ER subjects were receiving the same treatment they had received in Phase II, while SR+ subjects were being trained in self-monitoring. This introduction of new criteria for reinforcement to the SR+ group, while the ER group continued in the treatment that had become familiar to them may explain this anomaly. In Phase IV, when the training was completed and SR+ subjects were self-monitoring, the SR+ group was superior to the ER group. The previously stated fact that the SR+ subjects received on the average only half as many tokens per day as the SR- subjects would seem to support the suggestion that increasing constructive behaviors is quite different from and more difficult than decreasing disruptive behaviors, and not subsumed by the latter.

Getting students to increase their constructive behaviors as a result of their own self-monitoring was not as successful as had been predicted. Students may have seen the constructive behaviors as defined (looking at a book or lesson related paper, answering a question asked by the teacher,

and engaging in any activity the teacher specifically requested of the student) as likely to be misinterpreted by the other students. At this age, many students are primarily concerned with being accepted by their classmates (Brophy and Putnan, 1978). Public praise from a teacher becomes embarrassing and can cause problems with peers. Desire to avoid this embarrassment may explain the inability of self-monitoring training to increase constructive behaviors significantly differently than the increase in constructive behaviors resulting from external monitoring.

The effectiveness of any self-monitoring procedure is reliant on the accuracy of self-observation. This study did show that fourth, fifth and sixth grade boys were capable of self-monitoring their rates of disruptive and constructive behaviors with respectable accuracy. Even in Phase IV, when subjects were not receiving feedback as to their accuracy, a relatively high degree of accuracy was maintained. This finding is congruent with other findings (Bolstad and Johnson, 1972).

Self-monitoring procedures in the classroom were shown to be effective in decreasing disruptive behaviors and in increasing constructive behaviors. Because subjects chose activity reinforcers with greater frequency than they chose reinforcers with monetary value, the procedure was practical and inexpensive. After the initial training period, the time required of observers was minimal.

Significant differences in the savings habits of the subjects were not found. This may be because those differences would be expected to be related to internality, and subject's IE scores were not significantly different at the beginning of the study.

Summary

The purpose of this study was to investigate the effects of training in self-monitoring of behavior in ten, eleven and twelve year old boys. Attention focused on decreasing disruptive behaviors, increasing constructive behaviors, and on the expectancy shifts that might occur as a result of the training. Self-monitoring treatments were not effective in producing more attributions to internal forces than did external monitoring. Both the self- and external-monitoring procedures produced significantly greater shifts toward internality than were found in the control group. Further study of the confounding factors of this variable is suggested.

The use of self-monitoring procedures in the classroom was effective in decreasing disruptive behaviors, and, to a lesser extent, in increasing constructive behaviors. Self-monitoring was learned and accurately carried out by elementary age children and was as effective as externally monitored procedures in establishing and maintaining desired changes in behavior. Self-monitoring procedures are seen as practical, efficient and inexpensive methods of producing behavior changes.

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APPENDIX A

PROSPECTUS

LOCUS OF CONTROL AND BEHAVIOR MANAGEMENT IN THE CLASSROOM

CHAPTER I

Introduction and Problem

The behavior of individuals in organized settings is a function of three interrelated components: the institution, the group, and the individual. For purposes of understanding the behavior of children in classroom groups, we consider the school organization, the classroom group, and the individual child.

School is one of the most important institutions in our country. It is charged not only with teaching basic skills, but also with teaching responsibility and values such as truth and justice. American schools are usually highly bureaucratic organizations with a high degree of formal structure. However, because schools are meeting places for a variety of people, the informal structure among those people can also be very important. Some considerations that influence schools and the individuals in them are the decision-making process, how the school is staffed and financed and how goals are set and attained. The school culture ". . . controls behavior in deep and persisting ways, many of which are outside of awareness and therefore beyond conscious control of the individual." (Hall, 1959)

Within the school, the classroom group becomes an important influence on the child. Today, more than ever, classroom groups are becoming more heterogenous, due in part of legislative mandates such as P.L. 94-142. This heterogeneity makes the group and its influence upon the individual even more complex.

Issues of interpersonal inclusion characterize the beginning of a group's life. In the classroom, the students and teacher confront one another's presence and raise questions such as: 'How will I fit in here? Who will accept me? Who will reject me? What do I have to do to be accepted?' Academic work cannot easily be accomplished until these questions of inclusion are answered satisfactorily. Schmuck and Schmuck (1975, p. 171).

Answers to these questions evolve into group norms; the common beliefs that specify appropriate behaviors for members of the group. The powerful influence that group norms have upon the behavior of members of a group was demonstrated by a classic experiment by Sherif (1936). He showed that after group norms have been established, they influence behavior even when the group is not physically present.

Perhaps the best known study of the effect of group norms in schools is The Coleman Report (1966). Coleman's data suggest that the major factors that influence student achievement are the socio-economic composition and achievement orientations

of fellow students. A child's socio-economic position is primarily a function of the family. The family, then, is seen as the major influence on the differences in academic achievement among children. Coleman's study reported that most of the variation in student achievement lay within the same school, and very little of it was between schools. Such differences as could be attributed to the schools seemed to result more from the group norms, achievement orientations, than from the quality of the school itself.

Groups influence members to conform to the aims and values approved by the group. The pressure for conformity is often so subtle that the individuals are unaware of it, and do not perceive the changes in their own behavior. That behavior is not the same when the child is part of the group as when the child is alone, because the group changes the individual to some extent. At the same time, each individual is affecting the group's interaction.

Recognizing the impact of group values and norms on individual behavior, we would expect the child's self-image to correspond to the group's attitude about the child. Students who are well-liked by the group tend to have a better self-image and higher achievement (Stevens, 1971). Knowledge of the relationship between positive group norms and productive behavior is an important reason for teachers to monitor and direct group behavior.

The third component influencing behavior is the

Each student comes to school with basic human needs. Physiological needs, needs for safety and security, for belongingness and affection, for self-respect and for self-actualization highlight the key factors concerning students' needs (Maslow, 1968). Students also come with a wide variety of prior experiences. The same uncertainties and variations in individual experiences sometimes produce deviates and sometimes produce creative people. Our knowledge of human thought, feelings and intentions is much too limited to predict behavior from any single experience. Likewise, the difficulties inherent in any measurement of personality are legion. Nevertheless, in pursuit of knowledge, locus of control orientations are examined as one variable that offers explanation for some behavior.

Locus of control has been shown to be predictive of behavior in diverse situations and has been studied extensively as it relates to cognitive activity, achievement behavior, responses to success and failure, deferment of gratification and self-control behavior (Joe, 1971; Lefcourt, 1972).

Problem Overview

This study will focus on self-control behavior, specifically, how teachers can get students to assume self-responsibility for their own actions. Numerous studies have dealt with locus of control, and numerous other studies with methods of dealing with classroom behavior problems. This study will be an attempt

to combine the theoretical basis with the practical classroom application. Results could provide information which could help classroom teachers and others involved in helping children deal with behavior problems. The proposed study will attempt to identify methods of dealing with children's behavior problems that will enhance the internal control expectancy of those children.

Research indicates that behavior that is not suitable to the situation can be the result of the misbehaving person's inability to assume personal responsibility for their behavior. Within a normal classroom, there are frequently children exhibiting mild behavior problems. These inappropriate behaviors include, but are not limited to, not completing work during study times, making noises, talking when not permitted to do so, and various other actions not conducive to meeting the classroom goals. A teacher working intensively with the children who are having difficulties can frequently change their behaviors (Hall et al., 1968; Thomas et al., 1968). However, it is frequently not possible for a teacher to attend to the behaviors of students exhibiting mild problems because of other concurrent and quite legitimate demands upon his or her time. For example, when working with a reading group, it is not possible to closely monitor the behaviors of other children not in that particular group. This can, and frequently does, lead to a mild problem being allowed to exist and develop until it becomes a severe, well-established behavioral problem.

Procedures that may decrease the frequency of disturbances within the the classroom have always been of interest to teachers. They do, after all, want to be teachers, not disciplinarians. They are not pleased to admit that much of their teaching time is spent trying to maintain discipline in the classroom. Neither are they pleased to recognize that even when they do bring about a change in a student's behavior, that change is often quite temporary. It is the transient nature of such behavior change that leads many to believe that if a student can be led to assume self-responsibility for his behavior both the teacher and the student will benefit; the teacher because he or she will be freed from the enforcer of rules role, and the student because he or she will be on the way to becoming a mature person, able to assume responsibility for his own behavior and learning. It is this assumption of self-responsibility for behavior in which the author is primarily interested.

Internal locus of control, with its assumed correlates of competence and hope of success, can be seen as a common goal of education. Internality does accompany various aspects of children's academic achievement and behavior (Crandall et al., 1962 and Nowicki and Roundtree, 1971).

Changing I-E expectancies can therefore be seen as a reasonable target. Age change alone has been found to influence I-E scores, older children being more internal than younger children (Penk, 1969). Kiehlbauch (1968) suggests

that a stable routine enhances internality, while uncertainty, with its challenge to one's coping ability, can increase one's sense of external control. Active involvement in problem confrontation can also produce shifts toward internality (Gottesfield and Dozier, 1966). Testing whether active involvement in changing personal behavior through self-monitoring will produce shifts toward internality is the thrust of this proposal.

The following review of the literature will summarize the relevant research in attribution theory, self-control procedures and classroom management.

REVIEW OF THE LITERATURE

Attribution Theory

Attribution theory attempts to account for the kinds of explanations people give for their successes and failures and the consequences of their doing so. It poses four different kinds of explanations used by individuals to account for their performance: (1) ability, (2) effort, (3) task difficulty, and (4) chance or luck. Ability and effort refer to qualities of the person, while task difficulty and luck are properties of the environment. Ability and task difficulty are considered to be stable in nature, while luck and effort may be subject to constant change (Weiner, 1971). Arranging these four components along two dimensions gives one an internal versus an external dimension, which is referred to as locus of control. Persons who assign ability and effort as the causes of their performances are said to be internally oriented. Persons who attribute their performances to luck or difficulty of the task are said to be externals.

Fritz Heider (1958) laid the groundwork for this attribution model in his consideration of human motivation. Since that time, his speculations have been refined, formalized and tested by many (Kelley, 1973; Weiner, et al., 1971; Fincham and Jaspars, 1979; Bernstein, et al., 1979). The conceptualization of the locus of control construct is generally ascribed to Rotter (1966). Within Rotter's social learning theory, 1954, the potential for any behavior to occur is a function of

the individual's expectancy of obtaining a reward for a given behavior and the value of the reward to the individual.

Rotter's theory has received substantial empirical support, notably from Phares (1955), James (1957), Battle and Rotter (1963), Bialer (1961), and Crandall, et al. (1965).

Rotter, Seeman and Liverant (1962) defined precisely what they mean by IE:

As a general principle then, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control. Whereas external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control (p. 499).

James and Rotter (1958) demonstrated that expectancies regarding the controllability of outcomes do make a difference in the way subjects construe changes in their experience. The subject's perception of the task as one that does or does not test competence, and therefore is or is not controllable, predict the way they would respond.

Strickland (1970) is one of many who have investigated locus of control as it related to influence resistance. Internals are not always more resistant to influence than externals, but are more discriminating about what influences they will accept (James, et al., 1965). Regarding social influences, Lefcourt et al., (1975) found that externals are more attentive,

positively responsive, and perform tasks better in the presence of social cues. Internals are more likely to be distracted by social cues.

Hersch and Scheibe (1967) reported that individuals scoring low on the I-E scale (internals) are more homogeneous on other test performances than are high scoring (external) subjects. This may suggest a diversity in the psychological meaning of externality. They suggest that externality may be relative to the setting in which one is placed. Work and duCette (1973) substantiate this finding with results that produced data congruent with predictions from achievement-motivation theory only for internal subjects.

Achievement-related behavior in school settings has also been extensively studied as an activity linked to locus of control. Phares (1968) has shown that internals make better use of information than externals, even when both have equal funds of information. Rotter and Mulry (1965) indicate that internals devote more attention to skill related matters than do externals.

Crandall, et al., (1962) provided children with free-play time, and a playroom stocked with miscellaneous play materials and equipment conducive to achievement activity, such as books and games involving intellectual activity. Of the several measures employed, the measure of internality/externality was the most strongly related to the amount of free time spent in intellectual for boys. The attribution of

responsibility for boys was of considerable importance in predicting achievement activity, ($r=.70$, $p < .05$), but was totally irrelevant for girls, ($r=.01$). Crandall's data also indicate that internal pupils are more satisfied and have higher achievement in an open environment, whereas external pupils are more satisfied and achieve in a structured environment. Crandall concludes that external find self-governing situations too non-directive and anxiety producing.

Gender differences in the relationship between control orientation and academic behavior have also been reported by Brown and Strickland (1972) and Nowicki and Walter (1973). Denying success is another sex-related aspect of attribution. Horner (1972) has shown that teenage girls deliberately hold back their achievements when competing with males. These girls were confident in their abilities to succeed, but apparently needed to reject success for fear of the obligations it creates. Mareck and Mettee (1972) examined this obligation as it related to performance. Their disconcerting findings were that the only time the female students performed in a superior manner was when they were convinced that their successes were entirely the result of luck and had nothing to do with their own effort.

Messer (1972) found that boys who assume responsibility for success and girls who assume responsibility for failure were the most likely to have obtained higher grades and achievement test scores. Another reflection of the sex-linked

difference is reported by Nowicki (1973), who found that externality was associated with achievement for females ($r = -.39$, $p < .05$) as defined by grade point average, while internality was related to grade point average achievement for males ($r = -.50$, $p < .02$). Wolfgang and Potvin (1973) contradict Crandall, et al., (1962) and report that Rotter's IE scale can predict classroom performance and academic performance among female elementary students, but not among males.

Henry et al., (1979) report that boys are more influenced by reinforcement from peers than from adults, and girls are more influenced by reinforcement from adults than from peers. Responsiveness to peer versus adult reinforcement was more related to sex than to locus of control. Nicholls (1979) found that girls were more prone to attribute failure to lack of ability than were boys.

Weiner and Kula (1970) found that individuals high in achievement motivation perceive that effort is an important determinant of outcome, that is, that high effort results in success and low effort results in failure. Conversely, persons low in achievement needs perceive that outcome is only weakly influenced by how hard they have tried. Meyer (1970) substantiated these findings, and added that individuals high in achievement motivation ascribe their failures to lack of effort more than subjects in the low motive group. This disparity in attribution to low effort increases as repeated failures are induced. Weiner and Potevan (1970) also report

that individuals low in achievement needs are more likely to perceive that failure is due to lack of ability.

The data of Battle and Rotter (1963) indicate that lower-class children see themselves as more externally controlled and less capable of determining what will happen to them than middle class children. Coleman (1966) supports these findings. He measured external control by asking children to agree or disagree with statements like, "Good luck is more important than hard work for success," (p. 288). Coleman found that Negroes and other minority-group children express a sense of powerlessness against a neutral, and sometimes hostile, environment. Whether or not such an orientation is an accurate assessment of reality, it would be expected to constitute a handicap for the individual. The perception of control of one's fate appears to be an important variable in school achievement.

Weiss and Sherman (1973) attempted to incorporate the concept of internal-external control with expectancy-value theory to predict behavior subsequent to failure. They confirmed their hypothesis that failure would cause internals to reinterpret the adequacy of their own behavior, while externals would lower their original expectancy.

Arlin (1975) investigated the interaction between locus of control and classroom management. Pupils in structured classrooms exhibited more positive responses toward teachers and higher attitudes toward mathematics and languages. Arlin

concludes that for an external, lack of evaluation from an external source is lack of feedback, because the external is not accustomed to providing his own feedback.

Maier, Seligman and Solomon (1968) considered the suggestion that the growth of achievement motivation is contingent upon the learning of cognitive structures which represent the causal importance of effort. They used electric shocks in classical aversive training with dogs. Maier, et al., were able to demonstrate that when the animals learned that effort or self-responsibility did not aid outcome, later performance was retarded, even though the later outcome would have been influenced by effort. Maier, et al., label this phenomenon "learned helplessness," (pp. 292-342).

"Learned helplessness" was further investigated by Dweck and Reppucci (1973). The failure prone children they studied became helpless because in their experience the result was always failure, no matter how hard they tried. These failures were often the result of the quality and not the quantity of effort expended. However, the students who are experiencing learned helplessness are unable to grasp this, and come to blame their failures on insufficient ability. When success does occur, these individuals frequently deny it (Aronson and Carlsmith, 1962).

Later, Dweck (1975) investigated whether altering attributions for failure would enable learned helpless children to deal more effectively with failure. She concluded that-

instructional programs for children who have difficulty dealing with failure should not try to ensure success nor gloss over failure. Errors should be capitalized upon as vehicles for teaching the child how to handle failure.

Meyer, et al. (1979) also would not prescribe that failure be glossed over. Their data show that praise after success at easy tasks leads to the conclusion that the acting person's ability was perceived as low. Praise, under this condition may lead to low expectations of success at difficult tasks which may in turn result in decreased persistence and performance intensity at difficult tasks. On the other hand, criticism after failure at very difficult tasks results in perceptions that the acting person's ability was estimated as high. This may lead to high expectations of success at difficult tasks, with increased persistence and performance intensity.

Pittman and Pittman (1979) investigated the effects of the amount of helplessness training and internal-external locus of control on subsequent task performance and on self-ratings of mood. Internals exhibited greater performance decrements and reported greater depression under high helplessness than did externals. As the amount of uncontrollability increased for externals, their performance became increasingly worse.

Support for an assumed connection between locus of control and the ability to delay gratification was first reported

by Bialer (1961). He found that Jeferred gratification was associated with internal locus of control. The tension associated with delays is apparently more tolerable to internals than to externals. Mischel, et al., (1972) considered causal attributions for success and failure independently, in demonstrating that internality for success was positively related to persistence at an effort to obtain a delayed prize, while internality for failure more accurately predicted behavior when previously earned prizes might be taken away. Walls and Smith (1970) found locus of control related to delayed gratification among primary grade children, but Walls and Miller (1974) did not find that relationship among eighteen to thirty-year-olds. Erikson and Roberts (1971) report that in adolescents, delay was associated with internal attribution.

Deliberate attempts to alter locus of control have been widely reported. Reimanis (1971) reported change without permanence of that change in locus of control in elementary age children. However, his study is somewhat suspect as to cause, due to the fact that the teachers knew the identities of the experimental children, and began early to give these children more individual attention. DeCharms (1972) showed that behavioral and verbal indicators of locus of control can be changed in a longitudinal study covering successive fifth through seventh grades.

To understand changes in locus of control, it is necessary to accept the position that it is not a trait that

people possess, but rather constructions of interpretation of events which pertain to causality. Thus both stability and change are seen in these constructions (Lefcourt, 1972). Changes in locus of control may occur naturally with growth of mental age (Penk, 1969) and with changes in environmental events (Gorman, 1968 and McArthur, 1970).

Change in a child's locus of control orientations can be a function of a multiplicity of factors. Intellectual factors, (Battle, et al., 1964; Bialer, 1961), parental consistency (Rotter, 1966) and cultural variables such as social class (Lefcourt, 1965; Strickland, 1965) are all influential in shaping control orientations.

Foulds (1971) reported that in group sessions which emphasized affective expression, college students became more internal on Rotter's scale. Diamond and Shapiro (1973) replicated Fould's findings. Mowicki and Barnes (1973) have shown that experience with challenge and contingent reinforcement result in change in an internal direction. Riessman (1962) and Harvey (1971) both indicate that helping others, as opposed to being helped, leads to greater internality.

Bar-Tal (1978) suggests that it would be "desirable to change students' attributions in the direction of emphasizing ability and effort as the causes for success and lack of effort as the cause of failure. These causal perceptions can maximize the academic performance of students." The causal perceptions he is suggesting for change are toward increased

internality.

Change in locus of control orientations may also be related to moral development (Rest, 1979) and to the development of social cognition. Social cognition refers to "how children come to understand the viewpoints, emotions, thoughts, and intentions of themselves and of others, and how they think about social relations and institutions," (Hetherington and Parke, 1975, p. 332). As children become less egocentric they begin to speculate about what others think of them as well as to investigate their own thinking about themselves and others. This move away from egocentric orientations would seem logically to correspond to the development of locus of control orientations. Further research in this area is needed to define this correspondence.

Covington and Omelich (1979) attempted to trace the sequential cause and effect network of relationships assumed by their cognitive model of need for achievement. They see need for achievement as an antecedent that predisposes individuals to particular attributional patterns. The results offered little support for this cognitive model of achievement behavior as formulated. The data strengthen the case for differential self-perceptions of ability as the primary ingredient in achievement motivation.

Elig and Frieze (1979) have also challenged the methods by which research in this area has been conducted. They questioned the structured response measures employed by most

researchers in causal attributions. They developed an open-ended response measure, but found that it showed poorer interest correlation than did the structured measures. A supposed weakness of scale measure was not found.

Ames and Felker (1979) classified sixth grade children as high or low in self-concept and then administered an achievement task on which they succeeded or failed. Subjects were allowed by preinstructional set to interpret their performance as being determined by skill or luck. High, more than low self-concept children attributed their success to the skill area. From an attributional perspective, the low self-concept child seems to maintain that low self-appraisal by attributing success to luck, an external cause that implies no need for changing one's prior self-evaluation. High self-concept children seem to be success oriented in that they relate success to skill and react with positive self-reinforcement. Their self-reinforcement may be in having feelings such as pride, confidence or pleasure. The role of emotions in attributions is being investigated.

Recent research has focused on the role of affect in locus of control orientations. Weiner, et al. (1979) conducted two experiments to examine the linkages between cognitions and emotions. The data revealed prevalent affects linked with success and failure regardless of the attribution for the outcome. Certain emotions such as happiness and disappointment are independent of attributions but dependent on

outcomes. For success, pride, competence, confidence and satisfaction are likely to be experienced by internals. External attributions were more likely to be linked with gratitude, thankfulness, surprise and guilt.

As a result of these experiments, Weiner (1979) has begun to develop a theory of motivation that includes mood as an unstable, internal factor. Weiner felt it necessary to create a classification scheme of causes because the conceivable number of causes of success and failure are great. This classification scheme has eight cells: Two Locus of Control X Two Levels of Stability X Two Levels of Controllability.

	Internal		External	
Controllability	Stable	Unstable	Stable	Unstable
Uncontrollable	Ability	Mood	Task difficulty	Luck
Controllable	Typical effort	Immediate effort	Teacher bias	Unusual help from others

The data that gave rise to this scheme clearly suggest that we should not presume that locus of causality mediates affective reactions in achievement contexts.

Combining the results of these two studies, Weiner (1980) now suggests that causal thoughts influence action through the

mediating influence of affect. Emotions, rather than causal perceptions, are seen as the motivators of actions. Affect needs to play a significant role in supplementing cognitions with emotions to enrich the theory.

Summary: Attribution Theory Literature

Summarizing the theoretical literature reviewed, we note that there are contradictory findings. We need to be mindful of the following indications from research regarding locus of control. First, causal attributions are but one form of self-appraisal, and should not be expected to account for a majority of the variance in most situations. Secondly, people are not totally internals or externals. They may exhibit tendencies to expect events to be dependent or not on their actions, but even those tendencies appear to be situational specific. Because of locus of control variable appears to be tied to the task and/or setting in which one is placed, we feel it important to pursue the issue in an educational setting under conditions structured to closely monitor the behavior of children.

Self-Control Procedures

The application of self-control procedures to behavioral problems has received a great deal of investigation attention. Bandura and Perloff (1967) report that self-regulated and externally imposed reinforcement did not differ in their capacity to sustain behavior. However, they found suggestive

evidence that boys might be more responsive to external reinforcement than to self-governed reinforcement, while for girls both systems were equally effective. Children in both the self-rewarding groups and the externally reinforced groups were more productive than children in the control group. Johnson (1970) has confirmed these findings.

Meichenbaum and Cameron (1972) have demonstrated that systematic training programs can be established to teach subjects how to self-instruct themselves to act more effectively in problem situations. Their work was based on the three stages by which voluntary behaviors come under verbal control proposed by the Soviet psychologist Luria (1961). In Luria's first stage, the child's behavior is controlled by the speech of others, usually adults. In the second stage, the child's own overt speech begins to regulate his behavior. The child's covert, or inner speech, comes to assume a self-governing role in the final stage.

The value of self-instruction has also been demonstrated by Bem (1967), Karnes, et al. (1970) and Palkes, et al. (1972).

Self-monitoring has been a topic of interest to psychologists at least since the 1930's (Guilford, 1936). Recent interest in self-observation has had different emphasis. Everyday behaviors (e.g. smoking and eating) and techniques in non-therapeutic settings, like the home and school, account for much of the self-monitoring research. Homme (1965) has

noted that if behavior is a function of its consequences, it does not matter who manipulates the consequences, even if it is the person himself.

Self-monitoring alone has been shown to influence behavior (Rutner and Bugle, 1969 and Tharp and Wetzel, 1969). However, in other studies, self-monitoring alone did not lead to behavior change without additional procedures (Jackson, 1972; Mahoney, 1971; and Bayer, 1972).

The reliability of self-monitoring is important when being used as an assessment technique, but probably less important when used as a behavior-change technique. Fixsen, et al. (1972) report disagreement between self-monitored data and external criteria. Although they found agreement between self and peer records of room cleaning, neither of these accurately reflected actual performance as reported by an observer's data. Peer and self-reports both showed consistent bias in a favorable direction. Broden, et al. (1971) also found wide discrepancies between self-monitored data and the records of independent observers. Agreement between self-monitored and independently-monitored records increases as age of the client increases (Arzin and Powell, 1969 and Ober, 1968). However, Bolstad and Johnson (1972) found that first and second grade children were capable of accurately monitoring their own behavior and applying designated contingencies.

Self-monitoring is believed to be the approach to change behavior that is most beneficial to children because it

provides the greatest amount of student involvement and assists children in developing new skills that can be transferred to other settings (Jones and Jones, 1981). Involving children in collecting data on their own behavior may provide enough external structure to change behavior.

Summary: Self-Control Procedures Literature

Summarizing the literature reviewed concerning self-control procedures, we see that people are capable of accurately self-monitoring, and that self-monitored reinforcement is of considerable value in changing and maintaining behavior. Self-regulated and externally imposed reinforcement have been equally efficacious in some settings, but both methods of reinforcement affected more change than did the control condition. Gender differences are reported, with boys usually being more responsive to external regulation than to self-regulation, while both systems were equally effective for girls.

The capacity to maintain effortful behavior over time, with only intermittent reinforcement, is an extremely important part of our educational system. It is therefore deemed important to continue to research methods of assisting children in monitoring and rewarding their own behaviors.

Classroom Management

An important factor affecting the behavior of a student is classroom management. This management is considered to be

the responsibility of the teacher because of the power in the authority of the role of the teacher (Katz and Kahn, 1966). The ways in which the teacher uses this power determines the method of classroom management.

Methods of classroom management have been thoroughly researched. They range from behavior modification systems to open, learning by discovery techniques, all of which have some support from the research (Stebbins, et al., 1977; Weber, 1971; Bauernfeind and Blumenfeld, 1963; Gross and Gross, 1972; and Divorky, 1975). The method of classroom management used in a given classroom seems to be directly linked to the teacher's goals. If the teacher's primary objective is to keep order, punishing offenders is a time-honored means to this end. If the teacher's main concern is that the children develop qualities of responsibility and self-reliance, the teacher is apt to take a different route to get the child to behave in an acceptable manner.

Teachers can be systematically trained to control their own behavior in ways which will improve the behavior of their students (Becker, et al., 1967). Also, teachers sometimes create problem behaviors in the classroom by the ways in which they respond to their pupils (Madsen, et al., 1968). Madsen further indicates that knowledge of differential social reinforcement procedures, as well as other behavioral principles, can enhance the teacher's enjoyment of the profession and their contribution to effective development of their students.

Group cohesiveness and participation are important elements in classroom management. Teachers can be effective in focusing students' attention on these goals and in eliciting the pupils' cooperation in establishing and maintaining classroom goals which are conducive to appropriate behaviors (Lewin, 1952 and Sherif, et al., 1954).

Bereiter and Englemann (1966) contend that disadvantaged children need narrow educational objectives. Their design for classroom management leaves little time for anything but the systematic development of basic skills.

Weikart (1972) has studied curriculum models. He defines a structured environment as one in which the teacher initiates and the child responds. The teacher has clearly defined educational objectives, and presents a carefully designed program sequence to help the children reach these objectives. In the non-structured environment, the child initiates and the teacher responds. The curriculum is open to the needs of individual children. The teacher's role is to create a supportive atmosphere where learning is the result of the child's interaction with the materials, the classmates and the teacher. Weikart concludes that the model used is not as important as how the teacher feels about it. That is, teachers must value what they are doing, be committed to the program, and be involved in daily planning with the children and the objectives.

Assertive discipline research on classroom management (Canter, 1976) focuses on three general response styles of

teachers: non-assertive, assertive and hostile. In a non-assertive response style, teachers do not clearly express their own wants or feelings, nor do they back up their words with actions. Teachers exhibiting a hostile response style express their personal wants and feelings in a way that abuses the rights of students. The assertive response, as defined by Canter, is one by which teachers express their wants and feelings, and back them up with positive actions when necessary. Canter does not address the possibility that a barren classroom environment may elicit inappropriate behaviors. He apparently assumes that all classrooms are stimulating places to be, and the problems are therefore student-owned.

Gordon (1974) addresses the question of recognizing whether a classroom problem is owned by the student or the teacher. The teacher owned problems may require that teachers modify themselves, rather than trying to modify the student's behavior. Gordon states that rules for classroom management should be broad principles established to guide behavior, not incentive for an evasion game. Madsen and Madsen (1981) have also pointed out that assessing a problem requires that a teacher decide if the problem belongs to the student or to the teacher.

O'Leary, et al. (1970) studied the effects of loud and soft reprimands on the behavior of disruptive students. The mean level of disruptive behavior was consistently higher

when loud reprimands were used.

Ayllon, et al. (1972) attacked the problem of disruptive behavior indirectly by restructuring the academic environment of the classroom and by rewarding academic behavior. The mentally handicapped children they studied increased the amount of work completed and decreased the disruptive behaviors when academic performance was rewarded.

A four year study by Bennett (1976) was begun with an admitted prejudice in favor of open education. He found, however, that traditional methods produced greater learning not only in reading, arithmetic and English, where gains ranged from three to five months over the course of a year, but also in the areas of imaginative use of language and creative writing.

Sloane, et al. (1979) summarize the disadvantages in extensive use of concrete, immediate reinforcement for classroom management. They show that a token system may be instituted instead of analyzing and correcting the weaknesses in classroom management. Also, social reinforcement and individual contingency contracts are often easier to institute and carry out and are more likely to produce results that generalize to other classes.

Kalish (1981) also cautions for the judicious use of reinforcements. But he notes that one of the salutary effects of behavior modification methods on the teachers who use them is that they become more aware of the relationship between

their behavior and its effect on the child.

Summary: Classroom Management Literature

In summary, the research reviewed in this section is somewhat contradictory in regards to defining the most appropriate methods of classroom management. Perhaps the most clearly evident finding is that American children have been subjected to a bewildering variety of educational innovations without adequate prior evaluation. There may be a definite need for a system of educational evaluation that will permit a determination of program effectiveness prior to implementation of the program.

DESIGN

This proposal is an attempt to study factors that may affect the locus of control construct in a classroom situation. Theory would indicate that behavior is a function of the internal-external phenomenon. Therefore, we propose to study locus of control theory by examining classroom behaviors of disruptive students, some factors that may alter those behaviors, and the changes in locus of control orientations that may occur concurrently. Analyzing the effect of the self-regulation treatment is the vehicle that will be used to address the more abstract I-E concept.

To study self-regulation procedures, subjects will be assigned to one of four groups. One group of subjects will be trained to monitor and reward increased constructive behaviors (SR+), one group will be trained to monitor and reward decreased disruptive behaviors (SR-), one group will be monitored and receive rewards from an external source (ER), and one group (NR), will act as the control group and receive no training in self-regulation or rewards, but will be informed that the observers are monitoring their behavior.

Self-monitoring and rewarding of constructive and of disruptive behaviors are expected to result in increased internality of the subjects so trained. Subjects who receive rewards from the external source and subjects in the control group are not predicted to show increases in internality.

Research Problem

This research proposal attempts to identify conditions that will increase the likelihood that children will assume self-responsibility for their behavior, that is, become more internal. As a secondary concern, can self-regulation procedures reduce disruptive behavior in the classroom and increase constructive classroom behavior? It is not assumed that increased constructive behaviors would necessarily follow lowered disruptive behaviors. Lowered disruptive behaviors are seen as a necessary but not sufficient condition for classroom learning. It is assumed that for learning to take place, the learner must engage in some type of constructive behavior. As a further concern, testing whether self-regulation procedures to change behavior will be of a more lasting nature than external regulation procedures is proposed. Most importantly, will we be able to verify changes in the student's I-E orientations?

Research Hypotheses

Three major research hypotheses are proposed:

1. Within self-monitoring conditions, students' will show increased internality.

2. Within self-monitoring conditions, students' disruptive classroom behaviors will be reduced. The following predictions will be tested through specific comparisons:

- 2.1 Self-monitoring will be as effective as externally managed procedures in producing low rates of

disruptive classroom behavior.

- 2.2 Lowered disruptive behaviors achieved through self-monitoring procedures will be more enduring than those achieved through external regulation.

3. Within self-monitoring conditions, students' constructive classroom behaviors will be increased. The following predictions will again be tested through specific comparisons:

- 3.1 Self-monitoring will be as effective as externally managed procedures in producing high rates of constructive classroom behavior.

- 3.2 Increased constructive behaviors achieved through self-monitoring procedures will be more enduring than those achieved through external regulation.

In summary, self-regulation conditions are expected to increase internality, decrease disruptive classroom behaviors, increase constructive classroom behaviors, and to be more enduring than behaviors achieved through external regulation.

Method

Subjects

Subjects will be selected from disruptive students in regular classrooms identified by teachers. Since the students perceived by teachers to be disruptive may not actually be the most disruptive, observers will record the behaviors of the identified students on five separate occasions in

the classroom. On the basis of these data, the students in the upper 50% of disruptive behaviors recorded will be used as subjects. The records of behaviors will be used as the pre-baseline data.

To control for gender related differences, only male subjects will be used. Recognizing the developmental aspects of the locus of control construct, the age range of subjects will be limited to boys in the fourth, fifth or sixth grades, typically ten, eleven and twelve-year-olds.

The subjects in each classroom will be randomly assigned to one of the three treatment groups or to the control group: (1) External Regulation (ER) Group; (2) Self-regulation Group to monitor Constructive Behavior (SR+); (3) Self-regulation Group to monitor Disruptive Behavior (SR-); or (4) No Regulation Group (NR).

The approximate number of subjects needed for each treatment condition, calculated with the formula given by Cox (1958) is ten, for a total sample size of forty. The residual standard deviation estimate used in this calculation was 9.31, based on the research by Crandall et al., (1965). The required standard error used was 1.5.

Procedure

Prior to effecting the experimental conditions, all subjects will be administered the Intellectual Achievement Responsibility Questionnaire (IAR) developed by Crandall, Katkovsky and Crandall. This particular I-E scale is chosen

because it is aimed at assessing children's beliefs in reinforcement responsibility exclusively in an academic setting.

The Intellectual Achievement Responsibility Questionnaire

The Children's IAR scale has thirty four forced choice items. Each item stem describes either a positive or a negative achievement which routinely occurs in children's lives. This stem is followed by one alternative stating that the event was caused by the child, and another stating that the event occurred because of the behavior of someone else in the child's immediate environment. An individual's total internal score is the sum of the positive (I+) and negative (I-) events for which the child assumes credit or blame.

An example of assuming credit for a positive event on the IAR scale is response "A" on item two:

"When you do well on a test at school, is it more likely to be

- A. because you studied for it, or
- B. because the test was especially easy?"

An example of assuming blame for a negative event on the IAR scale is response "B" to item twenty-two:

"If a teacher didn't pass you to the next grade, would it probably be

- A. because she 'had it in for you,' or
- B. because your school work wasn't good enough?"

Internal consistency for the IAR in a random sample of one hundred thirty children of third grade age and younger has been a correlation of .54 for I+ and .57 for I-. For one hundred thirty older children (fourth through twelfth grades) the correlations have been .60 for both the I+ and I- subscales.

Test-retest reliability has been reported as .69 for total I, .66 for I+ and .74 for I- among third, fourth and fifth grade children given the test a second time after a two month interval. Ninth grade students had reliability coefficients of .65 for total I, .47 for I+ and .69 for I-. All these correlations were significant at the .001 level.

Schedule

Phase 1: Baseline

The rates of disruptive behaviors per minute and constructive behaviors per minute will be recorded for each subject. Disruptive behaviors will be defined as (1) talking out or making inappropriate noises, (2) physically disturbing other students, and (3) leaving one's desk without permission of the teacher. Constructive behaviors will be defined as (1) looking at a book or lesson related paper, (2) answering a question asked by the teacher, and (3) engaging in any activity the teacher specifically requests of the student. The frequency of disruptive behaviors and constructive behaviors per day will be divided by the total number of minutes observed on that day for each subject. Thus the dependent variable will be measured in terms of disruptive or constructive behaviors per minute. Subjects will not be aware of the experiment at this phase.

Phase 2: External Regulation

Immediately following baseline procedures each experimental group will be exposed to external regulation procedures.

During this phase, students will be instructed that they may earn tokens which will be redeemable for reinforcements. SR- subjects will receive reinforcements for lowered disruptive behavior rates. Levels of disruptive behavior to be designated for reinforcement will be (1) five or less disruptive behaviors = 10 tokens; (2) ten or less disruptive behaviors = 5 tokens; and (3) more than ten disruptive behaviors = 0 tokens. SR+ subjects will receive reinforcements for increased constructive behaviors. Levels of constructive behaviors to be designated for reinforcement will be (1) more than ten constructive behaviors = 10 tokens; (2) six to ten constructive behaviors = 5 tokens; and (3) five or less constructive behaviors = 0 tokens. ER subjects will receive reinforcements for both increased constructive behaviors and decreased disruptive behaviors. Since it will therefore be possible for ER subjects to earn tokens more quickly, the level for reinforcement in each case will be increased by five points. NR subjects will receive no tokens.

Reinforcers that will be available will be items from the school store ranging in value from 10¢ to 50¢, free time during the school day and activity reinforcers such as being group leader, running errands, taking a class pet home for the weekend or visiting another class. Since there is an almost unlimited number of activity reinforcers available in the school setting, it is unlikely that a child will become satiated by this type of reinforcement. The reinforcers with

monetary value will be available at the rate of two tokens equaling one cent. Free time may be gained at the rate of two tokens equaling one minute of free time. Activity reinforcers will cost twenty tokens. Subjects will be allowed to save tokens if they choose to do so. Savings habits will be recorded for each subject.

Phase 3: Training in Self-Monitoring Procedures

In phase 3, ER subjects will continue under external regulation. SR+ subjects will receive training in self-monitoring of constructive classroom behaviors. SR- subjects will receive training in self-monitoring of disruptive classroom behaviors.

Self-monitoring will be defined as when an individual evaluates his or her own behavior and gives his or her own reinforcers contingent with previously learned criteria.

When first instructing subjects in recording their own behavior it will be necessary to ensure that they can accurately describe the behavior. Subjects will be asked by the observers to demonstrate desirable or undesirable behaviors. Subjects who have difficulty recognizing appropriate or inappropriate behaviors will spend time in discussion and demonstration with the observer learning what behaviors are to be recorded.

Both SR+ and SR- subjects will be given a sheet of paper each day, marked with rows of squares on which to record their behavior. (Figs. 1 & 2) The instructions will be read

aloud as well as printed on each sheet.

Observers will continue to record behavior as they have done since Phase I, Baseline. They will use the forms shown in Figures 3, 4, and 5, recording behaviors of SR+, SR- or ER subjects, respectively.

Both SR groups' subject's cards will be matched against the observer's data. If the subject's self-monitoring score is within three behaviors above or below the observer's score, the subject will receive tokens as given in Phase II. If the subject is beyond the range of three behaviors above or below the observer's rating, the subject will receive two tokens less than he would have received for the observer's rating.

When the subject and the observer match data in this phase, the observer will ask the subject which behaviors he has recorded as constructive or disruptive. The observer will give the subject the same information regarding behaviors recorded by the observer. Discrepancies that are the result of the child's misunderstanding or possible game playing will be adjusted for as necessary.

Phase 4: Self-Monitoring

In phase 4, both SR groups will self-monitor. Tokens will be given at the end of each observation session. Observers will continue their ratings, but their ratings will not be a criterion for dispensing points, unless the data suggest the child is misunderstanding how to record the data or is

engaging in game-playing. If there is evidence of either of these possible problems, observers will refer back to Phase 3 and meet with the child having difficulties to discuss which behaviors the child is recording.

ER and NR groups will continue without change during this phase.

Phase 5: Duration Ability

In phase 5, SR and ER subjects will be told that the reinforcers are no longer available. Subjects will receive only praise for controlling and recording their behavior. Observers will continue to record the behaviors of all groups.

Analysis

Results will be analyzed separately for each phase. One way analysis of variance is considered the most appropriate analysis for this consideration of three different experimental treatments, each of which may have a different effect on the population mean. The assumptions of random sampling, from normal populations with equal variances and independence of the different samples have been met. One-way analysis of variance will be computed for the raw scores of each phase after baseline to determine the magnitude of the effects of each treatment.

Data That Will be Available

I-E Scores (Pre- and post experimental conditions)

Phase 1: Observer's records of behaviors per minute.

Phase 2: Observer's records of behaviors per minute.

Number of tokens earned by each subject.

Number of tokens spent/saved by each subject.

Subjects	SR+	SR-	ER	NR
	<u>Cons. beh.</u>	<u>Dis. beh.</u>	<u>Beh.</u>	<u>Beh.</u>
	<u># min. Obs.</u>	<u># min. obs.</u>	<u>½# min.</u>	<u>½# min.</u>
1	x	x	x	x
.	x	x	x	x
.	x	x	x	x
.	x	x	x	x
10	2	2	2	2

ANOVA at this phase is expected to show superiority of all treatment groups over the control group.

Phase 3: Observer's records of behaviors per minute.

Number of tokens earned by each subject.

Number of tokens spent/saved by each subject.

Self-monitoring data of SR+ and SR-.

Number of times self-monitoring score agreed with observer's score.

ANOVA at this phase is again expected to show superiority of all treatment groups over the control group.

Phase 4: Observer's records of behaviors per minute.

Number of tokens earned by each subject.

Number of tokens spent/saved by each subject.

Self-monitoring data of SR+ and SR-.

Number of times self-monitoring score agreed with observer's score.

ANOVA at this phase is expected to show self-regulated

subjects maintaining behavior as effectively as externally regulated subjects. SR+, SR- and ER subjects are all expected to maintain behavior more effectively than the control group.

Phase 5: Observer's records of behaviors per minute.

Self-monitoring data of SR+ and SR-.

Number of times self-monitoring score agreed with observer's score.

ANOVA at this phase is expected to show SR+ and SR- subjects maintaining established behavior longer than ER subjects. Post-test I-E scores of both SR+ and SR- subjects are expected to shift toward internality. No change is expected in ER or NR I-E scores.

In view of the preferability of committing a Type I, rather than a Type II error, the alpha level will be set at .01. Rejecting a true hypothesis (Type I error) is not believed to be as critical an error as accepting a false hypothesis (Type II error). A true hypothesis has a .05 probability of being rejected here, a risk considered acceptable.

APPENDIX B

The Pilot Study

Pilot Study

A pilot study was conducted by the author to provide preliminary data relevant to the hypotheses about behaviors of children in classrooms. Forty-eight kindergarten children were randomly assigned to a structured classroom and forty-eight to an open, non-structured classroom. The inquiry focused on the relationship between teaching style and selected outcomes in children, namely, achievement levels and certain personality characteristics that appear to be related to the way children behave in schools.

Achievement, as measured by the Metropolitan Readiness Test, was greater in the structured classroom, where the score range was 33 to 95 and the mean score was 72.04. The open classroom's average score was 63.16 and the range was 23 to 90. This was a significant difference at the .05 level. However, it may be that this achievement test is particularly appropriate to the objectives of the structured, more traditional class, but less so to the open class.

No significant differences were found in self-concept scores or I-E pre- and post scores after a nine month interval between the groups.

Children of both sexes who scored as internals on the Preschool and Primary Nowicki-Strickland Internal-External Control Scale showed greater decision making autonomy and less undisciplined behavior in open classrooms. However, only ten children (seven girls and three boys) scored as

internals; i.e. scored ten or less. Twenty one others scored in an internal direction; scores of eleven or twelve. Thirty-six of the remaining external children were in the open classroom, and the evidence indicates that they, like Crandall's subjects (1972), found the self-governing situation too non-directive and anxiety producing. Their time spent on task was significantly less than time spent on task by externals in the structured classroom, and those in the structured classroom were significantly more likely to complete a freely chosen task.

The task related behaviors and the higher achievement test scores in the structured classroom suggest that the external child needs to be shown that success is a result of a cause-and-effect mechanism which he can personally control. If these children can be shown that reinforcements in academic situations can be caused by their own behavior, their behavior should move in a positive direction, conducive to the goals of learning. The pilot study comparing open and structured classrooms led me to devise more tightly controlled situations to show children this cause-and-effect relationship for the present proposal.

The major difference between the pilot study and this proposal is that the classroom teacher will not play a major role in this study. There are two reasons for this. First, in the pilot study we had clear definitions and many examples of structured and non-structured classrooms and teachers.

based on Weikart's models (1972), but still felt we lacked specificity of exactly what the differences were in a way we could measure. We also doubted that the actions of the teachers could have been sufficiently controlled, in a public school setting, to realistically treat the two classrooms as experimental settings. The second reason for removing the teachers from a critical role in this study is the result of a more personal consideration. At the conclusion of the pilot study, it was learned that for several months during the study, the teacher in the open classroom had been experiencing serious personal problems. We believe this could have affected her performance in the classroom, and have no control for this kind of variable. Thus, in this proposal, the writer is not concerned with structured or non-structured classrooms. Rather, the focus will be on children as individuals and affecting their behavior through specific monitoring techniques the subjects themselves will learn without expecting the classroom setting to explain or be responsible for their behavior.

The use of volunteers to observe the behavior of the subjects worked well in the pilot study, and will be repeated in the proposed study. More time may be necessary to train the volunteers in observing and recording behaviors. Also, more time will be spent in a debriefing situation when the study is completed. The pilot study showed us that these people became personally involved and interested in the

subjects, and wanted more time to find out not only how the children were affected, but also how their efforts helped.

The pilot study was limited to kindergarten children, most of whom were externals. Because moving toward internal-ity to a developmental process (Bialer, 1961) the present study will include older children, so there will be a greater likelihood of dealing with children who are more internal.

The results obtained in the pilot study were not considered to be more than tentative and suggestive. They did, however, recommend the refinements in design and techniques proposed.

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APPENDIX C

The Crandall Intellectual Achievement
Responsibility Questionnaire

The Crandall Intellectual Achievement
Responsibility Questionnaire

Instructions

This is not a test. I just want to ask you some questions to see how you feel about what makes things happen. There are no right or wrong answers to these questions. When I read a question, you tell me which reason was the most likely cause for what happened. Do you understand? All right, listen carefully, and answer with the response you think is best.

Questionnaire

1. If a teacher passes you to the next grade, would it probably be
 - a. because she liked you, or
 - b. because of the work you did?
2. When you do well on a test at school, is it more likely to be
 - a. because you studied for it, or
 - b. because the test was especially easy?
3. When you have trouble understanding something in school, is it usually
 - a. because the teacher didn't explain it clearly, or
 - b. because you didn't listen carefully?
4. When you read a story and can't remember much of it, is it usually
 - a. because the story wasn't well written, or
 - b. because you weren't interested in the story?
5. Suppose your parents say you are doing well in school. Is it likely to happen
 - a. because your school work is good, or
 - b. because they are in a good mood?
6. Suppose you did better than usual in a subject at school. Would it probably happen
 - a. because you tried harder, or
 - b. because someone helped you?
7. When you lose at a game of cards or checkers, does it usually happen
 - a. because the other player is good at the game, or
 - b. because you don't play well?
8. Suppose a person doesn't think you are very bright or clever.
 - a. Can you make him change his mind if you try to, or
 - b. Are there some people who will think you're not very bright no matter what you do?
9. If you solve a puzzle quickly, is it
 - a. because it wasn't a very hard puzzle, or
 - b. because you worked on it carefully?
10. If a boy or girl tells you that you are dumb, is it more likely that they say that
 - a. because they are mad at you, or
 - b. because what you did really wasn't very bright?

11. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen
 - a. because you didn't work hard enough, or
 - b. because you needed some help and other people didn't give it to you?
12. When you learn something quickly in school, is it usually
 - a. because you paid close attention, or
 - b. because the teacher explained it clearly?
13. When you find it hard to work arithmetic or math problems at school, is it
 - a. because you didn't study well enough before you tried them, or
 - b. because the teacher gave problems that were too hard?
14. If a teacher says to you, "Your work is find," is it
 - a. something teachers usually say to encourage pupils, or
 - b. because you did a good job?
15. When you forget something you heard in class, is it
 - a. because the teacher didn't explain it very well, or
 - b. because you didn't try very hard to remember?
16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen
 - a. because she wasn't as particular as usual, or
 - b. because you gave the best answer you could think of?
17. When you read a story and remember most of it, it is usually
 - a. because you were interested in the story, or
 - b. because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be
 - a. because of something you did, or
 - b. because they happen to be feeling cranky?
19. When you don't do well on a test at school, is it
 - a. because the test was especially hard, or
 - b. because you didn't study for it?
20. When you win at a game of cards or checkers, does it happen
 - a. because you play real well, or
 - b. because the other person doesn't play well?

21. If people think you're bright or clever, is it
 - a. because they happen to like you, or
 - b. because you usually act that way?
22. If a teacher didn't pass you to the next grade, would it probably be
 - a. because she "had it in for you," or
 - b. because your school work wasn't good enough?
23. Suppose you don't do as well as usual in a subject at school. Would this probably happen
 - a. because you weren't as careful as usual, or
 - b. because somebody bothered you and kept you from working?
24. If a boy or girl tells you that you are bright, is it usually
 - a. because you thought up a good idea, or
 - b. because you worked hard?
25. Suppose you became a famous teacher, scientist or doctor. Do you think this would happen
 - a. because other people helped you when you needed it, or
 - b. because you worked hard?
26. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more
 - a. because your work isn't very good, or
 - b. because they are feeling cranky?
27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
 - a. because he wasn't able to understand how to play, or
 - b. because you couldn't explain it well?
28. When you find it easy to work arithmetic or math problems at school, is it usually
 - a. because the teacher gave you especially easy problems, or
 - b. because you studied your book well before you tried them?
29. When you remember something you heard in class, is it usually
 - a. because you tried hard to remember, or
 - b. because the teacher explained it well?
30. If you can't work a puzzle, is it more likely to happen
 - a. because you are not especially good at working puzzles, or
 - b. because the instructions weren't written clearly enough?

31. If your parents tell you that you are bright or clever, is it more likely
 - a. because they are feeling good, or
 - b. because of something you did?
32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would this happen more often
 - a. because you explained it well, or
 - b. because he was able to understand it?
33. Suppose you're not sure about the answer to a question your teachers asks you and the answer you give turns out to be wrong. Is it likely to happen
 - a. because she was more particular than usual, or
 - b. because you answered too quickly?
34. If a teacher says to you, "Try to do better," would it be
 - a. because this is something she might say to get pupils to try harder, or
 - b. because your work wasn't as good as usual?

APPENDIX D

Design Paradigm

Design Paradigm

Groups		Phases					IAR ₂
IAR ₁	R		I	II	III	IV	
		SR+	Baseline	ER	SR+ (t)	SR+	
		SR-	Baseline	ER	SR- (t)	SR-	
		ER	Baseline	ER	ER	ER	
		NR	Baseline	NR	NR	NR	

IAR₁ - Pretest administration, Intellectual Achievement Responsibility Questionnaire.

R - Individual Ss are randomly assigned to groups.

ER - External Regulation.

NR - No Regulation.

SR+(t) Training in self-regulation of constructive behaviors.

SR-(t) Training in self-regulation of disruptive behaviors.

SR+ - Self-regulation of constructive behaviors.

SR- - Self-regulation of disruptive behaviors.

IAR₂ - Post-treatment test administration, Intellectual Achievement Responsibility Questionnaire.

APPENDIX E

Instructions to Subjects

Figure 1

Name										Date	

At the top of this page are three rows of squares. At different times during the period (whenever you think of it, but don't fill them all in at the same time) put an X in a box if you were engaged in constructive behavior. For example, when you are ready to mark a box, ask yourself, "For the last few minutes, have I been looking at a book or lesson related paper, answering a question the teacher asked or doing something else the teacher asked me to do?" If you think you have been doing any of those things, put an X in a box.

Figure 2

Name						Date					

At the top of this page are three rows of squares. At different times during the period (whenever you think of it, but don't fill them all in at the same time) put an X in a box if you were engaged in disruptive behavior. For example, when you are ready to mark a box, ask yourself, "For the last few minutes, have I been talking out or making inappropriate noises, physically disturbing other students or leaving my desk without permission?" If you think you have been doing any of those things, put an X in a box.

APPENDIX F

Instructions to Observers

Figure 3

Student's Name											Date	

During today's observation period, record the subjects' constructive behavior as accurately as possible. Whenever the subject is looking at a book or lesson related paper, answering a question the teacher asked or doing anything else the teacher asked the subject to do, put an X in a box.

Figure 4

Student's Name											Date	

During today's observation period, record the subject's disruptive behaviors as accurately as possible. Whenever the subject is talking out or making inappropriate noises, physically disturbing other students or leaving his seat without permission, put an X in a box.

Figure 5

Student's Name											Name										

During today's observation period, record the subjects constructive and disruptive behaviors as accurately as possible. Whenever the subject is engaged in constructive behavior as defined, put a + in a box. Whenever the subject is engaged in disruptive behavior as defined, put a - in a box.

APPENDIX G

Repeated Measures Analysis

Repeated Measures Analysis

One-way analysis of variance, analyzing each phase separately, is the paramount analytic interpretation for this study because it is considered the most appropriate analysis. We are primarily interested in the different effects of the experimental treatments in each phase. The magnitude of the effects of each treatment is determined through this analysis.

Although this design is not considered a true repeated measures design, it is of interest to also conduct a repeated measures analysis. The same subjects were observed under four treatment conditions (Phases II through IV), which does suggest that a repeated measures analysis is appropriate. The results of this analysis are not easy to interpret with confidence.

The repeated measures analysis revealed significant group effect in the regulation of constructive behaviors, $F(2,4) = 16.98$, $p < .05$. The regulation of disruptive behaviors was not significantly different between groups, $F(2,4) = 5.88$. While these results may lend caution to our interpretation, they are not believed to negate the findings. Plausible explanations for these enigmatic results do exist.

As pointed out in the discussion, the disruptive behaviors of students in the control group declined markedly. The treatment effect on the SR- and ER subjects apparently

had a ripple effect on the control subjects. This could be why the repeated measures analysis revealed no significant difference between groups in the regulation of disruptive behaviors. The mean frequency of disruptive behaviors became lower for all groups, decreasing the likelihood of discovering a significant difference between group means.

The significant difference found in the repeated measures analysis in the regulation of constructive behaviors is probably related to the fact that while constructive behaviors increased for the SR+ and ER groups, there was very little change in the NR group. We may intimate from this that it is possible to significantly increase constructive behaviors in elementary students through self-monitoring and external monitoring techniques. Also, apparently the ripple effect is not as strong in increasing constructive behaviors as in decreasing disruptive behaviors.

ANOVA Summary Table

Repeated Measures Analysis

Disruptive Behaviors

Source	df	E (MS)	F
Group	2	13.9	5.88
Phase	4	11.51	
Interaction	8	2.36	

Constructive Behaviors

Source	df	E (MS)	F
Group	2	21.91	16.98
Phase	4	3.98	
Interaction	8	1.29	

Administration of the treatment was expected to change the subjects in some way, so that they performed differently on administration of subsequent treatments. This order effect was the same for SR+ and SR- subjects. However, ER subjects received the same treatment throughout (were not instructed in self-monitoring procedures), making interpretation through repeated measures more difficult.

Suggestions to overcome these difficulties in future studies include pairing the subjects on the basis of some characteristic related to disruptive behaviors. Further research to identify such characteristics would be advised. Pairing observations would eliminate an extraneous source of variance. Random sampling of these pairs could then be achieved, and correlations between pairs of observations calculated. Random assignment to the treatment conditions could be made independently for each pair, rather than treatment being dependent on group assignment. Interpretation of the outcome of a study incorporating these changes could be made with greater assurance.