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The Modification of Emotionally Disturbed Behavior Through Teacher and Peer Training

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THE MODIFICATION OF EMOTIONALLY
DISTURBED BEHAVIOR THROUGH
TEACHER AND PEER TRAINING

by

Daniel James Kaeck

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1978
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Special note must be taken of my wife's role in this study. Patricia Jo Kaeck served as project teacher, supervisor of project personnel, coordinator of field events, and provided much of the sorely needed support to complete such an undertaking. For that and more, I am eternally grateful.

Daniel James Kaech
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ABSTRACT

The Modification of Emotionally Disturbed Behavior Through Teacher and Peer Training

by

Daniel James Kaeck, Doctor of Philosophy

Utah State University, 1978

Major Professor: Glendon Casto, Ph.D.
Department: Psychology

The purpose of the present investigation was to develop and field test a practical program for the mainstreaming of behaviorally disturbed children into regular fifth-grade classrooms. The 10-day training program emphasized the training of both teachers and peers as therapeutic agents. It focused upon the teachers' behaviors in terms of establishing classroom rules, praising and ignoring, minimizing reprimands, individualizing instruction, and providing naturally-occurring reinforcers to the children. The program enlisted the aid of the peers in terms of utilizing them as tutors, models, and as reinforcing agents or therapists. The children were taught to self-monitor their attention to appropriate and inappropriate behaviors and role playing techniques were used. Multiple baseline designs were used to assess the effects of intervention in five classrooms and on the target behaviors of ten children identified as emotionally disturbed. Treatment effects were replicated across students and teachers in three experiments. Substantial reductions in inappropriate behaviors were obtained while significant academic gains in reading
and math were fostered. The results indicated that this approach was effective, efficient, and suitable for a variety of elementary classrooms.

(207 pages)
INTRODUCTION

Background of Problem and Definition of Terms

Establishing the means of educating the behaviorally disturbed child within the public school system has severely taxed the resources of psychologists and educators for decades. The prevalence of behavioral and social deviations among school-age children is difficult to determine since a variety of criteria have been used to make such diagnoses. The U.S. Office of Education (1971) has estimated that 2% of the children aged 5-19 exhibit emotional disturbance. On the other hand, the National Institute of Mental Health (1970) has asserted that between 10% and 12% of the American child population have moderate to severe emotional problems requiring some kind of mental health care. Although little consensus has been found among the various estimates of the incidence of these behavioral problems in the school-age population, experts do concur that these children present complex management problems for educators. For the purposes of the present investigation, emotional disturbance is indicated when children exhibit personal adjustment problems of sufficient magnitude to preclude normal scholastic achievement and whose behaviors are characterized by school personnel, including both teachers and school psychologists, as personally and socially maladjusted.

The problem of educating the emotionally disturbed has been approached through a variety of techniques and accompanied by a host of unimpressive results. The special class placement method has been
particularly popular, but has proven to be quite expensive. Morse, Cutler, and Fink (1964) studied 54 programs, 74 classrooms, and more than 500 children in attempting to describe existing special classes for the emotionally disturbed and their effectiveness in attaining desired educational goals. The data reported indicated that teacher selection was frequently based upon vaguely specified personal qualities, e.g. warmth, patience, etc., adequacy of teacher training to deal with the emotionally disturbed was questionable, the goals of such programs were educationally and behaviorally poorly defined, the criteria for social and academic change sufficient for a child to be reintroduced into the normal classroom were largely unspecified, follow-up data on the readjustment of treated children were conspicuously absent, and finally that return to regular classrooms was considered "a desirable possibility for only 12% of 524 cases" (p. 101). The latter finding may reflect the syndrome of "institutionalism" in that the longer one remains in a special placement setting the more remote the chances of reintegration into the normal classroom (Grosenick, 1972). Quay (1968) and Johnson (1962) have suggested that the educational grouping of the mentally handicapped and emotionally disturbed may inhibit learning. Peterson, Cox and Bijou (1971) have suggested the following explanation for such results:

If a child models "disturbed" behavior, and this behavior is allowed to continue, the occurrence of such responses may indicate to other children that such behavior is acceptable. If this results in an increased frequency of such behaviors among the group members then it might be argued that children exhibiting such responses should be grouped not with similar children but with youngsters who do not exhibit deviant behaviors. (p. 497)
In a review of research on the effects of educational grouping of various kinds, Passow (1966) observed that the evidence was inconclusive because of faulty research design, execution and evaluation. Finally, Gallagher (1967) summarized the fruitfulness of the millions of dollars spent on the evaluation of special placement programs for exceptional children.

We should seriously consider whether or not we should pursue any more of that kind of research. The reason for abandoning this design is not that we are getting discouraging results, which we are, but rather because we cannot really evaluate the results at all. (p. 443)

The apparent lack of successful treatment of emotionally disturbed children in special class placements may also be related to the absence of a unified, systematic set of procedures which special educators employ when teaching such children. Morse et al. (1964) found an incredible lack of uniformity among the educational approaches used with emotionally disturbed children on a national level. More recently, the clinical teacher model has emerged on the basis of the special education of emotionally disturbed children (Schwartz, 1971). Using diagnostic techniques, the teacher matches the student with the learning tasks via complex strategies and materials.

These special educational strategies and competencies of those who utilize them are poorly understood by regular classroom teachers (Brooks & Bransford, 1971). It is not surprising that these teachers may offer resistance to having emotionally disturbed children reintegrated into regular classrooms since it appears that treatment by special educators has not been successful and the treatment itself is alien to the regular teacher.
More recently, the treatment approach for handicapped children of all kinds has emphasized mainstreaming of these students into the normal school routine. It has been estimated that 90% of all handicapped children could be educated in regular classrooms at least during part of the school day if adequate provisions are made (Dunn, 1973). What constitutes such provisions, however, remains to be determined since there is a lack of uniformity in educational strategies for emotionally disturbed children and ordinary classroom teachers may offer resistance to such placements, or at least feel untrained to deal with such children.

**Purpose of the Study**

The present investigation attempted to field test a skill package for use by regular classroom teachers such that behaviorally disturbed children could profit academically and behaviorally by placement in regular classrooms. Three experiments were conducted which carefully assessed the adjustment of selected children to therapeutically trained teachers and peers with special concern for increases in the academic achievement of all the students and behavioral remediation for target children. A matter of concern for most studies of this type must be the impact of mainstreaming upon the achievement of all children and upon the behaviors of regular teachers.

**Research Design**

The three studies reported used a multiple baseline design to assess: (a) the effects of placement in a classroom in which the
teachers and peers were therapeutically trained; and (b) in the second and third experiments, the additional effects of training a second teacher with whom the trained class had daily contact. The multiple baseline design has been used to facilitate causal inference from the effects of an independent variable upon a small number of subjects. Children were transferred singly to a treatment environment wherein systematic behavioral change was observed and compared to rates observed in the initial environment.

Academic gains were compared on an annual pretest-posttest basis for each group of children. Comparisons were also made between the annual rate of achievement gain for target classes and the rate expected on the basis of national averages.

Limitations and/or Delimitations of the Study

The present investigation attempted to field test a packaged skill program for regular classroom teachers which would enable public schools to maintain children manifesting behavioral disturbances in the least restrictive educational environment, i.e., regular classrooms. Since the investigation was based, in part, upon a research and development model, the findings are not strictly generalizable to all class, teachers, and students. What was attempted, though, was the development of an intervention procedure which was positive, practical, and functional for the regular classroom environment. Further research is necessary to establish the generality of these procedures to a variety of grade and socioeconomic levels, as well as to teaching styles.
REVIEW OF THE LITERATURE

Recognizing the problems associated with the segregated approach to educating the emotionally disturbed, recent investigations have studied the remediation of the academic and social behaviors of the emotionally disturbed child within the normal classroom. The development of the knowledge and application of classroom management techniques has made it possible to restructure the regular classroom to accommodate the needs of most children, the emotionally disturbed notwithstanding (cf. O'Leary & O'Leary, 1972). The following review will examine some of these alternative approaches and summarize evidence which supports the use of some techniques over others by the regular teacher.

Perhaps the most significant factor in the adjustment of any child to a normal learning environment is the teacher's behavior. Kounin and Obradovic (1968) analyzed video taped recordings of teacher-student interaction and found that teachers who successfully controlled normal children were also successful in managing emotionally disturbed children. The behaviors of the successful teachers were categorized into nine dimensions and were judged to be synonymous with effective group management techniques. These teacher behaviors translated readily into the effective use of contingent teacher praise, ignoring of misbehavior, and other classroom control procedures. In order to develop these teacher behaviors, several methods of teacher training have been employed.
The means by which classroom strategies have traditionally been disseminated have included in-service training, extension courses, or workshops for teachers. These methods suffer serious limitations. Techniques are made available at the scheduling convenience of an outside agency or authority. Teachers need help when they encounter a child who exhibits problem behaviors, not when a college professor or school psychologist is available for consultation. Furthermore, teachers who receive only didactic exposure to classroom management principles are not likely to generalize to their own classrooms the principles presumably taught by formal means. Conversely, those who receive laboratory or applied training are subsequently able to substantially reduce disruptive behavior (McKeown, Adams, & Forehand, 1975). Finally, unsupervised application of behavioral principles with little regard for baseline, treatment or follow-up data collection involves problems of ethics and accountability (Stein, 1975).

An approach which avoids teaching classroom management skills in a void, i.e. without concurrent application in the regular classroom, was recently reported by Jones and Eimers (1975). These researchers developed a "skill package" for teachers which emphasized learning via role-playing. The training extended over a 3- to 4-week period with a total of six or seven sessions lasting 1.5 hours each. Three sessions were devoted to role-playing disruptive behaviors among three adults, with the consultant leading the group in designing an effective means of ameliorating the problem. The final three sessions emphasized the role of differential reinforcement and prompting techniques to be used in managing problem behavior.
Although this training procedure has advantageous features over the traditional means previously described, it too has several limitations. The number of behavioral principles presented in the package are limited to, perhaps, pinpointing, differential reinforcement, extinction, classroom rule-making, prompting and time out. Additionally, the use of the latter technique may result in escape or avoidance behavior (Sulzer & Mayer, 1972), high levels of emotional arousal, preclusion of new learning while in time out (Kazdin, 1975), overuse by the teacher without diligent supervision, and inadvertent reinforcement from peers for being placed in a time-out chair or location within the classroom. Yet another limitation stems from the fact that few principles are taught; the target teacher had little choice among techniques which could be used with equal effectiveness. Clark and Macrae (1976) found from questionnaire data obtained from target teachers who had a choice between a "Self-Selected Package" and an "Imposed Package" that all six trainees preferred the former. Finally, little regard for the pervasive effects of peer reinforcement was evident in the training. In summary, although this work is an advancement over previous training formats, it's impact is diminished by presenting too few behavioral principles, imposing an inflexible prescription, encouraging the use of time out without close supervision, and providing no direct training for the target children.

The purpose of the present study was to field test a packaged program intended to develop classroom or behavior management skills in both teachers and their students such that emotionally disturbed children could profit academically and socially from placement in such
an environment. Further requirements of the program were that: (1) it would represent a cross-section of widely applied behavioral principles; (2) it would stipulate a positive approach; (3) it could be implemented in 10 days; (4) it would not require supportive services beyond those present in nearly any school system; (5) it would emphasize in vivo practice as opposed to a lecture, inservice or workshop format; (6) it would be cost efficient; and (7) it would be suitable for mainstreaming emotionally or behaviorally disturbed children without identifying these children as being exceptional, in any sense, to their peers.

The following behavioral principles were selected for use in the "PUPIL" package, which included handbooks of teacher and peer training procedures (see Appendix A). These techniques were selected in order to accommodate the wide range of behavior disorders subsumed under the rubric of "emotional disturbance" and to provide the teacher with some degree of latitude in the selection of procedures.

Establishing Classroom Rules and Pinpointing Behavior

Classroom rules function as discriminative stimuli which serve to guide or provide cues such that probability of positive reinforcement is increased if they are followed (Madsen & Madsen, 1974). Of the many studies in which classroom rules were established as part of the treatment program, it can be concluded that establishing rules in the absence of other contingencies may not be effective (Becker, Madsen, Arnold, & Thomas, 1967; Glynn & Thomas, 1974; Madsen, Becker, & Thomas, 1968; Santogrossi, O'Leary, Romanczyk, & Kaufman, 1973). However, the cueing function of classroom rules may be considered a necessary but
not a sufficient condition for particular behavior change (Madsen & Madsen, 1968).

**Teacher Praise for Rule-following Behavior and Ignoring**

Becker et al. (1967) demonstrated that rules, teacher praise for appropriate behavior and ignoring inappropriate actions effectively reduced the frequency of untoward behavior in elementary classrooms. That contingent teacher praise for appropriate pupil behavior is an effective reinforcer has been well established (Petersen et al., 1971; Sherman & Bushell, 1975). Thomas, Nielsen, Kuypers, and Becker (1968) assessed the individual effects of teacher approval and remedial tutoring upon both disruptive behavior and academic performance. Disruptive behavior was reduced substantially within 2 weeks using teacher praise alone, but an even greater reduction was found when the child received reading tutelage in combination with teacher praise.

Marlow and Madsen (1972) reported that teacher mediated reinforcement was vastly more effective in increasing task-oriented behavior than either behavioral or client-centered counseling for seventh-grade children. The study also indicated that teacher mediated change in vivo is far more beneficial than attempts to alter behavior outside of the situation in which it occurs. Thus, it is the consensus of researchers in the field of classroom management that the use of teacher praise contingent upon appropriate pupil behaviors is one of the most versatile and productive means of shaping and maintaining a positive academic climate (O'Leary & Wilson, 1974).
Reprimands

It has been reported that despite efforts to praise appropriate behavior and ignore misbehavior, classroom disruptions were perpetuated (Hall, Lund, & Jackson, 1968; O'Leary, Becker, Evans, & Saudargas, 1969). Thus, some alternative must be made available to the regular classroom teacher to deal with such an outcome. O'Leary, Kaufman, Kass, and Drabman (1970) concluded that teachers frequently used loud, public reprimands to control obstreperous behaviors. As a result, teachers were instructed to use soft, private reprimands in instances where ignoring and praise seemed ineffective. The general finding was that children responded more favorably, i.e., reduced their disruptive behavior, within the soft reprimand condition. Ideally, ignoring most misbehavior, praising appropriate behavior and using soft reprimands is the treatment of choice (O'Leary & Wilson, 1974).

Additional Reward Procedures

Since a social reinforcer, e.g., teacher praise, is subject to both satiation and deprivation phenomena (Eisenberger, 1970), other types of reinforcers should be made available to the students. Token economies have been widely used in classrooms and have been shown to reduce disruptive behavior and facilitate academic achievement (O'Leary & Drabman, 1971). The disadvantages associated with the use of token economies include the use of back-up reinforcers which are not naturally occurring in the setting, removal of the token system with possible loss of behavioral gains, establishing stimulus control such that desirable behavior may occur only in the presence of tokens, obtaining tokens in
Unauthorized ways on the students' behalf, and the possibility of ethical and legal implications concerning students' civil liberties (Bootzin, 1975; Kazdin, 1975). In addition, these programs require a degree of technical skill and knowledge which make them unsuitable for widespread application by most teachers relatively naive in classroom management procedures. In fact, Bootzin (1975) admonished that, "It is better to use token economies only when there are very severe deficits to overcome." (p. 57). Application of token economies in regular classrooms, whether mainstreamed for exceptional children or not, invites a host of complex problems for the average teacher.

Omission of token economies does not preclude the contingent use of back-up reinforcers common to all classrooms. However, the means of dispensing such reinforcers may include individual contracts, both verbal and written, individual contingencies for group consequences, and group contingencies for group consequences.

**Providing Naturally-occurring Reinforcers**

Not only may children receive direct reinforcement from their teacher in terms of praise, special activities, or privileges, they may obtain additional recognition for academic-appropriate behavior when their peers also profit from the gains made by an individual or those produced by a group. Individual contingencies for group consequences is a method of providing reinforcement based upon activities, objects or privileges common to every classroom. A great deal of support exists for the efficacy of this procedure in reducing disruptive behaviors and increasing the academic performance of target children (Axelrod,
1969; Barrish, Saunders, & Wolf, 1969; Drabman, Spitalnik, & Spitalnik, 1974; Evans & Oswalt, 1968). McLaughlin (1974) reviewed the various applications of individual contingencies for group consequences and concluded that the group reward system is at least as effective as an individual reward. Kazdin (1975) has recommended that it be used since it avoids negative reactions of nontarget others who do not receive reinforcement for behaving appropriately, it may provide peer praise for appropriate behavior of the target child because they also profit from his/her good behavior, and peers may actually aid the target child by not attending to inappropriate behavior. Negative peer pressure for an individual to conform may be avoided by initially announcing only that a child has earned the group a reward for his deportment without a priori revealing that a contingency is in effect. An additional result of such contingencies has been an increase in the target child's popularity (Alden, Pettigrew, & Skiba, 1970; Greenberg & O'Donnell, 1972).

Hayes (1976) has reviewed and compared both group and individual contingencies for group consequences. She found that the two procedures to be equally effective for reducing disruptive behaviors and increasing academic behaviors across a variety of populations. Individual subject characteristics, however, were found to be a variable which may affect the results obtained from either method. It was also noted that group contingencies worked well in conjunction with peer tutoring since they may foster cooperative interaction.

**Peer Tutoring and Individualization of Instruction**

Academic reprogramming has received increasing emphasis in the classroom management literature (Ehley & Larsen, 1975; Greenwood, Hops,
Dalquadri, & Guild, 1974; Johnson & Bailey, 1974; Resnick, Wang, & Kaplan, 1973; Robertson, DeReus, & Drabman, 1976). Both peer tutoring and individualization of instruction have produced beneficial academic and task-relevant behavioral gains. Winett, Battersby, and Edwards (1975) found that individualization of instruction plus group contingencies produced dramatic increases in student achievement in sixth graders. They concluded that the favorable changes in student and teacher behaviors were the result of academic programming. They stressed that behavior modifiers need to carefully assess the academic programs in intervention situations.

Although it may appear that peer tutoring is too complex to manage in a regular classroom, research results are to the contrary. Harris and Sherman (1973) had fourth- and fifth-grade students tutor their peers in math without specific training procedures for the tutors. Unstructured peer tutoring produced academic improvement in target children and was enhanced in another condition with early recess reward. Cloward (1967) found that cross-age tutoring resulted in significant reading achievement gains for both the tutors and the target children. Even learning-disabled children have been trained to be effective peer tutors (Drass & Jones, 1971).

From the above evidence it is clear that academic intervention in the form of individualization of instruction and peer tutoring have provided an effective vehicle for managing classrooms. Peer tutoring not only may be recommended because it can be implemented without elaborate training, but because it will likely result in academic gains for tutors and target children, and allows the teacher more time for children with severe learning deficiencies.
Modeling, Role-playing, and Positive Practice

The importance of modeling in determining child behavior has been emphasized by educators and psychologists for decades. Bandura (1969) has provided an excellent review of studies demonstrating the now well-established fact that under many conditions children will imitate behaviors performed by a model for which only the model was reinforced. That children are likely to imitate either normal or abnormal behavior if reinforcement has consistently been dispensed for that behavior is nearly axiomatic in child psychology. It would seem incumbent upon classroom intervention programs to include peers not only as academic tutors, but to emphasize their role as models and therapeutic agents.

Modeling techniques have been found useful in altering social isolation and attentional responses, among many other behaviors. Modeling appropriate social interaction when depicted in a film shown to social isolates from nursery schools was found to be a more rapid modification procedure than direct reinforcement or shaping of appropriate social behavior (O'Connor, 1972). Even when isolate children apparently have low expectations that certain approach responses will lead to positive peer interaction, a modeling film of successful peer interaction has resulted in a significant increase in prosocial behavior (Evers-Pasquale & Sherman, 1975).

Kazdin (1973) demonstrated that attentive behavior of two adjacent peers could be increased by reinforcing only one of the pair for attending behavior. Okovita and Bucher (1976) replicated the previous findings and also found that physical placement of the model may exert considerable control over the degree of imitation obtained from
observers. Randolph and Wallin (1973) compared modeling of on-task behavior with behavioral consultation for teachers in terms of eliminating inattentive behavior in 75 fifth- and sixth-grade children. In the modeling condition, target children observed a peer practicing on-task behavior and subsequently were rewarded for imitating those responses in a role-playing situation. As compared to an untreated control group, behavioral consultation for teachers of these children resulted in significant academic improvement. However, the greatest gains in academic performance and task-relevant behavior were obtained when teacher training was combined with specific modeling therapy for this population.

Azrin and Powers (1975) required emotionally disturbed children to practice appropriate behaviors contingent upon inappropriate actions. This positive practice procedure almost totally eliminated disruptive behaviors while disapproval responses by teachers, in another condition, maintained high levels of disruptions. In fact, contingent loss of recess was found inferior to the practice of socially appropriate responses. Although practicing such responses immediately after misbehavior was found enormously successful, it may also invite inadvertent peer attention to the misbehavior in a group setting. Azrin and Powers conducted their study in a small, special class for children with behavior problems. Nevertheless, the bulk of the evidence testifies to the efficacy of modeling, role-playing and positive practice techniques.

**Peers as Therapists**

Peer attention to inappropriate behavior may be one of the most fundamental contributors to maintenance of that behavior (Hall, Fox,
Willard, Goldsmith, Emerson, Owen, Davis, & Porcia, 1971; Madsen et al., 1968; Patterson, Littman, & Bricker, 1967). Although two major intervention strategies for behaviorally disturbed children have emphasized the use of peer inattention, they combined several procedures such that the independent contribution of peer attention to the maintenance of inappropriate behavior could not be assessed (Solomon & Wahler, 1973; Walker & Buckley, 1972).

Peer reprogramming was compared to teacher training in classroom behavior management and to equating stimulus conditions between the experimental and normal classrooms in assessing the most expedient means of transition from a special class to a normal elementary class (Walker & Buckley, 1972). Peer reprogramming, consisting of training in ignoring inappropriate behavior and attending to desired behavior and restructuring the classroom to resemble experimental conditions, i.e., equating stimulus conditions, were found to maintain treatment effects significantly superior to teacher training. No significant difference was obtained between the teacher training and a control condition used to assess the durability of token economies. Noteworthy was the fact that 26 schools and as many classrooms were involved in the study, thus implying that these effects were demonstrated across a wide variety of classroom environments and teacher styles. Staff time allotted for peer reprogramming was less than that required for the other two conditions.

Solomon and Wahler (1973) selected and trained five peer therapists to modify the inappropriate behaviors of five sixth-grade peers. The training consisted of observing videotapes of baseline target
behaviors and instruction in ignoring those behaviors and attending to appropriate ones. The short training and resultant application of management procedures produced substantial reductions in inappropriate behavior, in spite of the fact that the rest of the class, as well as the teacher, continued to attend to disruptions.

Although the above studies clearly demonstrate the pervasive effect of peer influence, they did not unequivocally isolate the peer inattention variable. Ross and Levine (1976) demonstrated that two of three types of inappropriate verbalizations were maintained solely by peer attention. The children in this study were not instructed to reward or attend to appropriate behaviors, rather a response cost system was applied to attending to an inappropriate verbalization.

That peers can successfully manage other children's behavior has also been demonstrated by Surratt, Ulrich, and Hawkins (1969). A fifth grader was trained to successfully modify the non-study behaviors of four first-grade students in a normal classroom. Carlson, Arnold, Becker, and Madsen (1968) taught an entire elementary class to ignore the tantrum behavior of an 8-year-old girl, with the result that the behavior was eliminated. This child was later placed in an untrained classroom whereupon the tantrum behavior recurred.

By acting as consultants to the target "problem" children as opposed to the teachers, Graubard and Rosenberg (1974) taught junior high school students to manage both teacher and peer behavior. These young behavior therapists successfully managed the nature or quality of social interactions with significant others as a result of their training.
Several generalizations are justified from the above evidence. Elementary and junior high school children can be trained to modify behavior of both peers and teachers in a productive fashion. Many studies have manipulated peer attention with the result that it has been found to exert direct control over the actions of others. Training children to ignore misbehavior is likely to result in the reduction of target behaviors. Additionally, it is uncertain to what extent it is necessary for peers to reinforce appropriate actions independent of ignoring misbehaviors, but the two variables are likely a desirable combination.

Self Monitoring or Tracking

Self monitoring by children has been found effective in reducing disruptive talking (Broden, Hall, & Mitts, 1971), and inappropriate motor behaviors (Maletzky, 1974), and increasing on-task responses (Thomas, 1976). Although the above studies also involved reinforcement for or as a result of self-monitoring, other studies have examined the effects of feedback without external or self-administered contingencies.

Drabman and Lahey (1974) instructed a teacher to provide "feedback" four times per hour to a target child based upon a behavior rating scale. It was concluded that feedback alone may produce behavioral change, the sociometric status of the target child was enhanced, and positive peer verbalization directed to the child increased while negative teacher remarks decreased. In addition, the misbehaviors of the child's peers also decreased, perhaps as a result of modeling effects.
Self-monitoring is another form of feedback and may not require external or self-imposed contingencies to alter behavior in a desirable fashion (Broden, et al., 1971; Kazdin, 1974). Broden et al. (1971) obtained nearly as great an increase in a child's study behavior under conditions of self-monitoring as was effected when praise was added to self-monitoring. Additionally, positive results have been obtained using a variety of populations, including retardates. Nelson, Lipinski, & Black (1976) taught adult retardates (IQ's 38-72) to reliably record several behaviors and found some degree of reactivity in a positive direction independent of providing direct reinforcement contingent upon self-monitoring or behavior change. Mahoney & Mahoney (1976) consider self-monitoring a necessary component of self-regulation and noted some improvement with emotionally disturbed children as a result of children tracking their own misbehavior.

Kazdin (1974) also found that among college students, accuracy of self-recording may be low, but favorable change nonetheless may occur. In general, accuracy or reliability of self-recording is often low but behavior tends to change in the desired direction (Lipinski & Nelson, 1974). The reasons for a change in behavior as a result of tracking are unclear. It may be that the value one has learned to place upon the behavior influences the direction and amount of change which takes place as a result of self-observation (Kanfer & Phillips, 1970). Homme (1975) suggests that self-monitoring may potentially be either reinforcing or punishing. Regardless of the underlying mechanism, self-monitoring frequently results in behavioral change in a socially desirable direction. Although the change may under some circumstances be temporary given no other form of supportive intervention (Broden et
al., 1971), altering behavior such that naturally-occurring reinforcers may sustain those changes is a worthwhile objective (Kazdin, 1975).

In summary, then, the "PUPIL" package attempted to present the regular classroom teacher with a wide range of easily applied principles, all of which were positive in nature. It focused upon the teacher's behavior in terms of establishing classroom rules, praising and ignoring, minimizing reprimands, individualizing instruction, and providing at least two means of dispensing naturally-occurring reinforcers to the children. The program also enlisted the aid of the peers in terms of utilizing them as tutors, models and as reinforcing agents or therapists. Finally procedures for self-monitoring were prescribed so that behaviors could be reduced such that naturally-occurring reinforcers would potentially sustain desirable change and so that each child in the regular classroom could assume more responsibility for his/her own behavior and attribute behavioral change properly by themselves.

In general, this investigation attempted to assess the viability of educating the behaviorally disturbed child within the regular classroom. The purpose of the present study was to systematically evaluate the degree of behavior change in target children as a function of teacher utilization of the "PUPIL" program. This report is divided into three sections; each presents the findings from a field test within a different school. The order of presentation corresponds to the chronological sequence of the experiments.
EXPERIMENT 1

Methods of Procedure

Subjects and Setting

Three teachers from the fifth grade of an elementary school located in a small midwestern city volunteered to participate in the study. The volunteers, a female and a male nontarget teacher and a female target teacher, were restricted to those elementary school teachers within the district who were relatively naive in behavior management techniques and who were willing to have behaviorally disturbed children in their regular classroom. Each of the volunteer teachers had a minimum of 8 years instructional experience at the elementary level. In return for their participation, they received college credit which applied to certificate renewal and salary increment.

In addition, school personnel were required to identify three target children in the fifth grade who manifested personal adjustment problems of sufficient magnitude to preclude normal scholastic achievement and whose behavior could be characterized as personally and socially maladjusted. The district school psychologist aided the school officials in the selection of the target children. A summary of subject characteristics is given in Appendix B. The parents of the three male children were contacted via phone and letter to obtain permission for their child to participate with the understanding that the child would not be told of his identification nor would his peers know of his selection for this study.
For two of the children, permission was obtained to transfer them at given points in the school year to the target classroom which was within the same school. The self-contained target classroom was assigned 18 students at the outset of the school year including one of the target children. Each of the nontarget classrooms contained a target subject and those two classes received departmentalized instruction from both nontarget teachers on a daily basis. The other children had previously been assigned to the three classrooms on a random basis. All teachers previously used a traditional approach, i.e., there had been no individualized instruction.

Behavioral Categories and Reliability

Data for the inappropriate behaviors of the three children were obtained on a modified event recording basis. Daily morning and afternoon observations were obtained for at least 20 minutes per child each session; most observations were conducted for 50 minutes. Classroom activities during these times were typically reading or math, or in-seat assigned study.

Disruptive behaviors included off-task actions, inappropriate talk, out of chair, modified out of chair, and noisemaking. Behavioral definitions are provided in Table A along with basic data collection instructions (see Appendix C).

Continuous behaviors were rendered discrete by allowing a 5 second duration from the time at which the behavior began, i.e., only one instance of talking, noisemaking or off-task action could occur each 5 seconds. Both attention to appropriate and inappropriate actions from teachers and peers were recorded. The attention to inappropriate
behavior was scored under the corresponding mark for the target behavior and was designated as either P or T.

The four data collectors were graduate students in psychology who were trained with a slide-sound package (Brown & Presbie, 1974) to develop behavior observational and recording skills, and received extensive in vivo data collection experience. Reliability checks were conducted both obtrusically and unobtrusively.

During baseline, there was one observer per classroom and reliability checks were conducted by a second observer. After treatment, at least two observers were assigned to the target classroom. Each observer was required to occasionally record data on two subjects successively such that reliability checks could be obtained by comparing data for a child concurrently observed by both data collectors. For all behavioral categories, reliability was calculated by dividing the smaller total by the larger and multiplying by 100 with the minimum requirement of 80% agreement. Reliability throughout baseline, treatment and follow-up exceeded the 80% criterion. Observers were blind in terms of sequence of experimental conditions, the type of treatment used, and when treatment began.

Procedure

Prior to the outset of the school year, the three teachers were given a 4-hour in-service training session on individualization of instruction. The teacher of the target classroom was subsequently assisted in the development of individualized math and reading curricula which were adopted for the entire school year. The other two instructors maintained a traditional format.
Curricula development and testing. The math program consisted of 37 individual lessons based upon fifth-grade curriculum objectives previously adopted by the school system (see Appendix D). Enrichment materials were included as supplemental to these objectives. It was specified to the target teacher that both math and reading activities be scheduled immediately prior to an activity enjoyed by most students, e.g., recess or art, and that one occur in the morning while the other would occur in the afternoon.

The reading instruction consisted of a phonics program (Henderson, 1971) adapted to each child's skill level, supplemental reading materials, and individual lesson packets developed for various reading series. Supplemental materials were introduced in order to expand the range (grade levels) of reading lessons to accommodate individual skill levels. Individual lesson packets corresponding to a given story emphasized vocabulary development, comprehension, and word attack skills. Mastery levels typically required 90% accuracy for completion of a given objective for both math and reading. The teacher and students were given written instructions on the use of such materials including logistics, grading, mastery, and later on, peer tutoring.

In the first week of school, all children who directly participated in the program were given the Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1970). At the conclusion of the school year, posttests were given, again with the PIAT. Additionally, the results of the Stanford Achievement Tests (Intermediate Level I), annually administered at the end of the school year, were obtained from school records both pre- and post-intervention.
Behavioral intervention. A modified multiple-baseline design was used to assess the effects of placement in a classroom in which the teacher and peers were therapeutically trained. Subject 1 was placed in the target classroom from the beginning of the school year, in part to assess systematic changes in behavior throughout training and to serve as a partial control for change-of-placement effects. Control subjects, for whom change-of-placement effects could be assessed, were omitted on ethical and availability bases. Subjects 2 and 3 were transferred to the trained classroom on the 24th and 30th school days, respectively. Treatment was implemented in the target classroom prior to transfer of these two target children.

Baseline. Base rates on all behavioral categories were obtained in each child's regular placement after an adaptation period of 5 days to allow each class to adjust to the presence of an observer. The teachers told the children that the observers were in the classroom to learn about teaching and that no one was to interact with them. Since extensive pretraining of the data collectors was necessary, incomplete baseline data was obtained on the second and third target children. Teachers were unaware of the base rates or behavioral categories but were informed of the fact that observers were recording what each target child typically did in the classroom.

Treatment. A lesson from the "PUPIL" package was given to the teacher of the target classroom each afternoon immediately after the children were dismissed. The project director remained with the teacher while the lesson was read and provided answers to her questions.
The topics of these 20-minute sessions corresponded to the sequence presented in the "PUPIL" package (see Appendix A).

In the first session, the teacher was shown base rates for all behavioral categories and thereafter was debriefed each session in terms of daily gains. Each of the 10 training sessions concluded with a request to implement the strategy on the following day and to continue its use. The first five lessons were designed to train the teacher to: (1) establish classroom rules; (2) increase attention to rule following and ignore violations; (3) to reprimand privately and sparingly; (4) to establish verbal contracts with several children each day for rule following and to provide both individual and group contingencies for group consequences for that behavior; and (5) to initiate a peer tutoring system for math and reading.

During the first session, the teacher and the project director agreed upon four rules which were posted on the following day. They were: (1) walk quietly to and from special classes; (2) raise hand when wishing to speak; (3) sit quietly while working; and (4) you may only leave your seat to get math and reading materials. It was further stressed that the teacher review the rules at least once daily but removed in time from incidents of misbehavior, and to self-monitor the number of times rules were reviewed. Two more rules were later added which corresponded with subsequent assignments.

The second session emphasized the possible relationship between the rates of attention to appropriate and inappropriate behaviors which were obtained during baseline for the first target child. The project director and a research associate modeled examples of praising
appropriate and inappropriate behavior and how to ignore inappropriate actions. The third session focused on reprimands. Methods of delivering a private reprimand were modeled for the teacher. The fourth teacher training session attempted to illustrate different difficulty levels of individual contingencies for group consequences as well as two basic methods of establishing such a contingency, i.e., publicly announced prior to its fulfillment or privately agreed upon between teacher and child with no peer knowledge of failure to meet the contingency. The choice of method was the teacher's. Additionally, group contingencies for group consequences were illustrated and it was recommended that such measures be employed to supplement other reward procedures. The teacher consulted with the class for reward selection. They frequently requested free time at the end of the school day or end-of-week parties.

The fifth lesson, peer tutoring, was considerably more complex. The teacher was given the assignment to study over the weekend along with a brief explanation of how these recommendations could be implemented for reading and math. For example, it was suggested that children who had not mastered phonics could work with a tutor on sight-sound recognition with flash cards. Several examples of math tutoring were also provided and the potential benefits to both teacher and student were emphasized.

The remaining five assignments were designed to assist the teacher in training the children to ignore inappropriate behavior, model appropriate actions, provide peers with praise, self-monitor, and to prompt mutual acceptance. A student handbook was distributed to the class which contained examples of privileges they could earn, various
sheets for recording their preference of rewards, extant and new classroom rules, how to respond to appropriate and inappropriate actions, self-monitoring, and other sheets corresponding to the objectives the teacher was attempting to achieve on a given assignment (see Appendix A).

For the modeling activity, the teacher was given the option of guiding role-playing either at the beginning or end of the school day. Each rule was enacted by various class members with contingent applause for rule-following behavior. The children also practiced ignoring rule violations. Often the skit was conducted without audience knowledge of the rule portrayed and the class would then determine what rule was illustrated. The seventh assignment extended the previous lesson and emphasized ignoring rule violations. A rule was added to those posted which reminded the children to ignore rule violations. These role-playing episodes were continued for 7 days and periodically thereafter, with the children re-enacting problem events and possible solutions to them.

The tracking or self-monitoring assignment was implemented on the eighth day of training. The teacher was given the option of having each child record the frequency of his/her own attention to misbehavior or to monitor one another's contingent attention to misbehavior. In either case, the anonymity of the child was assured. The teacher opted for self-monitoring and proceeded to privately record the daily class totals, rewarding daily gains with praise and privileges. This strategy was utilized for 14 sessions or until after $S_3$ was integrated into the classroom.
The ninth assignment established the procedures for integrating a new child into the classroom in terms of how to prepare the class, explaining classroom rules, and explaining to the transferred child how peers and teachers ignore inappropriate actions. Additionally, an achievement diploma for outstanding rule following and ignoring of violations was given to all children who met the objectives of the program, as defined by the teacher, and was then made available to those who would soon achieve those objectives. The teacher was to generally review the gains the class had made.

The last assignment was designed to prompt mutual acceptance via role-playing of positive and negative interactions and accompanying feelings as well as by instituting "Buddy for the Day." The latter event paired children who complemented each other such that they were to eat and play together in a positive fashion with the teacher supervising throughout. Success resulted in recognition by appointment to the "Compliment Club."

Brief data-based feedback sessions after school were provided intermittently until the third child was integrated into the trained classroom. Thereafter, the research associate met with the teacher once per week to summarize the results. After the 38th session, feedback to the teacher by project personnel ceased. At that time, the teacher was encouraged to continue with the techniques of her choice and after the 48th observation session data collection was terminated.

Two months later, data collection was reinstituted for 10 sessions following the same morning-afternoon regimen. No feedback was provided to the teacher nor were any comments made in terms of behavioral gains or losses.
Results and Discussion

The data from the morning and afternoon sessions were combined for illustrative purposes since neither the rates nor the variabilities differed appreciably for each child. Data for a daily session was computed by dividing the sum of each category of behavior by total time of morning and afternoon observation and then computing the rate per 20 minutes. On figures where horizontal marks (=) appear, the rate of behavior for that particular behavior exceeded the units given on the y-axis.

Figure 1 depicts the reductions of inappropriate talk for each child from baseline through follow-up. Since S\(_1\) was in the target classroom from the outset of baseline, changes occurring during treatment were systematically related to the 2-week training program. By the fourth day of training, the teacher had been assigned to post classroom rules, praise and ignore, reprimand privately and sparingly, and to employ individual and group contingencies for group consequences. It appears from the graph for S\(_1\) in Figure 1 that these four measures, either singly or in combination, were sufficient to reduce the rate of inappropriate talk for this child.

S\(_2\) was transferred on the 25th session which resulted in an immediate and substantial reduction in rate of inappropriate talk. Although the baseline was incomplete, the data points overlap sufficiently across subjects to warrant the conclusion that the change in environment resulted in this reduction. The same was true for S\(_3\) where substantial reductions in inappropriate talk occurred in concert with
Figure 1. Daily incidence of target children engaging in inappropriate talk during baseline, treatment, and follow-up 2 months after treatment.
the transfer, notwithstanding the incomplete baseline. Confounded with
the effects of the transfer to a trained classroom is transfer alone,
change of teacher, of peers, and of curriculum structure. That the
latter factors were the variables which produced the change seemed
unlikely since S\textsubscript{1} showed similar reductions with no change of placement,
only as the result of teacher-peer training.

Similar reductions for out-of-chair behaviors were obtained for
the three children (see Figure 2). Again, gradual changes were
observed for S\textsubscript{1} during the first 5 days of training, with rather abrupt
reductions occurring immediately upon transfer for S\textsubscript{2} and S\textsubscript{3}. Rate
changes for the other target behaviors reflected the same pattern with
the possible exception of noisemaking for S\textsubscript{1} which showed little altera-
tion during treatment (see Appendix E).

It should be noted that daily teacher feedback was terminated
after the 38th session. Inspection of the last ten sessions of the
treatment phase in Figure 1 and Figure 2 indicated that enduring training
effects prevailed without teacher feedback. It is probable that at this
point the teacher had learned to discriminate problematic behaviors and
how to respond to them. Follow-up data from both figures represent
rates of inappropriate behaviors 2 months after termination of data
collection and 2 months, 10 days following feedback. Throughout the
follow-up phase, no concurrent feedback was provided. In general,
the training appeared to be quite effective in maintaining reductions
of achievement-defeating behaviors for some 15 weeks following the
initial training of the teacher, S\textsubscript{1}, and the peers. The negligible
recovery of out-of-chair behavior during the last experimental phase
Figure 2. Daily incidence of target children being out of chair during baseline, treatment, and follow-up 2 months after treatment.
(Figure 2) corresponded to a small recovery of teacher attention to inappropriate actions for those sessions (see Figure 3).

Suggestive evidence for the causitive role of attentional responses maintaining misbehavior is illustrated in these graphs. Throughout baseline for S₁, the target teacher provided more attention for inappropriate behaviors than for appropriate. From the outset of training, this trend was reversed such that high rates of teacher attention were contingent upon rule-following or other appropriate actions, e.g., on-task behavior. During the last 10 sessions of treatments under conditions of no feedback and during follow-up, a partial recovery of baseline rates of teacher attention to inappropriate actions occurred for S₁, however the overall rate of attention to appropriate actions substantially exceeded it. Again, for S₁, it appeared that a partial recovery of some target behaviors occurred during those sessions, nearly proportional to the recovery of teacher attention to those behaviors.

The target teacher, by contrast, was more successful in ignoring the misbehaviors of S₂ and S₃ upon their transfer and throughout the remainder of the study. Again, baseline rates represent the combined attentional responses of two nontarget teachers to the appropriate and inappropriate actions of S₂ and S₃ in their separate placements in classrooms outside of the target class from the outset of the school year, prior to transfer. Figure 3 illustrates the nearly complete separation of data points representing attention to appropriate and inappropriate actions for S₂ and S₃ such that less recovery was evident for any of the target behaviors for those two children than for S₁. In
Figure 3. Daily incidence of teacher attention to appropriate and inappropriate behaviors of target children during baseline, treatment, and follow-up 2 months after treatment.
no case, however, was the recovery of any target behavior deemed sufficient to warrant further intervention in the form of either feedback or additional training.

The decision not to further intervene was based upon two considerations. The few incidents of recovery of inappropriate actions and teacher attention to them were still substantially below baseline and indistinguishable from rates likely encountered in many classrooms containing no emotionally disturbed children. Secondly, the training of the peers to ignore inappropriate behavior of other children was highly successful (see Figure 4).

With reference to Figure 4, it should be noted that each target child received far more attention for inappropriate actions from peers in their initial placements than they did from their teachers (cf. Figure 3). The graph for peer attention to the misbehaviors of $S_1$ illustrates the effects of the training program on the children's tendency to reinforce unwanted target behaviors. The greatest reduction occurred between the third and fourth teacher training sessions; the latter emphasized both individual and group contingencies for group consequences which were initiated on the fourth day of training.

Again, role-playing sessions began on the sixth day of training and continued until after the $S_3$ was integrated into the trained classroom. These morning activities focused upon teaching the children means of responding other than to violate rules, and how to ignore rule infractions. Since reductions of peer attention to the inappropriate actions of $S_1$ occurred prior to these sessions the extent to which the role-playing and other peer training contributed to the reductions or
Figure 4. Daily incidence of peer attention to the inappropriate behaviors of target children during baseline, treatment, and follow-up 2 months after treatment.
maintenance of low rates of attention to misbehavior is unclear. Anecdotal teacher reports suggested that this technique was valued more than other recommendations contained in the "PUPIL" program. The teacher felt that the 5-day sequence of peer training techniques created a positive peer response toward conforming to the rules, peer tutoring, and other objectives of the project.

Achievement results. The mean gain in grade equivalent and standard score units on the PIAT for all children in the target classroom is given in Table 1. All comparisons were computed with the t statistic for correlated means; levels of significance were determined on a two-tailed basis with 19 df. Although such gains represent both practical and statistical significance, no control groups were available for comparison.

However, the analysis of gains in standard score units provided a partial control in terms of average national gains derived from the PIAT norms. Theoretically, a child may demonstrate an increase of one grade equivalent unit for the school year but would still produce the same standard score on the posttest as on the pretest since the norm group also gained equivalently. Thus, a significant gain in standard score units over an academic year represents a gain greater than would be expected on the basis of national averages. Such was the case for the present study. All t tests for correlated standard score means reached statistical significance (see Table 1). Thus, these data indicate that the children who participated in the behavioral program, which included individualized math and reading instruction, not only gained significantly over their initial achievement levels,
Table 1

PIAT Pretest, Posttest and Gain Scores for Children in Target Classroom 1

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>5.62</td>
<td>7.26</td>
<td>1.64</td>
<td>3.92***</td>
</tr>
<tr>
<td>Reading recognition</td>
<td>6.04</td>
<td>7.57</td>
<td>1.53</td>
<td>6.06***</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>5.47</td>
<td>7.45</td>
<td>1.98</td>
<td>3.79***</td>
</tr>
<tr>
<td>Spelling</td>
<td>5.44</td>
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</tr>
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<td>7.39</td>
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<td>5.40***</td>
</tr>
<tr>
<td>Total test</td>
<td>5.52</td>
<td>7.22</td>
<td>1.70</td>
<td>6.80***</td>
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</table>

Mean grade equivalent

<table>
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<tr>
<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>99.80</td>
<td>106.80</td>
<td>7.00</td>
<td>2.63**</td>
</tr>
<tr>
<td>Reading recognition</td>
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<td>109.30</td>
<td>4.95</td>
<td>3.69***</td>
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<tr>
<td>Reading comprehension</td>
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<td>106.75</td>
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<td>2.30*</td>
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<tr>
<td>Spelling</td>
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<td>107.30</td>
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<td>2.48*</td>
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<tr>
<td>General information</td>
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<td>108.00</td>
<td>5.05</td>
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<td>Total test</td>
<td>102.70</td>
<td>108.80</td>
<td>6.10</td>
<td>4.64***</td>
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</tbody>
</table>

Mean standard score

Grade equivalent data for each target child are presented by PIAT subtest in Table 2. The impressive group gains were not realized for but gained at a rate greater than that expected from the national norms on the PIAT.
Table 2

PIAT Pretest, Posttest, and Gain Scores for the Three Target Children

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₁</td>
<td>5.3</td>
<td>8.6</td>
<td>3.3</td>
</tr>
<tr>
<td>S₂</td>
<td>4.6</td>
<td>4.4</td>
<td>-.2</td>
</tr>
<tr>
<td>S₃</td>
<td>4.6</td>
<td>7.9</td>
<td>3.3</td>
</tr>
<tr>
<td>Reading recognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₁</td>
<td>5.4</td>
<td>7.6</td>
<td>2.2</td>
</tr>
<tr>
<td>S₂</td>
<td>7.3</td>
<td>7.6</td>
<td>.3</td>
</tr>
<tr>
<td>S₃</td>
<td>5.4</td>
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<td>.6</td>
</tr>
<tr>
<td>Reading comprehension</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S₁</td>
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<td>6.0</td>
<td>.5</td>
</tr>
<tr>
<td>S₂</td>
<td>6.0</td>
<td>6.0</td>
<td>0</td>
</tr>
<tr>
<td>S₃</td>
<td>4.5</td>
<td>7.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Spelling</td>
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<td></td>
<td></td>
</tr>
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<td>S₁</td>
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<td>S₂</td>
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<td>5.6</td>
<td>0</td>
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<tr>
<td>S₃</td>
<td>4.9</td>
<td>5.3</td>
<td>.4</td>
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<tr>
<td>General information</td>
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</tr>
<tr>
<td>S₁</td>
<td>7.0</td>
<td>8.8</td>
<td>1.8</td>
</tr>
<tr>
<td>S₂</td>
<td>7.0</td>
<td>9.4</td>
<td>2.4</td>
</tr>
<tr>
<td>S₃</td>
<td>6.5</td>
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</tr>
<tr>
<td>Total test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S₁</td>
<td>5.8</td>
<td>7.4</td>
<td>1.6</td>
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<td>S₂</td>
<td>6.0</td>
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<td>.3</td>
</tr>
<tr>
<td>S₃</td>
<td>5.1</td>
<td>6.8</td>
<td>1.7</td>
</tr>
</tbody>
</table>
the target children on this particular test, but it should be noted that all three children were at grade level in most academic subjects on the posttest with the exception of $S_2$ in math and spelling, and $S_3$ in spelling.

By contrast, the results for the Stanford Achievement Test administered annually at the end of the school year by the school district are presented in Table 3. Gains in nearly every case were substantially greater than comparable results obtained on the PIAT. The primary difference between the two instruments is individual (PIAT) vs. group (Stanford) administration. Thus, although satisfactory individual achievement gains were generally found for the three target children on the PIAT, substantial achievement gains were produced on the Stanford Achievement Test.

Table 4 presents the grade equivalent gains on the Stanford Achievement Test for the three fifth-grade classes in which observations were conducted.

It should be noted that the trained class exceeded the other classes on every subtest. Further statistical analysis was not performed since uncontrolled factors may have accounted for these differences. However, because previous student assignment to these classes had been random, the data do suggest that future large scale investigations may reveal achievement differences between trained and untrained classrooms. The exact contribution of the individualization of instruction in reading and math vs. behavioral intervention awaits further study.
Table 3
Stanford Achievement Pretest, Posttest, and Gain Scores for the Three Target Children

<table>
<thead>
<tr>
<th>Selected Subtests</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S1 computation</td>
<td>5.2</td>
<td>8.3</td>
<td>3.6</td>
</tr>
<tr>
<td>S2</td>
<td>5.2</td>
<td>8.8</td>
<td>3.6</td>
</tr>
<tr>
<td>S3</td>
<td>4.5</td>
<td>8.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Mathematics concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>4.3</td>
<td>7.9</td>
<td>3.1</td>
</tr>
<tr>
<td>S2</td>
<td>4.5</td>
<td>6.5</td>
<td>2.0</td>
</tr>
<tr>
<td>S3</td>
<td>5.5</td>
<td>8.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Mathematics application</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>6.1</td>
<td>8.2</td>
<td>2.1</td>
</tr>
<tr>
<td>S2</td>
<td>5.3</td>
<td>6.5</td>
<td>1.2</td>
</tr>
<tr>
<td>S3</td>
<td>4.9</td>
<td>10.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td></td>
<td></td>
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<tr>
<td>S1</td>
<td>6.3</td>
<td>7.6</td>
<td>1.3</td>
</tr>
<tr>
<td>S2</td>
<td>5.9</td>
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<td>S3</td>
<td>5.6</td>
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<td>Vocabulary</td>
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<tr>
<td>S1</td>
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<td>2.9</td>
</tr>
<tr>
<td>S2</td>
<td>5.9</td>
<td>7.2</td>
<td>1.3</td>
</tr>
<tr>
<td>S3</td>
<td>5.2</td>
<td>6.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Word study skills</td>
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<td></td>
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</tr>
<tr>
<td>S1</td>
<td>3.9</td>
<td>7.0</td>
<td>3.1</td>
</tr>
<tr>
<td>S2</td>
<td>7.0</td>
<td>10.5</td>
<td>3.5</td>
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<tr>
<td>S3</td>
<td>6.3</td>
<td>10.5</td>
<td>4.2</td>
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<tr>
<td>Total test (includes other subtests in addition to the above)</td>
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<td></td>
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</tr>
<tr>
<td>S1</td>
<td>5.1</td>
<td>6.7</td>
<td>1.6</td>
</tr>
<tr>
<td>S2</td>
<td>5.6</td>
<td>8.1</td>
<td>2.5</td>
</tr>
<tr>
<td>S3</td>
<td>5.3</td>
<td>8.6</td>
<td>3.3</td>
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Table 4
Mean Grade Equivalent Gain for Each Class on the Stanford Achievement Test

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Math computation</th>
<th>Math concepts</th>
<th>Math application</th>
<th>Reading comprehension</th>
<th>Vocabulary</th>
<th>Word study skills</th>
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<tr>
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<td>1.8</td>
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<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Nontarget 1</td>
<td>2.0</td>
<td>1.1</td>
<td>1.5</td>
<td>1.7</td>
<td>1.4</td>
<td>1.4</td>
<td>1.5</td>
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<td>Nontarget 2</td>
<td>2.1</td>
<td>1.2</td>
<td>1.5</td>
<td>2.1</td>
<td>1.4</td>
<td>1.7</td>
<td>1.5</td>
</tr>
</tbody>
</table>
EXPERIMENT 2

Experiment 1 demonstrated that the transfer of behaviorally disturbed children to a classroom in which both teachers and peers were trained as behavior therapists resulted in substantial reductions in inappropriate behaviors while at least normal achievement gains were maintained. It was noted that several uncontrolled variables could have accounted for behavior reductions in the children who were transferred. Change of placement involved not only a change in curriculum, from traditional to individualized, but a change of teachers as well. Additionally, incomplete baseline data were obtained for two of the target children. The present study attempted to control for curriculum differences and to eliminate change-of-teacher effects in addition to replicating the results of Experiment 1.

Methods of Procedure

Subjects and Setting

Three teachers from the fifth grade of a second elementary school located in the same midwestern city volunteered to participate in the study. The same restrictions on teacher qualifications and incentives for participation were employed in this study. Each of the volunteer teachers had a minimum of 10 years of instructional experience at the elementary level. The two target teachers were female while the non-target teacher was male.

Prior to the beginning of the school year, school personnel, including the district school psychologist, identified three children
who manifested personal and social adjustment difficulties sufficient to interfere with academic achievement and with normal classroom placement. A summary of subject characteristics is given in Appendix B.

Before the fall semester, the parents of the three male children selected for study were contacted and permission was obtained identical to the procedures reported in the previous study. Again, permission was obtained to transfer two of the children, but the transfer in this case consisted of changing only homeroom, i.e., the children received instruction from the same teachers but with different peers subsequent to transfer. Since there were three fifth-grade classes, one target child was assigned to each homeroom from the outset of the school year. Pupil assignment beyond this restriction was random. Prior to integration of the two behaviorally disturbed children, the target classroom contained 18 student.

Behavioral Categories and Reliability

Data for the inappropriate behaviors of the three children were obtained on the same event recording basis. Both morning and afternoon sessions had a minimum 20-minute requirement with typical sessions based upon 50-minute samples. Reading and math curricula were assigned during those periods.

In addition to the categories of inappropriate talk, noisemaking, off-task actions, out of chair, and modified out of chair, off-task was added since these children frequently engaged in this behavior. Off-task behavior could be typified as a vacant stare (see Appendix C for definition). A full 5-second duration was required before an
instance of the behavior was recorded. Rocking while seated was also scored in a separate category when 5 seconds or less of that behavior occurred.

Again, peer and teacher attention to the various categories of behavior were recorded. The same data collectors participated in the present study. Obtrusive and unobtrusive reliability checks were conducted since the observers were, at this point, aware that posted classroom rules signalled intervention. Throughout all phases of the study, reliability checks were obtained twice weekly. Again, reliability consistently exceeded the 80% criterion.

Procedure

Curricula development and testing. The three participating teachers attended the in-service on curriculum development prior to the beginning of the school year. The math teacher was assisted in implementing the same individualized math program used in Experiment 1. The reading teacher was given supplemental materials to expand the range of reading curriculum and was aided in developing individual lesson modules which emphasized vocabulary development, comprehensive, and work attack skills. The same instructions for implementation, scheduling, and mastery level were employed in the present study.

Since each teacher taught one academic area in three different classes each day, it was specified that the individualized math materials be used only with the target classroom, while the reading modules be employed with all three classes throughout the school year. The science-social studies teacher participated by allowing observers in the class
during baseline, although these data are not presented. The instructional format remained traditional.

In the first week of school, all children who directly participated in the study were given the PIAT (Dunn and Markwardt, 1970). PIAT posttests were administered at the conclusion of the academic year. Again, the pretest-posttest results from the Stanford Achievement Tests (Intermediate Level I) were obtained from school records after the school year ended.

**Behavioral intervention.** A multiple baseline design was used to assess: (a) the effects of placement in a classroom in which the teacher and peers were therapeutically trained; and (b) the additional effects of training a second teacher with whom the trained class had daily contact. Subject 1 was placed in the target classroom from the beginning of the school year in order to assess systematic changes in behavior as a function of the 2-week training. Subjects 2 and 3, each of whom were in different placements during baseline, were transferred in the trained classroom on the 21st and 31st sessions, respectively. Treatment was implemented in the target classroom between the 11th and 21st sessions or prior to integration of the latter target children.

**Baseline.** Observation began on the fourth month of the school year. Base rates on all behavioral categories were obtained in each child's initial placement following an adaptation period of 5 days to allow the teachers and students to adjust to the presence of the observer. Each child was observed during math and reading. The teachers instructed the children to ignore the data collectors. Teachers were unaware of the base rates or behavioral categories but were informed
of the fact that the observers were recording the actions of target children.

**Treatment.** Following 10 days of baseline, the 10-day training program was implemented in the target classroom via the homeroom (math) teacher. Since the target teacher also instructed $S_2$ and $S_3$ on a daily basis, it was requested that techniques from the "PUPIL" package be applied only to $S_1$ and his peers, i.e., her homeroom. It was further requested that the target teacher not discuss or explain any feature of the program with the second target (reading) teacher who later received the same training.

The dissemination of the "PUPIL" program followed the same regimen as in Experiment 1. However, the teacher was not shown baseline data for $S_2$ and $S_3$ until they were integrated into the class. Similarly, rules were posted covering appropriate talk, permission to leave the desk and the room, assignment initiation and completion and, eventually, ignoring rule violations. The teacher was asked to record the number of times rules were reviewed, to monitor the frequency of individual or group contingencies for group consequences, to tabulate the children's self monitoring of attention to inappropriate behavior, and to track the frequency of role-playing. These informal data were discussed with the project personnel at the end of training, and once per week for the subsequent weeks.

Data-based feedback was provided to the first target teacher throughout Sessions 11-35 from the beginning of training through 1 week following the transfer of $S_3$. Data collection without feedback continued for 10 more days before the second target (reading) teacher
was trained to employ the program with the therapeutically-trained children. No further feedback was provided to Teacher 1.

The training of the second teacher was identical to that of the first. Rules were posted based upon the same response classes, teacher attention to appropriate behaviors was emphasized, contingencies were explained, and peer re-training proceeded according to the recommendations contained in the "PUPIL" package. Teacher 2 received daily feedback throughout training and until the termination of the study or from Sessions 45-60.

**Results and Discussion**

The data illustrated in all figures represent rates obtained in math, taught by Teacher 1, and reading, taught by Teacher 2. It should be noted that all target children received individualized reading regardless of initial placement from the outset of the school year. Thus, transferring $S_2$ and $S_3$ involved no curriculum change nor did transfer involve any change of teachers. Additionally, generalization effects may be assessed for all figures representing inappropriate behavior of target children by comparing the rate of a given behavior during Treatment 1 in reading (Teacher 2) following intervention or transfer, as the case may be, with the baseline for the behavior in the reading class. To the extent that behavioral reductions obtained in the therapeutic environment transfer to the class conducted by an untrained teacher, generalization of the program effects is illustrated. Finally, the cumulative effects of Treatment 1 combined with the training of Teacher 2 is illustrated in the Treatment 2 phase--a replication across teachers.
Figure 8 depicts the reductions in inappropriate talk for the three target children following training ($S_1$) or sequential transfer to the trained classroom ($S_2$ and $S_3$) obtained for Treatments 1 and 2. $S_1$ showed a gradual reduction during training in the Teacher 1 classroom which endured throughout the study. Little generalization to the reading class was obtained in spite of the fact that therapeutically-trained peers accompanied him at all times. Both $S_2$ and $S_3$ manifested such low rates of inappropriate talk during baseline for Teacher 2 that generalization from Teacher 1 training was difficult to assess. Low baseline rates may have been a function of the individualized reading curriculum, the unique characteristics of Teacher 2 or both. However, following transfer to the trained group of children, both children showed a precipitous and lasting reduction of inappropriate talk in the Teacher 1 situations. The teacher replication, Treatment 2, produced further reductions in this behavioral category for $S_1$, negligible decreases for $S_2$ and no observable change for $S_3$.

The changes in the out-of-chair behavioral category were rather gradual for $S_1$ until training was completed on the 20th session (see Figure 9). Thereafter, the reductions of this behavior during math were sustained. Again, little or no generalization to the reading class was evident. However, upon the second treatment, the behavior was substantially reduced in the reading class. The transfer of $S_2$ resulted in a temporary suppression of out of chair during math which resumed to near baseline rates after 4 days. No generalization to reading was apparent at any time during Treatment 1. In contrast, apparently the combined effects of Treatments 1 and 2 dramatically
Figure 8. Daily incidence of target children engaging in inappropriate talk during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 9. Daily incidence of target children being out of chair during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
reduced this behavior to near zero rates for both reading and math. The out-of-chair behavior of S₃ was diminished substantially when transfer took place (Session 31) and remained so for Teacher 1. Low baseline rates in the Teacher 2 condition permitted little interpretation of generalization of Treatment 1 effects. In summary, although the rates of this behavior for all three subjects were reduced to acceptable levels, each child presented a unique response to the program which was not consistently related to a given treatment.

The graphs in Figure 10 illustrate, in general, that modified out-of-chair behavior was reduced as a result of placement with trained peers and a trained teacher with some suggestion of generalization to the untrained teacher's classroom. The training of Teacher 2, however, appeared to have little additional effect across all target children. Similar results were produced for the noisemaking behavioral category (see Figure 11). With the exception of S₁, reductions were obtained upon placement in the trained environment which appeared to generalize to the untrained teacher's classroom. S₁ showed a temporary suppression of the response during training with a later increase well above baseline rates. Again, repeating the pattern obtained for out of chair and inappropriate talk, the training of Teacher 2 resulted in complete reduction of this response for S₁ in the reading class.

The data for off task and off-task action were less clearly related to treatment effects for the three subject because of low base rates immediately prior to Treatment 1 and/or partial recovery of base rates following treatments (see Figures 12 and 13). In general, however, suppression of these types of behaviors to acceptable levels was
Figure 10. Daily incidence of target children being modified out of chair during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 11. Daily incidence of target children engaging in noisemaking during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 12. Daily incidence of target children engaging in off-task behaviors during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 13. Daily incidence of target children engaging in off-task-action behaviors during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
obtained during the course of the study for all target children and for the most part in both reading and math classrooms.

Rocking behavior was clearly unrelated to classroom rules, contingencies for that behavior, or program objectives. It was not clearly incompatible with a wide range of on-task or achievement-related behavior. The validity of this category for use in the reading period was questionable since the children's chairs were structurally attached to their desks, while in the math classroom the chairs were separate from the desks. However, the data for this category are presented in Figure 14. Noteworthy, was the fact that S₂ and S₃ manifested high rates of this behavior relative to other categories during baseline for the math class. Both children showed an immediate, abrupt, and enduring reduction of rocking behavior upon transfer to the trained classroom. Confounded with this transfer was the change of curriculum. Additionally, since an invalid measurement was obtained during reading, no definitive conclusions were permitted.

That the training program was successful in reducing peer attention to the inappropriate behaviors of target children is illustrated in Figure 15. The graphs for S₂ and S₃ show a sharp reduction in rate of peer attention during math when they were transferred in a group of trained peers, while the change for reading was not nearly so dramatic it was, nevertheless, discernible. Attention to inappropriate responses in the presence of Teacher 1 (math) diminished significantly as a result of training. In contrast, S₁ received the same rate of peer reinforcement for inappropriate behavior during baseline and the first treatment in reading, despite the fact that the peers were trained during
Figure 14. Daily incidence of target children engaging in behaviors defined as OTHER category during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 15. Daily incidence of peer attention in inappropriate behaviors of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Treatment 1. This finding paralleled the apparent failure to obtain any generalization of behavioral reductions between math and reading for the categories of inappropriate talk, out of chair, and noisemaking for S₁. The subsequent reductions of peer attention to S₁ following Treatment 2 also paralleled further improvement for those same behavioral categories during that phase.

It could be argued that Teacher 2 maintained the latter behaviors of S₁ during Treatment 1 as a result of her attention to inappropriate behavior. Figure 16 presents attention to appropriate and inappropriate behaviors for Teacher 2. Although baseline data revealed a trend of greater attention to inappropriate than to appropriate actions, the rate of attention to inappropriate behaviors during Treatment 1 was less than that of baseline and subsequently less than the rates with which peers reinforced inappropriate actions of S₁ during that phase (cf. Figure 15). Thus, it seemed likely that trained peers with an untrained teacher may have perpetuated untoward classroom behaviors of S₁. In any case, with reference to Figure 16, it was evident that the teacher increased attention to appropriate action of the three target children following training and successfully diminished attention to undesirable behavior.

Teacher 1 quite clearly altered her attentional responses to each of the target children successively (Figure 17). With S₁, attention to appropriate behaviors was acquired gradually while attention to inappropriate actions was reduced rather immediately. For S₂ and S₃, the transfer to the trained classroom reversed the attentional contingencies previously maintained by Teacher 1.
Figure 16. Daily incidence of Teacher 2 attention to appropriate and inappropriate behaviors of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 17. Daily incidence of Teacher 1 attention to inappropriate behavior of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
In summary, Experiment 2 demonstrated that reductions of excessive inappropriate actions of behaviorally disturbed children were obtained with transfer to trained conditions which controlled for change-of-teacher and, in part, change-of-curriculum effects. Generalization of training occurred for the reductions of some target behaviors, e.g., modified out of chair for all Ss, noisemaking, and inappropriate talk for $S_2$ and $S_3$. Where behavioral reductions were incomplete following Treatment 1, a second treatment which consisted of training another teacher with whom the trained class had daily contact resulted in even further behavioral reductions. Failure to obtain generalized behavioral reductions across classrooms was related to rates of peer attention to undesirable behavior and perhaps to patterns of teacher attention. In contrast to Experiment 1, when data-based feedback was discounted for 10 sessions for Teacher 1, no discernible change in reinforcement or target behavior rates occurred.

Achievement results. The mean gain in grade equivalent and standard score units on the PIAT for all children in the target classroom is given in Table 5. All comparisons were computed with the $t$ statistic for correlated means; levels of significance were determined on a two-tailed basis with 19 df. The grade equivalent gains were of practical and statistical significance in terms of the purposes of this study. The same analysis performed on standard score units indicated significant group achievement gains in Mathematics, Reading Recognition and Total Test performance. The major group achievement findings were thus replicated in Experiment 2.
Table 5

PIAT Pretest, Posttest and Gain Scores of Children in Target Classroom 2

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>5.52</td>
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<td>1.52</td>
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<table>
<thead>
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<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
<th>t</th>
</tr>
</thead>
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</tr>
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<td>Reading comprehension</td>
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<td>3.45</td>
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<tr>
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<td>-.20</td>
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<td>Total test</td>
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<td>108.35</td>
<td>4.00</td>
<td>4.27***</td>
</tr>
</tbody>
</table>

*  \( p < .05 \)
** \( p < .01 \)
*** \( p < .001 \)
Grade equivalent data for each target child are presented by PIAT subtest in Table 6.

### Table 6

PIAT Pretest, Posttest and Gain Scores for the Target Children in Experiment 2

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1.5</td>
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<td>S₂</td>
<td>4.0</td>
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<td>-.2</td>
</tr>
<tr>
<td>S₃</td>
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<tr>
<td>Reading recognition</td>
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<td>S₁</td>
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<td>2.1</td>
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<tr>
<td>S₂</td>
<td>6.4</td>
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<td>-.2</td>
</tr>
<tr>
<td>S₃</td>
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<td>.2</td>
</tr>
<tr>
<td>Reading comprehension</td>
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<td></td>
</tr>
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<td>S₁</td>
<td>4.4</td>
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<td>2.1</td>
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<td>S₂</td>
<td>5.5</td>
<td>4.4</td>
<td>-1.1</td>
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<td>8.1</td>
<td>2.6</td>
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<td>1.7</td>
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<td>S₃</td>
<td>5.8</td>
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<tr>
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<tr>
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<td>-.4</td>
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<td>S₂</td>
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<td>.8</td>
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<td>.2</td>
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<tr>
<td>Total test</td>
<td></td>
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<tr>
<td>S₁</td>
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<td>S₃</td>
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<td>6.6</td>
<td>1.3</td>
</tr>
</tbody>
</table>

S₃ maintained at least normal achievement throughout the school year. S₁ achieved at grade level on all subtests except Mathematics, however, the gain score on the latter test nevertheless indicated a
substantial achievement above the pretest level. The results for $S_2$
were judged unsatisfactory in terms of project objectives which set
minimum achievement criteria at one grade level gain. Not only was
the posttest achievement below grade level on all subtests except
Reading Recognition, but grade equivalent losses were obtained for
Mathematics, Reading Recognition and Reading Comprehension. The
Stanford Achievement Test data were available for only the posttest
since this was the child's first school year within the district. The
Reading Comprehension, Word Study Skills, and Mathematics Application
were all near normal grade level, 5.9, 7.5, and 5.2, respectively.
Other subtest results comparable to those on the PIAT were obtained on
the Stanford Achievement Test.

Table 7 presents the grade equivalent gains on the Stanford
Achievement Test for the three fifth-grade classes in which observa-
tions were conducted. All classes received the individualized cur-
ricula in reading and math since these programs were implemented in non-
target classes immediately following the transfer of each target child
to the trained classroom. Thus, even informal comparisons among these
classes were meaningful only in terms of the target classroom having
been therapeutically trained while nontarget classes did not receive
systematic training. The data for all three classes, however, did
parallel those obtained for the target classroom in Experiment 1. Again,
future large-scale investigations may reveal statistically significant
differences between traditional and individualized curricula with
appropriate controls.
Table 7

Mean Grade Equivalent Gain for Each Class on the Stanford Achievement Test

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Math computation</th>
<th>Math concepts</th>
<th>Math application</th>
<th>Reading comprehension</th>
<th>Vocabulary</th>
<th>Word study skills</th>
<th>Total test</th>
</tr>
</thead>
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<td>2.1</td>
<td>2.2</td>
<td>1.8</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Nontarget 1</td>
<td>2.5</td>
<td>2.3</td>
<td>2.0</td>
<td>2.1</td>
<td>2.0</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Nontarget 2</td>
<td>2.3</td>
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<td>1.6</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>
EXPERIMENT 3

The previous experiments demonstrated that six behaviorally disturbed children profited both behaviorally and academically from their placements in regular elementary classrooms where teachers and peers were therapeutically trained and curriculum materials were individualized. In the first study, greater gains on a group achievement test were obtained for the target classroom than for two nontarget classrooms, but several factors were uncontrolled, e.g., different teachers, departmentalized vs. self-contained classrooms, etc. In the second investigation, where children from nontarget classrooms and the target classroom received instruction from the same teachers and had the same individualized reading curriculum and different math curriculum prior to intervention, no differences were obtained on the Stanford Achievement Tests. All gains were above those expected on the basis of national norms. It was noted, however that the individualized math curriculum was used in both nontarget classrooms subsequent to the transfer of each target child. Thus, if the curriculum alone contributed to annual academic gain, it was impossible to determine. The third study attempted to evaluate the group achievement gains which could be attributed to curriculum differences between two classes, with statistical controls for initial achievement differences between the classes, and to replicate the previous applications of the behavioral program. Additionally, the training agent was a qualified teacher of the emotionally disturbed who had observed the principal investigator conduct the intervention with the previous target teachers. This investigation
then, fulfilled the objectives of the study insofar as assessing the applicability of these procedures by allied school personnel other than a school psychologist.

**Methods of Procedure**

**Subjects and Setting**

Two female teachers from the fifth grade of a third elementary school in the same midwestern city volunteered to participate in the study. The same restrictions on teacher qualifications and incentives were employed in this study as in the former studies. One of the teachers had 4 years teaching experience at the elementary level while the other had nearly 20 years experience.

School personnel, including the district school psychologist, identified three children who manifested personal and social adjustment difficulties sufficient to interfere with academic achievement and with regular classroom placement. A summary of subject characteristics is given in Appendix B. Prior to the fall semester, the parents of the three male children selected for study were contacted and permission was obtained according to the same procedure reported in Experiment 1. Shortly after baseline was initiated, a fourth male subject was identified by project and school personnel. Parental permission was secured for the further study of that subject's response to intervention.

The two fifth-grade classes received departmentalized instruction. Teacher 1 provided the reading instruction while Teacher 2 was responsible for mathematics training. The children of the two classes spent equivalent portions of the school day with each teacher changing
class rooms only twice per day. Pupil assignment to each class prior to the school year was based primarily upon past academic achievement and teacher recommendation such that those students who had better academic records had been assigned to the reading teacher's homeroom, while those whose records were less outstanding were placed in the math teacher's homeroom. Both $S_1$ and $S_4$ had been assigned to the reading teacher's class, while $S_2$ and $S_3$ had been placed with the math teacher's class. Prior to the integration of $S_2$ and $S_3$, the target classroom, i.e., the reading teacher's homeroom, contained 24 children while the other class had 25 students. As in Experiment 2, the transfer of target children involved only the change of homeroom assignment.

In contrast to the teachers trained with the "PUPIL" program in the first two studies, the two target teachers employed instructional styles greatly divergent from each other and from those manifested by previous teachers. Reading instruction was conducted in a laissez-faire fashion, while math training was typified by an autocratic authoritarian approach.

Behavioral Categories and Reliability

The seven behavioral categories employed in Experiment 2 were also used in the present investigation and scored on the same event basis (see Appendix C). Both morning and afternoon sessions had a minimum of 20 minutes of observation with typical sessions based upon 50-minute samples. Reading and math curricula were assigned during those periods.

As in the previous studies, peer and teacher attention to the various categories of behavior were simultaneously recorded. The
same data collectors participated in this study. Both obtrusive and unobtrusive reliability checks were conducted on a weekly basis. Reliability exceeded the 80% criterion for the frequencies obtained on each behavioral category.

Procedure

Curricula development and testing. The two participating teachers attended the in-service on curriculum development prior to the fall semester which included all teachers who were associated with any aspect of the three experiments. The math teacher was assisted in implementing the same individualized math program as used in the previous studies. Materials were given to the teacher periodically early in the fall semester as they were developed, along with a brief explanation of the procedures. Since Teacher 2 provided daily math instruction to both classes, it was specified that the individualized materials and format be used only with the target classroom. The other class received instruction in a traditional format using district-wide curriculum objectives. Again, the individualized program was based upon the same objectives but were rewritten to obtain increased behavioral specificity.

The reading materials for both classes had previously been individualized in terms of lesson sheets related to stories derived from five reading texts corresponding to several grade levels in reading difficulty. The lesson sheet for a given story emphasized new vocabulary, word attack skills and comprehension. The target classroom received phonics training with Henderson's program (1971) and enrichment materials were used contingent upon completion of the daily lesson packet. The contingent supplemental activities used only with that group primarily
involved small group audio-center instruction in terms of listening to recorded stories and subsequently answering comprehension questions. This instructional format was used throughout the academic year.

In the first week of the fall semester, all children in the target classroom and the two target children from the other class were given the PIAT (Dunn and Markwardt, 1970). Posttests with the same instrument were administered at the end of the school year. Again the pretest-posttest results from the Stanford Achievement Tests (Intermediate Level I) were obtained from school records at the conclusion of the school year. However, the posttests were given by the classroom teachers prior to the behavioral intervention rather than at the end of the spring semester.

Behavioral intervention. A multiple baseline design was again used to assess: (a) the effects of placement in a classroom in which the teacher and peers were therapeutically trained; and (b) the additional effects of training a second teacher with whom the trained class had daily contact, i.e., a replication across teachers. Subject 1 and 4 were placed in the target classroom from the outset of the school year which enabled assessment of systematic changes in behavior as a function of the 2-week training. Subjects 2 and 3, both of whom were in the nontarget classroom, were transferred to the trained classroom on the 31st and 36th sessions, respectively. Treatment was implemented on the 21st session and continued through the 30th session.

Baseline. Observation began in the seventh month of the school year. Base rates on all behavioral categories were obtained in each child's initial placement following an adaptation period of 5 days to
allow the teachers and students to adjust to the presence of an observer. The teachers instructed the children to ignore the data collectors and provided a brief explanation of their presence. Teachers were unaware of base rates or behavioral categories but were informed of the fact that the observers were recording the actions of target children.

S4 was included in the study after 10 days of base rate had been obtained on the previously selected children. His selection was based upon informal classroom observation and teacher recommendations. Baseline consisted of 20 morning and afternoon sessions for Ss 1, 2, and 3, and for the last 10 sessions of that period for S4.

Treatment. Following baseline, the 10-day training program was implemented in the target classroom by the homeroom (reading) teacher. Since the reading teacher also instructed S2 and S3 on a daily basis, it was requested that the techniques in the "PUPIL" package be applied only in her homeroom with S1 and S4. It was further requested that the target teacher not discuss or explain any feature of the program with the second target (math) teacher who later received the same training.

The application of the "PUPIL" package followed the procedure employed in the previous study except that the mediator or teacher-training agent was an assistant to the principal investigator and was a qualified teacher of the emotionally disturbed. Again, rules were established governing the same response classes as in the previous studies. Records were kept by the target teacher indicating the frequency of rule review, individual or group contingencies for group consequences, role playing, and the children's self-monitoring of
attention to inappropriate behavior. Data-based feedback was provided to Teacher 1 from the outset of training (Session 21) through 1 week following the transfer of S_3 (Session 40). Data collection without feedback was continued for 15 additional sessions. The training of Teacher 2 began on the 41st session, or immediately upon termination of feedback to Teacher 1. The same procedures were replicated in this second treatment phase with daily feedback provided for Teacher 2 throughout training. No feedback was provided to Teacher 2 during the last five sessions (51-55).

**Results and Discussion**

The data illustrated in all figures represent rates obtained in reading, taught by Teacher 1, and math, taught by Teacher 2. For graphical comparisons, it should be noted that all target children received individualized reading from the outset of the school year, regardless of placement. Thus, transfer of S_2 and S_3 to the trained classroom did not involve a curriculum format change nor did transfer involve any change of teachers. At the same time, however, transfer did necessitate a change in the format for math instruction, while the teacher, of course, remained the same.

In terms of the sequence of conditions, labelled Baseline, Treatment 1, Treatment 2, it must be further noted that these events are not strictly comparable across target children. Baselines for S_2 and S_3 were obtained with different peer groups than that of S_1 and S_4. Additionally, the first treatment condition for S_1 and S_4 involved direct training of all the children in that class, while the condition
similarly labelled for S_2 and S_3 involved a transfer to that environment. Thus, behavioral comparisons across subjects were only strictly comparable for the replication across S_2 and S_3, for the simultaneous treatment of S_1 and S_4, and for the replication across teachers (Treatment 2) for all target children.

Finally, to the extent that Teacher 2 did not alter her rates of attention to the appropriate and inappropriate behaviors of target children during Treatment 1, examination of the rate of behavior in the Teacher 2 situation, constituted a baseline in which generalization effects from either training in or transfer to a therapeutic environment could be assessed. All graphs for S_4 are presented separately in Appendix F.

Figure 18 illustrates the reductions in the rate of inappropriate talk for three of the target children. The base rates of all three subjects were higher in reading with Teacher 1, than in math with Teacher 2. All three graphs show a rather precipitous decline in Treatment 1, within the therapeutic environment. The second baseline in Treatment 1, i.e., the behavior rates during math, simultaneously diminished for the three children, thus suggesting that the children generalized response reductions across situations. Therefore, the additional training of Teacher 2 (Treatment 2) could not produce any further reductions in this behavioral category. A similar pattern was found for S_4 (see Appendix F).

The incidence of modified out of chair is shown in Figure 19. Some reduction in baseline rates for S_1 was noted in the first 10 sessions of Treatment 1 in the Teacher 1 situation; however some
Figure 18. Daily incidence of target children engaging in inappropriate talk during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 19. Daily incidence of target children being modified out of chair during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
recovery of the response occurred during the latter 10 sessions of that condition and continued through Treatment 2. It appeared that the generalization of those reductions to the Teacher 2 condition followed a similar course. The low baseline rate obscured both treatment and generalization effects. A similar interpretation was applicable to S2 and S3 with perhaps more clear-cut treatment effects produced in the reading class.

The off-task response class was found to be a more sensitive measure of treatment effects for S2 and S3, since these children engaged in high rates of this behavior in the reading class during baseline (see Figure 20). For both subjects, the high, variable base rates for this behavior were substantially reduced in Treatment 1, while the combined effects of training Teacher 2 nearly eliminated this behavior. S1 showed a low variable rate of this behavior throughout all phases of the study which was generally within an acceptable range. The pattern for S4 was quite similar to that found for S1 (see Appendix F).

The findings for the noisemaking response category closely paralleled those obtained for off-task behaviors (see Figure 21). S1 and S4 manifested little of this behavior throughout the study in either reading or math. In contrast again, Treatment 1 effectively reduced this behavior in both reading and math for the transferred children. Treatment 2 produced no additional reductions; if anything, some recovery in the math class was noted. Both the overall rate and the variability of the noisemaking behavior were substantially reduced for these two children.
Figure 20. Daily incidence of target children engaging in off-task behaviors during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 21. Daily incidence of target children engaging in noisemaking during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Off-task actions also characterized the behaviors of S₂ and S₃ during baseline, while S₁ and S₄ manifested negligible frequencies. From Figure 22, it can be seen that Treatment 1 sharply diminished the frequency of the behavior in both reading and math for both children. Again, generalization effects were difficult to assess since the Treatment 1 condition was in effect for only 10 sessions for S₁, and five sessions for S₂ as a result of time limitations, and because low variable rates were observed in math with Teacher 2. However, the apparent generalization of response reduction for S₂ in Treatment 1 was noteworthy. Since Treatment 1 effectively reduced the rate of this behavior in both math and reading for the two children, the additive effects of the training of the second teacher could not be assessed. Perhaps the only instance where Treatment 2 appeared to have an additional effect over the initial training was for the chair-rocking behavior of S₄ ("other" category in Appendix F). High rates of this behavior were recorded during baseline and throughout Treatment 1 during the math period. These rates were nearly eliminated in the second treatment. S₃ also manifested high rates of rocking during both math and reading. In spite of declining baselines for reading and math, the combined effects of peer and teacher therapeutic training appeared to reduce this behavior to acceptable levels (see Figure 23).

During baseline, all four target children were frequently out of their desks at inappropriate times. Figure 24 indicates that this difficulty characteristically occurred in the reading class for these three subjects, but S₄ showed high incidences of this behavior in both classes (see Appendix F). The first treatment substantially diminished
Figure 22. Daily incidence of target children engaging in off-task action behaviors during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 23. Daily incidence of target children engaging in behaviors as defined in OTHER (rocking) category during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 24. Daily incidence of target children being out of chair during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
the occurrence of these behaviors for all the children. Noteworthy was the apparent generalization of these reductions from reading to math class for S₄.

The training program appeared to reduce the teacher's attention to the inappropriate behaviors of the four children. Figure 25 illustrates the attentional response patterns of Teacher 1 throughout the study. The graph of her responses to S₁ shows that the predominant attention to misbehavior characteristic during baseline rapidly reversed to attention for appropriate actions during Treatment 1. That these gains persist in the absence of feedback from external sources is supported by the rate of attention to appropriate behavior in Treatment 2. Comparisons across the graphs for the three target children suggest also that Teacher 1 managed a consistent baseline response style toward S₂ and S₃ through Sessions 20-30 and 20-35, respectively. She effectively reversed her attentional pattern to S₁ during that period but maintained differentially higher rates of attention to the misbehaviors of the other two children until they were transferred. The replication of the effect of training a teacher to reverse a tendency to reinforce unwanted behaviors in target children is illustrated in Figure 26. Teacher 2 substantially reduced her attention to misbehavior and increased her attention to appropriate actions, although to a lesser extent. These gains persisted for the remaining five sessions under conditions of no feedback.

Again, the program was successful in eliminating peer attention to the inappropriate behaviors of target children. Figure 27 depicts an immediate and enduring reduction of attentional responses within the
Figure 25. Daily incidence of Teacher 1 attention to inappropriate behavior of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 26. Daily incidence of Teacher 2 attention to appropriate and inappropriate behaviors of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
Figure 27. Daily incidence of peer attention to inappropriate behaviors of target children during baseline, treatment for Teacher 1, and subsequent treatment for Teacher 2.
reading class. The trained class also reduced their tendency to attend to misbehavior in the math class. The latter is supported by responses to $S_4$ as a result of Treatment 1 (see Appendix F). Although more adequate control would have been achieved by replicating the peer training in the untrained class, this dimension of reinforcement for unwanted classroom behavior was eliminated among the therapeutically-trained students.

In summary, Experiment 3 demonstrated that substantial reductions in achievement-defeating behaviors of four children were produced by placement with a teacher and peers trained in the application of basic behavioral principles. These unwanted behaviors were again apparent in baselines where both individualized and traditional teaching formats were used and subsequent behavioral improvements were obtained when the environment was socially changed. In contrast to Experiment 2, the assessment of transfer of training in terms of the target children's responses in the presence of an untrained teacher (Treatment 1) was obscured by the generally lower rates of misbehavior found in the math class. An additional consequence of those low, variable base rates and the substantial reductions produced by Treatment 1 and the reading class was that the necessity for training Teacher 2 and beneficial outcomes derived therefrom were not consistently clear. These differences in the base rates may have been related to the highly autocratic-authoritarian manner in which that particular class was conducted.

Achievement results. The mean gain in grade equivalent and standard score units on the PIAT for all children in the trained classroom is given in Table 8. All comparisons were computed with the $t$
statistic for correlated means; levels of significance were determined on a two-tailed basis with 25 df. The grade equivalent gains were of practical and statistical significance in terms of the purposes of this study. The same analysis performed on standard score units indicated significant group achievement gains on all subtests except General Information.

Table 8
PIAT Pretest, Posttest, and Gain Scores of Children in Target Classroom 3

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Mean Grade Equivalent</th>
<th>Mean Standard Score</th>
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</tr>
<tr>
<td>Total test</td>
<td>6.53</td>
<td>8.58</td>
</tr>
</tbody>
</table>

**P < .01  
***P < .001
Grade equivalent data for each target child are presented by PIAT subtest in Table 9. On the Mathematics, Reading Recognition, and  

Table 9  
PIAT Pretest, Posttest and Gain Scores for the Target Children in Experiment 3

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Grade Equivalent Score</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
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</tr>
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<tr>
<td>S3</td>
<td>4.7</td>
<td>6.2</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>6.6</td>
<td>10.3</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td><strong>Reading comprehension</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>6.2</td>
<td>9.2</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>2.2</td>
<td>3.5</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>4.5</td>
<td>5.0</td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>4.7</td>
<td>8.1</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td><strong>Spelling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>9.0</td>
<td>11.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>2.9</td>
<td>2.7</td>
<td>-.2</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>4.4</td>
<td>4.9</td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>6.7</td>
<td>6.0</td>
<td>-.7</td>
<td></td>
</tr>
<tr>
<td><strong>General information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>10.7</td>
<td>12.9</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>6.5</td>
<td>5.6</td>
<td>-.9</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>5.0</td>
<td>5.8</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>5.8</td>
<td>10.3</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td><strong>Total test</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>7.7</td>
<td>9.6</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>3.5</td>
<td>4.0</td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>4.8</td>
<td>5.6</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>5.6</td>
<td>9.0</td>
<td>3.4</td>
<td></td>
</tr>
</tbody>
</table>
and Reading Comprehension subtests, all target children either gained a grade level during the academic year or obtained a posttest score at or above grade level with the exception of \( S_3 \) on Reading Comprehension (5.0 grade equivalent; .5 grade level gain) and \( S_2 \) on Reading Recognition (5.4 grade equivalent; .9 grade level gain). The results for the Spelling subtest were less satisfactory for \( S_2 \) and \( S_3 \), while the General Information scores were generally satisfactory for all target children in terms of the objectives of the study. The overall results for the achievement gains on the particular test met project objectives.

Table 10 presents the grade equivalent gains on the Stanford Achievement Test for the two fifth-grade classes in which observations were conducted.

<table>
<thead>
<tr>
<th></th>
<th>Math computation</th>
<th>Math concepts</th>
<th>Math application</th>
<th>Reading comprehension</th>
<th>Vocabulary</th>
<th>Word study skills</th>
<th>Total test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target class</td>
<td>3.60</td>
<td>1.87</td>
<td>1.80</td>
<td>3.80</td>
<td>3.60</td>
<td>2.30</td>
<td>2.80</td>
</tr>
<tr>
<td>Control class</td>
<td>2.30</td>
<td>1.17</td>
<td>1.40</td>
<td>1.60</td>
<td>1.80</td>
<td>1.90</td>
<td>1.70</td>
</tr>
</tbody>
</table>

This test was administered prior to behavioral intervention. Thus, differences between the classes may primarily be related to initial achievement differences as a result of ability grouping, the effects of the individualized math program and the supplemented reading instruction or to the interaction between the ability grouping and the curriculum.
To the extent that a statistical method adequately controlled for initial group differences, the analysis of covariance was used to determine if the achievement gains in the target classroom were greater than those obtained in the control classroom. In contrast to the other achievement gain analyses, the scores of the target children who were transferred were not included in the target classroom gains since they had received mixed modes of instructional treatment. The covariate used in each of the analyses was the pretest score on the given subtest.

The results of the analysis of covariance for the Math Computation subtest are given in Table 11.

Table 11
The Analysis of Covariance for Scores Obtained by the Target and Control Classes on the Math Computation Subtest

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Between</th>
<th>Within</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of squares: Y</td>
<td>.66</td>
<td>13.51</td>
<td>14.17</td>
</tr>
<tr>
<td>Sum of squares: X</td>
<td>18.03</td>
<td>134.49</td>
<td>152.52</td>
</tr>
<tr>
<td>Sum of products</td>
<td>3.43</td>
<td>27.66</td>
<td>31.09</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>1</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>Adjusted sum of squares: X</td>
<td>6.45</td>
<td>77.86</td>
<td>84.31</td>
</tr>
<tr>
<td>Degrees of freedom for adjusted sum of squares</td>
<td>1</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Variance estimates</td>
<td>6.45</td>
<td>1.99</td>
<td></td>
</tr>
</tbody>
</table>
The results of this analysis did not achieve statistical significance, $F(1,39) = 3.23, p = .08$. Although such a finding was not statistically reliable and may be based upon questionable theoretical assumptions, it does suggest that large gains may have occurred prior to behavioral intervention, perhaps as a result of the independent contribution of curriculum differences between classes.

The same analysis was performed on the differences between the two classes on the Math Concepts subtest which is presented in Table 12.

Table 12

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Between</th>
<th>Within</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of squares: Y</td>
<td>2.86</td>
<td>70.02</td>
<td>72.88</td>
</tr>
<tr>
<td>Sum of squares: X</td>
<td>18.23</td>
<td>90.63</td>
<td>108.86</td>
</tr>
<tr>
<td>Sum of products</td>
<td>7.23</td>
<td>50.09</td>
<td>57.32</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>1</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>Adjusted sum of squares: X</td>
<td>8.98</td>
<td>54.80</td>
<td>63.78</td>
</tr>
<tr>
<td>Degrees of freedom for adjusted sum</td>
<td>1</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>of squares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance estimates</td>
<td>8.98</td>
<td>1.40</td>
<td></td>
</tr>
</tbody>
</table>

This comparison produced statistically significant results, $F(1,39) = 6.37, .01 < p < .05$. It appears that the children who received the curriculum intervention in terms of individualized math produced greater adjusted mean achievement scores than those who had traditional teacher-oriented instruction with the same curriculum objectives.
The analyses of covariance on the differences between classes for the Math application, Vocabulary, and Word Study subtests were not statistically significant. No analysis of the total test scores was performed since those scores represent performance on other subtests in addition to math and reading.

The differences between the two classes on the Reading Comprehension subtest was found to be significant, $F(1,39) = 4.85$, $p < .05$. Table 13 provides the summary for this analysis.

Table 13
The Analysis of Covariance for Scores Obtained by the Target and Control Classes on the Reading Comprehension Subtest

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Between</th>
<th>Within</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of squares: Y</td>
<td>23.35</td>
<td>114.42</td>
<td>137.77</td>
</tr>
<tr>
<td>Sum of squares: X</td>
<td>48.56</td>
<td>137.18</td>
<td>185.74</td>
</tr>
<tr>
<td>Sum of products</td>
<td>33.67</td>
<td>96.41</td>
<td>130.08</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>1</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>Adjusted sum of squares: X</td>
<td>6.97</td>
<td>55.95</td>
<td>62.92</td>
</tr>
<tr>
<td>Degrees of freedom for adjusted sum of squares</td>
<td>1</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Variance estimates</td>
<td>6.97</td>
<td>1.44</td>
<td></td>
</tr>
</tbody>
</table>

In summary, when the two classes were equated on pretest achievement scores and received instruction from the same teachers based upon the same curriculum objectives, those children who used the individualized or student-centered format in math and enriched-individualized format in reading produced greater adjusted mean scores in terms of the
Reading Comprehension and Math Application subtests and a trend toward better performance on the Math Computation subtest. However, the important finding from these analyses was that in the absence of behavioral intervention for extant misbehavior in regular classrooms, presumably throughout the greater portion of a school year, normal achievement gains prevailed for two elementary classes. Such a finding may suggest that, contrary to the suggestions from the bulk of classroom intervention research, chronic classroom misbehavior may not interfere with the normal achievement of most students within the regular classroom, notwithstanding the presence of behaviorally disturbed children.
SUMMARY AND CONCLUSIONS

Recent trends in the classroom management literature have suggested that children who, because of their behavioral excesses or deficits, have been excluded from regular classrooms may more profitably be maintained with their normal peers. The therapeutic efforts have focused on teacher training (Jones & Elmers, 1975; Madsen, Becker, & Thomas, 1968) and peer training (Graubard & Rosenberg, 1974; Sanders & Glynn, 1977; Solomon & Wahler, 1973). The purpose of the present investigation was to combine the training principles derived from both lines of research into a practical package which teachers could use to maintain behaviorally disturbed children in their regular classrooms.

A "PUPIL" handbook was developed which directed teachers to establish classroom rules, praise appropriate behavior, ignore inappropriate behavior, use individual and group contingencies for group consequences, and to employ peer tutoring and individualized instruction. It was then specified that the teacher train the students via role-playing how to praise and ignore, self-monitor, and to provide mutually beneficial interaction outside the classroom. Training sessions were designed to take place after a class had been dismissed for the day and were to last approximately 20 minutes.

Behaviorally disturbed children in the fifth grade of three schools were identified prior to the beginning of the school year. In Experiment 1, baseline observations were taken of each of three male children in their regular classroom placements. One of the children was already
assigned to the classroom prior to and throughout training. The 10-day training program was successfully implemented by the target teacher and a second child was transferred to the therapeutic classroom. After 5 days, when the second child had adjusted to the change of placement, a third target child was placed in the trained class. Substantial reductions in the rates of the target behaviors were obtained for all target children, increases were noted in teacher praise for appropriate behavior, and decreases were recorded in teacher and peer attention to misbehavior. Follow-up data recorded 2 months after termination of the initial data collection revealed that the behavioral reductions obtained throughout training persisted and did so in the absence of further feedback to the teacher.

Pretest and posttest data were obtained on the academic achievement of all children who were trained, including the three target children. On the PIAT, the class grade equivalent gain on each subtest was both practically and statistically significant. An unexpected finding was that the gains in standard scores for all subtests were also statistically significant. Each of the target children minimally produced either a grade level gain or were at grade level on one or both achievement tests given at the conclusion of the school year.

Since change of placement, curriculum and teachers, either singly or in combination could have produced reductions in the target behaviors for the two transferred children, the second experiment attempted to control those factors. Again, one of the target children was placed in the target classroom from the outset of the school year. Each of the other two-fifth-grade classes contained a target child and the three
classes received departmentalized instruction from the same teachers. The math curriculum was individualized for the target class only, while the reading curriculum was individualized for all three of the fifth-grade classes. Thus, transfer of the second and third target children did not involve a change in curriculum format for reading, only for math, nor did a change in placement require a change in teachers, only in peers. Again, placement in the trained class resulted in substantial reductions in achievement-defeating behaviors for the three children, but these effects were obtained primarily in the presence of the trained (math) teacher. Thus, the reading teacher was subsequently trained which resulted in a replication of treatment effects across teachers and, of course, the latter did not involve a change of placement for any child.

The major group achievement findings from Experiment 1 were replicated in the second study, although not all standard score gains reached statistical significance. The academic achievement for two of the target children met at least minimum project objectives while the data for the other child were less convincing.

The third study was intended to replicate the others, as well as to assess achievement gains resulting from the individualized math program and enriched reading curriculum prior to behavioral intervention. The participating school contained only two fifth grade classes; both classes contained two target children. Instruction of each class was divided equally between the two teachers. The same regimen of training the target class, integrating the other children, and training the second teacher prevailed. However, group achievement tests were
given just prior to intervention. Additionally, the training agent was a qualified teacher of the emotionally disturbed who had observed the principal investigator conduct the intervention with the teachers participating in the previous studies.

The greatest reductions in the target behaviors of the four children were obtained for the reading teacher (Treatment 1). The replication across teachers was not convincingly demonstrated since the gains made in deportment in the reading class generalized in many instances in the math class. This finding was thought to be related to the unique teaching styles of these two teachers--one laissez faire (Treatment 1, reading), the other autocratic-authoritarian (Treatment 2, math).

The group achievement gains on the PIAT were again statistically significant for all subtests in terms of grade equivalent scores and for all subtests, except General Information, on the standard scores. The PIAT posttests were given after intervention. The Stanford Achievement Tests were given prior to intervention. Since the two classes were grouped according to ability, the analysis of covariance was used to correct for initial differences in achievement. Comparisons between the classes, which differed primarily in terms of curricula, were made on several math and reading subtests. Those students who used the individualized or student-centered format in math and enriched-individualized format in reading, i.e., the target class, produced significantly greater adjusted mean scores in terms of the Reading Comprehension and Math Application subtests and a trend toward better performance on the Math Computation subtest.
Thus the systematic application of a wholly positive teacher and student training package resulted in the successful accommodation of ten behaviorally disturbed children in regular fifth-grade classrooms. The techniques did not involve a radical departure from normal classroom routine, identification of these exceptional children to their peers beyond what was otherwise apparent, nor implementation by mediators outside of those available to nearly every school district.

In terms of the novelty of any given technique, the project materials offer little that is new to the field of classroom management. Each of the techniques taken singly have produced substantial reductions in the untoward behaviors of elementary school children, e.g., establishing classroom rules (Becker, Madsen, Arnold, & Thomas, 1967), teacher praise (Becker et al., 1967), appropriate use of reprimands (O'Leary, Kaufman, Kass & Drabman, 1970), individual contingencies for group consequences (Evans & Oswalt, 1969), peer tutoring (Johnson & Bailey, 1974), modeling (O'Conner, 1972), peer therapists (Solomon & Wahler, 1973), and self-monitoring (Mahoney & Mahoney, 1976). At the same time, packaged skill programs for teachers have been developed (Jones & Eimers, 1975) and eclectic peer training has been advocated (Graubard & Rosenberg, 1974).

Paralleling these developments has been a search for a training model for special educators (Schwartz, 1971) with an emphasis on the role of the special educator as a facilitator of mainstreaming techniques (Kunn, 1973). The approach developed in the present investigation attempted to combine both teacher and peer training strategies in an economical fashion for special educators and regular classroom
teachers of the emotionally disturbed. The novelty of the approach from a packaged skill program which is wholly positive, costwise efficient, and flexible enough to meet the diverse needs of many learning environments.

It can be concluded that transfer to a classroom in which the teacher and peers have used the "PUPIL" program is effective in reducing many academically defeating behaviors of children considered emotionally disturbed. Those target children who were included in the training program, i.e., not transferred, similarly profited in terms of response reductions indistinguishable from those who were transferred. These behavioral reductions appear to be independent of the type of curriculum, change of teachers, peers, or curriculum, and independent of ability or random grouping in a given target class. All five trained teachers showed a decrease in attention to inappropriate actions of target children and all manifested a striking increase in attention to desired behaviors. Trained peers likewise reduced and nearly eliminated all attention to the unwanted behaviors of the exceptional children. Although most of the behavioral reductions in target behaviors occurred during the first week of training in all target classrooms, the teachers reported greater satisfaction with and belief in the effectiveness of peer training than they did in their own training.

It is further concluded that three classes with so-called emotionally disturbed children in them, achieved academically at rates greater than that expected on the basis of national standard score analyses. Furthermore, of the ten target children, only one did not meet or exceed project standards for academic achievement which were
either a minimum of one grade level improvement during the academic year or performance at the sixth-grade level at the end of the year in reading and math.

Finally, it must be noted that the success of this approach was dependent upon a combination of three primary variables which were teacher and peer change, and curriculum change. Although significant academic gains were obtained in Experiment 3 prior to behavioral intervention, these effects were found after statistical correction for initial group differences. Naturally, the goals of any intervention program must include both academic and deportment gains of all children participating. Thus, the recommended approach must be one which utilizes all three factors, e.g. the total milieu approach promoted by Winett, Battersby, and Edwards (1975).

Thus far, the "PUPIL" program has been systematically applied in nine regular classrooms in the Hays, Kansas area and in several classes for the mentally retarded in the Lakemary Treatment and Residential Center in Paola, Kansas.

Future research is needed to establish the generality of these initial findings for a variety of teaching methods and styles and for children of various grade levels and characteristics. An evaluation of the relative contribution of peer training, apart from teacher training, would be a useful extension of the present investigation. Of special importance for the continued use of the "PUPIL" program would be an assessment of the minimal amount of feedback provided to the target teacher necessary for the successful implementation of this training package. The use of sociometric techniques to determine whether target
children increase their peer popularity as a result of intervention may provide additional data in support of the efficacy of these procedures.
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Appendix A

TEACHER TRAINING PROCEDURES

Developed from the HEW Grant
The Modification of Emotionally Disturbed Behavior Through Teacher and Peer Training.
August, 1975 - July, 1976

Daniel J. Kaeck
Project Director
Assistant Professor of Psychology
Ft. Hays Kansas State College

Patricia J. Kaeck
Research Associate
Department of Psychology
Ft. Hays Kansas State College
The purpose of this manual is to acquaint you with techniques of classroom management which have proven to be effective in dealing with "problem behaviors" frequently encountered in regular classrooms. These methods have been used to deal with a variety of off-task and disruptive behaviors in many different environments. You should feel confident that with a little assistance they will work just as well for you.

The method by which you will learn the techniques is one which has also proven to be effective. At the same time, it allows for individual teaching styles and innovation. Please do not feel restricted by these guidelines.

This program emphasizes "learning by doing". Each day a brief description of a technique along with an assignment will be given to you. You should read the material and ask your project assistant any questions at all regarding the description of the technique and how to proceed in implementing it. The following day, we would like to have you incorporate the procedure into your daily classroom routine. The techniques are simple and, again, effective. Many of these you may already be using which makes our job that much easier. Remember we are here to help you in any way we can and, at the same time, you are helping us in fulfilling our role in this project.

The results obtained through conscientious application of these procedures have been truly impressive. Thus far, this package has
been field-tested in five classrooms involving 125 fifth-grade students. Remarkable gains in academic-appropriate behaviors have been obtained not only in educationally high-risk children but in the students in general. These changes were obtained in a cooperative group effort on behalf of regular classroom teachers and students with none of the high-risk pupils identified to others as being exceptional in any sense. The minimum training time was two weeks, but continued practice and follow through was deemed essential.

The project materials were validated under a system of classroom observation plus daily feedback until satisfactory gains were demonstrated. Therefore, we recommend that any teacher implementing these procedures should make provision for some data collection and feedback by an individual familiar with classroom observation techniques. The students, their parents and teachers who have been involved in the validational project have found this learning process to be enjoyable and productive. We hope you will too.
HOW TO USE THIS PROGRAM

Teacher's Handbook - Assignments 1-10

These lessons are used in the teacher training phase of the program. At the end of each day you will be handed an assignment to be read in the presence of the project assistant. At this time any question concerning implementation will be answered. You will then decide on the step-by-step procedure for that given assignment which will be used with your students the following day.

PUPIL Handbook - pages 1 - 10

These pages are used in the peer training phase of the program. The student handbook is called PUPIL or Pupil Understanding of Peer Influence in Learning. The student pages supplement the various teacher training assignments and are noted at the end of each teacher assignment. These pages are meant to facilitate discussion in the different areas of peer influence on learning and to help clarify the training for your students. Look them over and be prepared to introduce any new concepts or vocabulary words i.e., peer, appropriate, inappropriate, tracking, privileges. The student booklets are to be passed out, filled in, and collected. They may be redistributed when completed and used as references by the class.

PUPIL Handbook, Teacher's Edition

This part of the handbook consists of supplementary pages A - E and is found in the back of the teacher's edition of PUPIL:
A. The Teacher Self-Evaluation Checklist is provided in order for the teacher to monitor her own daily change in behavior in accordance with the specified assignments. Because the assignments are cumulative this provides a quick reference to see if you are keeping everything going at once.

B. A chart is provided for teacher use in dealing with specific problems. This is a good way to keep track of progress made and success of remediation.

C. This page is provided for examples to model when beginning to use verbal reinforcement and praise. (Assignment #2)

D. The classroom chart is provided to use as it is or as a model with the lesson on tracking. (Assignment #9)

E. The Achievement Diploma can be copied on a thermofax ditto and given to the children for outstanding improvement in their classroom performance. Gold seals can be purchased and applied for that official look.
ASSIGNMENT 1

CLASSROOM RULES

Almost every teacher establishes classroom rules for behavior. Frequently these rules are informal, i.e. they are not posted. Sometimes it is unclear to children whether certain rules apply during all classroom activities or for particular class work, e.g. math and reading.

We would like to assist you in establishing formal classroom rules for behavior. The emphasis will be upon three categories of behavior and whatever categories of behavior you wish to add, if any. The rules for the behavior of interest should be posted and accompanied by a statement of when they apply. The behavior should include the following:

1. Acceptable action behaviors--this category refers to nonverbal interaction with objects pertinent to the current classroom task. Behaviors such as reading, writing, or drawing, when appropriate, are examples of on-task interaction with classroom materials. Unacceptable behaviors for example may include manipulation of combs or rubber bands, gesturing, or reading comic books during math and so forth.

2. Acceptable talking--usually this means vocal behavior which is in accordance with orderly classroom routine and is school related. Typically, students during math, reading, and sometimes discussion
periods are required to raise their hands and wait for teacher recognition. Unacceptable behaviors may include talking to one's neighbors during tests, and speaking out without permission at any inappropriate time. On special group projects this rule does not of course apply, unless the talking behavior is disruptive to the goal of the task.

3. Acceptable out-of-seat behavior—whenever a child leaves his seat at an appropriate time or with the teacher's consent. During individual writing assignments students may be requested to remain at their seats unless permission to leave the seat has been granted through appropriate permission-seeking behavior.

In formulating rules, remember to:

1. Involve the class in making up the rules.

2. Keep the rules short and to the point.

3. Phrase rules, where possible, in a positive way. ("Sit quietly while working" instead of "Don't talk to your neighbors.")

4. Remind the class of the rules at times other than when someone has misbehaved.

5. Make different sets of rules for varied activities.

6. Let children know when different rules apply (work-play).

7. Post rules in a conspicuous place and review regularly.

8. Limit rules to about five.
9. Keep a sheet on your desk and record the number of times you review rules with class.*

Project personnel will be happy to assist you in implementing this aspect of the program.

Supplement to Assignment #1

The following is a list of classroom rules successfully implemented which created a reduction in off-task behavior in the classroom.

Our Classroom Rules

1. Quietly ask your tutor for help (during Math and Reading).
2. Walk quietly to and from special classes.
3. Raise hand when wishing to speak.
4. Sit quietly while working.
5. You may only leave your seat to get math and reading materials.
6. Ignore rule violators.

Later on, you will be introduced to role-playing techniques in lessons 6 and 7. These techniques will serve as a method for reviewing the rules, situations where they apply and acceptable responses to them. They will function to increase desired rule-following behaviors with your pupils.

Use PUPIL page 1.

ASSIGNMENT 2
INCREASING PRAISE FOR RULE-FOLLOWING BEHAVIOR
AND
IGNORING INAPPROPRIATE BEHAVIOR

Most educators would agree that the most powerful teaching tool is praise. Coupled with the use of praise is consistent ignoring of undesirable behavior to produce the most enduring change of behavior. Psychologists and educators have repeatedly demonstrated that reprimands for undesirable behavior often serve to increase the actions which they are intended to decrease. Consistently using praise for appropriate actions and ignoring inappropriate behavior based upon classroom rules is extremely effective in producing conformity to classroom activities. But this total approach requires re-learning and patience. It takes time for us to alter our behaviors as teachers and time for children to learn what pays off and what meets with loss of recognition.

When using praise:

1. Praise as immediately as possible.

2. Reward improvement in the right direction. Changes in behavior are likely to be gradual rather than sudden.

3. Be careful to ignore undesirable behavior. This is often difficult to do but is the single most effective way of dealing with misbehavior in the final analysis.

   a. Note that some behaviors may actually increase periodically
even though you have consistently ignored them. This is
to be expected and it is also expected that the positive gains
take time to be manifested.

b. Ignoring of misbehavior requires patience and, most of
all, close monitoring of one's own behavior in order to be
certain that undesirable behavior does not occasionally
earn attention.

4. Use a variety of positive comments to avoid stilted and redundant
   phrases.

5. Be specific. Describe the behavior you are praising. "Johnny, I
   like the way you raise your hand before speaking!"

6. Catch students being good!

7. Specify, praise, and ignore:
   a. Emphasize the behavior you desire by praising children
      who are following the rules. Rules are made important
      by providing recognition to those who follow them.
   b. As the children learn to follow the rules, repeat them
      less frequently, but continue to praise good classroom
      behavior.
   c. Relate the children's performance to the rules. Praise
      the behavior not the child. Be specific about behavior
      that exemplifies paying attention or working hard:
      "That's right, you've been working hard."
      "You watched
the board all the time I was presenting the example.

That's paying attention." "That's a good answer. You
listened very closely to the question."

8. Look for changes in your own behavior by noting the data collected
during the day and through consultation at the end of each day with
project personnel.

9. We do not expect immediate changes, but try to increase the number
of positive comments made each day and decrease your comments or
any form of recognition for misbehavior.

10. Some misbehaviors are so disruptive that they simply cannot be
ignored. In that case, the next assignment should prove helpful.

11. You may also experience a slight but temporary increase in inappro-
priate behavior early in the program. This is to be expected, so
maintain consistency even though some children will attempt to test
the limits.

See Teacher Supplement - C
ASSIGNMENT 3

ADDITIONAL REWARD PROCEDURES
AND
AN ALTERNATIVE TO REPRIMANDS

Children will not only seek to gain your praise or recognition, they will also work to obtain classroom privileges and responsibilities. When a child behaves in a desirable fashion, you may not only wish to praise the behavior but may as well want to add an activity or privilege for that behavior. The following list contains some suggestions for supplemental rewards common to most classrooms. The same rules for administering praise apply to these incentives as well.

It is as important to occasionally provide rewards to children who are typically well-behaved as it is to reward appropriate behaviors of those who manifest more problem behaviors. The reason is that children who are relatively "problem-free" and receive recognition for appropriate behavior provide a "model" for the child who is having adjustment difficulties. When children observe a model who receives recognition for "good" behavior they will often seek to obtain similar rewards by imitating the model's behavior. This is why it is critical that the class knows why a given behavior was rewarded.

Therefore, we would suggest that you incorporate an occasional daily reward for "good" behavior into your classroom routine.

REWARDS COMMON TO MOST CLASSROOMS:

making gifts
model building

recognizing birthdays
correcting papers
special seating arrangements
responsibility for ongoing activities
during school holidays
(pets, plants, assignments)
decorating room
presenting hobby to class
"Citizen of the Week" or
"Best Kid of the Day"
praise
self-graphing
daily good reports to parents
smiles of teacher
happy faces on papers
chance to help other students
magazine selection
extra privileges
teacher for the day
clean chalk board
read to younger children
cross walk patrol leader
first turn
field trips
messenger person
party after school
class proctor
nurse's helper
cafeteria helper
library time
lunch counter
stars on paper
papers on wall
get to sit by friend
class leader to bathroom
class leader to cafeteria
pat on back by teacher
library pass
music pass
choose a game
picnic
game equipment manager
stamps on hand
listen to records
flag raiser
sharpen pencils for class
roll call leader
sit in back of classroom
sit by door
turn lights on and off
leading student groups
displaying student's work - any subject matter
running errands
collecting materials - papers, workbooks, assignments, etc.
constructing school materials
helping other children - drinking, lavatory, cleaning, etc.
working problems on the board
outside helping - patrols, directing parking, ushering, etc.
leading discussion
Things - Approval - Access to, turns, use of things coupled with approval.
storybooks
pictures from magazines
collage materials
counting beads
paint brushes
pencil holder
stationery
compasses
calendars
buttons
Finally we would like to suggest an alternative to the usual method of administering reprimands. Some behaviors are sufficiently severe to require some action on the teacher's behalf other than ignoring the behavior. Such severe behaviors certainly include aggression directed to peers, destruction of property or other responses which simply can't be ignored. In these cases, most of us reprimand the child while his or her peers are present. Classroom research has unequivocally substantiated that individual, private reprimands are far more effective than those which a child's peers also hear.

What we are suggesting is that where ignoring a behavior simply won't suffice, provide a reprimand but do not involve the group in the
process. This may be accomplished by at least two means. A child may be removed from the class for these purposes or may be reprimanded at his or her seat as long as his or her peers are not able to listen in on the process.

We would like to emphasize the fact that in most cases of rule violation ignoring the infraction while praising rule-following behavior is the most effective treatment. When severe behaviors arise, such as previously described, reprimands should be given strictly on an individual basis.

Please try to incorporate this method into your classroom routine. Reprimands, in general, should be used quite sparingly and only where property may be damaged or where a child may be injured. A positive approach is the treatment of choice.

Use PUPIL pages 2 and 3.
ASSIGNMENT 4

INDIVIDUAL CONTRACTS FOR GROUP REWARDS

Some children resist many of the previous reward systems. Teacher praise may not immediately be a reward for these children for whatever reasons. Ordinary classroom rewards in the form of special privileges or extra responsibilities may also prove less effective than desired. Furthermore, and as is often the case, much misbehavior may be rewarded by peer attention. A child may "misbehave" solely to "entertain" the group.

This problem may be resolved by providing group payoffs when a given child completes a particular objective. For example, if Johnny completes his math assignment with 80% accuracy or better, then the class will get to see a movie. The effect of this procedure is to enlist peer support for acceptable behavior and worthwhile educational objectives. Johnny's "good" behavior earns the group a reward. There are a few guidelines which should be observed:

(1) Vary the target child. Don't overdo Johnny's responsibility to the group.

(2) Make the behavioral requirement relatively easy to attain at first. Gradually increase the demands of the goal, but always try to insure that it is a reasonable objective.

(3) Avoid or discourage exorbitant group pressure. What we're trying to promote is a social or group recognition of Johnny's "good
behavior". At the same time, we would like the group to learn to
ignore his inappropriate actions.

(4) Note that the behavior requirement must be specific. In the ex-
amples of contingencies, notice that no child is asked to be "good"
or a "good citizen" or to be "a better student".

(5) This technique should be considered experimental. We need to
 closely monitor its success.

(6) This technique may be implemented either on a private or public
basis. For example, the individual contingency may amount to a
private agreement between only the teacher and the target child
that performance of a given objective will result in a group reward.
After the objective is met, the teacher announces to the group that
they are going to receive the reward because Johnny has earned it
for them. It may be advisable to begin with the private method
prior to initiating the publicly announced contingency.

Typical group rewards may include some of the following:

- Extra recess
- Teacher reads a story to the class
- Extra art period
- Listening to records
- Free time with radio program
- A field trip
- Decorate the classroom
Play a group game
A spelling bee
A class party
A group game at recess
A class play or skit

Game time--children have access to a variety of games
Musical chairs
Puppet show
Outdoor lessons
Dancing
Talking periods
Talent shows
Hobby presentation day
Preparations for holidays

Typical contingencies may include the following:

If Johnny observes the talking rule for 1 hour, the whole class
gets 5 minutes extra recess. (moderate difficulty)
If Johnny gets his math done during math class each day
this week with 80% or more correct, we can have a party.
(high difficulty)
If Johnny and Sally return from recess on time, there will be a
5-minute talk period. (low difficulty)

The assignment for tomorrow is to begin experimenting with this
procedure. You may wish to use a variety of these procedures throughout
the week. The criteria to determine how often is too often is whether the technique continues to be effective and how creative one wishes to be.

Later on in the program you may wish to implement a group contingency for a group consequence. The procedure is identical to that previously described for individuals, except that group rewards are now dependent upon group effort in rule-following behavior. The teacher may announce to the class that a reward is available for the entire class if all students follow the rules for the math period. At periodic intervals, e.g., every 10 minutes, the teacher scans the class and either places a mark on the blackboard or does not depending upon the deportment observed. One ought to mention beforehand the purpose of the marks, but no admonishments or further explanation should be given if the group fails to obtain a mark at a given observation. The children should know that it may take, for example, four marks for the reward to be earned.
ASSIGNMENT 5

PEER TUTORING*

Because the previous assignments call for close monitoring to reinforce appropriate on-task behaviors, you may find that your time is too limited to answer all assignment-related questions from students. Because of this we are including a section on peer tutoring.

Traditionally, a "teacher-mediated" learning environment creates a situation in which the student can proceed no faster or slower than the pace of the classroom teacher. Also, the time to help each child is drastically limited. With too little help, the students can experience continued failure, with well-known and very unfortunate emotional consequences. Peer culture operates a dynamic influence on the behavior and personality of the child; it influences his achievement in school and his self-concept.

Because spelling is a fairly well-defined and highly structured subject matter, it has been chosen as a model to show you the design of "peer-mediated" instruction. Remember this model need not be followed exactly. Use existing materials, individualized labs and procedures you are familiar with and that have worked successfully for you.

The children are to follow the classroom rules and interact with their peer tutor as they would their teacher. Some role-playing may be 

*This assignment is based upon concepts developed by Peter S. Rosenbaum available in his text, Peer-mediated instruction. New York: Teachers College Press, 1973.
very effective in initiating this assignment.

In choosing the Peer Tutor, reward those who are following rules, working hard, and staying on task, with this prestigious position—especially those children in whom you have noted an improvement! Pair children for a successful tutoring experience. In a situation of reluctance, a special place to sit or badge to wear can denote the Peer Tutor for that day.

Example: Peer-Tutored Spelling

Materials

Each pupil receives a box of spelling materials on a permanent basis. Consisting of a Student Book and a Peer-Tutor Book.

The Student Book:

The Student Book is nothing more than a special pad that is provided for pupils functioning as Students to write spelling words on. Each page contains a three-column-by-five-row matrix, with each frame subdivided into three sub-rows (see Figure 1).

The Peer-Tutor Book:

Each page of the Peer-Tutor Book contains a spelling lesson of 14 words. These lessons can be made up of words from various sources (word lists, spelling texts, subject vocabulary, experience charts, etc.) in varying degrees of difficulty. Each page has exactly the same format. This format is composed of 14 lines of text. Each line contains one of the words to be mastered in that lesson, followed
by a single sentence containing this word, followed by a repetition of the word. Also, at the beginning of each line is a small rectangle to be used by the Peer-Tutor indicating the Student got the word right the first time. Only on this occasion is the box used (see Figure 2).
MY NAME IS ___________________________ LESSON NUMBER ___
MY PEER-TUTOR TODAY IS _____________ DATE ____________

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(Figure 1)
| green | Mrs. Turtle wore a **green** shell. | green |
| weed | Robert wants to let the **weed** grow. | weed |
| teeth | Without **teeth**, I wouldn't have fun eating. | teeth |
| meat | I dreamed I ate candy and **meat** for lunch. | meat |
| lean | If you **lean** the other way, you'll fall. | lean |
| mean | I look **mean** in my Halloween mask. | mean |
| she | She sneezed a mighty sneeze. | she |
| room | Let's find the **room** with all the toys. | room |
| spoon | Use your **spoon** to stir the soda. | spoon |
| toot | Toot is the only word the train can say. | toot |
| food | I ate all the **food** on my plate. | food |
| true | It's not **true** that I am a cowboy. | true |
| blue | Blue rhymes with **true**. | blue |
| glue | My **glue** bottle stuck to my desk. | glue |

(Figure 2)
Procedure

The pupil uses the box of spelling materials just when he is performing as a Student. When functioning as a Peer Tutor, therefore, a pupil would be working with the materials box of his peer. Thus, at the start of a peer-mediated instruction session, the Student takes the Student Book out of his box, retains it, and hands his Peer-Tutor Book to his Peer Tutor, who is seated facing him across a table. The pair is then ready to begin.

The Peer Tutor reads a target word to the Student, followed by the sentence containing it, followed by a repeat of the word, e.g., from Figure 2, "Green. Mrs. Turtle wore a green shell. Green."

The Student then attempts to spell the word on the first line of a frame on a Student sheet. After he has spelled the word, the Student passes his Student Book to his Peer Tutor for correction, or for confirmation of correctness, as the case would be. The Peer Tutor, having completed this task, then hands the book back to the Student.

If the Student has correctly spelled the word on his first try, the Teacher simply confirms the success and goes on to the next word. If the word is spelled incorrectly, the Peer Tutor would correct the Student's response, but this time also writes the correct spelling for the Student to see on the third line of the frame (see Figure 1).

At the end of having administered the full list of eligible words, the Peer Tutor inspects his page that has just been completed. If there
still remain any boxes that have not been checked off, the Peer Tutor initiates a new cycle. He first asks the Student to turn to a clean page in the Student Book. He then starts re-presenting the words in the list, but this time just those, words for which the associated box has not yet been checked off; just those, in other words, that the Student has not demonstrated his ability to spell on the preceding cycle.

Presenting to the Student just the unchecked words, the Peer Tutor proceeds through the list, checking off each word that the Student this time spells correctly on the first try. When it has been completed, the Peer Tutor again inspects the Peer-Tutor Book page. If there are still unchecked words, the Peer Tutor initiates yet another cycle, and another and another, until all of the words have finally been checked off, that is, until the Student has spelled all the words correctly on some first effort.

Thus, through the execution of this scoring algorithm, the Peer Tutor automatically and without having to think about it at all, assigns differential amount of practice to his peer.

Again, this method is for example only and should be used according to the individual needs of the children. It is adaptable to many other areas of instruction as well. The benefits from this approach include the following:

(1) Instruction from other students many times reduces anxieties caused by differences in status, age, and background between children and adults.
(2) Peers are often more patient with students who have slower learning rates. Understanding, cooperation, empathy, and group interaction may improve between your students as a result of a well-planned peer-tutored program.

(3) Correction and feedback is more direct and, more importantly, more immediate.

(4) Because setting up a peer-tutored program requires a well-defined and structured plan the children know where they are, how they have performed and how much there is left to do. Thus, they can set and attain goals for themselves much easier.

(5) Self-confidence and self-discipline are often increased as students become more aware of the responsibilities involved in teaching others to learn.

(6) Tutoring one's peer reinforces prior learning, and motivates a student to pay more attention to and improve his own skills.
ASSIGNMENT 6

MODELING

There are basically three ways in which children learn how to behave in a classroom. The first two have already been presented in previous assignments. Establishing classroom rules and enforcing them consistently through the use of praise or other rewards for appropriate behavior and ignoring inappropriate behavior serve to gradually teach a child what is permissible and when it is so. Again, these rules must be emphasized by providing either individual contingencies for group consequences or group contingencies for group consequences on a twice-a-day basis and at the same time reviewing the rules.

This week we will be working on a third method of teaching children to conform to the rules. This technique involves modeling and peer control of reinforcement or attention to misbehavior. Modeling is achieved by having one or more children demonstrate what is appropriate and inappropriate in a session conducted at the end of the day. It is a kind of behavioral rehearsal with teacher and peer praise provided for rehearsing "good" behavior and peer and teacher inattention when the "bad" behavior is modeled.

A typical session might include the following:

1. Instruct the children that you are really concerned about rule-following and that there will be surprises from time to time for them if they learn to follow the rules very well. (These surprises are
reinforcing activities described in previous lessons.)

2. There is one essential educational goal we are trying to attain and that is that the children are to ignore the child who misbehaves according to the rules.

   a. This means when a child attempts to talk to the teacher without raising his or her hand, that action is to be ignored. Also if a child talks to another child other than the peer tutor, the child to whom the talk is directed is to ignore the offender by continuing in whatever activity he/she is engaged in.

   b. If a child is out of his seat without permission, i.e. other than seeking the tutor's help or seeking math and reading materials, he again is to be ignored by everyone for that behavior and it may lead to a loss of one of the programmed reinforcers for the group, e.g. 5-minute free talk time for the class following a half hour of rule-following by the group.

   c. Noisemaking behaviors occurring at one's desk are to be ignored by teacher and peers alike. This includes tapping the desk top with a ruler, dropping books on the floor, crumpling of paper, slamming the desk closed or making any vocal noises.

The method by which these objectives will be achieved is via modeling or role-playing at the end or beginning of each day. Some teachers have preferred to use the end of the day for a review of how the class did in rule-following and as a time for rewarding activities.
How one schedules role-playing, summative feedback, and rewarding activities is perhaps less important than that they are regularly scheduled!

**Role-Playing**

1. Have children take turns modeling the appropriate behavior, e.g. handraising to ask a question or to leave their desk and follow this with teacher and peer recognition (peers could applaud or say something positive). Then have a child attempt to, for example, talk out of turn while you try to teach or read something and instruct everyone to ignore that behavior. Have yet another child attempt to talk to his neighbor while you have a small group at the blackboard and instruct the peers to ignore him. Then provide strong approval for the peer who ignored the offender's behavior.

2. Discuss what a child should do when he finishes a lesson other than talking to others, being out of chair, or some other non-educationally oriented behavior.

   **Alternatives for the children to consider:**
   a. Begin next math lesson and if completed, provide some special privilege at day's end.
   b. Read comics or magazines from desk.
   c. Have some art materials in the desk which may be worked with.
   d. But, all of this is contingent upon having the work completed.
at a satisfactory level or in other words, it could be checked by a peer tutor.

3. Be sure to role-play each appropriate and inappropriate action in accordance with the classroom rules and follow this up with statements of the contingencies or privileges that rule following will earn the following day.

4. Refer to the list of the reinforcing activities (PUPIL Page 2), privileges, etc., which will be used prior to each day and use them. The project assistant will be pleased to assist you in constructing the reinforcing events for each day.

   Suggestions: (End of day)

1. 15 minutes of radio time for the group.
2. 15 minutes of record playing.
3. A half hour T.V. program.
4. End of week class party.
5. Class debate.
6. Watching a movie or filmstrip.

Use PUPIL page 4 with this lesson.
ASSIGNMENT 7
ROLE-PLAYING THE IGNORING RULE

One method teachers can use in helping to develop desired behavior, is that of role-playing. Role-playing encourages children to act out things they may be learning, problems that are unresolved, or situations requiring more study. It is very useful when presenting new rules or in reviewing those that apply to various situations. In the validational study of these techniques, teachers reported that role-playing at the beginning of each day was helpful in producing rule-following behavior.

These are the steps to follow when role-playing is used in a class setting:

1. **Getting the group "warmed up."**
   Present role-playing to them in this way. "Today we are going to do something called 'role-playing'. All of you will participate either as actors or the audience (which is the most important). When we are through, I'll ask you questions, and if you've been a good audience you will help in finding solutions to the situations we act out."

2. **Select the participants.**
   To begin with have printed on tags, signs to be hung around the students telling who they are to be in the situation.

Example:

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<th>TEACHER</th>
<th>TUTOR</th>
<th>STUDENT</th>
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At first the teacher will play the role of another student and model good behavior. Where possible let children volunteer rather than be assigned roles (although a little friendly persuasion is nice for a shy child).

3. **Select the situation to be role-played.**

Children should reenact incidents that have occurred. Develop a brief plan with actors. Instruct them on how they are to react.

4. **Prepare the audience.**

You may direct children to ask themselves questions. "What else can we do in this situation?" "What's happening?" etc. "Remember: Follow the rules during this as always."

5. **Perform actual role-playing situation.**

When the teacher feels the situation has gone on long enough, she acts as the director in a play and says "Cut!". At this time, students take their seats.

6. **Applause.**

The teacher should initiate applause for a role enacting appropriate behavior that has been well-played. (This especially applies to those students who have more difficulty in following rules.)

7. **Discussion and Evaluation.**

(This is usually quite fast and most students are enthusiastic.)
Never evaluate the quality of the performance. Guide the children to find acceptable solutions to the problem behavior portrayed. Be sure to be non-judgmental (the children will do this for you) and reflect positive responses that lead to meaningful solutions.

8. Ignoring Rule-Violators.

This is an especially important area to be acted out and emphasized.

The following is an example used to introduce the rule "ignoring rule-violators":

1. "Today, we are going to learn a new rule, but I am not going to tell you what it is."

2. Select participants. Tell them secretly what their role is and how to behave. Place signs on them.

TEACHER: Ignore child unless he goes to his seat and raises his hand.

1st STUDENT: Interrupt the teacher while she's working in the group. Talk out loud. Make noises. Bother the other students.

2nd STUDENT: Ignore student #1 for noise, talking, poking, etc., unless he has permission to speak to you.

TUTOR: Do not respond to student #1 unless he is behaving properly.
3. Set the scene:

The teacher is working with a small group. The other children are at their desks working on assignments. Student #1 is disrupting during work period.

4. "Remember to listen and follow carefully, audience, as I'm depending on you to tell me what the new rule is."

5. Perform. Say "CUT" as a director would when ready.

6. Discuss with children. They should be able to state the new rule and appropriate responses to it. Write this rule on the board and have them write it in their PUPIL handbook.

You may want to create further situations to act out in which this rule can be applied.

Use PUPIL page 4.
ASSIGNMENT 8

TRACKING

1. Discuss with the children how you feel they behaved perhaps at the end of the day in terms of the rules. Role-play again (and especially) those rules which were more difficult for some to follow without indicating particular offenders.

2. Designate the positive consequences available for the group for the next day. If necessary announce an individual contingency for a group consequence for a child who is having some difficulty in following the rules.

3. Tell them that from now on they are to record with a slash on a 3 x 5 note card taped to their desks each time they pay attention to a rule violation. The purpose of this is to make them aware of how frequently they attend to misbehavior.

4. A variant of this same method is to have their adjacent peer note how often his partner attends to misbehavior. This method may be preferable to number 3. This is to be done privately.

5. At the end of the following day, chart the total numbers for each child and maintain confidentiality. Then, promise positive events for substantial daily reductions in the frequency of attention for rule violations without identifying individuals having special problems.

   a. Diplomas may be constructed with a special thanks from the teacher for exceptional rule-following and/or ignoring
behavior, which children may take home to parents.

b. Stars may be earned for low marks on the chart and subsequently traded in for a half hour of free-time for that child (to be conducted in accordance with the rules.)

c. Candy may be given as a last resort, but we would prefer to use naturally-occurring social reinforcers.

d. Remember to verbally praise rule-following, ignore violations or provide individual reprimands, and to use reinforcing activities outlined previously on a twice-a-day basis.

6. Tracking need only be done for an hour in the morning and an hour in the afternoon.

7. A week of tracking should be more than sufficient to reduce attention to inappropriate behavior. Occasional "booster" sessions may be required with both role-playing and tracking.

8. Children may also track other behaviors, especially those which they alone may be trying to improve, e.g. hand-raising. The recording act itself is likely to change behavior in a positive direction but sometimes only temporarily. This is why it is necessary to enhance these potentially temporary gains with other forms of recognition for good behavior.

Use PUPIL pages 5 and 6

Teacher's Classroom Chart - Supplement D

Achievement Diploma - Supplement E
ASSIGNMENT 9

REVIEWING--FEEDBACK

1. Review the daily gains and problem areas. Have children who are having special difficulties role-play appropriate behaviors and provide peer applause.

2. Provide peer applause again for those who have done especially well.

3. Outline the events which are available for the following day but this time decrease their frequency. What we would like to achieve eventually is a special event earned on a once-a-week basis. This is accomplished by offering less material reward and more social reward and reducing the frequency gradually of the former.

4. An additional technique which you may find useful is to have half of the class (rows) compete with the other half in terms of achieving the lowest number of attention responses to rule violations. The side with the fewest marks gets an extra privilege.

5. Please remember to review with the children how they do each day in terms of ignoring rule violations.

6. If a new child is integrated into the classroom, it will be critical to his adjustment that the following events take place.

   A. Acquaint the child with the classroom rules and with previous rewards given when the class and/or individuals performed well.
B. Explain that the children in your class have been trained to ignore rule violators and describe, if not model, for him the way in which children and teachers ignore.

1. They continue to engage in their current work.
2. They walk away from the violator.
3. They do not look, smile or otherwise attend to the infraction.

C. Also it should be noted that his own rule violations could cost the class a privilege or his rule following could earn them one.

7. Success with a new student may require brief reviews of past assignments and the use of previous techniques.

8. The suggestion of integrating other children into your trained group is being made to promote the mainstreaming of children who may be in special placement in your school or children in other regular classrooms who are in need of such an environment.

9. The sequential integration of high-risk children was demonstrated to be a feasible and practical approach in the validational studies. Thus, it is recommended that a ratio of approximately five non-risk children for every high-risk child be maintained and that high-risk children be integrated into the trained classroom at 2-week intervals.

Use PUPIL page 7 for this assignment.
ASSIGNMENT 10
HELPING CHILDREN TO REINFORCE PEERS POSITIVELY

How often do you hear children fighting, name-calling, being rude, bossy, or complaining? If the answer is too often, this assignment is designed to make children aware of their negative interaction with one another. The alternative is to teach them to interact in a more positive way.

Often, when learning a new behavior, the methods used may seem awkward and, perhaps, insincere. These feelings are natural much the same as awkwardness felt in learning a new physical skill such as tennis, or dribbling a basketball.

Encourage the children to practice this new behavior and, if needed, discuss their feelings about rewarding others for doing what pleases each of us.

1. Begin with two skits to be role-played. Try to pick out specific instances; one in which children were negative to one another and one in which there was a definite positive interaction.

2. Involve the children in comparing which skit they liked and why. Make a list on the board of negative things said or done. Ask for alternative solutions. (See PUPIL page 8)

3. "Buddy for the Day" - Assign partners, one for each child. This will take some thought on your part as you will want to pair children that will complement one another. They will work together, play
together, eat together and fill in their PUPIL pages that deal with "Buddy Day". These things should all be done within the guidelines of the classroom rules. It may prove more effective if the teacher models the behavior with the students before they begin, noting specific instances in which you have noticed children complimenting one another and making up situations that you feel need some work.

a. assign partners.

b. 10-minute free talk time with partner to plan day, get to know one another.

c. have the children fill out their pages (See PUPIL page 9).

d. follow through with end of day procedures presented on bottom of PUPIL page 10.

4. The Compliment Club (see PUPIL page 10) - The children already have complimented one person during Buddy Day and having done so, have enrolled in the Compliment Club. To continue their positive remarks toward each other ask that they turn in at the end of the day a piece of paper containing two compliments they gave to someone. Each compliment has to be given to someone different, and although this may seem like a game, expect sincerity from their remarks. Try to give feedback in slips handed in (verbal or written) to children for their efforts. When each child in the room has a total of eight compliments the class should be rewarded in a very "complimentary" way.

Use PUPIL pages 8, 9, and 10.
A Handbook for Pupil Understanding of Peer Influence on Learning

by
Daniel J. Kaeck
and
Patricia J. Kaeck
OUR CLASSROOM RULES

1.
2.
3.
4.
5.
6.
7.

The rules must be clearly specified and stated positively. WHAT - WHEN (e.g. We raise our hand to talk. We walk to and from our desk. We are in our seat ready to work five minutes after the recess bell rings. We ask questions in a quiet voice, etc.)
Use the list on page 3 to help you. Your teacher will have the final say as to whether something can be added to the list.

*With Teacher's permission and at a designated time and place, only. All classroom rules that apply must be followed here as well or the privilege is lost.
Examples of Privileges

Lead flag salute
Choose seat for specified time
Choose book to review for class
Select a topic for group to discuss
Read to a friend
Right to tutor a classmate
Free time in library
Be in a class play
Help teacher hand out papers, go to office, erase board, empty trash, dust off desks, sharpen pencils
Work at chalkboard
5 minutes to discuss something with teacher
Ask child what he would like to do
Plan a class trip
Plan a class project
Time to read aloud
Perform small duties
Select a game or object for recess
Take a "good" note home to mom
Extra class recess 5 min., 3 min., 1 min.
Free time 10 min., 5 min., 2 min.
10 minute break to choose game and play with a friend QUIETLY
End of week class party
Use language master or tape recorded
Listen to records while working during specified class
Listen to records for enjoyment (class, or individual with headphone)
Bring something special to show class
See a filmstrip
Watch a special TV show
Watch a special movie (with popcorn)
Class debate
Dance in the gym
Work puzzle
Draw a special picture
Paint with tempera
Read comic books, joke books
Time looking through own magazines
Time to practice something
Extra time to finish homework
Time to work on projects

OTHERS. Add your own. Remember, they must be approved by your Teacher.
### APPROPRIATE CLASSROOM BEHAVIORS

<table>
<thead>
<tr>
<th>Behavior</th>
<th>What to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
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<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
</tr>
</tbody>
</table>

### INAPPROPRIATE CLASSROOM BEHAVIORS

<table>
<thead>
<tr>
<th>Behavior</th>
<th>What to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

Note: People often behave like other people they see; right or wrong.
**Tracking**

**EXAMPLE:**

<table>
<thead>
<tr>
<th>Day</th>
<th>AM</th>
<th>PM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon.</td>
<td>X X X X</td>
<td>X X X X</td>
<td>16</td>
</tr>
<tr>
<td>Tues.</td>
<td>7 7 7 7</td>
<td>1 1 1 1</td>
<td>16</td>
</tr>
<tr>
<td>Wed.</td>
<td>1 1 1 1</td>
<td>1 1 1 1</td>
<td>13</td>
</tr>
<tr>
<td>Thurs.</td>
<td>7 7 7 7</td>
<td>1 1 1 1</td>
<td>12</td>
</tr>
<tr>
<td>Fri.</td>
<td>1 1 1 1</td>
<td>1 1 1 1</td>
<td>7</td>
</tr>
</tbody>
</table>

(Tape to your desk)

Your teacher will keep track of your total and the class total on a chart. Neatly fill in the number for the person you are tracking. Remember to follow rules of good citizenship here! No one but the teacher is to see this.
<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>PM</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Recess</td>
<td>After Recess</td>
<td></td>
</tr>
<tr>
<td>Mon.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tues.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thurs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fri.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Your teacher will be letting you do some of the things on the privileges chart and also be awarding diplomas like the one on the next page for those who have done a good job following rules and helping their classmates to do so.
Accentuate the positive; eliminate the negative!

Instead of:  (-)  
Say  (+)  

<table>
<thead>
<tr>
<th>Examples: Making fun of someone who goofs on an assignment...</th>
<th>Look for something nice they did while working on it.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaving someone by themselves on the playground...</td>
<td>Make an effort to include them in something a group of you are doing.</td>
</tr>
<tr>
<td>Getting mad at someone...</td>
<td>Ignore what made you upset.</td>
</tr>
</tbody>
</table>


Buddy for the Day

My Buddy for the day is ________________________________

In our 10 minute talk time I found these positive things about him/her:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Our Daily Assignment and work plans for the day are:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

The next part of this sheet is to be filled out at the end of the day. Upon finishing, tear off the positive remarks you have written about your buddy. Shake hands with your buddy and say "I'm glad I got to know you better _____________."

Then hand his/her the slip that you have filled out. And by the way, welcome to the Compliment Club!

________________________________________________________________________

3 Positive things I noticed about my Buddy are:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

3 Positive things about the way he/she works are:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
<table>
<thead>
<tr>
<th>Your Name</th>
<th>#1 Name</th>
<th>(Who compliment was given to)</th>
<th>(What compliment was)</th>
<th>#2 Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 4</td>
<td>#1</td>
<td></td>
<td></td>
<td>#1</td>
</tr>
<tr>
<td></td>
<td>#2</td>
<td></td>
<td></td>
<td>#2</td>
</tr>
<tr>
<td></td>
<td>#1</td>
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<tr>
<td></td>
<td>#2</td>
<td></td>
<td></td>
<td>#2</td>
</tr>
</tbody>
</table>
TEACHER'S SUPPLEMENT
<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>TEACHER</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NO. OF TIMES RULES REVIEWED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>REVIEWED PROGRESS WITH CLASS ON THEIR RULE-FOLLOWING</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NO. OF TIMES INDIV. PRAISE GIVEN</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NO. OF TIMES IGNORED SPECIFIC BEHAVIOR</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GROUP REWARD EARNED BY GROUP (+ or -)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GROUP REWARD EARNED BY INDIVIDUAL (+ or -)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PEER-TUTOR USED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NO. OF TIMES ROLE-PLAYING USED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>USED TRACKING (Individual of Group)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>END OF DAY REWARD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>END OF WEEK REWARD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GROUP APPLAUSE PROVIDED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CERTIFICATE ISSUED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NO. OF TIMES PEER REINFORCEMENT NOTICED</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OTHER:</th>
</tr>
</thead>
</table>

<p>| TEACHER'S DAILY CHECKLIST |</p>
<table>
<thead>
<tr>
<th>DATE</th>
<th>BEHAVIOR OBSERVED</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTION ATTEMPTED</th>
<th>OBSERVABLE RESULTS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
<th>BEHAVIOR OBSERVED</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTION ATTEMPTED</th>
<th>OBSERVABLE RESULTS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
<th>BEHAVIOR OBSERVED</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTION ATTEMPTED</th>
<th>OBSERVABLE RESULTS</th>
</tr>
</thead>
</table>

B
Ways to say, "You've done well!"

following classroom rules.

1. Smile

2. Say things like:
   A. "Good, you're remembering to raise your hand."

   B. Teacher. "We noticed Rebecca did a great job following the rules today. Let's give her a hand." (applause)

   C. "I like to check your work, it's always so neat."

   D. "You certainly are a quiet worker, and so polite."

   E. "There's something about John I like. I noticed how he stayed with the job until he finished it, not disturbing anyone. Let's all see if we can follow this good example."

   Note: the verbal reinforcement was followed by a prompt to keep the children working.

3. Good citizen for the week of ________ bulletin board.
   (Includes certificate, name, pictures, hobbies, story about self and family, etc.)

4. ETC. (You add some things of your own that are ways to say "you're doing well".

This may seem awkward at first but in order to do a good job we have to be taught first. Having done these things a few times in a stiff and unnatural way, it slowly becomes natural.

😊 smile when rules are followed

Tell them what you like

catch someone being good!
The fifth grade class would like to recognize
the person named hereon for exceptional rule following
behavior during the week of
extra efforts that have been put forth in making his/her classroom a better place to learn.

Sincerely,
Appendix B

Subject Characteristics

The following subject characteristics were noted by school personnel in arriving at the selection of target children:

Experiment 1

Subject 1. This 10-year-old male was selected primarily on the basis of classroom behavioral excesses. The teacher reported that the child had difficulty concentrating on academic tasks and characteristically sought a great deal of peer and teacher attention to the point of totally disrupting the learning environment.

Subject 2 was a 10-year-old male who had difficulty in self-control in the classroom, similar to Subject 1. His history of academic achievement was normal but previous teachers complained of his acting out in class and the problems they encountered in managing his daily disturbances. Some incidents of aggressive behaviors directed to peers had been reported.

Subject 3 was a 10-year-old male who had difficulty in peer relations inasmuch as he lacked the social skills necessary to cultivate and maintain friendships. The problem was so severe that when peers learned of his assignment to their class the openly verbalized their objections in the classroom. His classroom behavior was described as immature and annoying to others.

Experiment 2

Subject 1 was a 10-year-old male whose behaviors were described as hyperactive, e.g., out of chair and other impulsive actions. It was
reported that his behavioral excesses were believed to cause his chronic academic under-achievement. Particularly, math achievement had been a matter of concern for past teachers. His classroom actions were described as excessive and highly inappropriate.

Subject 2 was a 10-year-old male who had recently moved to the school district prior to the beginning of the school year. Extreme familial discord was reported by past school officials, e.g., parental alcoholism and inability to sustain employment. The child had previously been placed in a class for the emotionally disturbed and subsequently was removed from that class because he was reportedly unmanageable. The boy had a history of absenteeism.

Subject 3 was a 10-year-old male who reportedly had serious adjustment problems at home in relation to a stepfather. Math achievement was particularly poor; the latter stood in sharp contrast to his above average reading skills. The child was described as extremely anxious or agitated and unliked by other children.

Experiment 3

Subject 1, age 11, had entered kindergarten at age six as a result of a minimally handicapping cerebral palsy history. The teachers reported that he often used his "handicap" as an excuse for incomplete assignments. He was described as disorganized, disruptive, and seemingly living in a fantasy world. His classroom grades over the past several years (mostly C's) were widely at variance with standardized achievement test results (superior achievement). He occasionally verbalized some self-pity and was generally unliked by peers.
Subject 2 had been retained in the first grade and was 11 years old at the outset of the fifth grade. He had been assigned to special education programs during the second and third grades as a result of antisocial behavior and attended supplemental special education during the fourth grade while assigned to the regular classroom. His past grades were typically D's and results from standardized achievement tests were consistent with those grades. Attentional difficulties, primarily involving playing with objects at his desks at inappropriate times, were emphasized.

Subject 3 was recommended for the program by past teachers as a result of acting out, disruptive, and annoying behavior. Past academic history included C and D grades but no grade retentions had occurred. It was reported that this 10-year-old male had often taken things from the teacher's desk, and shot rubber bands at other students and poked them with pencils. Peers had low regard for him.

Subject 4 was added to the study 10 days after baselines on the other children began. His classroom behaviors were so disruptive that the teacher recommended that this 10-year-old male be included as a target subject. His disruptive actions were generally hostile in nature to both peers and teachers. It was difficult for the teacher to maintain the child in his assigned seat. Both teachers and peers expressed negative regard for this child.
Behavioral Definitions Used for Data Collection

**Inappropriate Talk**

Speaking out in class or other vocalization without teacher permission. Does not include talking with peer tutor. One talk = 5 sec or less of vocal behavior.

**Noisemaking**

Child creating any audible noise other than vocalization without permission. Slamming desk lid, tapping with ruler, stomping feet, etc. One noise = 5 sec or less.

**Off-task action**

Child uses hand(s) to play with object such that learning at seat is disrupted. Does not include listening activity since he may listen as well as engage in other behaviors. Also includes reading inappropriate materials. One action = 5 sec or less of behavior.

**Out of Chair**

Movement of the child when not permitted or requested by teacher such that no part of the body is touching the desk. Does not include sharpening pencil, going to reading and math centers at appropriate time or going to peer tutor.

**Modified out of chair**

Child touching desk but not seated. Includes raising buttocks off chair, turning torso 90° nonoriented to teacher, and standing by desk while touching it, when he changes from one type of modified out of chair to another score each instance.
### Positive DRO

Any praise or attention delivered by teacher or peer contingent upon appropriate behavior. Denote P or T. Include teacher responding to raised hand.

### Off task (Experiments 2 & 3)

Child stares (nonoriented to teacher) or watches other work such that learning is disrupted (except during listening activities), or child stands by materials at center but not working (looking around). Full 5 sec duration = 1 off-task.

### Other (Experiments 2 & 3)

Rocking movement of the child while seated in chair such that the front legs of the chair are off the floor or if chair legs are already off the floor movement from a stationary position. One rock = 5 sec or less of that behavior. Chair contact with floor not to be scored under noisemaking.

---

1. Do not score transition periods.

2. Note with slash across all rows when change in activities occur and time begun and ended.

3. All behavior categories are intended to be discrete.

4. If you find yourself "judging" responses re-read this sheet. Keep it with you during data collection.
Appendix D

Math Objectives for the Fifth Grade in

The Unified School District No. 489

State of Kansas
GRADE 5

MEASURABLE PERFORMANCE OBJECTIVES

A student should be able to:

1. Give the place value for any digit in a numeral through hundred million.
2. Read and write numerals through hundred millions.
3. Round numbers to the nearest ten, hundred, thousand, hundred million.
4. Write the value of any digit in a numeral through hundred million in an expanded form, including the exponential form.
5. Read and write Roman numerals to 2000.
6. Recall the basic addition, subtraction, multiplication, and division facts.
7. Name the first ten multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12.
8. Name the lowest common multiple of any pair of whole numbers between 1 and 13.
9. List whole number factors of numbers between 1 and 100.
10. Name the greatest common factor of any pair of whole numbers between 1 and 100.
11. List the prime number factors of numbers between 1 and 100.
12. Given a pair of numbers, write an equation or an inequality about them, using the symbols (>, <, +, =) and any operational symbols: =, -, :, x.
13. Give examples of the following properties or principles of mathematical operations:
   a. The commutative property of addition and multiplication.
   b. The associative property of addition and multiplication.
   c. The distributive property of multiplication over addition.
   d. The adding and subtracting property of zero.
   e. The multiplying and dividing property of one.
14. Select from among a collection of simple one-step word problems those that involve addition and subtraction and those that involve multiplication or division.
15. Name the four basic operational sentences and use them in solving one-step equations that have whole number solutions:

\[
\begin{align*}
\text{Addend} + \text{Addend} &= \text{Sum} \\
\text{Sum} - \text{Addend} &= \text{Addend} \\
\text{Factor} \times \text{Factor} &= \text{Product} \\
\text{Product} - \text{Factor} &= \text{Factor}
\end{align*}
\]

16. Add whole numbers in any combination with or without regrouping.

17. Subtract any two whole numbers with or without regrouping and check by addition using the "Addend + Addend = Sum" principle.

18. Multiply whole numbers with up to four digits by any whole number with up to three digits. Check by division using the "Product - Factor = Factor" principle.

19. Divide any whole number by any number with up to three digits. Check by multiplication, using the "Factor x Factor = Product" principle.

20. Compute averages.

21. Add and subtract denominate numbers including metric units of measure.

Examples:

\[
\begin{align*}
3 \text{ feet} &\ 4 \text{ inches} \\
+1 \text{ foot} &\ 7 \text{ inches} \\
2 \text{ meters} &\ 45 \text{ centimeters} \\
-65 \text{ centimeters}
\end{align*}
\]

22. Add and subtract fractional numbers with like and different denominators.

23. Use fractions and mixed numbers to label points on a number line.

24. Add and subtract numbers given in mixed numeral form with and without regrouping.

25. Demonstrate with objects (toothpicks, counting sticks) the process involved in adding and subtracting mixed numbers with regrouping.

26. Reduce fractions to lowest terms using the dividing property of 1.

27. Change fractions to higher terms, using the multiplying property of 1.

28. List the elements of the intersection of a pair of finite sets, such as the sets of factors of two given numbers.

29. Explain the metric system of measurement in relation to our decimal system of numeration.
Example:

<table>
<thead>
<tr>
<th>1000</th>
<th>100</th>
<th>10</th>
<th>1</th>
<th>1/10</th>
<th>1/100</th>
<th>1/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>kilo-</td>
<td>Hecta-</td>
<td>Deca-</td>
<td>Unit:</td>
<td>Deci-</td>
<td>Centi-</td>
<td>Milli-</td>
</tr>
</tbody>
</table>

(Note: The decimal point shows where the whole numbers end and the fractions begin.)

30. Use a meter stick to measure height and length to the nearest centimeter. Use a metric scale to find weight in grams.
    Measure liquid in liters and centiliters.
31. Use standard units of measure to measure distance and height to the nearest 1/8 inch; weight in pounds and ounces; time to the nearest hour, minute, or second; liquid in gallons, quarts, and pints; time in years, months, weeks, and days.
32. Find the areas and perimeters of rectangles and squares.
33. Find the volume of rectangular prisms.
34. Given a set of geometric shapes, identify quadrilaterals, hexagons, pentagons, parallelograms, trapezoids, rhombus, prisms, cylinders, pyramids, spheres, and ellipses.
35. Identify parallel lines, perpendicular lines, line segments, rays, diagonal lines, radius, diameter, a right angle, an acute angle.
36. Give an example of an approximate distance of 1 mile; 10 miles; 1 kilometer. Give an example of an approximate square inch; square centimeter; square yard; square meter; of a cubic inch; a cubic centimeter; a cubic meter; an acre.
37. Read a Fahrenheit and a Celsius Scale on thermometers.

The following objectives may be considered enrichment activities.

1. Divide and multiply fractions or decimals.
2. Use per cent in problem solving.
3. Use a protractor or compass in measuring angles or constructing angles.
4. Find areas of triangles and parallelograms.
5. Find the volume of any form, except the rectangular prism.
6. Use a compass to bisect an angle, to erect perpendicular lines, etc.
7. Write numerals using other bases than base ten.
8. Wade through chapters on sets and set theory.
Appendix E

Figures 5, 6, and 7 from Experiment 1
Figure 5. Daily incidence for children being modified out of chair during baseline, treatment, and follow-up 2 months after treatment (Experiment 1).
Figure 6. Daily incidence of target children engaging in off-task-action behaviors during baseline, treatment, and follow-up 2 months after treatment (Experiment 1).
Figure 7. Daily incidence of target children engaging in noisemaking during baseline, treatment, and follow-up 2 months after treatment (Experiment 1).
Appendix F

Graphs Illustrating Behavioral Change for $S_4$

Figures 28, 29, 30, and 31
Figure 28. Daily incidence of inappropriate talk, out-of-chair, and modified out-of-chair behavior for S₄ throughout Baseline, Treatment 1 and Treatment 2.
Figure 29. Daily incidence of off-task action, off-task, and noise-making behavior for S4 throughout Baseline, Treatment 1, and Treatment 2.
Figure 30. Daily incidence of other (rocking) behavior of \( S_4 \), and daily incidence of teacher and peer attention to all target behaviors of \( S_4 \) throughout Baseline, Treatment 1, and Treatment 2.
Figure 31. Daily incidence of teachers' attention to appropriate and inappropriate behaviors of $S_4$ throughout Baseline, Treatment 1, and Treatment 2.
VITA

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Candidate for the Degree of
Doctor of Philosophy

Dissertation: The Modification of Emotionally Disturbed Behavior Through Teacher and Peer Training

Major Field: Child Psychology

Biographical Information:


Education:
1968 - A.B. in Psychology, Indiana State University, Bloomington
1969 - M.A. Experimental Psychology, Ball State University, Muncie, Indiana
1971 - 15 Quarter hours Clinical Psychology, Ball State University, Muncie, Indiana
1978 - Completed requirements for the Doctor of Philosophy degree at Utah State University, Logan.

Clinical and Related Experience:
1975-1978 - Half-time assignment to the Psychological Service Center at Fort Hays Kansas State College.
1973-1974 - School Psychology Intern for the Davis County School District, Farmington, Utah, and The Exceptional Child Center, Utah State University, Logan, Utah.
1972-1974 - Various Practica at The Exceptional Child Center, Utah State University, Logan, Utah.
1971 - Practicum in Psychodiagnosics at the Marion V.A. Hospital, Marion, Indiana, under Drs. Palacios and Williamson. Part time for 3 months (March-June).
1970-1971 - Psychologist at Ft. Wayne State Hospital and Training Center (November-February), Behavior Modification in maximum security ward.

1967 - Psychologist's Assistant at Ft. Wayne State Hospital and Training Center, Ft. Wayne, Indiana (July-August).

Teaching Experience:

Sept. 1978-present - Assistant Professor of Psychology, Valdosta State College, Valdosta, Georgia

Jan. 1975-Aug. 1978 - Assistant Professor of Psychology, Fort Hays State University, Hays, Kansas.

1972-1974 - Part-time teaching at Utah State University. Two courses Child Psychology and an Extension course for school personnel of Davis County in Classroom Management.

1971-1972 - Instructor of Psychology at Southeast Missouri State University, Cape Girardeau, Missouri. Full-time staff for two summers, a fall, and a spring semester.


Administrative Experience:

1976-1978 - Co-director of School Psychology Training, Fort Hays State University, Hays, Kansas

1975-1976 - Project Director and Principal Investigator of HEW Grant

Departmental Committees (at Fort Hays State University):

Chairman of Graduate Admissions
Chairman of Committee on Comprehensive Exam Revision
Chairman of Committee on Faculty-Course Evaluations
Member of Ethics Committee
Member of Personnel Search Committees
Community Professional Activities:

Oct. 1977 - Follow-up evaluation of previous consultation at Lakemary.

Oct. 1976 - Consultant at Lakemary Treatment and Residential Center, Paola, Kansas.


1975-1976 - Member of Advisory Board, Hays Day Care Center.


Winter 1974 - Consultant at the Child Development Center, Pocatello, Idaho


Honors and Awards:

1972-1973 - Teaching Assistantship at Utah State University, Logan, Utah.

1971 - Teaching Assistantship at Ball State University, Muncie, Indiana.

1966-1968 - Teaching and Research Assistantships at Indiana University, Bloomington, Indiana.

1964-1969 - Dean's List at Indiana and Ball State Universities.

Papers:


Grant:

Papers in Preparation:


Kaeck, Daniel J., and Hanson, Denise. Differential grading of children's essays as a function of sex of child and teacher, and content of essay.

Zohn, Randall, and Kaeck, Daniel J. An evaluation of the ideal and real roles of school psychologists in the State of Kansas.

Courses Taught:


Utah State University (Graduate) - Classroom Management (Undergraduate) - Child Psychology

Southeast Missouri State College (Graduate) - Individual Assessment- Stanford-Binet, WISC. (Undergraduate) - General Psychology, Lab in Experimental Psychology, Human Growth and Development, Educational Psychology.

Research Interests:

Applied behavioral analysis, classroom management, faculty evaluation by college students, concept formation in children. In addition I had the privilege of supervising fourteen theses at Fort Hays State University.