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ABSTRACT

This study found no significant difference in effectiveness of several methods of training regular classroom teachers to use operant management techniques. Training methods tested were 1) group inservice training with no feedback, 2) inservice training with feedback from observational data, and 3) inservice training with feedback from videotapes. Twenty female elementary school teachers were randomly assigned to an experimental or control group. Pre and post measures of pupil "time-on-task" behavior were made for two pupils identified by the teacher as "problem students" and for the class as a whole, using an author-developed behavior check list. Another author-developed observation instrument was used to make pre and post measures of teachers' classroom management techniques. Results indicated that each of the three training methods effected significant improvement in problem pupil behavior in comparison with the control group, although there were no differences in effectiveness of the three methods. All three methods were also found to increase the incidence of positive teacher behavior toward the class. It is concluded that improvement in pupil behavior can be effected through more economical teacher training procedures which do not require feedback. (The report includes a short bibliography, data tables, and the observation instruments used in the study.) (RT)

EFFECTS OF TEACHER INSERVICE AND CONSULTATION ON PUPIL TASK-ORIENTED BEHAVIOR*

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This study attempted to extend earlier findings regarding the usefulness of reinforcement procedures in the regular classroom. Although many findings have been reported with children in special class or institutional settings, previous efforts to examine the utility of change procedures on a considerable number of regular classrooms are not available. Furthermore, considering the variety of ways in which consultants attempt to aid teachers in bettering the behavior of children, it is not clear whether such newer techniques as the use of classroom raters, or videotape feedback are superior to traditional group in-service efforts.

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Background of the Literature

Various manuals have been published describing learning theory reinforcement techniques for achieving effective classroom control of nonacademic problem behaviors and task oriented study behaviors (Becker, 1970; Homme, 1969; Neisworth, et al., 1969; Hall, 1969; Spaulding, 1970). In general, they describe a range of management techniques for various target behaviors. Tactically, the recommendations involve ignoring mildly deviant behaviors while waiting for an opportunity to praise adaptive behaviors. If ignoring is not sufficient, together with praise or attention to positive behaviors, the range of potential responses is extended until an effective combination of positive and negative reinforcers is achieved. Time out procedures or even physical punishment may be combined with the use of concrete rewards or privileges. The strategy is to arrange target behaviors and reinforcements in such a way as to achieve a reduction in interfering behaviors and an increase in learning attempts with the least amount of either punishment or tangible reward being involved. A strong preference for avoiding punishment is expressed by all. The following are a sampling of empirical studies which reflect efforts to test out these tactics within the regular classroom.

Effects of Praise and Reprimanding

A series of studies indicate the limitations of reprimanding as an effective way of reducing problem behavior. Thomas, Becker, and Armstrong (1968) found that increasing a teacher's rate of reprimands after decreasing her rate of praise to the class increased the frequency of disruptive incidents among pupils. Madsen, Becker, Koser and Plager (1969) found more specifically that increasing teacher reprimands in the form of "Sit Down!" commands increased subsequent frequencies of pupil standing. Reducing teacher reprimands, on the other hand, has had little or not effect on whole classrooms of behavior (Hall, Panyan, Rabon and Broden,1968; Thomas, Becker and Armstrong, 1968) and has resulted in actual increases of disruptive behavior when applied with some problem pupils (Madsen, Becker and Thomas, 1968).

Studies examining the effects of increased teacher praise, however, have found it to be associated to improvement with whole classrooms of pupils (Hall, Panyan, Rabon and Broden, 1968; Thomas, Becker and Armstrong, 1968; Madsen, Becker, Koser and Plager, 1969) as well as with individual problem pupils (Hall, Lund, and Jackson, 1968; Madsen, Becker and Thomas, 1968; and Ward and Baker, 1968). Most of these studies agree that decreased rates of teacher reprimands must be combined with high rates of teacher praise for on-task behaviors in order to effect improvement in problem pupil behavior. One study, however, found that increasing both praise of adaptive behavior and reprimands for maladaptive behavior was very effective in reducing inappropriate talking and turning among pupils in a secondary classroom (McAllister, Stackowiak, Baer and Conderman, 1969). Furthermore, another study (O'Leary, Becker, Evans and Saudargas, 1969) found that only one out of seven problem pupils benefited by the recommendation to their teacher to ignore negative pupil behavior and to increase praise for any positive behavior evidenced by the problem pupil.

More Extreme Reinforcements: Concrete Rewards and Punishments

Most research efforts to test out the effects of concrete rewards have been confined to special education class settings (Hewitt, Taylor and Artuso, 1969; Wolf, Giles and Hall, 1968; O'Leary and Becker, 1967; Quay, Werry, McQueen and Sprague, 1966). In the regular class setting, however, Hall, Panyan and Broden (1968) found that when teachers granted privileges, in addition to praise for appropriate pupil behavior, whole class study time increased more significantly than it did with increases in praise alone. In addition, O'Leary, Becker, Evans, and Saudargas (1969) found that the six problem pupils who did not respond

favorably to social reinforcement did improve when a token economy with concrete back-up rewards was introduced.

Efforts to test out more intense levels of punishment in regular classroom situations are also rare. Time-out procedures have been incorporated into reward systems and evaluated mainly at the pre-school level (Wolf, Risely, and Mees, 1964; Hawkins, Peterson, Schweid and Bijou, 1966; Zeilberger, Sampen and Sloane, 1968). In the regular classroom, however, Hall, Panyan, Rabon and Broden (1968) found that when teachers deprived pupils of free time privileges for repeated incidents of deviant behavior, the whole class study time increased. Furthermore, Carlson, Arnold, Becker and Madsen (1967) found that incorporating physical restraint punishment for tantrum behavior in the regular classroom played a crucial role in the overall improvement of severe problem pupil behavior. Electrical shock as a punishment, though, has been employed exclusively in institutional settings (Lovaas, Schaeffer and Benson, 1965) and then only as a last resort and usually accompanied with large doses of praise and concrete reward for any traces of appropriate behavior.

Medium of Feedback

Most teacher training procedures have employed some form of feedback in their inservice programs. Hall, Lund and Jackson provided weekly sessions of verbal feedback and further instructions relative to charts of problem pupil behavior. Ward and Baker used similar charts of problem pupil study time during treatment as a basis for consultation with teachers. Madsen, Becker and Thomas provided periodic consultation based on elaborate charts of pupil progress covering a wider range of specific problem behaviors. And O'Leary provided after-school feedback and consultation sessions alerting the teacher to any deviations from the experimental instructions. In contrast to using charts as a vehicle for consultation sessions, Lindsley (1968) has emphasized the value of viewing charts without any form of consultation. Weseley, Ringness and Giebink (1970) found that pure feedback in the form of light flashing was effective in increasing the frequency of teachers' social reinforcers although individualized consultation in addition to feedback was necessary to change the behavior of one of the three teachers. In addition, recent technological developments such as the "Bug in the Ear" (Krapfl and Bry, 1970) and portable video-tape units (Olivero, 1970) have increased the variety of potential feedback media even further.

The objective of this study is to examine the effects of various teacher change techniques upon the classroom management procedures of the teachers, and the effects of such changes in modifying the task-oriented behaviors of children designated as problem pupils. In addition, the generalized effects upon the classroom as a whole will be inspected. The following specific hypotheses are proposed:

HYPOTHESIS 1. There will be no significant difference in pupil task-oriented behavior between the group receiving inservice training without feedback and the control group.

Studies employing inservice training have shown significant effects, but none of these studies have separated inservice out from other change procedures. Although inservice alone may produce weak effects compared to traditional change procedures, inservice should have some positive effect on teachers. Therefore, it is expected that the null hypothesis will be rejected.

HYPOTHESIS 2. There will be no significant difference in pupil task-oriented behavior between the groups receiving inservice plus feedback and the control group.

This sequence has received research support previously, although the variation of examining two varieties of feedback is unique to this study. It is expected that either form of feedback will result in effective change when combined with the training plus individualized consultation, causing the null hypothesis to be rejected.

HYPOTHESIS 3. There will be no difference between the group receiving feedback via observational data and the group viewing themselves on videotape with respect to pupil task-oriented behavior.

Although observational data feedback allows an additional element of outside evaluation by another person, which is different from the neutral feedback of television, the reality of television may compensate for the lack of interpretation. In the absence of findings leading to different results, it is expected that the null hypothesis will not be rejected.

HYPOTHESIS 4. There will be no difference between the groups receiving feedback and the group receiving in-service training alone with respect to pupil task-oriented behavior.

Although in-service alone is expected to result in a significant treatment effect, the combined treatment procedures, including the addition of feedback and consultation, may produce a significantly more powerful effect. Therefore, it is expected that the null hypothesis will be rejected.

METHOD

Subjects

Twenty female elementary teachers in Madison, Wisconsin registered for an in-service course titled "Current Research Finding and Implications for Classroom Management of the Disruptive Child". This course distributed over five weeks in September and October, provided the teachers with professional advancement credit required to obtain salary increments. The course was repeated for 12 teachers (three from the previous semester and nine additional teachers) during January and February of the same academic year.

During the first semester 20 teachers were assigned randomly to four groups. The five teachers assigned to the control group (C group) were informed that the in-service course had to be limited to 15 and were invited to participate in a similar seminar at the beginning of next semester. They were also informed that they could benefit teachers taking subsequent seminars by permitting the experimenter to make classroom observations of their two most disruptive or unproductive pupils during the next nine weeks.

Five of the remaining 15 teachers were assigned to a self implementation group (SI group) which would receive recommendations only within a group situation. Five teachers were assigned to an observational data group (OD group) and would receive recommendations as a group plus individualized feedback and consultation regarding their use of reinforcement in the classroom. Another five teachers were assigned to a television group (TV group). This group would receive recommendations as a group plus individualized feedback and consultation after viewing 20 minute video tapes of themselves functioning in the classroom. During the second semester, nine additional teachers along with three of the five control group teachers from the first semester were randomly assigned to the three treatment groups (groups SI, OD, and TV). No control group teachers were used during this phase since it was not possible to offer subsequent help to such a group. Each teacher was asked to select her two most disruptive or unproductive pupils. These 64 pupils, their classmates and their 32 teachers constituted the subject sample in this study.

Procedures

All experimental teachers participated in five one hour lecture and discussion sessions as a group, spaced one week apart. These sessions first reviewed psychodynamic approaches to classroom behaviors and then contrasted operant learning approaches via a case study format. Subsequent sessions presented operant theory and terminology, research studies supporting operant theory, rules of contingency contracting, and explicit discussion of ways of handling various disruptive behavior, together with specific approaches designed to increase total class time-on-task.[1]

1 A complete description of the lecture content is available on request from the authors.

Not until the end of the third lecture session were the teachers placed randomly in the three experimental treatment groups and informed about the behavior rating forms being used during observations of their classrooms. Individualized feedback was given to 18 of the 27 teachers experiencing the group sessions. Feedback without consultation was introduced twice during the week after Lecture 3. The nine teachers assigned to Group OD viewed carbon copies of ratings made that day about appropriate and inappropriate classroom responses. The nine teachers assigned to Group TV viewed themselves teaching for 20 minutes on a video tape made during that day by the observer. Feedback with consultation was then introduced twice during the week after Lecture 5. The group leader conducted the consultation sessions and gave recognition to teachers for improvement along with giving critical suggestions for possible improvement.

The nine teachers in Group SI were told that the study intended to demonstrate that teachers were capable of independently implementing information gained through group lecture and discussion without various forms of feedback. One teacher in the SI group had to be dropped from the analysis of data because of her illness during the follow-up measurement period. The treatment procedures are illustrated in Figure 1.

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Measures

The group sessions and feedback levels were evaluated with observational data on pupil and teacher behavior. Five observers were trained by the experimenter utilizing practice on video tapes of two classrooms and practice in live classrooms until satisfactory inter-rater agreement (85%) was observed. Each teacher's classroom was observed once a week on the same day and hour for 45 minutes over a nine week period. The two problem pupils were rated by observers with respect to 13 behaviors outlined in Figure 2 and described in Figure 3. The whole class and teacher were rated with respect to behaviors outlined in Figure 4 and described in Figure 5. Two reliability checks on each rater were made by the experimenter during weeks two and six and the levels of agreement are presented in Table 1.

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insert Figures 2, 3, 4, 5, and Table 1 about here

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The data were analyzed by considering an average of three weeks' scores before feedback was initiated, an average of three weeks' scores during the feedback period, and the final follow-up scores made during one week a month after the treatment period ended. These data were submitted to an analysis of variance and Dunnett's test was used to make specific comparisons between the control group and the treatment groups when significant Fs were obtained. Group inservice treatment effects were evaluated by considering only the data collected first semester, due to the lack of a control group second semester. Effects of the feedback groups compared to each other and compared to the self implementation groupwwere evaluated by combining the data from first and second semester.

RESULTS

All tables are found at the end of the results section. For each hypothesis two comparisons were made, time-on-task of problem pupils as a group, and time-on-task for the class as a awhole. Hypotheses 1 and 2 were tested with first semester data only, whereas Hypotheses 3 and 4 were tested with data from both semesters. Criterion measures were inspected at all three periods for each predicted effect. No a priori reasons existed to make differential predictions between these periods with the exception of period 1 where no differences among treatment groups were anticipated.

HYPOTHESIS 1. There will be no significant difference in pupil task-oriented behavior between the group receiving inservice training without feedback and the control group.

Referring to Table 2, problem pupil time-on-task (TOT) during the first semester in the self implemented group was about 10 percentage points lower than the control group during period 1 (which included measurements over the first three weeks of treatment.) The difference, however, was not regarded as reliable since the overall F test among the four groups was not significant ($F = .56$, $df = 3/16$, $p < .05$). During period 2 (which included measurements over the second three weeks when individualized feedback was incorporated into the other treatment groups), problem pupil TOT in the self implemented group increased about 10 percentage points and was more equivalent to the control group scores. During period 3 (which included measurements during one week a month after all treatment had ended), problem pupil TOT in the self implemented group increased an additional five percentage points. Problem pupil TOT in the control group, however, decreased about 24 percentage points and the difference between groups was significant ($F = 9.53$, $df = 3/16$, $p < .05$). Furthermore, problem pupil TOT within the SI group was significantly higher than in the control group (Mean Difference = $25.72 < 16.7$ = Dunnett's critical value $p < .05$). Thus, Hypothesis 1 from problem pupil time-on-task was rejected for period 3 only.[2]

Referring to measures of whole class time-on-task in Table 2, differences between the self implemented and control group were minimal during period 1. Whole class TOT in the self implemented group was about nine percentage points higher than in the control group during period 2, but since the overall F test involving the four groups was not significant ($F = 3.12$, $df = 3/16$, $p > .05$) this difference may have been due to chance. Differences between the self implemented and control group during period 3 were again minimal and did not approach statistical significance. Therefore, Hypothesis 1 for whole class time-on-task was not rejected.

HYPOTHESIS 2. There will be no significant difference in pupil task-oriented behavior between the groups receiving inservice plus feedback and the control group.

Referring again to Table 2, problem pupil TOT within the observational data group was about the same as within the control group during period 2. During period 3, problem pupil TOT within the observational data group increased about 15 percentage points. As reported earlier, differences among the four groups were significant during period 3. Dunnett's test further indicated that TOT within the OD group was significantly higher than within the control group (Mean difference = $36.54 < 16.7$ = Dunnett's critical value, $p < .05$). Problem pupil TOT within the TV group was about six percentage points higher than within the control group during period 2, but differenced between the four groups were not significant ($F = .47$, $df = 3/16$, $p > .05$). During period 3, problem pupil TOT within the TV group made no increases, but was about 30 percentage points higher than the control group and this mean difference was also greater than Dunnett's critical value (16.7). Therefore, Hypothesis 2 was rejected for both feedback groups during period 3.

Whole class TOT within the feedback groups during period 2 was about eight percentage points higher than the control group for the observational data group and 15 percentage points higher for the TV group, but overall differences were not significant ($F = 3.12$, $df = 3/16$, $p > .05$). During period 3, whole class TOT within the observational data group was 12 percentage points higher than the control group, and TOT within the TV group was about seven percentage points higher than the control group but again, the differences were not significant ($F = .77$, $df = 3/16$, $p > .05$).

[2]The condition of homogeneity of variance was not satisfied for this analysis due to the exceptionally high variance in the SI group (see Table 8) but the Kruskal-Wallis nonparametric test substantiated the significance of difference.

Therefore, Hypothesis 2 with respect to whole class time-on-task for the observational data and TV group was not rejected.

HYPOTHESIS 3. There will be no difference between the group receiving feedback via observational data and the group viewing themselves on video-tape with respect to pupil task-oriented behavior.

Referring to Table 5 (which combines treatment data from first and second semester), problem pupil TOT within the TV feedback group was about six percentage points higher than the observational data feedback group during period 2 ($F = .72$, $df = 1/23$, $p > .05$) whereas it was six points lower than the observational data group during period 3 ($F = .75$, $df = 1/23$, $p > .05$) but none of these differences approached statistical significance. A similar trend appeared with respect to whole class TOT, the TV group surpassing the observational data group by about four percentage points during period 2 ($F = 1.10$, $df = 1/23$, $p > .05$) and the observational data group surpassing the TV group by about six percentage points during period 3 ($F = 1.37$, $df = 1/23$, $p > .05$), but the differences again, did not approach statistical significance. Therefore, Hypothesis 3 for problem pupil and whole class time-on-task was not rejected.

HYPOTHESIS 4. There will be no difference between the groups receiving feedback and the group receiving inservice training alone with respect to pupil task-oriented behavior.

Referring again to Table 5, problem pupil TOT within the two feedback groups was five percentage points higher than in the self implemented group during measurement period 2 ($F = .48$, $df = 1/23$, $p > .05$) and then eight percentage points higher than the self implemented group during period 3 ($F = 1.87$, $df = 1/23$, $p > .05$), but the mean score differences were not significant during either period. Whole class TOT within the feedback groups was two percentage points higher than the self implemented group during period 2 ($F = .42$, $df = 1/23$, $p > .05$) and about five percentage points higher than the self implemented group during period 3 ($F = 1.16$, $df = 1/23$, $p > .05$), but the differences again were not significant beyond chance level. Therefore, Hypothesis 4 with respect to problem pupil and whole class time-on-task was not rejected.

Post hoc inspection of Tables 3, 4, 6, and 7, presenting the intervening variables of teacher compliments and reprimands to problem pupils and the whole class, reveals a tendency for teachers in each treatment group to emit a substantially greater number of compliments to the whole class and no reprimands to problem pupils during period 3 compared to the control group, but statistical significance was not attained for any comparisons. Differences among groups with respect to compliments to problem pupils and reprimands of the whole class, however, were minimal.

DISCUSSION

Changes were achieved in both teacher and pupil behaviors, in line with earlier studies employing similar techniques, but the findings are quite complex. Increases of task-oriented behaviors in problem pupils were comparable to the work by both Hall and Becker and their associates who generally found an increase of 30 percentage points in task-oriented behavior. In contrast to these earlier studies, problem pupils chosen for this study started out at higher levels of appropriate behavior and achieved higher final amounts of time-on-task. In fact, continued improvement up to the time of follow-up indicated an average TOT of 83 percent in the problem pupils, compared to 52 percent TOT in the control group. These figures are contrasted with other studies where initial on-task behavior was as low as 39 percent and improved to 70 percent. The results of the present study are obscured by the rather erratic scores in the control group, which at times were found to be as high as 80 percent TOT among problem pupils. The difficulties, however, seem to lie in the widely varying behavior of problem pupils rather than an absence of demonstrated changes in the treatment groups.

Although gross differences were obtained, it was difficult to discern individual effects of treatments. When individual comparisons of problem pupil TOT were made between treatment groups and the control group, each treatment group was significantly more effective than the control group. Comparisons of whole class TOT, however, did not show any of the treatment groups to differ from the control group. One very obvious limitation posed against improvement in the total classroom was the high initial level of on-task behavior. Thus, despite rather impressive increases in the amount of praise given to the whole class among treatment groups (an average of 10 compliments per treatment group compared to 2 for the control group during 12 minute periods), the change was only from an average of 78 percent TOT for the control group over all observations, to 85 percent average for all treatment groups during periods 2 and 3. Since virtually no normative information is available regarding percent of on-task behaviors in average classrooms, these figures may show the upper ranges of what can be achieved.

Most earlier studies focused either on individual children or whole classrooms of children and did not report the incidence of teacher response to both kinds of populations. This study permits an unusual opportunity to make comparisons between the effects of various teacher behaviors. Studies focusing on disruptive behaviors of children within a regular classroom make the assumption that reduction of teacher reprimands and increase of praise for appropriate behaviors to the problem pupils themselves are what results in improved on-task behaviors. In view of the fact that problem pupils improved significantly in this study, one would have expected considerable change of teacher behavior toward them. In fact, treatment teachers increased little in the amount of praise to disruptive pupils, although they were able to increase praise to whole classrooms from an average of two to ten compliments per 12 minute intervals. This suggests the possible presence of a modeling effect. Whether disruptive pupils are positively affected by the teacher's responses to non-disruptive pupils is deserving of additional study.

The impressive gain with regard to compliments given to non-problem pupils, and the low amount of improvement in praise given to problem pupils, is an interesting contrast. Near the end of the inservice program, it became evident during discussions that the teachers were having difficulty accepting the importance of reinforcing problem pupils when they were in the process of doing something appropriately. Although they readily reinforced products such as contributions to class discussion and completed written work, they rarely reinforced problem pupils when they were listening attentively or producing written work. During the last group session of the second semester, this effect was seen even more sharply. When they were confronted directly with the lack of sufficient reinforcement to behavior in progress, their responses reflected considerable resistance to dispensing such reinforcement. Some said they simply forgot to do so, whereas others showed actual reluctance to give such reinforcement to problem pupils. They verbalized such things as not wanting to interrupt the pupils once they started work, and some actually felt such praise resulted in a reduction of work for the remainder of the day. One teacher noted: "It seemed like he felt he had earned enough praise to last him all day or all week." Thus, the presentation of the case for reinforcing work in progress did not seem powerful enough to reverse impressions obtained during actual interaction, and this seems to have limited the capacity of the teachers to increase frequency of praise to problem pupils. The difficulty seemed to be in failing to convince teachers of the need to consider the effects of their behavior on the future behavior of the problem pupils. These findings have implications for inservice training approaches in suggesting that more attention needs to be given to convincing teachers of the lack of validity for their observations of short term effects of praise on some pupils. In addition, more powerful rationale should be offered during inservice for the effectiveness of direct teacher praise of the work process in addition to pupil products.

The apparent success in decreasing teacher reprimands to zero in almost all teachers can be contrasted with previous studies which report much difficulty persuading teachers in this area. It is felt that the provision of alternatives to reprimands, such as exemplary praise and the 5-minute time-out, were crucial to eliminating them with respect to problem pupils in this study.

It might be noted at this point that improvements in problem pupil task-oriented behavior were effected without the use of immediate color card or light flashing instructions as applied by Hall and deemed necessary by Ward and Baker. Therefore, the implications of the present study are more in line with those by Madsen, Becker and Thomas who successfully applied more economical and possibly more feasible techniques that did not necessitate training observers in the technique of cuing teacher response.

When individual treatment groups are compared for differences in effectiveness, the lack of significant differences between feedback groups and the self implemented group would suggest that group inservice training provides the major influence. This finding is impressive in itself, but there seem to be factors associated with the SI group beyond the pure effects of inservice training. Not only might there be various influences involved in having an observer visit the room, but the original instructions to the group stressed the desire of seeing how well teachers could implement these suggestions themselves, without direct involvement with observers, i.e., consultation. These ego-involving instructions may have had an effect, and during periods of observation it was noted that some of the teachers in this group were emitting the highest amounts of praise for all treatment groups.

Thus, inservice training alone may have relatively little effect, but if this is so, it shows one way to increase the benefit from inservice training. Since teacher autonomy is commonly viewed as quite strong, if instructions are offered in such a way that effective self-implementation is viewed as keeping additional attention and consultation away from their classroom, teachers might work hard to achieve improvements by themselves. One would predict this approach would be most effective with those teachers who seek to avoid outside attention from supervisors, pupil services personnel, parents and others.

Significant differences were not found between the two types of feedback employed with consultation, that of observational data and the use of videotape. However, the ceiling effect noted earlier, where all treatment groups reached rather high levels of TOT after lecture 3, may have obscured possible differences. Inspection of the growth curves over time suggest that the effects of each feedback were

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insert Figures 6, 7, & 8 about here

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not the same. The TV groups seemed to reach higher peaks than the OD (observational data) group. Impressionistically, not only from inspection of the charts, but also from direct contact with the teachers, it seems as if the teachers in the TV group reacted more immediately to the presence of the TV and were more inclined to be initially affected by its presence. By contrast, the OD group seemed to be less affected initially, but the effect seemed to take hold over time. There is a suggestion that a scalloping effect was observed with the TV group, in that initial improvements tended to drop after this period. This was supported by rater observations that some members of the TV group were tending to revert to baseline techniques, and during consultation it became necessary with two of the TV teachers to directly discuss this deterioration.

Although this study adds evidence about the effect of various treatments with regard to changing task-oriented behaviors in the classroom, it also suggests that the various changes are affected by so many factors that a clear understanding of changes is not yet achieved. For example, in addition to the artifact of a possible ceiling effect in the treatment groups, the variability of problem pupil behaviors was quite extreme. Any given pupil could go from 30 percent TOT one session to

100 per cent in the next. This general variability is reflected best in the control group, where the average of all children went from 78 percent TOT to 65 percent TOT the following week, and then back up to 80 percent the next week. Thus, the pattern of study in problem pupils is affected by so many influences that the term of this study may have been too short to get anything resembling an accurate baseline. Thus, both the initially higher scores in the control group, and their sharp drop upon follow-up, may be misleading artifacts when comparisons are made with the control group.

Despite these difficulties, the changes within the treatment groups are obviously consistent and attributable to more than just the presence of observers in the classroom. Not only do all treatments show a consistent rise in on-task behaviors for both problem pupils and the whole class, but the effects are clearly replicated with the second semester data, which were not used in every statistical analyses due to lack of an adequate second semester control group. Since they do represent a replication of all treatment groups, they offer even sharper testimony to the effects of treatments. Efforts to achieve a more adequate baseline were made during the second semester by gathering TOT measures prior to the first inservice contact. The initial TOT for all three treatment groups (N = 11) showed them to be achieving 52 percent TOT with problem pupils and 61 percent TOT with the whole class. At the end of inservice training, the three treatments achieved an average of 85 percent TOT for the problem pupils and 88 percent TOT for the whole class.

Although the effects of the second semester do not exactly replicate those of the first semester, the general pattern is the same. There was an even more impressive gain for two treatment groups (SI and TV) with problem pupils, the problem pupils reaching 90 percent TOT. The OD group fell to 70 percent TOT at this point, but recovered to emerge as the highest group upon follow-up. This 15 point drop during the week immediately following completion of inservice seems to have been an unexplained artifact. No such pattern was noted for whole class on-task behaviors, and all three treatments showed a similar pattern of gain up to a point, followed by some fall-off. Further evaluation was made of the possible continuation of fall-off with four teachers, three weeks before the close of school. Findings indicated that pupil TOT measures did not continue to decrease, but instead, increased about five percentage points for both problem pupils and the whole class. Thus, it can be said that despite differences in the curves at various points, the general findings were similar for combined treatment effects during the second semester.

In general, it appears that problem pupil behavior can be modified effectively in a regular classroom setting utilizing reinforcement techniques. Increases in pupil task-oriented behavior can be effected through more economical teacher training procedures which do not necessitate individualized consultation nor immediately cued instructions. In addition to group inservice meetings, providing teachers with consultation through TV may accelerate the improvement of pupils whereas consultation through observational data may maintain pupil improvement over longer periods of time. Teachers' exemplary compliments to the whole class, instead of reprimands to problem pupils, are offered as ingredients of positive change in problem pupil behavior.

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TABLE 1

Percent of Rater Agreement During Class Observation

	Mean	Range
Teacher Behavior	91.7%	79-100%
Disruptive Student Behavior	92.4%	84-100%
Whole Class Student Behavior	85.2%	68-98%

TABLE 2

Percent Time On Task of Problem Pupils and Whole Class During First Semester (N = 20) For Control And Combined Treatment Groups Across Measurement Periods

	period	Control Group		Treatment Groups		
		C	F	SI	OD	TV
Time On Task	1	71.36	.56	61.24	65.78	61.10
Of Problem	2	75.84	.47	71.66	75.06	81.58
Pupils	3	51.90	*9.53	76.62	90.44	81.28
Time On Task	1	82.12	.22	83.94	81.54	78.24
Of Whole	2	75.06	3.12	84.42	83.14	89.58
Class	3	77.40	.77	81.40	89.00	84.80

*$p < .05$

critical $F_{3,16} = 3.24$

TABLE 3

Frequency of Teacher Compliments to Problem Pupils Per 16 Minutes and to Whole Class Per 12 Minutes During First Semester (N = 20) for Control and Combined Treatment Groups Across Measurement Periods

		Control Group		Treatment Groups		
	period	C	F	SI	OD	TV
Compliments	1	.88	.63	1.66	1.48	.74
To Problem	2	.20	1.19	1.60	1.06	1.38
Pupils	3	.00	.64	1.40	1.00	1.20
Compliments	1	5.90	.66	8.80	7.66	7.08
To Whole	2	5.18	.73	9.40	10.14	8.98
Class	3	2.00	2.12	10.40	8.00	11.20

TABLE 4

Frequency of Teacher Reprimands to Problem Pupils Per 16 Minutes and to Whole Class Per 12 Minutes During First Semester (N = 20) for Control and Combined Treatment Groups Across Measurement Periods

		Control Group	Treatment Groups			
	period	C	E	SI	OD	TV
Reprimands To Problem Pupils	1	.32	.51	.86	.00	.00
	2	.00	.86	.34	.06	.00
	3	.80	1.86	.00	.00	.00
Reprimands To Whole Class	1	3.92	.66	3.34	3.86	4.86
	2	2.60	.55	1.80	1.78	3.06
	3	4.60	.40	3.00	2.80	4.20

TABLE 5

Percent Time On Task of Problem Pupils and Whole Class During First and Second Semester (N = 26) for Self Implemented and Feedback Groups Across Measurement Periods

				Feedback Groups		
	period	SI	$F_{(HC4)}$	OD	$F_{(H03)}$	TV
Time On Task	1	62.75		67.26		63.89
Of Problem	2	72.83	.48	74.20	.72	79.99
Pupils	3	74.03	1.87	85.01	.76	79.28
Time On Task	1	81.35		82.93		78.64
Of Whole	2	84.14	.42	84.37	1.10	88.24
Class	3	78.87	1.16	87.00	1.37	80.89

TABLE 6

Frequency of Teacher Compliments to Problem Pupils Per 16 Minutes and to Whole Class Per 12 Minutes During First and Second Semester (N = 26) For Self Implemented and Feedback Groups Across Measurement Periods

				Feedback Groups		
	period	SI	$F_{(H04)}$	OD	$F_{(H03)}$	TV
Compliments	1	1.36		1.34		1.30
To Problem	2	1.41	.01	1.37	.95	1.57
Pupils	3	1.00	.57	2.22	1.29	1.11
Compliments	1	10.00		9.14		9.30
To Whole	2	11.46	.05	9.81	.62	12.02
Class	3	11.75	.96	7.56	1.26	10.81

TABLE 7

Frequency of Teacher Reprimands to Problem Pupils Per 16 Minutes and to Whole Class Per 12 Minutes During First and Second Semester (N = 26) For Self Implemented and Feedback Groups Across Measurement Periods

				Feedback Groups		
	period	SI	$F_{(H04)}$	OD	$F_{(H03)}$	TV
Reprimands	1	.63		.19		.14
To Problem	2	.25	2.22	.07	.05	.03
Pupils	3	.13	.30	.00	.00	.00
Reprimands	1	3.84		4.04		3.99
To Whole	2	1.59	1.58	1.91	2.36	3.28
Class	3	2.13	.29	2.22	.66	3.22

TABLE 8

Standard Deviations of Pupil and Teacher Variables
During the First Semester

	Period	Group C	SI	OD	TV
Problem Pupil TOT	1	11.96	13.08	18.05	10.50
	2	7.88	18.97	16.75	3.94
	3	8.18	20.03	7.03	7.21
Whole Class TOT	1	7.18	7.17	5.34	9.92
	2	8.39	7.14	8.99	5.38
	3	15.11	15.24	10.05	8.17
Compliments to Problem Pupils	1	.93	1.33	.84	.82
	2	.45	1.14	1.43	1.68
	3	.00	1.67	1.41	2.68
Compliments to Whole Class	1	3.11	4.17	1.80	2.52
	2	5.78	4.61	8.25	3.55
	3	1.58	7.02	6.60	8.26
Reprimands to Problem Pupils	1	.41	1.76	.00	.00
	2	.00	.76	.13	.00
	3	1.30	.00	.00	.00
Reprimands to Whole Class	1	1.92	3.52	2.39	2.86
	2	2.24	2.08	1.67	2.08
	3	3.13	2.91	1.92	3.77

TABLE 9

Standard Deviations of Pupil and Teacher Variables
Within Treatment Groups First and Second Semester Combined

	Period	SI	OD	TV
Problem Pupil TOT	1	11.23	15.18	10.68
	2	15.75	20.87	4.63
	3	16.92	15.23	11.99
Whole Class TOT	1	8.88	4.60	7.17
	2	8.98	8.91	4.80
	3	12.22	8.92	9.41
Compliments to Problem Pupils	1	1.12	.89	1.15
	2	1.26	1.82	1.26
	3	1.41	2.95	2.03
Compliments to Whole Class	1	4.74	3.78	5.05
	2	6.09	6.18	5.66
	3	7.92	5.03	6.80
Reprimands to Problem Pupils	1	1.38	.38	.25
	2	.59	.13	.10
	3	.35	.00	.00
Reprimands to Whole Class	1	3.28	2.36	2.67
	2	1.74	1.51	2.13
	3	2.59	1.86	2.95

FIGURE 1

Illustration of Treatment Procedure Sequence

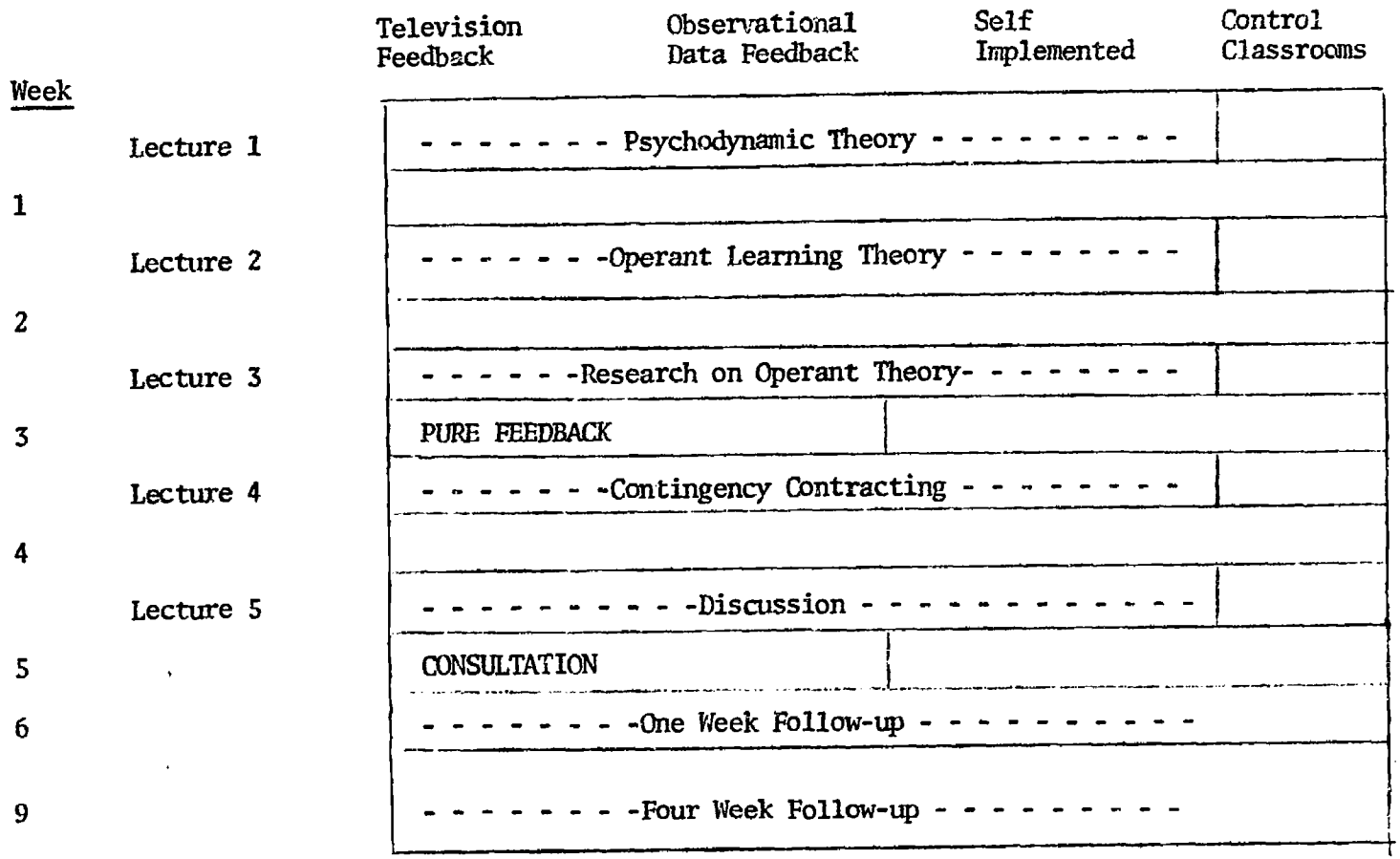

FIGURE 2

RATING FORM: TEACHER-STUDENT INTERACTION

TARGET CHILDREN - 4 MINUTE SEGMENT

Observe and record for 20 seconds; 10 second rest pause. Rate + for on task behaviors and - for off task behaviors in first 12 items. Rate category 13 for two-10 second intervals; rate + only if child is on task throughout each ten second interval.

	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	30	1	2	30
1. Stands at desk																								
2. Away from desk																								
3. Misc. non-production																								
4. Excessive noise																								
5. Talking with other Ss																								
6. Other non-physical interaction																								
7. Physical interaction																								
8. Raises hand																								
9. Calls or talks unrecognized																								
10. Contributes to class																								
11. Fails to answer																								
12. Talks indiv. with teacher																								
13. Time on task																								

Date_____ Number of students present_____ Rater_____ Time rating started_____ Terminated_____ Total time on task (%age determined by summing intervals rated + and dividing by total intervals rated)_____ Name of teacher_____ Class activity_____

Column 1 = Student response

Column 2 = Teacher comment (+ or -)

Column 3 = Teacher proximity (within 3 feet)

FIGURE 3

Behavior Check List: Student Responses

	Individual	
1.	Stands at desk	Standing with weight supported by one or both feet. Includes standing on one foot with other knee on chair. Does not include kneeling with both knees on chair. + if on task, - if off task.
2.	Away from desk	E.g., while working at board, using pencil sharpener, talking to teacher or student, sitting on floor, walking around room, etc. Rate + if teacher approved beforehand, rate - otherwise.
3.	Miscellaneous non-production (Silent)	E.g., sitting and doing nothing, staring around room, scratching, yawning silently, looking through desk, etc. when not scorable in another category. Includes only non-verbal, relatively silent activity and activity not clearly directed toward another person.
4.	Excessive noise	Mumbling, grunting, loud yawning, loudly rustling papers, slamming desk, etc. when not clearly directed at specific individuals.
	In Relation to Other Students	
5.	Talking with other Ss	Child must look at S while verbalizing or use Ss name.
6.	Other non-physical interaction with other Ss	Waving, exchanging signs or signals, passing things to each other, etc.
7.	Physical interaction with other Ss	Rate +. Child touches another S with part of body or object in playful or affectionate manner. Tone is playful, friendly one.
	In Relation to Teacher	
8.	Raises hand	Any instance in which S raises hand to be recognized, even if he denies later that he did so (e.g., "I was just stretching.")
9.	Calls or talks without being recognized to speak	Includes responses to teacher, class or several students; but not talking to one or two students near him, unless it is very loud.
10.	Contributes to class	Participating in discussion when first recognized to speak; giving class demonstration; putting problems or examples on board; reading aloud, etc.
11.	Fails to answer when called on	In addition to S's making no response when called on, this also includes statements like "I don't know".
12.	Talks individually with teacher	Defined according to proximity of teacher to S and low volume; does not include extended teacher-S interactions as part of discussion, when carried on across room, etc.
13.	Time on task	Includes silent on-task behaviors, i.e., writing the assignments, looking in the book, facting and responding to study material or teacher (non-verbally).

FIGURE 4

RATING FORM: WHOLE CLASS-TEACHER INTERACTION

Observe each student, beginning with first pupil in first row from left, for 10 seconds, recording at the end of the ten second interval.

	Row 1	Row 2	Row 3	Row 4	Row 5
First Task					
Sweep Non-task					
Second Study					
Sweep Non-study					
Third Study					
Sweep Non-study					

Teacher Responses

Observe and record continuously by 30 second intervals. Rate each category + or - (or 0 for category #6).

	4'	8'	12'
1. Physical contact			
2. Verbal attention task			
3. Verbal attention non-task			
4. Helps S at desk			
5. Punishes S			
6. To whole class			

FIGURE 5

BEHAVIOR CHECK LIST: WHOLE CLASS-TEACHER INTERACTION
Key for Rating Categories

Whole Class Sweeps

Observe each student present in the class for ten seconds; begin observing first pupil in first row from left when facing the front of the room. Rate a new student each successive ten seconds, proceeding down first row, then starting with front student in second row; continue similarly around rest of room. Study behaviors include writing the assignment, looking in the book, answering a question, facing and responding to study material or the teacher. Record a vertical mark in the appropriate category for each student, staggering the marks from left to right across the recording space so that the child for whom each mark stands is identifiable. The student's behavior at the end of the ten seconds determines the rating with two exceptions: if pupil being observed is out of his seat or talking without being recognized any time during the ten second interval, rate as a non-study interval.

Teacher Responses

1. Physical contact	+ Teacher pats a S on the head, gives S a hug, etc. in positive, approving way. - Teacher turns student's head, grabs arm, shakes S, etc. Any instance of physical contact initiated to curb Ss activity, to restrain S or to indicate disapproval.
2. Verbal attention to task behavior	+ Verbal praise or approval in regard to appropriate task or study behavior of Ss. Judged by content. Includes "very good", "fine", "you're working so nicely", etc., but not "O.K." Includes pointing out an error when followed by attempt to help child. ++ Two connected positive comments ("very good. I'm so pleased with the way you're working") and/or intense affect (enthusiasm). - Verbal disapproval following S's attempted study behavior. E.g., "No, that's wrong," "You're not getting that right," with no attempt to help S correct error.
3. Attention to non-task behavior	+ E.g., "My, that's a pretty dress you're wearing today", etc. A positive, approving comment unrelated to school task. - Negative verbal attention given by teacher to non-task behavior. E.g., "Stop talking," "Get your feet out of the aisle," "Stop playing with your pencil," etc.
4. Helps an individual at his desk	+ or - according to definitions for category 2. This category defined according to proximity and low volume. Does not include prolonged interaction during a discussion, etc.
5. Punishes S(s)	- E.g., gives extra assignment, tells to stay after school, go to principal's office, etc.
6. Teacher reading, talking to class	No interaction with single student involved in this category which includes anonymous comments or those directed to two or more unidentified individuals.

Rate + (positive comments), - (negative), or) (neutral)

Figure 6

Percent Time on Task of Problem Pupils During
First and Second Semester

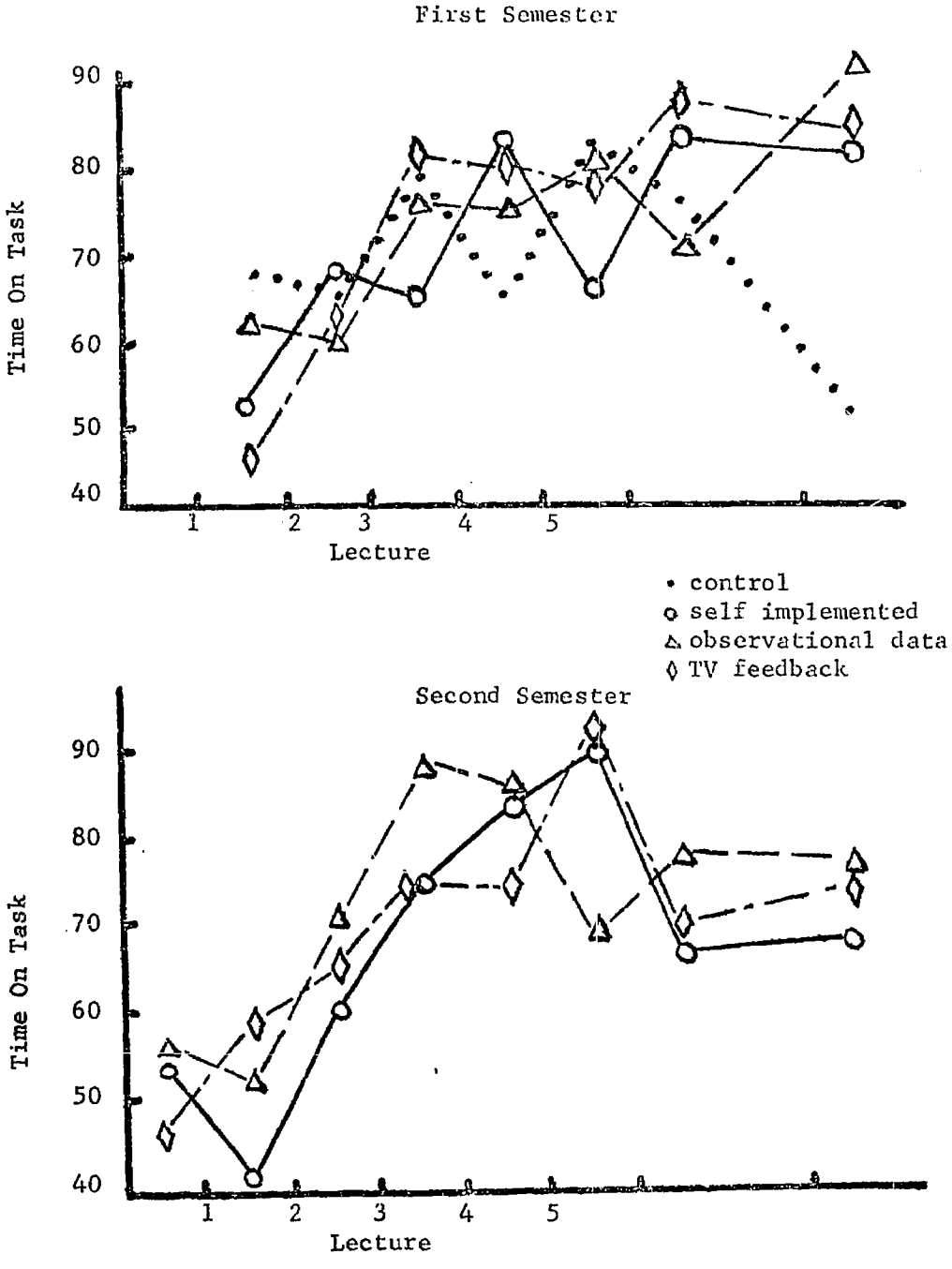

Figure 7

Percent Time On Task of Whole Class During
First and Second Semester

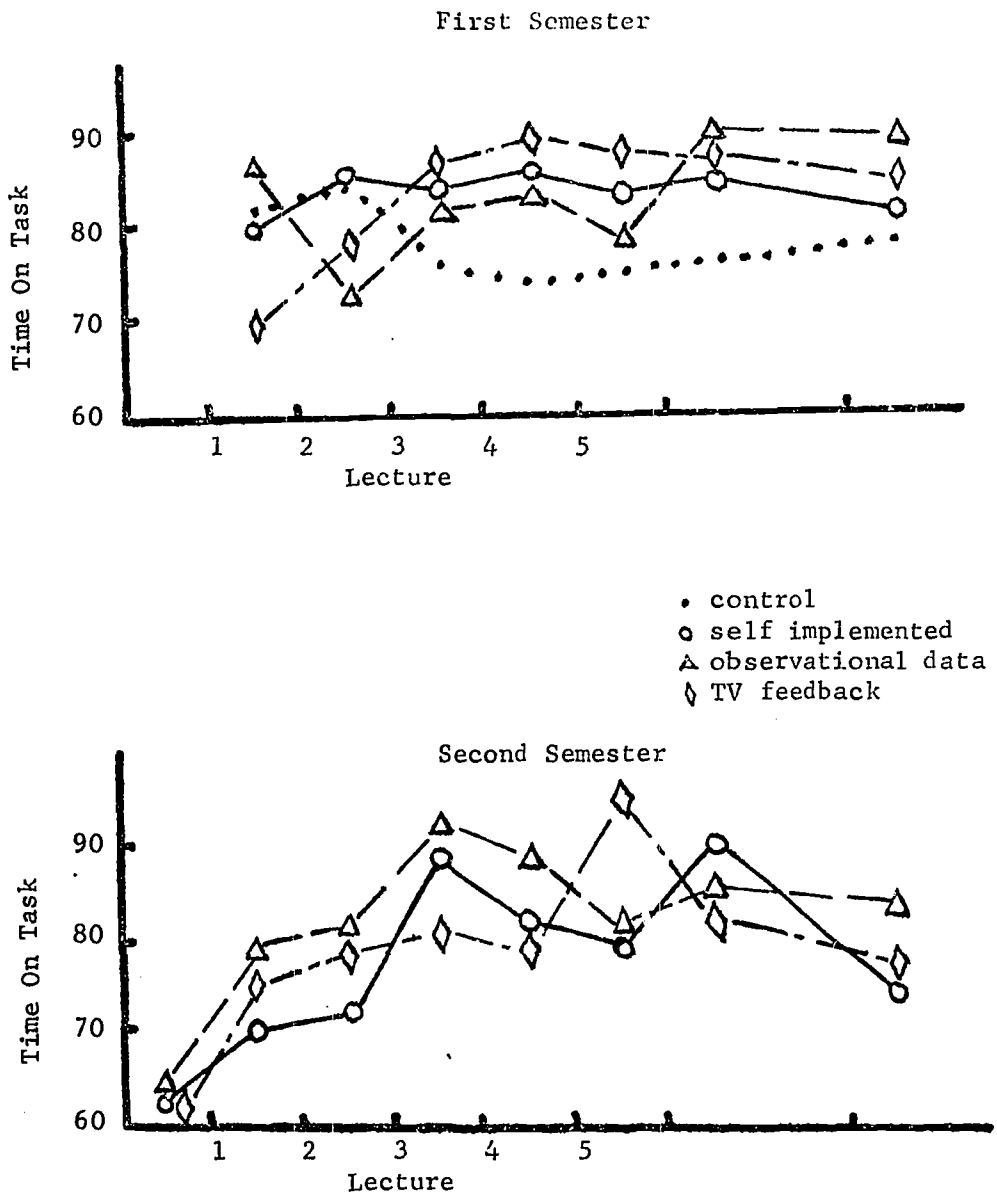

Figure 8

Percent Time On Task of Problem Pupils and Whole Class During Both Semesters Combined