THE USE OF TEACHERS AS BEHAVIORAL OBSERVERS

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The effect of using teachers as behavioral observers on both student and teacher behavior was examined with eight teachers and 32 elementary school children. The frequency of prompts (but not praise or criticism) to those students observed by the teacher increased significantly from nonobserver to teacher observed experimental phases. In addition, students observed by the teacher showed more change in appropriate behavior than students who were not observed. The significance of these findings for research and therapy is discussed.

DESCRIPTORS: classroom behavior, observation procedures, recording and measurement, participant observers, teachers

Researchers conducting studies in the natural environment have often employed parents or teachers as behavioral observers in addition to their usual role as mediators of treatment procedures. Participant observers may be preferred to nonparticipant observers (*e.g.*, independent observers) for several reasons. First, participant observers may be less costly and more likely to be present than nonparticipant observers when the behavior of interest occurs. Second, since participant observers are routinely present in the observational setting, it has been suggested that the use of mediators as observers may ameliorate the reactive changes in observed persons' behaviors attributed to the addition of observers to the environment (Foster, Keilitz, and Thomas, Note 1; Kubany and Sloggett, 1973).

Reports of "baseline cures", however, suggest that reactive changes in the observed persons' behaviors may result even when the dependent measures are recorded by participant observers. Crowder and Willis (Note 2) noted that in several teacher-conducted case studies, the frequency of problem behaviors was markedly diminished when the teachers began baseline observations. Similarly, Forehand (1973) reported a clinically significant reduction in the frequency of spitting behavior during the collection of baseline data by the teacher. These researchers suggested that changes in student behavior may have re-

sulted from changes in teacher behaviors during the observation periods.

The present study investigated the effects of observations of student behaviors by teachers on both student and teacher classroom behavior. Changes in teacher behavior will be referred to as observer-mediator reactivity. Changes in student behavior will be labelled observee reactivity.

METHOD

Subjects

Eight teachers (two first, two second, and four third grade) and 32 male elementary school students served as subjects. Four students were selected from each teacher's classroom. Two students (referred) were chosen by each teacher for exhibiting high rates of off-task classroom behavior. Two other students (non-referred) were selected, using the data of independent observers, for exhibiting high rates of off-task behavior during observations of classroom behavior.

One referred student and one nonreferred student in each classroom were subsequently assigned to the experimental and control conditions. Experimental subjects were those students whose classroom behavior was systematically observed by the teacher. Thus, four groups of eight students were delineated: experimental referred, experimental nonreferred, control referred, and control nonreferred.

Procedure

Four trained observers recorded the behaviors of students and of their teachers during 1 hr of the day for 10 consecutive school days. The 10 days of observations were divided into two intervals. Interval I, Days 1 to 5, provided a baseline rate of each student's behavior and of the respective teacher's verbalizations to that student. During Interval II, Days 6 to

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10, the teachers also recorded the classroom behavior of one referred and one nonreferred student.

The independent observers used a modified version of a time-sampling technique described by Kubany, Weiss, and Sloggett (1971) to record student and teacher behaviors. Each student was observed for a 15-min observation period, during which time the observer glanced over at the student every 15 sec and scored his behavior *at that instant* as either appropriate, passive, or disruptive. Student behavior was recorded as *appropriate* when the student was attending to the assigned task. Behavior was recorded as *passive* when the student was neither attending to the task nor disturbing the teacher or other members of the class. Behavior was recorded as *disruptive* when the student was not attending to the task and was disturbing other members of the class. During the remainder of each 15-sec interval, verbal behavior exhibited by the teacher directly toward the observed student was recorded. Teacher verbalizations indicating that the teacher was pleased with the student's behavior were recorded as praises. Teacher verbalizations conveying additional information or directing the student's attention toward the task were recorded as prompts. Teacher verbalizations relating that the teacher was displeased with the student's behavior were recorded as criticisms.

The teacher employed a similar procedure to record the classroom behavior of the two students in the experimental group during Interval II. Training consisted only of instructing the teachers in the observation procedure. Each teacher was given written instructions describing the observation technique in detail. In addition, the observation procedure was discussed with each teacher, and the importance of obtaining objective baseline data in order to evaluate subsequent intervention procedures was emphasized. Specifically, the observation sheet specified a starting time and the number of minutes for which a kitchen timer would be set. When the timer ran out and the bell rang, the teacher glanced over and recorded the behavior of each of the two students *at that instant* as appropriate, passive, or disruptive. The timer was immediately reset for the next specified interval of time. The length of the intervals between observations was predetermined on a variable-interval 4-min (VI 4-min) schedule. In total, the teacher recorded the behavior of the two students 15 times during each observation hour. In addition to recording students' behavior, teachers conducted their classrooms as usual during this time.

Before observations were initiated, the teacher informed the class that a bell would ring occasionally during the day. The teacher explained that the bell was a memory device to remind her of things that she wanted to do. In addition, the teacher was instructed to ignore student references to the timer. Kubany and Sloggett (1973) suggested that students quickly become accustomed to the bell, and that it does not interfere with their classroom behavior.

RESULTS

Interobserver Agreement

A "random-check" procedure (Taplin and Reid, 1973) was employed to assess interobserver agreement for the independent observers. This procedure requires that two observers be recording in the same classroom during all observation sessions. Using this procedure, observers are kept unaware of the specific times that interobserver agreement is being assessed. In the present study, the observation recording schedules were pre-arranged such that two observers were recording the behavior of the same student 50% of the time during each observation period.

The exact agreement method was used to calculate interobserver agreement (number of agreements/number of agreements plus disagreements). Agreement scores across observation days for appropriate, passive, and disruptive student behaviors were 0.91, 0.91, and 0.94 respectively. Agreement scores for teacher praises, prompts, and criticisms were 0.93, 0.92, and 0.90 respectively.

Teacher Behavior (Observer-Mediator Reactivity)

A repeated measures analysis of variance was calculated for the frequency of each teacher verbalization (praise, prompts, and criticism) recorded by the independent observers. Observer-mediator reactivity effects were evidenced by a significant condition $\times$ interval interaction for prompts, $F(1, 7) = 7.93$, $p < 0.05$. A Newman-Keuls *a posteriori* comparison indicated that the frequency of prompts to the students who were observed by the teacher (experimental condition) was significantly greater when the teachers were recording student behavior (Interval II) than before teachers' observations were initiated (Interval I). The mean frequency of prompts per day to the students in the experimental condition was 2.03 during Interval I and 3.03 during Interval II. Teacher prompts to the students who were not observed by the teacher (control condition) did not differ significantly between Interval I and Interval II. The mean frequency of prompts per day to the students in the control condition was 1.57 during Interval I and 1.38 during Interval II. The frequency of praise and criticism did not, however, change significantly with initiation of observation by the teachers.

Student Behavior (Observee-Reactivity)

To determine whether observations by the teachers resulted in changes in student classroom behavior, a 2 (condition) $\times$ 2 (referral status) analysis of variance (ANOVA) of the absolute change from Interval I to Interval II was calculated for each of the three student behaviors as recorded by the independent observers. Absolute change scores were used because preliminary analyses of the data indicated that teacher observations differentially affected the behavior of the students: teacher observations increased the percent of appropriate, passive, or disruptive behavior

exhibited by some students, while decreasing those behaviors for other students.

The results of the ANOVA indicated that the experimental students, who were observed by the teacher, exhibited significantly greater changes in appropriate behavior than the control students who were not observed by the teacher, $F(1, 28) = 4.44, p < 0.05$. In addition, significant condition $\times$ referral status interactions for passive behavior, $F(1, 28) = 5.66, p < 0.05$, and disruptive behavior, $F(1, 28) = 3.09, p < 0.10$, were obtained. Newman-Keuls analyses revealed that changes in passive and disruptive behaviors were dependent on the referral status of the students: for the referred students, teacher observations resulted in changes in disruptive behavior, whereas for the nonreferred students, teachers' observations changed passive behavior.

DISCUSSION

The results indicate that observations by mediators may effect changes in the behavior of both the individuals observed (observee reactivity) and the individuals making the observations (observer-mediator reactivity). In the present study, initiating observations of student behaviors by teachers significantly changed student classroom behaviors and teacher verbalizations. The results suggest that observations by participant observers, as well as independent observers, may effect changes in the behavior of the individuals observed.

The data recorded by mediators provide the basis for evaluating treatment procedures in both research studies and clinical case studies (Hall, Christler, Cranston, and Tucker, 1970; Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, and Porcia, 1971; McAllister, Stachowiak, Baer, and Conderman, 1969; Osborne, 1969). In these studies, the results of treatment implementations may have been confounded by observer-mediator reactivity effects. When mediators are employed as data collectors, however, it may be possible to control experimentally for the effects of observer reactivity and observer-mediator reactivity by paralleling the suggestions made by Nelson and McReynolds (1971) and by Jeffrey (1974) in relation to self-monitoring. In between-group designs, a mediator-monitoring-only control group could be included against which to compare the effects of a mediator-monitoring plus treatment experimental group. In within-group designs, an ABCBCA design could be used, in which A is baseline (assessed by independent observers), B is mediator-monitoring, and C is mediator-monitoring plus treatment, in order to isolate effects due to treatment, rather than to observe reactivity or to observer-mediator reactivity. An alternative control procedure for within-group design would be to have mediators record the behavior of persons who are not receiving the experimental manipulation in addition to recording the behavior of those persons who are; observee reactivity and ob-

server-mediator reactivity effects could thus be separated from treatment effects.

On the other hand, implementation of observation procedures by mediators may in some cases function as the treatment procedure itself. Forehand (1973) suggested that identification and observation of a problem behavior may result in mediators recognizing the antecedent and consequent conditions that maintain problem responses. This information may be sufficient, in many cases, for mediators to devise appropriate methods for modifying problem behaviors.

In the present study, however, differential reactivity to teacher observations was obtained: some students exhibited increases and other students decreases in the per cent of appropriate behavior when observations by teachers were initiated. This result suggests that observations by mediators may not necessarily result in therapeutic changes in the frequency of the recorded responses. The direction of behavior change may depend on whether the mediator has the skills necessary to design and implement a successful treatment program. Crowder and Willis (Note 2) noted that "baseline curves" obtained in several teacher-conducted case studies were a result of teachers using specific treatment methods they had learned in a behavior-modification course.

Finally, the specificity of observer-mediator reactivity effects to an increase in prompt statements may have been attributable to the teacher observation procedure itself. The observation procedure required the teacher to glance over at the students whose behavior they were recording 15 times during each observation session, regardless of the student's behavior at that time. Since the students being observed had been selected for the study because they exhibited a high frequency of "off-task" behavior, the teacher was likely to find the students engaged in other than task-related behaviors at each observation. A prompt to begin or continue to work would therefore have been an appropriate teacher verbalization at that time. Further research should examine the differential observer-mediator reactivity effects that may result from the teacher utilizing various recording procedures. For example, an increase in criticism statements might be effected by requesting teachers to keep frequency counts of a student's inappropriate behavior. Similarly, a frequency count of an appropriate behavior might effect an increase in teacher praise statements.

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