

METHODOLOGICAL PROBLEMS IN THE USE OF PARTICIPANT OBSERVERS

LINDA RUDIN HAY, ROSEMERY O. NELSON, AND WILLIAM M. HAY

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

A multiple baseline design across observed students and teachers was used to investigate the relationship between observations by participant observers and changes in the behavior of those observed ("observee" reactivity) and the observers (observer-mediator reactivity). Two teachers recorded consecutively the appropriate student verbalizations of four students and two teachers recorded the inappropriate student verbalizations of four students. Independent observers simultaneously recorded student verbalizations (appropriate and inappropriate) as well as teacher behaviors (positive, negative, and instruction) throughout all phases of the study. The results substantiated the prediction of "observee" reactivity and observer-mediator reactivity in one of four classrooms. The results of the present study suggest that in some instances, observations by participant observers may result in changes in the behavior of those being observed ("observee" reactivity) and/or the observers (observer-mediator reactivity).

DESCRIPTORS: observations, participant observers, observer-mediator reactivity

Researchers have attempted to circumvent the problem of observer reactivity with independent observers by using participant observers, individuals already present in the observed's environment. The results of several case studies (Forehand, 1973; Crowder & Willis, Note 1) and an experimental investigation (Hay, Nelson, & Hay, 1977), however, suggest that observations by participant observers may also be reactive.

The reactivity of observations by participant observers may result from changes in the usual behavior of the observer in response to the individuals he or she is observing. Hay et al. (1977) found that when teachers were instructed to record student behaviors, they gave a significantly greater number of prompts to the observed students. Ciminero, Graham, and Jackson (1977) demonstrated systematic changes in

the observer's behavior in a laboratory analogue study in which college students were instructed to record either the leg kicking or face touching behavior of another college student.

The present study examined the effects of participant observations on the behavior of both observer and observed. For the purposes of this paper, changes in the observed's behavior in response to the observation procedure will be referred to as "observee" reactivity and changes in the observer's behavior will be called observer-mediator reactivity (Hay et al., 1977).

METHOD

Participants

Four teachers (2 first- and 2 second-grade) and 16 students participated in the study. Four students from each teacher's classroom who received the highest test scores on teacher ratings of inappropriate classroom behavior were selected for participation in the study.

Procedure

In each teacher's classroom, a multiple baseline design across students was used. Indepen-

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dent observers recorded the behavior of the students and teachers for a 7-day baseline period and 28 additional days during which time each teacher also recorded the behavior of each of the four students. The teachers observed one student at a time, each for 7 school days.

Four undergraduate psychology students, serving as observers, recorded the frequency of appropriate and inappropriate student verbalizations and positive, negative, and instruction teacher behaviors addressed to each target student. A student verbalization was recorded as appropriate when the response was initiated by the teacher. A verbalization was considered inappropriate when the response was self-initiated or initiated by another student. Teacher verbal or physical responses indicating that she was pleased or that the student's answer was correct were recorded as positive. Verbal or physical responses indicating that the teacher was displeased or that the student's answer was incorrect were recorded as negative. Teacher verbal or physical responses conveying information or directing the student's behavior toward a particular task were recorded as instruction. All observations were made during a 20-min classroom discussion activity in which the teacher was interacting with the class as a group.

A "random check" procedure (Taplin & Reid, 1973) was used to determine interobserver agreement. Two observers recorded in the same classroom at the same time. Each observer concurrently recorded the behavior of three of the four students as well as teacher behavior directed toward these students. The particular three students observed by an observer were determined randomly each day with the stipulation that between the observers all four students were observed each observation day. The observers were kept unaware of the students whose behavior the other observer was recording. Thus each day, both observers simultaneously recorded the behavior of two of the four target students in the class. On three observation days, only one observer was present and observed all four students simultaneously. The agreement coefficients

for student appropriate and inappropriate verbalizations across students and days were .93 ($N = 256$) and .88 ($N = 256$). This number ($N = 256$) represents $\frac{1}{2}$ of the observation intervals minus the 3 days that one observer was absent. The agreement coefficients for teacher positive, negative, and instruction behaviors were .83 ($N = 256$), .62 ($N = 256$), and .90 ($N = 256$) respectively.

The teacher kept a frequency count of student behavior by clicking a counter, worn around her neck, each time the student she was observing exhibited a target behavior. Two teachers (Teacher 1 and Teacher 2) recorded only appropriate verbalizations, and two teachers (Teacher 3 and Teacher 4) recorded only inappropriate verbalizations throughout the study.

RESULTS

"Observee" Reactivity

Rn statistics (Revusky, 1967), were computed to determine whether teacher observations effected changes in the rate of occurrence of student verbalizations. In order to control for differences in the initial rate of occurrence of the target behaviors across students, the difference between the mean frequencies recorded for the student in each experimental phase to the next phase was employed.

The results indicated significant changes in student verbalizations in only one of the four classrooms. In Teacher 1's classroom, there was a significant increase in the frequency of appropriate student verbalizations ($Rn = 4$, $p < .05$) with teacher observation (Figure 1). The students in Teacher 1's classroom did not exhibit a significant change in the frequency of inappropriate student verbalizations ($Rn = 5$). For the students in Teacher 2, 3, and 4 classrooms, changes in appropriate ($Rn = 7$, $Rn = 5$, $Rn = 9$) and inappropriate ($Rn = 7$, $Rn = 6$, $Rn = 7$) student verbalizations were not significant.

Observer-Mediator Reactivity

For each teacher, three *Rn* statistics were calculated for positive, negative, and instruction

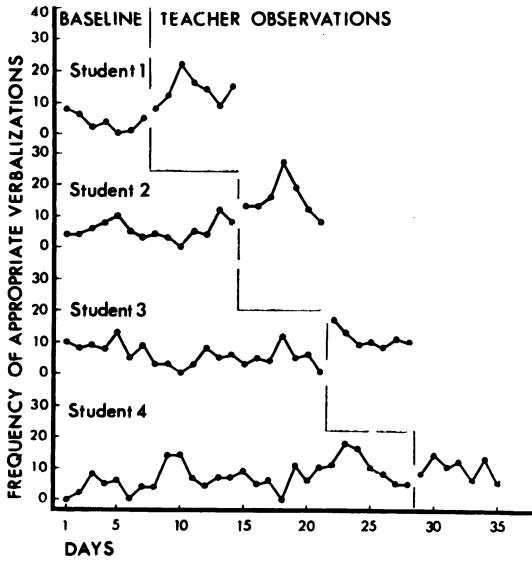


Fig. 1. Frequency of appropriate student verbalizations exhibited daily by each student in Teacher 1's classroom during baseline and teacher observations.

behavior. The results of the analyses revealed significant changes in teacher behavior for one of the four teachers. Teacher 1 increased the frequency of positive ($Rn = 4, p < .05$) and instruction ($Rn = 4, p < .05$) behavior (Figure 2). Teacher 1, however, did not exhibit a signi-

ficant change in the frequency of negative behavior ($Rn = 7$). For teachers 2, 3, and 4, changes in positive ($Rn = 8, Rn = 6, Rn = 6$), negative ($Rn = 6, Rn = 7, Rn = 6$), and instruction behavior ($Rn = 7, Rn = 6, Rn = 6$) were not significant.

Accuracy of Teachers' Recordings

Spearman correlation coefficients were calculated between the data recorded by each teacher and the independent observers. The agreement scores for Teachers 1 and 2, who recorded appropriate student verbalization were .77 ($N = 28$) and .83 ($N = 28$), respectively. The agreement scores for Teachers 3 and 4, who recorded inappropriate student verbalizations were .55 ($N = 28$) and .83 ($N = 28$), respectively.

T tests for correlated samples were computed to determine whether the frequencies recorded by the teachers were significantly lower than the frequencies recorded by the independent observers. The *t* values for Teachers 1 and 2 who recorded appropriate student verbalizations were $t(27) = 4.27, p < .005$; and $t(27) = 2.76, p < .01$. The *t* values for Teachers 3 and 4 who

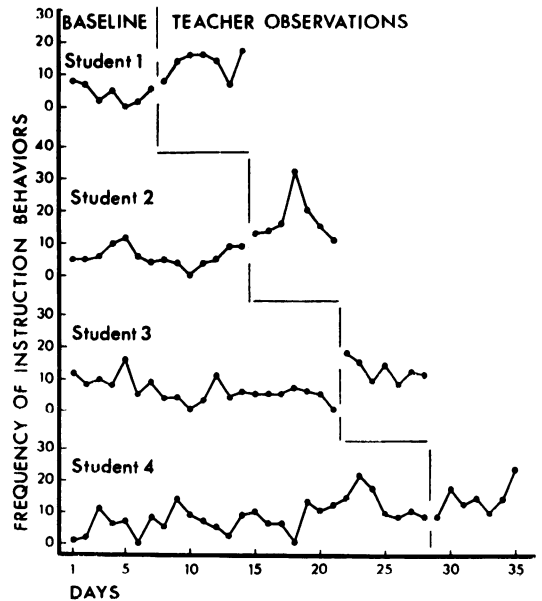
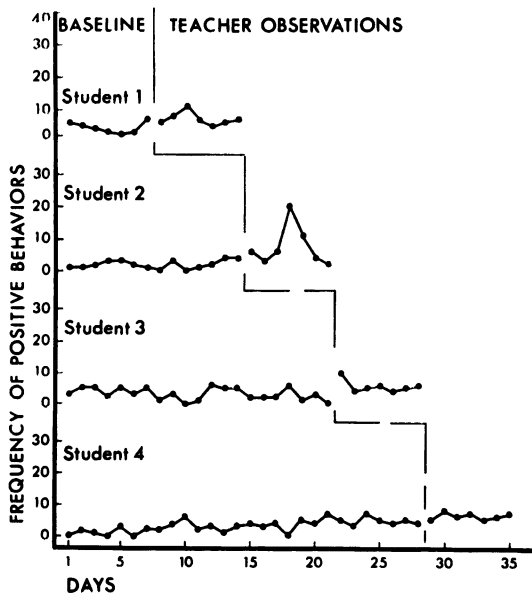


Fig. 2. Frequency of positive behaviors (2a) and instruction behavior (2b) exhibited daily by Teacher 1 to each student during baseline and teacher observations.

recorded inappropriate student verbalizations were $t(27) = 2.57, p < .01$ and $t(27) = 4.20, p < .0005$. Thus, there was a significant and systematic bias for the teachers to record fewer occurrences of the target behavior than the independent observers.

To determine whether response frequency and teacher reliability were inversely related, Spearman correlation coefficients were calculated between the response frequencies as recorded by the independent observers and the absolute difference between the frequencies recorded by the teacher and independent observers each observation day. The correlation coefficients for each teacher, respectively, were .76, .79, .82, and .59. Thus, the higher the response frequency, the larger the discrepancy between the data recorded by the teachers and independent observers.

DISCUSSION

The results indicate that observations by participant observers may, in some instances, have reactivity effects on those observed and on observer-mediators. Specifically, the implementation of a recording procedure by a teacher may effect changes in the student's behavior and the teacher's behavior toward the observed students.

It has generally been assumed that observations by participant observers should be less reactive than observations by nonparticipant observers since the participant observers are already a part of the observed's environment. The results of the present study, and the Hay *et al.* (1977) study, however, suggest that variables other than the *addition* of observers to the environment

may account for changes in observed behavior. Such variables might include characteristics of the observers and those observed, the recording procedures, or the nature of the observer-observed interaction. Future research investigation should attempt to identify variables that predict when observations by either participant or non-participant observers will be reactive.

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