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A study was designed to determine whether the presence or absence of a classroom observer and the prior knowledge or lack of knowledge that an observation was to occur would affect the verbal behavior of teachers as measured by the Flanders System of Interaction Analysis. The variables were dichotomized yielding a 2 x 2 x 2 experimental design which allowed observation (through an electronic monitoring system) of two groups of four elementary school teachers (high and low manifest anxiety) under four conditions. The comparisons between teacher's behaviors when an observer was present and their behaviors when no observer was present indicated that teachers become more like their perceived ideal teacher when an observer is present. But it was found that they do not behave more like their perceived ideal teacher when informed of an observation prior to its occurrence than they do when not informed. No support was given to the predicted interaction between a teacher's level of manifest anxiety and "observer present/teacher informed" compared with "observer not present/teacher not informed" conditions. Additional analyses of variance on 41 other interaction variables indicated that the presence or absence of an observer is significantly related to teachers' classroom behavior: changes are in the direction of more indirect behaviors when an observer is present. (Implications of the findings are discussed.) (JS)

OBSERVER EFFECTS ON TEACHER BEHAVIOR

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INTRODUCTION

This study was undertaken to determine whether the presence of an observer has an effect on the verbal behavior of teachers, and if so, what the nature of that effect is. Teachers under observation, if they know they are being observed, may deliberately or unconsciously try to create a favorable impression by altering their verbal behaviors. The teacher's verbal behavior in the presence of an observer may not be the same as the behavior exhibited in the observer's absence.

In recent years there has been an increase in the use of observational systems by educational researchers to study and evaluate behavior in classroom settings. To report classroom occurrences in behavioral terms the most widely used observational systems require the presence of one or more observers over a period of from one to three thirty minute sessions (Simon and Boyer, 1967). The use of an observational system requires the assumption that an observer's presence does not differentially affect teachers. It is believed that observers do cause some changes in the verbal interaction between teachers and students but that the effect will be constant, minor or randomized over all observations (Heyns and Lippitt, 1954; Flanders, 1968).

Investigators purport to be measuring what a teacher normally says in a classroom, but, in fact, they are measuring what a teacher says while an observer is present in the classroom. The two things may not be the same. In order to be able to draw valid conclusions from data obtained using observational systems, such assumptions are necessary. Otherwise, the conclusions reached by the use of observations could not be generalized.

When confronted with this difficulty, researchers have generally recognized the problem, but have done little about it. They assert it is better to have some information about how teachers and students interact, even if it is of doubtful validity, then to know nothing at all about their behavior (Medley and Mitzel, 1963). It should be clear that findings based on data collected by an observer may not be generalized to the non-observed classroom.

School administrators and supervisors of teachers should also be concerned about the possible effect their presence in the classroom might have upon the verbal behavior of teachers. The supervisor or principal who evaluates teacher performance on the basis of observations may be arriving at inaccurate conclusions due to his own presence in that classroom.

Evidence for this contention has been presented in a study by Mitzel and Rabinowitz (1953). Observers visited the same classroom every Monday morning for eight weeks. The data for the first four weeks were analyzed separately from those of the last four weeks. Marked changes in the teachers' behavior as measured by Withall's technique (Withall, 1949) were found when observations recorded during the first four weeks were compared with those recorded during the last four weeks. The direction of change provided evidence that teachers accommodate to the presence of observers over a period of time. Observation by supervisors and administrators may also produce similar changes in verbal behavior.

Established protocol required that the teachers be informed of an observation before it is to occur. The knowledge that an observation will occur may be another factor producing variations in a teacher's style. If teachers are informed prior to being observed, they may tend to prepare their presentations in greater detail and may even give specific directions to their students about how to behave when the observer appears. Generalizations based upon observa-

tion of pre-informed teachers may not hold when applied to the usual classroom environment.

These two factors, the presence or absence of a classroom observer and the prior knowledge that an observation is to occur, are correlated due to the protocol which exists for teacher-observer relations. In order for observations to occur, it is necessary to secure the teacher's consent, thus informing her that an observer will be present.

Since the introduction of observers into educational settings, their use has increased at a geometric rate. The present study was an attempt to add to our knowledge of the effects of the use of human observers in classrooms.

HYPOTHESES

Hypothesis 1. Teachers will behave more like their perceived ideal teacher when an observer is present in the classroom.

Hypothesis 2. Teachers will behave more like their perceived ideal teacher when informed of an observation prior to its occurrence than they will when not informed of an observation prior to its occurrence.

Hypothesis 3. Teachers will behave more like their perceived ideal teacher when informed of an observation prior to its occurrence and an observer is present than they will when not informed of an observation and no observer is present.

Hypothesis 4. When there is a comparison of teacher behaviors under the following conditions:

(1) teachers are not informed of an observation and no observer is present and

(2) teachers are informed of an observation prior to its occurrence and an observer is present,

teachers low in manifest anxiety will behave more like their perceived ideal teacher than will teachers high in manifest anxiety.

METHOD

Subjects. Data for this study were gathered from ten female elementary school teachers working in a large suburban school system in southeastern Michigan.

Research Design. The independent variables in this study were (1) the knowledge a teacher has or the information she receives concerning when she will be observed, (2) the presence of an observer in the classroom and (3) the teacher's level of manifest anxiety. These variables were dichotomized, yielding a two x two x two (2 X 2 X 2) experimental design which allowed observation of two groups of teachers (high and low manifest anxiety) under four conditions.

TABLE 1

SEQUENCE OF DATA COLLECTION FOR THE FOUR EXPERIMENTAL CONDITIONS [a]

Condition 1[b]	-	teachers not informed of observation; no observer present in the classroom.
Condition 2	-	teachers informed of observation; observer present in classroom.
Condition 3	-	teachers informed of observation; no observer present in classrcom.
Condition 4	-	teachers not informed of the observation; observer present in the classroom.

[a] All observations made by electronic monitoring system.

[b] Repeated observations made under this condition.

The dependent variables were the teachers' verbal behaviors, as measured by Flanders System of Interaction Analysis (FSIA), under each of the four experimental conditions. Every teacher was observed (by means of a remote

microphone) under each of the four conditions in the study. The teachers were consistently told that their students were the subjects in a study for which they constituted the control group. The microphones use was explained as an attempt to reduce the effect observers have on students.

Procedure. After permission was secured from each teacher to observe their students, a questionnaire was administered to assess each teachers perceptions of their ideal teacher (ITS) and their level of manifest anxiety. The teachers were told that this questionnaire was being used to compare them, as a control group, with the experimental group. This comparison was stated as necessary to assure equivalent control and experimental groups. Two months elapsed between obtaining teacher permission and the complete installation of all the electronic equipment.

Ten days after the microphones were installed in the classrooms, baseline observations under Condition 1 began. These observations occurred weekly during the appointed times established with the teachers. The teachers selected content area that would be taught during their selected time. They never knew when an observation would occur unless the experimental treatment called for prior notification. Observations under all of the four conditions occurred on Tuesdays during the months of February, March and April.

The observations for Condition 1 were completed in four weeks. Approximately four hours of observation (one hour per week for four weeks) served as the control condition to which the other conditions were compared. This control condition is what is considered to be a teacher's "normal" or "typical" verbal behavior. After the four weeks of covert observation, the teachers received notice by mail of forthcoming observations.

The next two observations required that the teachers be informed in advance. The first of these two observations served as Condition 2. This condition is the established protocol for observations in educational settings.

For the second informed observation, the observer failed to appear in the teacher's classroom. This condition represented Condition 3 in which the teachers were informed of an observation but no observer was present. The final condition consisted of the observer walking into the classroom unannounced and making an observation (Condition 4).

After the teachers were observed under the four experimental conditions, an interview was held with each teacher. Information was secured concerning the teachers' perceptions of the nature of the study. The teachers' cooperation in teaching their specified lessons was also assessed. Finally, the real purpose of the study was explained.

Type of Data and Analysis. The data used to test the stated hypotheses were percentage scores and their log transformations from FSIA matrices and ITS forms for each of the variables used in this study. The five most widely used interaction analysis variables were considered in testing the operational hypotheses. The following list of variables are five of the forty-six variables extracted from the Flanders matrices which were comparable to the Ideal Teacher Scale: I/D, i/d, praise, use of student ideas and criticism.

The actual values used in computing t-tests for paired observations were difference scores. These difference scores were obtained by taking the difference between a teacher's actual performance (FSIA) and what she perceived her ideal teacher would do (ITS). A two-way analysis of variance was used to test the predicted interaction effect in Hypotheses 4. An exploration of the additional forty-one variables extracted from the FSIA matrices was completed using a three-way analysis of variance with repeated measures on two of the factors.

RESULTS

The comparisons between teachers' behaviors when an observer was present and their behaviors when no observer was present indicated that teachers become more like their perceived ideal teacher when an observer is present. Tables 2 and 3 present the means and standard deviations of the difference scores for each FSIA variable. Also included in these tables are the results of the t-tests for paired observations.

The statistical analyses provided support for Hypothesis 1. A teacher's "i/d ratio", "I/D ratio", "use of praise", and "criticism" were consistently affected by the presence of an observer, regardless of prior information about an observation.

Tables 4 and 5 present the comparisons between "informed" and "not informed" conditions. These comparisons indicated only one significant difference. The variable of "criticism" was found to differ significantly between Conditions 2 and 4. The remaining comparisons were not significant. Teachers do not behave more like their perceived ideal teacher when informed of an observation prior to its occurrence than they do when not informed. Hypothesis 2 is not supported.

When teacher behaviors under "observer present-teacher informed" and "observer not present-teacher not informed" conditions were compared, significant differences were found in the variables of "praise" and "criticism." The results of this analysis is presented in Table 6. Hypothesis 3 is supported only by the significant differences between Conditions 1 and 2 on the variables "praise" and "criticism".

No support was given to the predicted interaction between a teacher's level of manifest anxiety and "observer present-teacher informed" compared with "observer not present-teacher not informed" conditions.

TABLE 2

DIFFERENCES BETWEEN ACTUAL AND IDEAL TEACHER BEHAVIORS FROM CONDITION 3 TO CONDITION 2 FOR FIVE INTERACTION ANALYSIS VARIABLES
N = 10

Variables	Ideal - Condition 3		Ideal - Condition 2		Results of t-tests	
	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t^a	Sig.
i/d ratio	3.44	2.60	2.56	2.96	2.28	p<.025
I/D ratio	2.24	1.26	1.81	1.52	4.07	p<.005
Praise	3.96	1.79	2.32	2.72	2.94	p<.01
Student Ideas	5.01	2.70	1.73	4.24	3.72	p<.005
Criticism	- .84	2.24	.67	1.00	-2.42	p<.025

[a]A one-tailed t-test for paired observations.

TABLE 3

DIFFERENCES BETWEEN ACTUAL AND IDEAL TEACHER BEHAVIORS FROM CONDITION 1 TO CONDITION 4 FOR FIVE INTERACTION ANALYSIS VARIABLES
N = 10

Variables	Ideal - Condition 1		Ideal-Condition 4		Results of t-tests	
	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t^a	Sig.
i/d ratio	3.36	1.96	2.00	3.69	1.86	p<.05
I/D ratio	2.06	1.14	1.57	1.38	3.65	p<.005
Praise	4.07	1.93	2.57	2.91	2.43	p<.025
Student Ideas	3.02	5.63	1.29	4.96	1.53	n.s.
Criticism	-1.36	2.04	.52	1.00	-2.81	p<.025

[a]A one-tailed t-test for paired observations.

TABLE 5

DIFFERENCES BETWEEN ACTUAL AND IDEAL TEACHER BEHAVIORS FROM CONDITION 1 TO CONDITION 3 FOR FIVE INTERACTION ANALYSIS VARIABLES
N = 10

	Ideal - Condition 1		Ideal - Condition 3		Results of t-tests	
Variables	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t^a	Sig.
i/d ratio	3.36	1.96	3.44	2.60	- .36	n.s.
I/D ratio	2.06	1.14	2.24	1.26	-1.50	n.s.
Praise	4.07	1.93	3.96	1.79	.43	n.s.
Student Ideas	3.02	5.63	5.01	2.70	-1.34	n.s.
Criticism	-1.36	2.04	- .84	2.24	-1.25	n.s.

[a]A one-tailed t-test for paired observations.

TABLE 6

DIFFERENCES BETWEEN ACTUAL AND IDEAL TEACHER BEHAVIORS FROM CONDITION 4 TO CONDITION 2 FOR FIVE INTERACTION ANALYSIS VARIABLES
N = 10

	Ideal - Condition 4		Ideal - Condition 2		Results of t-tests	
Variables	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t^a	Sig.
i/d ratio	2.00	3.69	2.56	2.96	- .67	n.s.
I/D ratio	1.57	1.38	1.81	1.52	-1.13	n.s.
Praise	2.57	2.91	2.32	2.72	.40	n.s.
Student Ideas	1.29	4.96	1.73	4.24	- .40	n.s.
Criticism	.52	1.00	.67	1.00	-2.04	p<.05

[a]A one-tailed t-test for paired observations.

TABLE 7

DIFFERENCES BETWEEN ACTUAL AND IDEAL TEACHER BEHAVIORS FROM CONDITION 1 TO CONDITION 2 FOR FIVE INTERACTION ANALYSIS VARIABLES
N = 10

Variables	Ideal - Condition 1		Ideal - Condition 2		Results of t-tests	
	$\bar{X}$	s.d.	$\bar{X}$	s.d.	t^a	Sig.
i/d ratio	3.36	1.96	2.56	2.96	1.80	n.s.
I/D ratio	2.06	1.14	1.81	1.52	1.22	n.s.
Praise	4.07	1.93	2.32	2.72	2.25	p<.05
Student Ideas	3.02	5.63	1.73	4.24	.76	n.s.
Criticism	-1.36	2.04	.67	1.00	-3.15	p<.01

[a]A one-tailed t-test for paired observations.

Analyses of variance on forty-one additional interaction variables indicated quite clearly that the presence or absence of an observer is significantly related to a teacher's classroom behavior. When an observer was present in the classroom, teachers exhibited more "indirect" behaviors.

In summary, there is evidence that the presence of an observer does influence the behavior of those being observed. Changes in teacher behavior are in the direction of more indirect behaviors when an observer is present.

DISCUSSION

In spite of the extensive use that has been made of observers to collect data, there is little empirical information about the effect which observers produce on those being watched. The present study explored two aspects of direct observation in classroom settings which previously have not been extensively investigated. The two independent variables studied were information given to a teacher prior to an observation and the presence of an observer in the classroom. These two variables were manipulated to determine what effect they might have upon teacher verbal behavior.

Since, in the present study, teacher verbal behavior was found to vary as a function of an observer's presence or absence, those using direct observation should be aware of the observer's effect on teacher behavior and should attempt to compensate for it. Researchers using direct observation of behavior must devote more energy to the development of procedures which will minimize the observer's effect. The most realistic approach to this problem is to keep an observer in the observational setting long enough to be perceived as a "piece of the furniture" (Heyns and Zander, 1953). The question of how long is "long enough" is still open. However, the practice of sending observers into classroom situations from one to three thirty minute sessions does not satisfactorily meet the criterion of "long enough."

Individuals involved in the supervision of student teachers are particularly vulnerable to errors in judgement based on direct observations. An awareness of the changes which occur in behavior under direct observation should be developed by supervisors of student teachers so that the effects of direct observation can be considered in making judgments about teacher performance. Decisions concerning grades should not be based solely on "short" intermittent direct observations. Longer and more frequent observations are needed to get more accurate pictures of teacher performance.

Closely related to supervision and evaluation of student teachers is the role of the administrator-evaluator in a school district. Since administrators have limited amounts of time for direct observation of teachers they make decisions (i.e. tenure) based only on short periods of direct observation. It is clear that decisions based on such evidence are likely to be in error and could be detrimental to the educational profession as well as individuals concerned. The results of this study indicate that when an observer is present in the classroom, teachers exhibit behaviors which they perceive as "better" teaching behaviors. This means that normally "poor" teachers may be observed as being sufficiently qualified for teaching when, in fact, they are not. The ability of teachers to respond to the challenge of an observation is an important part of what we have been judging up to now!

Researchers as a group tend to rely heavily upon direct observation. Supporters of observational systems state that behavioral data collected by their systems are representative samples of normal behavior. It has been shown in this study that behavior changes as a result of an observer's presence. Those who support the use of observational systems in research should be aware of this change in behavior and take measures to compensate for it. Again, the most appropriate procedure may be to leave the observer in the

observational setting long enough for him to become part of the setting. This approach will make research more costly. Economic considerations are important when conducting research studies, but to sacrifice the accuracy of the data for budgeting concerns is not in the true interest of science or in the best interest of students.

Some individuals may infer from this study that direct observation is not an adequate procedure for collecting data. This inference is entirely unfounded. Direct observation is undoubtedly the most realistic procedure for noting and analyzing what occurs in "reality." Problems arise when observer effects are ignored. To be aware of observer effects and to develop techniques for reducing their influence is a goal toward which researchers and other users of direct observation should strive.

BIBLIOGRAPHY

Flanders, N.A. Personal Communication. February 1968

Flanders, N.A. Interaction Analysis in the Classroom: A Manual for Observers. (rev. ed.) Ann Arbor: Author, 1966.

Heyns, R. and Lippitt, R. "Systematic Observational Techniques." In Gardner Lindsey (ed.) Handbook of Social Psychology. Vol. I, Cambridge, Mass.: Addison-Wesley, 1954, pp. 370-403.

Heyns, R. and Zander, Alvin F. "The Relation of the Observer to the Group Being Observed." In Festinger and Katz (ed.) Research Methods in the Behavioral Sciences. New York: Dryden, 1953, pp. 381-417.

Medley, D. M. and Mitzel, H.E. "Measuring Classroom Behavior by Systematic Observation." In N. L. Gage (ed.) Handbook of Research on Teaching. Chicago: Rand McNally and Co., 1963, pp. 247-328.

Mitzel, H. E. and Rabinowitz, W. "Assessing Social-Emotional Climate in the classroom by Withall's Technique.: Psychological Monographs: General and Applied, LXVII, No. 18 (1953), 1-19.

Simon, A. and Boyer, E. Gil (editors) Mirrors for Behavior. Vol. I, Philadelphia; Research for Better Schools, Inc., 1967.