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Improving Attitudes and Verbal Behavior Through Kinescope Observation

J. DAVID HOLCOMB *

A PART of the training given to teacher education students for the past several years has been observation of teachers and pupils in the public schools. The observation, assignment has been made on the assumption that it would better prepare teacher trainees for student teaching by helping them develop positive attitudes toward children (7: 456). Also, the teacher trainees have the opportunity to see different teaching strategies in action.

Generally, the observation has been done directly in the public schools; however, some teacher education institutions have varied this procedure somewhat by having teacher trainees remain on the college campus and observe through the use of various audio-visual media. Films, kinescopes, video-tape recordings, audio-tape recordings, and closed circuit television have all been compared with direct observation. In two separate research

studies, Schueler and Lesser (10) and Reid and MacLennan (9) found that most of the research on media in teacher education has produced no significant differences between direct observation and any other media for observation. They reported that the majority of the studies did find that on-campus observation through various media was easier to schedule and, in most cases, was at least equal in effectiveness to direct observation.

The attitudes and verbal behavior of teachers have been a major concern of educators for the past several years. Flanders (5), Ingle and Robinson (7), Amidon and Hough (2), and Cook, Leeds, and Callis (4) have done extensive research in this area of teacher training. Are attitudes and verbal

* *J. David Holcomb, Post-Doctoral Fellow, School of Medicine, University of Southern California, Los Angeles*

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behavior affected by the preservice observation programs? If they are, can educators leave the shaping of the attitudes and developing of teaching strategies partly to the people being observed—especially if the educators have little control over what is seen in the classrooms? This paper is a report of the findings of an investigation to determine the effect two observation techniques had on the attitudes and verbal behavior of a selected group of secondary teacher trainees.

The Problem

Specifically, the experimental investigation was designed to establish answers to the following questions:

1. Would an on-campus observation program using kinescopes that depicted or portrayed varying teaching strategies produce more change in teacher trainees' attitudes than a direct public school observation program?

2. Would student teachers from the on-campus observation group differ significantly in their verbal teaching behavior from student teachers from the direct observation group?

A sub-question that was answered in the form of a conclusion after the two major questions were answered was as follows: "Were the teaching strategy kinescopes produced by the South Park Independent School District of Beaumont, Texas, effective aids in training prospective teachers to be more indirect in their verbal teaching behavior and in developing positive attitudes toward children and teaching?"

Procedures

The sample used in this study was randomly selected from the students enrolled in Secondary Education 432, "Observation and Orientation to Student Teaching," at the University of Houston in the fall, 1968. Secondary Education 432 was a course designed to orient preservice teacher trainees to student teaching. Also, the course gave the students opportunity to see and learn of various teaching techniques and to get practical experience in using these strategies while

teaching their classmates. Thirty teacher trainees were randomly assigned to the experimental, kinescope group; and 30 were assigned to the direct, public school observation group. The 60 students had the following common characteristics:

1. All had completed six to nine hours of professional education courses.
2. All were preparing to do student teaching.
3. None had teaching experience.
4. All had teaching fields of either language arts, mathematics, social studies, or science.

At the beginning of the observation programs, both groups of teacher trainees responded to the Minnesota Teacher Attitude Inventory (MTAI). The MTAI is designed to measure those attitudes of a teacher which predict how well he will get along with pupils in interpersonal relationships and, indirectly, how well satisfied he will be with teaching as a vocation (4: 13). This pretest was to determine what their attitudes were at the beginning of the observation programs.

The direct observation group (control group) members were assigned to various schools to observe selected cooperating teachers. These students observed the teaching strategies and the classroom procedures of the cooperating teachers for a total of approximately 30 clock hours. After each observation session, the cooperating teacher and the teacher trainee discussed the teaching techniques that the cooperating teacher had used.

The experimental, kinescope observation group observed selected kinescopes while remaining on the college campus. The kinescopes were selected from the available kinescopes produced by the South Park Independent School District (12). While viewing the kinescopes, the teacher trainees were directed to pay particular attention to the teaching strategies being employed. After the students viewed each film, opportunity was given for discussion. During the discussions the teaching method or methods employed by the teachers in the kinescopes were carefully analyzed. These procedures allowed each

member of the group to see varying teaching techniques and to discuss each of them. This group met once a week for two hours for 12 weeks.

The kinescopes that were chosen had the following common characteristics:

1. All the kinescopes demonstrated a technique for coping with a specific teaching problem.
2. The kinescopes emphasized the use of teacher-made materials which were simply designed and easily prepared.
3. The kinescopes were made of unrehearsed lessons to capture the spontaneity of the normal classroom situation.
4. All the kinescopes were accompanied by a study guide to assist the group leader in deriving maximum benefits from a particular demonstration lesson (12).

At the completion of the two observation programs, the MTAI was administered as a post-test to both groups. This procedure determined the amount and direction of any changes of participants' attitudes.

The experimental and control groups began student teaching in their assigned public schools in the spring, 1969. The control group members did their student teaching with the public school teacher whom they had observed. To the experimental group were assigned cooperating teachers, and letters of explanation concerning their observation program were sent to their assigned cooperating teachers and principals. All of the cooperating teachers were chosen by their respective building principals. Each of these teachers had taught for several years, and all of them had the teaching certificates required by the Texas Education Agency.

Fifteen students from the experimental group and 15 students from the control group were randomly selected to serve as two subsamples that were audio-tape recorded during their student teaching experience. Fifteen students from each group were considered a sufficient number to be representative of the sample.

At the beginning of the student teaching experience, audio-tape recordings were made of each of the fifteen members in the sub-

samples while teaching. Each audio-tape recording made was coded with the Flanders Verbal Interaction Analysis System (FVIAS) to measure any differences in the verbal teaching behavior between the experimental group and the control group. The Flanders Verbal Interaction Analysis System is an observational procedure used to classify the verbal behavior of teachers and students (1: 1). Using this system, verbal behavior in the classroom was classified into 10 category designations.

When coding with the FVIAS, the coder writes the category number of the interaction between teacher and student every three seconds. After a lesson is coded, the data are recorded on a ten row by ten column matrix. The classroom interaction is quantified within the matrix.

From the matrix, I/D ratios can be computed. An I/D ratio is a ratio of a teacher's indirect verbal behavior to a combination of his indirect and direct verbal behavior. An I/D ratio of .50 would be interpreted to mean that for every one indirect teacher statement there would be one direct teacher statement (5: 12).

After several weeks of student teaching experience, the 15 student teachers in each subsample were each audio-tape recorded a second time while teaching. The recordings were coded with the FVIAS to measure the degree of retention of their respective teaching styles as measured on the first taping session.

Analysis of the Data

The questions generated by this study were rephrased into null hypotheses. The hypotheses were as follows:

1. There will be no statistically significant difference in the mean scores of pretests and post-tests on the Minnesota Teacher Attitude Inventory when administered to an on-campus observation group and to a direct public school observation group.
2. There will be no statistically significant difference in the mean scores of the pretests and post-tests on the Flanders Verbal Interaction Analysis System when administered to a sub-

sample of student teachers from the experimental group.

3. There will be no statistically significant difference in the mean scores of the pretests and post-tests on the Flanders Verbal Interaction Analysis System when administered to a subsample of student teachers from the control group.

4. There will be no statistically significant difference in the mean scores of the pretests on the Flanders Verbal Interaction Analysis System when administered to the subsamples of student teachers from the experimental group and from the control group.

5. There will be no statistically significant difference in the mean scores of the post-tests on the Flanders Verbal Interaction Analysis System when administered to the subsamples of student teachers from the experimental group and from the control group.

Before analysis of variance could be used on the data produced by the pretest and post-test of the MTAI, normality of distribution and homogeneity of variance among all cell combinations had to be tested. Hartley's test for homogeneity was selected (8:155). The derived F-value of 1.28 was not significantly different from the critical value at the .05 level of confidence, so homogeneity of variance was accepted.

The Kolmogorov-Smirnov test was used to test for normality of distribution (11:47-52). Since the four maximum absolute values produced by the test (0.09, 0.16, 0.10, and 0.08) all fell below the critical value of 0.24, normality of distribution was accepted at the .05 level of confidence.

Table 1 summarizes the results of an analysis of variance, a two-factor mixed design with repeated measures on one factor (3:54-61), upon the MTAI data. The F-value for difference between the effect of the experimental and control conditions on overall performance (0.75) was not found to be significant. The F-value for difference within trials (7.38) was significant at the .05 level of confidence. The F-value for difference within trials by conditions (5.02) was also significant at the .05 level of confidence.

The pretest mean of the MTAI for the experimental group was 42.93 and the post-

test mean was 55.77. The control group pretest mean was 42.20, and the post-test was 43.43. Dunnett's *t*-test for the difference in means (13:89) for the scores on the post-tests produced a derived *t*-value of 3.36, which exceeded the critical value of 2.04 at the .05 level of confidence. Therefore, the null hypothesis of no significant interaction for pretest and post-test on the MTAI when administered to the experimental group and to the control group was rejected. It was concluded that the experimental group exhibited more positive change in their attitudes than did the control group during the observation programs.

Source	Sum of squares	df	Mean square	Derived F-value
Total	114,107.17	119		
Between subjects	99,963.17	59		
Conditions	1,280.53	1	1,280.53	0.75
Error _b	98,682.64	58	1,701.42	
Within subjects	14,144.00	60		
Trials	1,483.25	1	1,483.25	7.38*
Trials × Conditions	1,009.39	1	1,009.39	5.02*
Error _w	11,651.36	58	200.88	

* $p < 0.05$

Table 1. Analysis of Variance—Minnesota Teacher Attitude Inventory

Before analysis of variance could be used on the data produced by the initial and final codings with the FVIAS, Hartley's test and the Kolmogorov-Smirnov test were again performed. Hartley's test produced a derived F-value of 1.90 which was not significantly different from the critical value at the .05 level of confidence, so homogeneity among all cell combinations was accepted. The Kolmogorov-Smirnov test produced maximum absolute values (0.10, 0.15, 0.15, and 0.14) that fell below the critical value of 0.35, so normality of distribution was accepted at the .05 level of confidence.

Table 2 summarizes the results of an analysis of variance upon the FVIAS data. The same analysis of variance technique that was used on the MTAI data was used. Since the F-value for the effect of the experimental and control conditions on the overall per-

formance was significant (9.20), the mean scores of pre- and post-tests of the two groups were compared. The mean score for the pre-test for the experimental group was 52.20 and 38.30 for the control group. Dunnett's *t*-test for the difference in means for the scores on the pretests produced a derived *t*-value of 3.16, which exceeded the critical value of 2.14 at the .05 level of confidence. Therefore, the null hypothesis of no significant difference in the mean scores of the pretests of the experimental and control groups was rejected. The mean score for the post-tests for the experimental group was 52.40 and 35.06 for the control group. Dunnett's *t*-test for the difference in means for the scores on the post-tests produced a derived *t*-value of 3.57, which exceeded the critical value of 2.14 at the .05 level of confidence. Therefore, the null hypothesis of no significant difference in the mean scores of the post-tests of the experimental and control groups was rejected.

Source	Sum of squares ^{Nⁿ}	df	Mean square	Derived F-value
Total	119,082	59		
Between subjects	14,721	29		
Conditions	3,635	1	3,635.00	9.20*
Error _b	11,086	28	395.26	
Within subjects	4,186	30		
Trials	44	1	44.00	0.30
Trials × Conditions	43	1	43.00	0.29
Error _w	4,099	28	146.11	

NB—The decimal point has been removed from scores.

* $p < 0.05$

Table 2. Analysis of Variance—Flanders Verbal Interaction Analysis System

The F-value for difference within trials (0.30) was not significant at the .05 level of confidence, and the F-value for difference within trials by conditions was also not significant at the .05 level of confidence. Therefore, the null hypothesis of no significant difference between the pretest and post-test scores for the experimental group was accepted. Also, the null hypothesis of no significant difference between the pretest and post-test scores for the control group was accepted.

Conclusions and Discussion

Within the framework of the limitations of this study, the conclusions made were the following:

1. The on-campus observation program using kinescopes that depicted or portrayed varying teaching strategies did produce more positive change in teacher trainees' attitudes than did the direct public school observation program. The teacher trainees in the experimental group changed their attitudes in a positive direction more than the teacher trainees in the control group.

2. The on-campus observation program using kinescopes did cause the teacher trainees to be more indirect in their verbal teaching behavior than did the direct public school observation program. The student teachers from the experimental group were more indirect in their verbal teaching behavior than were the student teachers from the control group. The experimental group was more indirect at the beginning of their student teaching experience and remained more indirect after several weeks of student teaching.

3. The teaching strategy kinescopes produced by the South Park Independent School District were effective aids in training prospective teachers to be more indirect in their verbal teaching behavior and in developing prospective teachers' attitudes toward teaching and children in a positive direction.

There is no guarantee that vicarious observation will provide the experiences necessary for teacher trainees to have. Perhaps the vicarious observation programs only train teacher education students to copy the observed cooperating teachers. This may or may not be desirable since it depends upon the ability of the cooperating teacher to demonstrate proper teaching strategies for various teaching situations. Also, the teacher trainee's personality might be such that he or she cannot comfortably and effectively use the same strategies that the cooperating teacher uses in different situations. A controlled observation program can allow a student to see various teaching techniques, and then he can choose the best ones for him in meeting certain teaching situations.

Since significant results were obtained from both phases of this investigation, teacher training institutions should consider a controlled observation program. A number of kinescopes or video tapes that portray desirable teaching techniques could be developed and used as a substitute for, or an addition to, direct observation. This type of program leaves little to chance, because college instructors can point out pertinent aspects of the various teaching strategies as they are

being observed. By structuring the observation program, many more educational situations are observed; and a better understanding of teaching can be obtained.

As this study was different from related investigations, it added another dimension to the research designed to improve preservice teacher education. The improvement of the training of teachers is of utmost importance; therefore, more studies of this nature should be initiated.

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