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Research Using the Videotape Recorder in Teacher Education

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IN THE decade since 1960, the use of the videotape recorder in teacher education has become almost as commonplace as the use of some of the earlier observation and feedback techniques—audiotape recordings, 35mm time-lapse photographs, kinescopes, and motion picture films.

However, a perusal of the literature germane to research on videotape feedback in preservice and in-service teacher education programs will reveal very little in the way of empirical research compared to the voluminous citations of what this author calls "testimonial reports" (7, 9, and 11). Citing these articles as to what others are doing at "Jones College" is important, because most of our research emanates from current or planned practices and the need to evaluate their effectiveness, rather than the more efficacious use of research and development models.

A descriptive journal article by Cyphert and Andrews definitively analyzes the uses of videotape in teacher education, and is used here because most of the research findings reported to date and those reviewed in this article are related to one or more of the following uses which the authors posit. The article describes the use of video recordings to provide: (a) observation material for a

class or an individual student; (b) immediate private feedback for a student teacher or counselor trainee concerning his performance; (c) evaluation of performance by a supervisor and a trainee; (d) specific pre-planned recorded lessons as a basis for methods course instruction; (e) situational materials to be used with simulation procedures or case study analysis; (f) feedback and supervisory analysis prior to immediate replication of performance; (g) both demonstration and feedback in developing specific teaching behaviors; (h) evaluation of teaching performance on a before-and-after time lapse basis; (i) research analysis of teacher behavior, pupil behavior, or teacher-pupil interaction; and (j) instructor-prepared materials for use with closed-circuit television, dial access, or film loop independent study activities (6).

Much of the early research utilizing the video recorder was a spin-off from Stanford's microteaching project, from which Allen and Fortune reported that in a TV feedback versus no feedback design, the trainees in the TV group had behavioral changes significant at the five percent level (2).

The University of Texas' Research and Development Center in Teacher Education conducted research on students' openness to environmental feedback, with openness be-

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ing operationally defined in terms of teacher behaviors such as increases in questioning and decreases in lecturing. Seventy-seven elementary education majors comprised one control group and three experimental groups which were tested and filmed before treatment (feedback) and again after student teaching 18 months later. Although pre-post change differences between experimental groups and controls were not significant, the behavior of the total group changed significantly from the first to final filming—they lectured less, accepted pupils' ideas more, corrected more, and asked more questions (8).

Stoller, Lesser, and Freedman postulated and tested the hypothesis that prepared kinescope recordings provided a more effective medium of observation than closed-circuit TV and that TV observation was in turn more effective than the traditional procedure of direct observation in the elementary classroom. Results showed that an objective measure of information about methods of teaching failed to confirm the

hypothesis, but an essay examination assessing ability to evaluate an observed classroom lesson strongly confirmed the hypothesis (17).

Schueler and Gold conducted research at Hunter College on the use of kinescopes for supervising student teachers by using a research design of supervision via personal visitation (O), supervision via the use of kinescopes alone (K), and supervision via a combination of in-person visitation and kinescope recordings (OK). Using the instrument, OSCAR, to measure change in teacher behavior, Schueler and Gold found no significant differences between the control group O and the experimental groups K and OK. They did report small differences favoring K over groups O and OK (16).

At Stanford, Aubertine's research led him to conclude that some type of feedback was necessary in order to change the behavior of teacher trainees. Findings were that trainees who were provided video feedback and an opportunity to practice correcting their "mistakes" from previous teaching

acts performed better at the one percent level of confidence on subsequent demonstrations than a control group which received neither feedback nor the opportunity to practice (3).

Brooks tested the basic proposition that teachers who appraised their classroom interaction as viewed on videotape recordings would evidence greater growth in classroom behavior than would teachers who did not see themselves on videotape. Changes in teacher behavior were determined by analyzing three 20-minute tapes of each teacher recorded before and after the in-service program, using an instrument which measured cognitive and affective teacher objectives, closed and open teacher methods, and verbal and nonverbal teacher expressions. Brooks' data analysis led to a rejection of the hypothesis that teachers who viewed videotapes of their own teaching would experience greater growth than teachers who did not view their own tapes (5).

Woolman investigated the effectiveness of videotaped demonstrations by assessing changes in instructional practices and viewpoints of teachers, by analyzing the results of the videotapes with and without certain supervisory and counseling procedures, and by relating the amount of change as seen by trained observers to the amount of change as revealed by an inventory of teacher opinion and understanding. The in-service program participants viewed five 30-minute videotapes which were prepared in advance. Observers visited and measured all of the teachers before and after the five tapes had been viewed. Woolman accepted the null hypothesis that there was no significant difference between the three groups that could be attributed to the treatments imposed (18).

Millett attempted to answer the question, "Could videotapes produced for training purposes which displayed both selected pupil cognitive behaviors desired in secondary school social studies and also developmentally related teacher behaviors affect the teaching behavior of social studies intern-teachers?" Forty-three intern-teachers received identical classroom materials to use in an experimental lesson and random assignment to one of four groups. Two groups

served as quasi-control groups (did not view videotapes), while the other two groups did view the videotapes on how to use teacher translation tactics. Interns teaching an experimental lesson generated the data for measuring purposes. The statistical analysis showed a significant difference between the two groups which saw the videotapes and the two groups which did not (12).

At Temple University, Kriebs compared the effectiveness of the two types of videotaped instruction by determining if pre-service teachers who observed videotapes of elementary school children using scientific methods performed significantly better as science teachers than did preservice teachers who observed videotapes of the traditional lecture-demonstration type. Pre- and post-videotape checklists and pre- and post-tests of science knowledge yielded data which were analyzed to determine the relative effectiveness of the two techniques for teaching science methods to prospective elementary school teachers. The null hypothesis was accepted; however, those who observed the experimental videotapes tended to increase their rating from their initial status to their final status more than those who observed the control videotape (10).

Barron attempted to ascertain whether or not significant gains in openness would be evident in a selected group of teacher trainees who received elementary language arts methods instruction supplemented by microteaching and videotape techniques over a group supplementing instruction by classroom observation and over a group not supplementing instruction at all. Barron concluded from his statistical analysis that Group One evidenced a positive and significant gain in openness as measured by a Teacher Problems Q-Sort. Groups Two and Three did not experience a significant gain (4).

An Ohio State University study by Reynolds compared the change in role concepts of a group of science student teachers supervised in the usual manner with that of a group supervised with videotape recordings. Using Corwin's Professional-Employee Orientation Role Concept

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Scale before and after student teaching, Reynolds concluded that there were no significant differences between the experimental group and the control group. However, 10 of the 18 behavior areas tested were significant for those who received videotape feedback (14).

Young's research at Stanford attempted to determine the effectiveness of dubbing a supervisor's comments onto a videotape of a teacher's performance. All subjects in the experiment prepared five-minute lectures which served as a pretest. The subjects then viewed symbolic model teachers on videotape. Each subject retaught his first lesson two more times, with the last episode serving as a post-test. The results of the study indicated that a model with a contingent focus (supervisory comments dubbed onto the tape) did not produce significantly greater differences in teacher behavior than did a model with a non-contingent focus (19).

Acheson tested the effects on selected behaviors of teachers in training who ob-

served their own teaching via videotape during supervisory conferences. The study was a TV feedback versus no TV feedback design for three groups which received indirect supervision, direct supervision, and no supervision. The two criterion measurements were teacher monologue in terms of percent of time and the frequency of teacher-pupil interaction episodes. Television feedback combined with supervisory conferences, either direct or indirect, produced significantly greater changes in the selected behaviors than supervisory conferences without television (1).

A study that this author conducted with the University of Houston's Teacher Corps project used five five-member groups, each of which was videotaped three times. The control group's members did not receive any feedback, while the members of the four experimental groups differed in the amount and kind of videotape feedback given. Each tape was coded with the Flanders Verbal Interaction Analysis System, using I/D Ratio as the quantitative criterion for behavioral changes. Although the means for Experimental Group Four were significantly higher than the other groups, an F test that failed to exceed the five percent level of confidence led to the acceptance of the null hypotheses (15).

One of the first studies in this area was done by Olivero, whose research answered the following questions: (a) Does feedback from supervisors who observe television recordings produce more change in trainees' behavior than feedback from supervisors who observe the lesson taught in the classroom? (b) Do trainees need to have feedback from supervisors in order to change behavior? and (c) Does verbal and videotape feedback from supervisors produce more change in trainees' behavior than just verbal feedback from supervisors? Using the Stanford Micro-Teaching Appraisal Guide to quantify changes in behavior, Olivero reported that the answer to question one was *no*, answers to questions two and three were *yes* (13).

One generalization might be drawn from these reviews: a lot of people are using

the video recorder, and there has been at least a minimal degree of success. Where there have been less than desirable results, the contributing factors are more likely to lie not with the equipment used, but with inadequate research designs, a lack of creativity on the part of the researchers, or the constraining limitations of measuring instruments. Whatever the conclusions, they should be put into the perspective of the

"early days" of experimentation on the use of the video recorder in teacher education. Also implicit in the readers' conclusions should be the idea that if teacher educators are going to continue to invest time and money in acquiring media accouterments for learning laboratories, it is incumbent upon them to continue research in this area and, to go one step further, to put the research into practice.

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