DOCUMENT RESUME

ED 057 192 VT 014 063

AUTHOR Cotrell, Calvin J.; Doty, Charles R.
TITLE Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education: Phase IV--Classroom Application of Micro-Teaching and Video Recording. Final Report.
INSTITUTION Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY National Center for Educational Research and Development (DHEW/CE), Washington, D.C.
REPORT NO R&D-Ser-56
PUB DATE Oct 71
GRANT OEG-3-7-000158-2037
NOTE 42p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Comparative Analysis; Distributive Education Teachers; *Feedback; High School Students; Inservice Education; Methods Courses; *Microteaching; Peer Teaching; Preservice Education; Statistical Analysis; Tables (Data); *Teacher Education; *Teaching Techniques; Technical Education; *Video Tape Recordings; Vocational Education

ABSTRACT

This is part of a series of studies conducted to assess the use of micro-teaching and video recording as a feedback device in teacher education. Fourth in the series and the first field test, the study was designed to test two variations in the techniques, feedback and type of student taught in a distributive education methods class at the Ohio State University. Twenty-four preservice and inservice teachers participated in the study, each teaching two 7-minute micro-lessons to peers or to high school students, with and without video feedback. Data collected included ratings on the critique forms completed by the teacher educator and questionnaires completed by the teachers. Statistical tests were computed and revealed no significant differences between the two groups. However, responses on the questionnaire indicated that the teachers who had received video feedback and had taught high school students were more positive in attitude. As a result of this investigation, it was recommended that video feedback and teaching to high school students be included in the teaching practice sessions of the methods class and that teachers participating in such programs be given intensive training in the micro-teaching format. (Author/JS)

Research and Development Series No. 56

Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education: Phase IV --

Classroom Application of Micro-Teaching and Video Recording

1

The Center for Vocational and Technical Education
The Ohio State University, 1900 Kenny Road, Columbus, Ohio 43210

MISSION OF THE CENTER

The Center for Vocational and Technical Education, an independent unit on The Ohio State University campus, operates under a grant from the National Center for Educational Research and Development, U.S. Office of Education. It serves a catalytic role in establishing consortia to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach and interinstitutional in its program.

The Center's mission is to strengthen the capacity of state educational systems to provide effective occupational education programs consistent with individual needs and manpower requirements by:

- Conducting research and development to fill voids in existing knowledge and to develop methods for applying knowledge.
- Programmatic focus on state leadership development, vocational teacher education, curriculum, vocational choice and adjustment.
- Stimulating and strengthening the capacity of other agencies and institutions to create durable solutions to significant problems.
- Providing a national information storage, retrieval and dissemination system for vocational and technical education through the affiliated ERIC Clearinghouse.

RESEARCH AND DEVELOPMENT SERIES NO. 56

ASSESSMENT OF MICRO-TEACHING AND VIDEO RECORDING IN VOCATIONAL AND TECHNICAL TEACHER EDUCATION: PHASE IV--

CLASSROOM APPLICATION OF MICRO-TEACHING AND VIDEO RECORDING

CHARLES R. DOTY

CALVIN J. COTRELL

The Center for Vocational and Technical Education
The Ohio State University
1900 Kenny Road
Columbus, Ohio 43210

OCTOBER, 1971

A FINAL REPORT
ON A PROJECT CONDUCTED UNDER
PROJECT NO. 7-0158
GRANT NO. OEG-3-7-000158-2037

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
National Center for
Educational Research
and Development

PREFACE

The Center has been engaged in a series of studies in the project "Assessment of Micro-Teaching and Video Recording in Vocational and Technical Education" to find more effective and efficient ways of using these two techniques in programs of vocational teacher education. This report describes the fourth of the series, the first field test of the feasibility of using micro-teaching and video recording in a distributive education methods class. It is hoped that vocational and technical teacher educators and researchers will find the results of the study interesting and useful.

The study was conducted by The Center through cooperation with the distributive education section of the Academic Faculty of Vocational-Technical Education, the College of Education, The Ohio State University. We are indebted to Dr. Thomas R. White, Coordinator, Vocational Education Program Area, School of Education, Indiana University, Bloomington. Dr. White was the instructor of the distributive education methods class and served as the teacher educator in the study.

We wish to acknowledge the following persons from The Center for their services in completing the study: Dr. Calvin J. Cotrell, principal investigator; Dr. Charles R. Doty, associate investigator; and James L. Hoerner and Edward R. Hauck, graduate research associates who assisted in the planning and conduct of the study.

Appreciation is expressed to the following reviewers: Dr. Max Eddy, Professor and Head of Industrial Education, Purdue University; Dr. Elizabeth Ray, Professor of Home Economics, Pennsylvania State University; and Dr. Wayne E. Schroeder, Dissemination Specialist, and Dr. Robert C. Young, Research and Development Specialist, The Center for Vocational and Technical Education, The Ohio State University.

Robert E. Taylor
Director
The Center for Vocational
and Technical Education

FOREWORD

This report is the fourth in a series conducted from September, 1967 to October, 1969 by The Center for Vocational and Technical Education. The series of studies in the project, "Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education," were feasibility tests and demonstration and field tests conducted in collaboration with several vocational teacher education institutions. The investigators believe that those who are interested in developing and testing feedback techniques for teacher education will find these reports helpful.

We wish to acknowledge the contribution of the members of the distributive education methods class, who served as teachers in the study, and the collaborative efforts of the instructor, Dr. Thomas R. White.

The investigators are most appreciative of the encouragement and administrative support of this effort provided by the director of The Center, Dr. Robert E. Taylor; the coordinator for development, Dr. Donald C. Findlay; the coordinator of project utilization and training, Dr. Aaron J. Miller; and the coordinator of research, Dr. Edward J. Morrison. The assistance of a consultant, Dr. Dorothy C. Ferguson, in manuscript revision and synthesis of reviews, is gratefully acknowledged. We also appreciate the assistance of the many supporting personnel of The Center and particularly the editorial director, John Meyer, and his staff.

Calvin J. Cotrell
Charles R. Doty

TABLE OF CONTENTS

LIST OF FIGURES

SUMMARY

The study reported here was part of a series of studies conducted by The Center for Vocational and Technical Education to assess the use of micro-teaching and video recording as a feedback device in teacher education. Fourth in the series and the first field test, the study was designed to test two variations in the techniques, feedback and type of student taught, in a distributive education methods class at The Ohio State University during the summer quarter in 1968.

Twenty-four preservice and inservice teachers participated in the study, each teaching two seven-minute micro-lessons to peers or to high school students, with and without video feedback. Data collected included ratings on the critique forms completed by the teacher educator in the study and questionnaires completed by the teachers. Statistical tests were computed and revealed no significant differences between the groups. Responses on the questionnaires indicated that the teachers who had received video feedback and had taught high school students were more positive in attitude.

As a result of the findings and the observations reported by the teacher educator in the study and the investigators, it was recommended that video feedback and teaching to high school students be included in the teaching practice sessions of the methods class and that teachers participating in such programs be given intensive training sessions in the micro-teaching format and the teaching skills involved in teaching a complete lesson.

ASSESSMENT OF MICRO-TEACHING AND VIDEO RECORDING IN VOCATIONAL AND TECHNICAL TEACHER EDUCATION: PHASE IV--

CLASSROOM APPLICATION OF MICRO-TEACHING AND VIDEO RECORDING

CHAPTER I

BACKGROUND OF THE STUDY

The problem of developing effective programs of teacher education for preservice and inservice teachers is an issue of prime concern for all educators. Of special importance to such programs are the education courses which stress teaching methods, courses which are invariably plagued with criticisms of their content and their modes of instruction from the students and teachers subjected to them. Two major criticisms are often expressed: lack of reality and lack of definiteness (Ward, 1968). Designing effective methods courses is then a concern for teacher educators in all fields. This concern has been expressed repeatedly by many leaders in vocational teacher education. In distributive teacher education, as in other vocational service areas, attention has been directed toward finding ways of improving courses in methods of teaching for preservice and inservice teachers (Ashmun, 1968; Haines, 1968).

Such recent innovations as micro-teaching and video recording are possible means of improving methods courses and providing a start toward solving some of the problems facing teacher education. Allen (1967) pointed out the advantages of micro-teaching in that it provides teachers, in a short time, with information about their teaching and acts as a means of changing perceptions about teaching behavior.

THE SERIES OF STUDIES

The Center for Vocational and Technical Education has been engaged in a series of studies to assess the use of micro-teaching and video recording in programs of vocational teacher education. Three previous studies were conducted to test, under simulated conditions, the feasibility of video recording as a feedback device in teacher education and included variations on micro-teaching, learner populations, and evaluation instruments (Cotrell and Doty, 1971). The micro-teaching format, employed in the series of studies, is ideal for testing the effectiveness of various teacher education techniques because its inherent economy allows short teaching sessions with small numbers of students and permits practice and development of specific teaching skills. Fourth in the series, the present study incorporated the results of the three prior laboratory studies and was designed as the first field

st of these innovations in vocational teacher education in the ties.

RPOSE OF THE STUDY

In view of the need for effective and efficient vocational acher education courses in methods of teaching, the study was signed to test the feasibility of using micro-teaching and deo recording in an actual distributive teacher education meth- course. Specifically, the study was concerned with the fol- ving innovations:

1. The use of video recording as a feedback tool to help the participants learn and practice the teaching skills in teaching a complete lesson.

2. The teaching of two seven-minute micro-teaching lessons in the time formerly allotted to teaching two independent 10- to 15-minute lessons.

3. The teaching of the practice sessions to high school students, instead of to peers, as had been customarily done.

EARCH QUESTIONS

The following three questions were formulated for investi- ion:

1. Will the application and usage of video recording as a feedback device significantly affect the participants' teaching practice performance in the distributive teacher education methods class?

2. Will the technique of having the participants teach their practice sessions to high school students instead of to peers significantly affect the participants' performance in the teaching sessions?

3. What will be the attitudes and opinions of the partic- ipants regarding the use of micro-teaching and video recording in the distributive teacher education methods class?

IEW OF RELATED LITERATURE

Because the study dealt with the use of micro-teaching and eo recording as a means of improving the effectiveness of

methods classes for preservice and inservice vocational teachers, the review of the literature focused on readings and reports which had implications for such application.

The introduction of the portable video recorder to teacher education brought about much discussion and innovative thought. It was found that the video recorder has generally been used for two purposes in teacher education: 1) as a substitute for live observations and 2) as a feedback mechanism to help teachers-in-training analyze their practice teaching performances. While the potentiality of the machine is obvious to educators, it should be noted that its effective utilization requires knowledge of how the machine is best used, based on experimentation (Cyphert and Andrews, 1967).

Stanford University was one of the first to explore ways of using the video recorder in teacher education. Their early investigations brought further refinement and popularity to micro-teaching as a beneficial technique for guiding the practice of teaching skills.

Although reported research on the application of micro-teaching and video recording in vocational teacher education was non-existent in 1968, several of the general teacher education studies located have implications for the present study.

Aubertine (1964) found that trainees provided with the opportunity to practice, to correct their mistakes from previous teaching acts, performed significantly better on subsequent demonstrations than a control group which did not have the opportunity to practice. Acheson (1964) concluded that the combination of television feedback with supervisory conferences produced significantly greater effects on subsequent verbal behavior (amount of teacher monologue) than did the supervisory conference without television feedback. In a study in which comparisons were made of the changes in behavior of trainees who received verbal and video feedback and those who received only verbal feedback from supervision, Olivero (1964) reported that video plus verbal feedback produced greater change in certain selected behaviors than verbal feedback alone. Voth (1968) also found that the use of video feedback with student teachers resulted in a significant increase in the variableness of verbal interaction between teacher and pupil.

In summary, the review of related literature indicated a general acceptance, on the part of teacher educators, of micro-teaching in conjunction with video recording as an effective way to provide teachers-in-training with opportunities to practice and develop pedagogical skills.

CHAPTER II

PROCEDURES IN THE STUDY

The distributive teacher education course in methods of teaching, which provided the setting for the study, was a five-week course offered to preservice and inservice distributive education teachers during the Summer of 1968 at The Ohio State University. The study was conducted during and limited to the two-week period (eight to 10 class periods) during which time two teaching practice sessions were usually scheduled for each member of the class.

PARTICIPANTS IN THE STUDY

The participants in the study included the instructor and the members of the distributive teacher education methods course and high school students from the local area.

Teachers. From the 27 members of the methods course, 24 were randomly selected and assigned to one of four groups in the study by means of stratified sampling to assure balanced representation of numbers of years of teaching experience in each group.

Students. Eleventh- and twelfth-grade high school students were employed from local high school districts to serve as students in the micro-teaching sessions requiring high school students rather than peers. Four students were assigned to each session and were rotated so that each teacher taught a different group each time.

Teacher educator. The instructor of the distributive education methods course served as the teacher educator in the study.

TEACHER EDUCATION TECHNIQUES

As the first field test in the series, the study was designed to fit the requirements of the distributive education methods course and was derived from the results of and materials developed for the three laboratory studies. The micro-teaching and video recording techniques were easily adapted to the methods course since the members of the class were required to teach (their peers) two times and the instructor wanted to provide video feedback for his students.

Since the teaching sessions in the distributive education methods course were customarily conducted without video feedback and with other class members serving as the students for the session, the two variables chosen for testing in the study were video feedback and type of student taught. Therefore, the four treatment groups were delineated as follows:

Group 1. The six teachers taught two seven-minute micro-teaching lessons to a group of their peers and received video feedback.

Group 2. The six teachers taught two seven-minute micro-teaching lessons to a group of their peers and did not receive video feedback.

Group 3. The six teachers taught two seven-minute micro-teaching lessons to a group of high school students and received video feedback.

Group 4. The six teachers taught two seven-minute micro-teaching lessons to a group of high school students and did not receive video feedback (See Figure 1).

Students Taught	Video Feedback Received: Yes	Video Feedback Received: No
Peers →	1	2
High School Students →	3	4

Figure 1. Matrix of Treatment Groups

EXPERIMENTAL DESIGN

The study was based on a pretest/posttest design with stratified random assignment of subjects (based on years of teaching experience) to treatment groups (See Figure 2).

Group 1	SR	O_1	X	O_2
Group 2	SR	O_1	X	O_2
Group 3	SR	O_1	X	O_2
Group 4	SR	O_1	X	O_2

SR = Stratified randomization of teachers to groups.

O_1 = Pretest, consisting of evaluation of the initial micro-teaching lesson taught by each teacher.

O_2 = Posttest, consisting of evaluation of the second lesson taught by each teacher.

X = Treatment

Figure 2. Experimental Design

CONDUCT OF THE STUDY

Before the study began the instructor of the methods class and the investigators established the procedures to be followed in the conduct of the study. Requirements of the course and time allotted for the teaching practice sessions were decisive factors in the design of the study. To comply with the micro-teaching format, the length of each teaching session was reduced from the customary 10 to 15 minutes to seven minutes with both lessons on the same subject (teach-replan-reteach pattern). Since the instructor wanted all members of the class to experience video feedback after their practice teaching sessions, the investigators agreed to provide those teachers in the no video feedback group (Groups 2 and 4) with replays of their second teaching sessions.

The instructor of the methods course explained the program to the class members and provided them with all the necessary schedules and information. After this orientation period, the teachers were instructed in the use of the critique form to be used to rate the teaching sessions (See Appendix A). Two video-recorded micro-teaching sessions were shown to the class. The teachers rated these sessions and compared and discussed their ratings with those previously completed by the instructor and the investigators.

The room in which the micro-teaching sessions were conducted and videotaped was equipped with a chalkboard, a flip chart, a table, an overhead projector, and four tablet armchairs, with additional seating provided for observers. Two video recording systems were used, one serving as a back-up unit in case of equipment difficulties. Each system consisted of an Ampex Video 7500 Recorder, Ampex CC-324 camera, Cannon C-16 zoom lens, Sampson 7301 tripod, Zenith solid-state TV monitor, and a Norelco D109 lavaliere cord-type microphone with an Atlas M12 stand. For lighting, two 10" Color-Tran mini-lights with B5-32F 1000 watt quartz lights were used.

The class members participating in the study were divided into two sections--Groups 1 and 3 (the video feedback groups) and Groups 2 and 4 (the no video feedback groups)--to prevent any contact with video feedback for Groups 2 and 4. The two sections met at different times and the teachers observed and rated each other's teaching sessions.

The procedures followed in the conduct of the study were outlined as follows: After the first micro-teaching session, the teacher, the teacher educator (instructor of the methods course), the class members observing the session, and the high school students or class members (peers) serving as students completed the critique forms. The teacher educator then collected and perused the students' critique forms. At this point in the video feedback groups, the replay was viewed without comments. The next step for all groups involved the teacher's selection and indication of the particular skill he felt a need to practice in the second micro-teaching lesson. Then the teacher educator gave his observations of the teaching session, including in his comments any other points brought out on the critique forms completed by the students in the group. Also, other members of the class who were observing were given an opportunity to participate in the discussion of the teaching in the lesson. After replanning the lesson, the teacher then retaught the lesson to a different group of students one week later. The same procedure was followed again, except that all sessions included the video replay.

At the end of the second session, the 24 teachers were asked to complete an evaluation form (See Appendix B).

MEASUREMENT INSTRUMENTS

At the planning session the investigators held with the instructor of the methods class, it was decided to design the study to evaluate the participants' skill in teaching a complete lesson. The measuring instruments developed for the three prior laboratory studies dealt with specific teaching skills, such as introducing a lesson and demonstrating a manipulative skill. For this study,

a more comprehensive measurement instrument was developed to serve as the critique form and for data gathering (See Appendix A).

The 16-item instrument included ratings on whether the teacher did or did not accomplish each task and on the degree of the accomplishment, yielding, then, scores on an accomplished scale and a degree of accomplishment scale. The scores on the two scales ranged from 0-1 on the accomplished scale (0 = did not accomplish, 1 = did accomplish) and 0-5 on the degree of accomplishment scale (0 = did not accomplish, 1 = very poor, 2 = poor, 3 = average, 4 = good, 5 = excellent)...

In addition, a 13-item open-ended questionnaire was developed to provide the teachers with an opportunity to express their opinions and reactions to their experiences (See Appendix B).

PROCEDURES FOR DATA ANALYSIS

The data for testing the null hypotheses posed by the three research questions (page 4) were collected from the teacher educator's ratings (on the critique form) of the videotaped microteaching sessions and from the teachers' responses on the questionnaire.

Tests of analysis of variance were computed for all major tests of significance (Dixon, 1967). Decisions to accept or reject the hypotheses were made at the .05 level of significance. Though not appropriate for statistical analysis, the data collected on the questionnaire were used to present a summary of the participants' attitudes and opinions.

CHAPTER III
RESULTS OF THE STUDY

The results of the data collection and analysis are presented in this chapter. Included are the findings relative to the effects of the two variables--video feedback and type of student taught--on the teaching performance of the members of the distributive teacher education methods class and findings relative to the attitudes and opinions of the participants in the study.

EFFECTS ON TEACHING PERFORMANCE

The first two research questions in the study, which dealt with the use or nonuse of video feedback and teaching high school students or peers, were stated as null hypotheses and tested by means of analyses of variance. All raw scores were reduced to means for the computations (See Appendix C, Table 1). An initial test of analysis of variance was computed to determine if significant differences existed among the four groups at the outset of the study. As Table 2 in Appendix C indicates, no significant differences were found in the mean scores for the first teaching session, and analyses of variance were considered appropriate for the remaining tests of significance. Further study of Table 2 also reveals there were no significant differences among the four treatment groups on the posttest scores.

To determine if significant differences in teaching performance existed between the two groups that had video feedback (Groups 1 and 3) and the two groups that did not (Groups 2 and 4), a comparison was made of their combined mean scores on both scales (See Appendix C, Table 3). No significant differences were found.

To determine if significant differences in teaching performance existed between the two groups that taught high school students (Groups 3 and 4) and the two groups that taught peers (Groups 1 and 2), a comparison was made of their combined mean scores on both scales (See Appendix C, Table 4). No significant differences were found.

Additional statistical tests were computed to determine whether significant differences existed between the combined mean scores of the four treatment groups on teaching sessions 1 and 2.

Tables 5 and 6 in Appendix C indicate that no statistically significant difference was found among the treatment groups (Source A) or in the interaction of treatment group and teaching session (Source AB). Table 5 shows no statistically significant difference between teaching sessions on the accomplished scale (Source B). However, as Table 6, Source B, indicates, a significant difference in performance was found for the combined groups between the teaching sessions on the degree of accomplishment scale. Figures 3 and 4 illustrate that all four treatment groups attained similar performance curves. The results of the statistical tests computed, then, indicated that no factor or combination of factors within the four treatment groups caused differing effects on teacher performance in the teaching sessions.

PARTICIPANTS' ATTITUDES AND OPINIONS

Since the study was the first attempt at field testing the use of micro-teaching and video recording, information was gathered on the attitudes, reactions, and observations of all the participants--the teachers, the teacher educator, and the investigators.

Teacher questionnaire. After the second teaching session, all participating teachers were requested to complete the questionnaire (See Appendix B). The 13-item instrument was designed with open-ended questions so that the teachers would have the opportunity to express their opinions freely. The first two items identified the respondent's treatment group and years of teaching experience. Responses to item 3 revealed mixed reactions upon learning the practice teaching sessions were to be videotaped, with comments ranging from no response to "curious" to "excited and happy to have the experience." First impressions of the micro-teaching and video recording procedures (Item 4), at the point after the orientation session and before the first teaching session, were optimistic for most of the teachers. Three teachers, with more than two years of teaching experience, felt that the situation was unreal. Skeptical reactions as to benefits they would receive were expressed by two teachers having less than a year of teaching experience. All the teachers stated that they clearly understood what they were to do (Item 5).

Item 6 concerned the teachers' final evaluation of their experience with micro-teaching and video recording. Their responses seemed to set the treatment groups apart. The teachers who received video feedback and taught peers (Group 1) indicated other uses for video recording in teaching and pointed out its value to them. Two of these respondents felt the need for longer teaching time and one pointed out the boredom resulting from observing each other teach. The teachers who did not receive video feedback and taught peers (Group 2) were the least responsive.

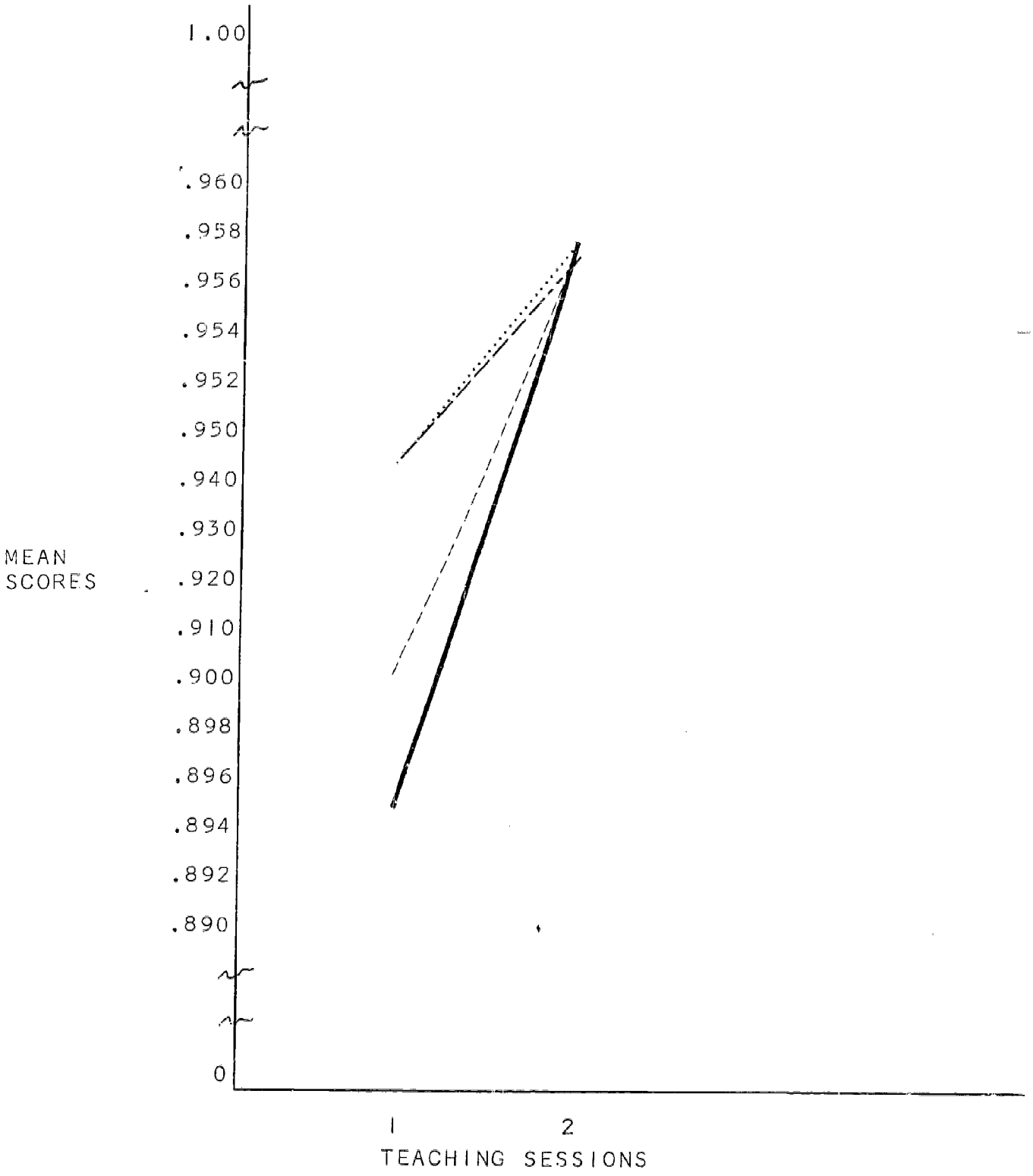

Figure 3. Performance Curve,
Teacher Educator's Ratings, Accomplished Scale

22

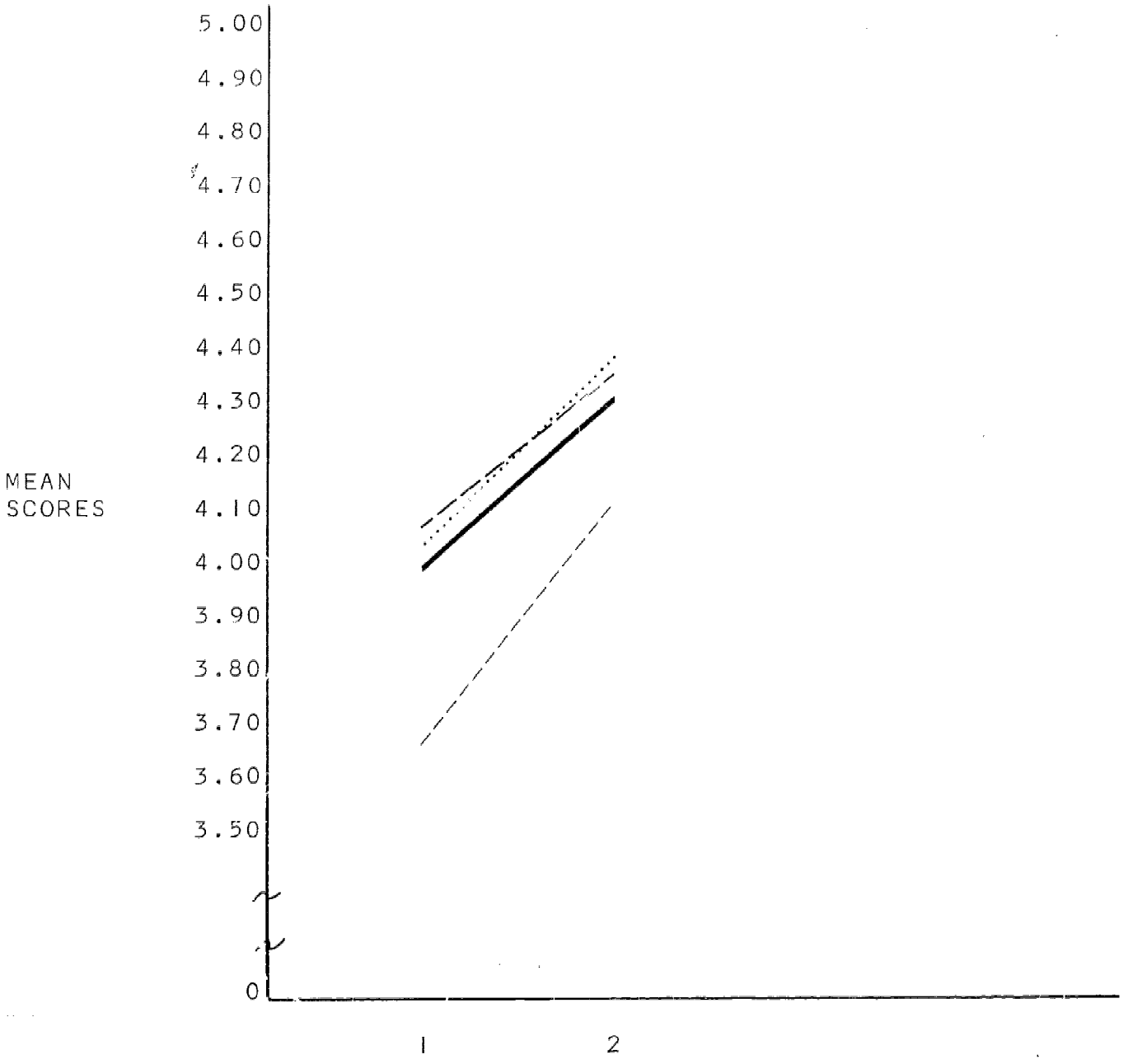

Figure 4. Performance Curve,
Teacher Educator's Ratings
Degree of Accomplishment Scale

Not only did some of the group fail to return the questionnaire, but there was also a generally negative attitude in their responses. The group in which the teachers received video feedback and taught high school students (Group 3) had high evaluations of their experiences, giving their reasons in each case. The remaining group of teachers, those who did not receive video feedback and taught high school students (Group 4), also rated their experiences as valuable and indicated they would have liked video feedback and more discussion of their teaching with the teacher educator.

The seventh question asked the respondents to indicate differences they observed between teaching peers and teaching high school students. Unfortunately, some of the teachers misinterpreted the item and responded that they had only taught peers or high school students. Of the 13 teachers who did respond correctly, four indicated no differences, six preferred teaching high school students, and three preferred teaching peers. Reasons given were that peers knew the subject area and were easier to teach and teaching high school students was more realistic and therefore easier.

Item 8 asked the respondents to indicate which teaching skills they had selected to concentrate on in their second teaching session. Responses included: making instructional steps clear (nine teachers), stating objectives (eight), summarizing (four), and cosmetic effect--voice, reducing teaching time, defining terminology, avoiding repeating student responses (one teacher each).

When asked if they would have preferred to teach more under the micro-teaching method (Item 9), the teachers responded affirmatively with a ratio of five to one. Some indicated they would like to use micro-teaching in a real classroom situation and/or have more discussion of their teaching with video playback.

There were few comments made in response to the tenth item, which asked for suggestions for changes in the supervisory procedures. Those who did comment, teachers with several years of teaching experience, felt that more time should be given to new teachers and more direction be incorporated into the teacher educator's criticisms. In addition, the respondents again noted a need for instructions for teaching with video recording and indicated they were bored by having to observe all the teaching sessions and evaluation periods.

Items 11, 12, and 13 dealt with the critique form used in the study. In responding to the questions, most of the teachers indicated the form was clear and precise, though three items were mentioned as being confusing and perhaps needing change: items 4, 6, and 7 (See Appendix A).

Teacher educator's reactions. The teacher educator provided his reactions to the study in a letter to the investigators. He was pleased with the overall operation and outcomes of the program and believed that using video feedback in the teaching practice sessions provided the participants with personal insight about their teaching. The teacher educator presented a list of suggestions based on his observ tions of the program:

1. The teachers need an in-depth program of instruction in the techniques of micro-teaching and video recording to prepare them for participation in such a program of teacher education. This instruction should include help in choosing a topic for a micro-teaching lesson, practice in writing objectives, and instruction in the steps of a complete lesson. Intensive training of this type might reduce teacher frustration and eliminate concern for having more time to teach.

2. There is a need for the use of more and better instructional models on videotape, not to attempt to mold stereotypes but to provide the teachers with visual examples of what is expected of them. The videotapes should contain teachers from various subject areas.

3. The teachers should not have to observe all the teaching sessions. All the observing and participating in the evaluating sessions caused a good deal of boredom and loss of interest. One observation of each teacher would be sufficient in a program of teacher education.

4. Teachers should have the opportunity to view their videotaped teaching sessions in private.

5. Individual, private supervisory sessions should be included in the program so that the teacher educator can be more candid in his comments and suggestions to the teacher.

6. There should be developed a more precise rating instrument, including specific suggestions for rating each behavior.

Investigators' observations. The following is a list of reactions noted by the investigators during the conduct of the study:

1. The time length of the micro-teaching sessions was a factor of frustration for the teachers, especially the experienced teachers. The teachers received no instruction in teaching a micro-lesson and they had problems with the procedure.

2. The teachers did not display any undue anxiety about being videotaped. The use of video recording was not overly emphasized by the teacher educator.

3. The teachers became bored with the process of observing so many teaching sessions and evaluation sessions.

4. The teacher educator made two changes in the procedure during the conduct of the study. In addition to reading the written comments, he elicited oral comments from the high school students participating in the teaching sessions. (Their responses were usually similar.) He also examined the teachers' critique forms from the first teaching sessions to gain some perspective of changes in teaching behavior.

5. The format of the critique form needed reorganizing.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

As part of the series of studies conducted by The Center for Vocational and Technical Education to assess micro-teaching and video recording in vocational and technical teacher education, the study reported here was designed as the first field test to determine the feasibility of two applications of these techniques in a distributive education methods class: feedback and type of student taught. The study was conducted during the two-week period set aside for teaching practice sessions during the five-week methods course offered to preservice and inservice distributive education teachers in the Summer of 1968.

Because no significant statistical findings resulted for or against either of the procedures tested, except in the case of testing teaching skill improvement on the degree of accomplishment scale for all four groups, conclusions and recommendations for the study were based upon the results of the questionnaire and the reactions and observations of the participants and the investigators.

CONCLUSIONS

1. The use of video feedback was a beneficial technique in the distributive education methods class.

2. Teaching high school students in the teaching practice sessions was a useful experience for the participants.

3. The two teaching practice sessions allotted in this study were not sufficient for providing adequate practice of the teaching skills involved in teaching a complete lesson.

4. The teachers participating in the study needed assistance in teaching by the micro-teaching format, including choosing appropriate lesson topics and concentrating on specific teaching skills.

5. The critique form developed for the study did not completely fulfill the needs of the participants.

RECOMMENDATIONS

1. Video feedback should be part of the procedures in the teaching practice sessions of the methods class. When feasible, this feedback experience should be a private session with only the teacher and the teacher educator present.

2. Students at the appropriate age and grade level should be used whenever possible in the micro-teaching sessions to provide the members of the methods class with a more realistic setting.

3. Efforts should be made to find ways to increase the opportunities for participation in micro-teaching sessions in similar methods classes.

4. The orientation session should include adequate information on the micro-teaching technique, with emphasis on choosing appropriate lesson topics and concentrating on specific teaching skills.

5. A library of videotaped instructional models which cover a wide range of teaching skills and include several content areas should be available in preservice and inservice teacher education programs.

6. To reduce the possibility of boredom, methods class participants should be required to observe a minimum number of their colleagues' micro-teaching sessions, with opportunities for additional observations made on a voluntary basis.

REFERENCES

Acheson, K. A. "The Effects of Feedback from Television Recordings and Three Types of Supervisory Treatment on Selected Teacher Behaviors." Unpublished doctoral dissertation, Stanford University, 1964.

Allen, D. W. *A New Framework for In-Service Education*. Palo Alto, California: Stanford University, 1967.

Ashmun, R. D. "Methods in Distributive Teacher Education Classrooms." *Readings in Distributive Education*. Edited by P. G. Haines, K. L. Rowe, and E. T. Ferguson, Jr. East Lansing: Research and Development Program in Vocational-Technical Education, Michigan State University, 1968. pp. 125-133.

Aubertine, H. E. "An Experiment in the Set Induction Process and Its Application in Teaching." Unpublished doctoral dissertation, Stanford University, 1964.

Cotrell, C. J., and Doty, C. R. *Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, Phases I-III*. Columbus: The Center for Vocational and Technical Education, The Ohio State University, 1971.

Cyphert, F. R., and Andrews, L. O. "Using the Videotaper in Teacher Education." *Audiovisual Instruction*, December, 1967. pp. 1067-1069.

Dixon, W. J., ed. *BMD-Biomedical Computer Program*. Los Angeles: University of California Press, 1967.

Haines, P. G. "A Philosophy of Teacher Education: Teaching, Research, or Service?" *Readings in Distributive Education*. Edited by P. G. Haines, K. L. Rowe, and E. T. Ferguson, Jr. East Lansing: Research and Development Programs in Vocational-Technical Education, Michigan State University, 1968. pp. 93-98.

Olivero, J. L. "Video Recordings as a Substitute for Live Observations in Teacher Education." Unpublished doctoral dissertation, Stanford University, 1964.

Voth, J. "Effects of Videotape Recording Feedback on Teaching Behavior of Student Teachers." Columbia: University of Missouri, 1968. (Mimeographed.)

Ward, T. "Teacher Behavior and Teacher Education." *Readings in Distributive Education*. Edited by P. G. Haines, K. L. Rowe,

and E. T. Ferguson, Jr. East Lansing: Research and Development Program in Vocational-Technical Education, Michigan State University, 1968. pp. 152-160.

Winer, B. J. *Statistical Principles in Experimental Design*. New York: McGraw-Hill Book Company, 1962.

GLOSSARY OF TERMS

Complete lesson. An act of teaching incorporating the four steps of instruction: introduction, presentation, application, and evaluation.

Micro-teaching. A scaled-down teaching session, five to 10 minutes of teaching to four or five students, in which the teacher participates in the full sequence of the micro-teaching cycle: plan, teach, critique (feedback), replan, reteach, critique.

Peer. In the context of this study, a member of the distributive teacher education methods class who participated in the study as a teacher and served as a student in sessions requiring teaching to peers.

Teacher educator. A person on a university staff who is responsible for the preparation of teachers-in-training and in-service education of teachers in the field.

Video feedback. The procedure used in the study which involved preparing videotape recordings of all micro-teaching lessons to provide opportunities for the participants and the instructor to view a replay of the teaching session during the critique and analysis portion of the micro-teaching cycle and to evaluate change in teaching performance.

APPENDICES

APPENDIX A

CRITIQUE FORM

TEACHING A COMPLETE LESSON

To the Student

A complete lesson consists of four steps: 1) introduction, 2) presentation, 3) application, and 4) evaluation. The introduction of a lesson "sets the stage" for your participation in the activity which is to follow. The introduction should help to inspire you to want to accomplish the objectives of the lesson.

The presentation of a lesson provides you with essential information. If the teacher has presented the information or skill properly and you have been a good observer and listener, you should be ready to attempt to apply it. The presentation should include a summary for you to review the key points and an opportunity for you to express your ideas and beliefs concerning the lesson.

The application step is that part of the lesson in which you immediately apply the new information or skill. The teacher should observe you practicing and provide encouragement, correction, or additional information to guide you through the experience.

The evaluation step of the lesson measures your retention of essential information or skills that you will use in the future.

The lesson should include all four steps; however, because of the limited time, the application and evaluation stage may be brief. It should be understood that further application and evaluation would be required for complete learning to take place, depending on the nature of the materials.

Directions: The following items will be used by you to evaluate your teacher's teaching. If the teacher did not accomplish the item, you will only mark "Did Not Accomplish." If the teacher did accomplish the item, you will mark "Accomplished" and then mark the column which describes how well the teacher "accomplished" the item.

Did the Teacher in the Lesson:

1. Have and use necessary instructional materials that appeal to me and help me gain a clear picture of what was being taught? (e.g., equipment, materials or audio-visual aids)

2. Provide opportunity for my response and participation?

3. Vary the pace and methods of presenting the lesson so that I understood and remained interested?

4. React favorably to my questions, answers, and comments and avoid repeating what I said?

5. Present the lesson so that I could easily follow and understand the lesson from start to finish?

Did the Teacher in the Introduction:

6. Link the lesson to my past knowledge or experience so that I could accept the objectives on my own terms?

7. State exactly what the objective/s are in terms of what I am expected to do, why the objective/s are important to me, how I am to achieve the objectives and when I will know that I have achieved the objectives?

8. Help me to acquire an interest in the lesson?
(For example: Did you want to learn what was to be presented in the lesson?)

DID NOT ACCOMPLISH	ACCOMPLISHED	DEGREE OF ACCOMPL.				
		VERY POOR	POOR	AVERAGE	GOOD	EXCELLENT

	DID NOT ACCOMPLISH	ACCOMPLISHED	DEGREE OF ACCOMPL.				
			VERY POOR	POOR	AVERAGE	GOOD	EXCELLENT
Did the Teacher in the Presentation:							
9. Talk to me and not to the instructional materials? (Note: In some presentations; e.g., one where a teacher is manipulating materials or operating machinery, the teacher must direct his attention to these, but the teacher can also make the student feel that he is receiving direct attention.)							
10. Present each idea or step in the proper sequence, making each stand out?							
11. Present only one idea or method of doing an operation at a time? (Or did the teacher present two or more ideas or methods of doing an operation which confused you?)							
12. Present the information with ease?							
13. Have me summarize the key points rather than doing it himself?							
14. Clarify any key points not clear to me?							
Did the Teacher in the Application:							
15. Observe me practicing (mentally or physically applying) and provide encouragement, correction or additional information to guide me?							
Did the Teacher in Evaluation:							
16. Provide an opportunity for me to show how well I had learned?							

Comments: (What can the teacher do to improve the lesson?)

Teacher _____ Date _____

Observer _____

APPENDIX B

QUESTIONNAIRE

Your help is needed in revising the procedures and materials for assessing micro-teaching and videotape recording in vocational and technical teacher preparation. Please answer as objectively as possible the following questions.

1. Did you receive:

   Video feedback after 1st teaching session? _____

   No video feedback after 1st teaching session? _____

   Did you teach:

   Peers? _____

   Students? _____

2. How many years and/or months of teaching experience have you had? _____years _____months

3. What were your immediate reactions after you learned your teaching sessions were to be videotaped?

4. As a result of your orientation to micro-teaching and video-tape recording, what was your first impression?

5. As a result of your orientation to micro-teaching and video-tape recording, did you understand what you were expected to do as a participant?

6. As a result of your participation, what is your present evaluation of micro-teaching and videotape feedback?

7. What differences, if any, did you observe in teaching peers as compared with teaching students?

8. What were the major items (teaching skill items) that you concentrated upon to practice in your second teaching session?

9. Would you, if course time had permitted, like to teach more under the micro-teaching method?

10. What changes could be made in the supervisory procedures?

Supervisor (teacher)?

Videotape feedback?

11. What items on the critique form confused you? How could they be restated?

12. Should any items on the critique form be:

A. Eliminated?

B. Added?

13. Were there any items on the critique form with which you disagreed? If so, please indicate which ones.

APPENDIX C

TABLES

TABLE 1

Mean Scores, Critique Form
Teacher Educator's Ratings

Teaching Session	Group 1	Group 2	Group 3	Group 4
		Accomplished Scale		
1	0.947	0.902	0.947	0.895
2	0.957	0.957	0.958	0.958
		Degree of Accomplishment Scale		
1	4.070	3.676	4.024	4.101
2	4.367	4.116	4.374	4.343

TABLE 2

Analysis of Variance, Teacher Educator's Ratings
Accomplished and Degree of Accomplishment Scales
All Four Groups, Teaching Sessions 1 and 2
(N = 24)

Teaching Session	Scale	F Value *
1	Accomplished	.500
1	Degree of Accomplishment	.502
2	Accomplished	.000
2	Degree of Accomplishment	.360

*Significant at .05 level if $\geq$ 3.10 (3,20 d.f.)

TABLE 3

Analysis of Variance
Teacher Educator's Ratings, Both Scales
Video Feedback (Groups 1 and 3)
and No Video Feedback (Groups 2 and 4)
Teaching Session 2

Scale	F Value *
Accomplished	.361
Degree of Accomplishment	.000

*Significant at .05 level if $\geq$ 4.35 (1,20 d.f.)

TABLE 4

Analysis of Variance
Teacher Educator's Ratings, Both Scales
Teaching High School Students (Groups 3 and 4)
and Teaching Peers (Groups 1 and 2)
Teaching Session 2

Scale	F Value *
Accomplished	.361
Degree of Accomplishment	.000

*Significant at .05 level if $\geq$ 4.35 (1,20 d.f.)

TABLE 5

Analysis of Variance
Teacher Educator's Ratings, Accomplished Scale
All Four Groups, Teaching Sessions 1 and 2

Source	F Value *
A	.434
B	1.918
AB	.315

A = Feedback techniques
B = Teaching sessions
AB = Interaction
*Significant at .05 level if $\geq$ 3.10 (3,20 d.f.); 4.35 (1,20 d.f.)

TABLE 6

Analysis of Variance
Teacher Educator's Ratings, Degree of Accomplishment Scale
All Four Groups, Teaching Sessions 1 and 2

Source	F Value *
A	.720
B	6.670*
AB	.048

A = Feedback techniques
B = Teaching sessions
AB = Interaction
*Significant at .05 level if $\geq$ 3.10 (3,20 d.f.); 4.35 (1,20 d.f.)