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IMPACT OF VIDEO FEEDBACK ON TEACHERS' EYE-CONTACT MANNERISMS IN MICROTEACHING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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iv
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CHAPTER I
INTRODUCTION

The Problem and Its Theoretical Setting

The educational problem.- Education of teachers has been one of the most controversial subjects in education. The principle source of disagreement comes from one's conviction that a teacher is either "born" or "made." This dichotomy of opinion reflects itself when considering teaching to be an "art" or a "science."

Since there may be no practical value for arguing one way or another on these two extreme views of teaching, a new school of thought has been developed. According to this new thinking, teaching is an art, "... an especially difficult one ... every art is a dynamic trend toward an object to be achieved, which is the aim of this art. ..." (Maritain, 1963, pp. 2-3). Therefore, while teaching is considered as an "art," it is believed that it can be studied and improved scientifically, both in context and in method. Thus, not only does the teacher have to determine the elements of the subject matter he has to teach, but he must also regulate his way of presenting it. For example a teacher, like an actor or entertainer, has to regulate his mannerisms, i.e., facial expressions, tone of speech, eye-contact with the students, etc., in his classroom. It is with this conviction that many experimental studies of teaching and the methods of its
improvement have been carried out. The present study is an effort made in the same direction.

**Potential of video tape recording as a feedback mechanism.** It seems that video tape recording holds a real potential for studying and improving teaching. Observation is one of the necessary elements in the study of any science, and it is also a prerequisite in the preliminary preparation for the practice of an art. With observation comes also "feedback" of actions which is essential for evaluating one's behavior which is, in turn, essential for changing one's behavior (learning).

Behaving and learning are products of perceiving, and much of a person's behavior is the result of his conception of himself (Combs, 1962). Woodruff of the University of Utah studied the basic concept formation process and its meaning for behaving and learning. He defined concept as "a relatively complete and meaningful idea in the mind of a person. It is an understanding of something..." Explaining his model for "Cognitive Cycle in Behaving and Learning," Woodruff (Vendura, 1967, p. 101) said:

> Human behavior and learning operate in cycle beginning with referential-perception-input and followed by assimilation, accommodation, try-out, and feedback (emphasis not in original) to referential-perception-input. Conclusions are products of decisions, and admonitions are derivations from conclusions.

In general, when the teachers tried to evaluate themselves and their relations to the classroom, they tended to rely on words (from supervisors, and sometimes from colleagues and students) rather than facts, thus not being able to create a complete picture of themselves.
in their minds. While one may never be able to know himself completely, the more aware a person is, the more accurate a map he creates of himself, and the more he knows himself, as he is and not as he feels he should be. Unless one knows himself as he is, he cannot make any meaningful attempt to change his behavior (Barbara, 1962). The video feedback method of one's own performance, thus far, seems to be the most promising approach for knowing more about the self-in-action.

Discussing the evaluation in education, Stufflebeam (1960) mentioned that there might be four kinds of educational evaluations, such as context, input, process and product (CIPP) evaluation which corresponds to the decision making functions of planning, programming, implementing and recycling. Stufflebeam (1968, p. 31) defined these terms as follows:

Context Evaluation is to define the operation context, to identify and assess needs in the context, and to identify and delineate problems underlying the needs.

Input Evaluation is to identify and assess system capabilities, available input strategies, and designs for implementing the strategies.

Process Evaluation is to identify or predict, in the process, defects in the procedural design or its implementation, and to maintain a record of procedural events and activities.

Product Evaluation is to relate outcome information to objectives and to context, input and process information.

If this model (CIPP) is to be applied to evaluation of teaching, one sees the video recorder as a tool which brings the evaluation process almost to its maximum potential. Without the video feedback, one may be able to evaluate the context in which the teaching and learning processes occur, the input to these processes, and the final product of the activity. But it seems that video recordings may
provide the best kind of feedback necessary for process evaluation, especially in terms of teacher's self-evaluation of his ability to communicate, verbally and nonverbally, and to provide the essential atmosphere for learning, because the evaluation, in order to cover the domain of teaching, needs to be realistic in terms of what really happens in the teaching-learning situation. In this evaluation process, the video recorder seems to provide potential for total reconstruction of the teaching act.

The Iowa State University Agricultural Engineering Department has been using video recordings for self-evaluation. Hoerner (September, 1969, p. 60) reported that:

... (one) main purpose ... (of) educational program is to aid the student in developing self image. Self-evaluation is the key point of this exercise. ... Video tape ... serves as a memory mirror. ...

Galloway (1969) gave eleven levels of awareness that one may experience when viewing himself on the video tape:

1. Cosmetic Level: ... Is that really me? ... "Why [my] hair is mussed and my voice sounds strange?"

2. Activity Around You: ... "I didn't realize the room looked that cluttered or crowded," or "there is too much noise and commotion." ...

3. Overt Actions of Individual Children: "I never heard Mary say that." "I didn't see Jon's hand raised."

4. Recall Reasons for Particular Actions: "John wasn't understanding so I had to go back over that same concept another time."

5. Whole Class or Group Actions: "They were becoming restless."

6. Subject Matter and Appraisal of the Lesson Itself: "That has always been difficult for them."
7. Recognize Alternative Actions: "...Oh, wasn't that a terrible thing to say?"

8. Indicate Willingness to Accept Guidance: "I wish I knew something that would work in that situation," "I wonder what I should have done."

9. Reinforce Activities that Seemed to Work: "I didn't think that worked, but I believe they really did understand it after all."

10. Generalizing or Comparing Yourself to Other Teachers: "Now, I can see that I am not such a poor teacher. I realize more realistically what teaching really is."

11. Active Solicitation of the Opinions of Others: "What did you think of that lesson?"

Individual reactions to these levels of awareness might be:

(Galloway, 1969)

1. Identify self—"That is me!"
2. Surprised at look and sound—"Is that really me?"
3. Defensiveness—"That happened because of..." 
4. Affirmation—"That lesson wasn't so bad at that."
5. Openness to suggestions—Alternative.

From the above lists it can be said that the first level of awareness (cosmetic) and the first two reactions (identity and surprise) are for mannerisms: sound, action, look, in general; so the teachers are concerned for their mannerisms.

Review of Related Literature

The review of pertinent literature on the use of video tape recordings is given in this section. After brief reviews of the uses of video tape recordings in stage art, industry and counseling, an
extensive review of literature was made in the area of main concern—
teacher education. At the end a summary of major findings and
reflections is given.

The uses of video tape recordings.- Video tape recordings have
had various uses in education, industry, counseling, therapy and stage
art. The advent of video tape recordings has opened an observational
method to samples of teaching-learning situations which is used toward:
(Morrison and Childs, 1969)

1. Developing teachers' insight into classroom behavior

2. Effecting changes in teaching strategies

3. Gathering data in retrievable form for the development
   of sound programs in teacher education, and

4. Developing a workable theory of instruction—thus
   bridging the gap between theory and practice.

In the stage art, video recordings and motion pictures have a
longer history of being used as observational aids. Pugliese and
Gunther (1969, p. 100) stated:

What better way of learning for an actor to see himself in
performance? Under these conditions the performer could
evaluate his movements, gestures, and facial expressions,
... .Vocally, he could observe whether his lines were
well-directed toward the audience. ...

In industry, video recordings have been used very extensively in
the training programs, i.e., salesman, manager training by role playing,
sensitivity training, and "self-confrontation." Stroh (1969) reported
that the use of video recordings in industrial training programs has
been justified not so much by objective research evidence but rather
by intuitive judgments of the persons involved.
In counseling, observation has long been considered an important aspect of the training programs. Major observational methods had been 1) one-way vision screens, and 2) audio tape recordings. Availability of video recordings has been a great breakthrough in this area (Poling, Summer, 1968).

Investigation was made to test the relative effectiveness of critiquing counselor interview sessions by audio recording as compared with the use of video recording for the same purpose (Poling, Fall, 1968). Each of the ten first level (beginning) counselors conducted three 20-minute counseling interviews, which were both audio and videotaped. Each counselor was then required to listen to an audio tape recording of the counseling interview and complete an "interview rating form" which consisted of eleven counseling concepts on a five-point scale. The same procedure was applied to the video recording of the same interviews. There was no statistically significant difference between the mean ratings of the interviews. However, he thought that there was a "more realistic perception of interviews" by counselors after the video tape review. This was supported by opinionnaire evaluation of counselors, who said: "One suddenly becomes aware of his own mannerisms . . . and is better able to objectively see whether these could possibly be threatening or distracting to the counselor. . . ."

While convinced of the value of video recordings, Poling recommended more research to "adequately measure the effects of the many uses of it. . . ."

Ivey and his associates (1968) studied three basic skills of counseling which have a direct bearing on the present study. The
skills studied were 1) attending behavior which included a) **eye-contact**, postural position, movements and gestures, b) verbal following behavior; 2) reflection of feeling; and 3) summarization of feeling. Except for the research on attending behavior, they did not use a control group in their comparisons. So the results were positive in terms of rated improvements of counselors for these skills along the trials. But in the case of attending behavior, the groups (which consisted of control and experimental groups of 19 counselors in each) differed from each other in their improvement of "eye-contact" in which counselors simply look at the subject. The group who received video feedback significantly increased their eye-contact with the counselees in later sessions, as compared with the group who did not receive video feedback. For obtaining criterion measures, a conventional five-point scale was used by two raters. In a telephone interview with the author, Ivey expressed his satisfaction with video feedback results and explained nonsignificant findings in other skills of counseling as a possible result of insensitive measurement techniques.

In teacher education there have been many uses of microteaching and video recording techniques for improving certain teaching skills. Variations introduced in the use of video feedback were immediate vs delayed, face-to-face vs remote, self-evaluation vs supervisory, peer, and/or students' help.

Acheson (1964) investigated the effect of video feedback and supervision on selected aspects of 48 intern teachers' behaviors. Two 20-minute recordings were made of each subject, one week apart. Half of the group received video feedback of their first lesson before
teaching the second one, the other half did not. Tapes were evaluated for "teacher monologue" and "interaction with students." Teacher monologue was defined as "a job performance of an individual addressing a group" which included talking, writing on the board or reading aloud for the group. Measurement was made with a stop-watch in terms of the cumulative time spent for monologue, and this was converted to percentage score for the whole viewing time. Episode was defined as "completed verbal transactions between two or more speakers." Measurement was made in terms of frequency counts. He reported that measured amount of teacher monologue was significantly different between the two groups. The difference was in favor of video feedback; namely, the teachers in video feedback group reduced their monologues considerably. No significant differences were found for "episodes." The reason for this was given as "confusion" about the interpretations—meaning of increased student participation, i.e., whether this implies more episodes or fewer and longer episodes.

As a part of his research "To Determine Whether Television Recordings Could Be Substituted for Live Observations in Teacher Training Programs," Olivera (1964) made a comparison of video vs no video feedback on changing teachers' behaviors. Each group consisted of 40 teachers and interns each of whom conducted four microteaching sessions. Video tapes of these teachers were evaluated on a modified "Stanford Microteaching Appraisal Guide." This eight-item instrument included aims, content, and method and evaluation of the lesson taught by use of videotape recording. Paid high school pupils evaluated the tapes. He reported that the teachers in the video feedback group
improved significantly more than teachers in the non-video feedback group on only one item, that of understanding of aims. Another four items approached the .05 level of significance.

Schueler and Gold (1964) made a study at Hunter College which was aimed at evaluating the use of kinescope recordings in teaching method classes. The methods compared were supervision via 1) personal visitation; 2) the use of kinescope recordings alone; 3) a combination of in-person visitation and kinescope recordings. In each case, number of visitation and/or kinescope recordings were five. Fifty-six student teachers completed the experiment. The methods were evaluated on an evaluation instrument which was said to measure "all significant aspects of teaching performance," including teacher personality, rapport with students, classroom management, handling of academic content, and pedagogical method. This 35-item instrument was developed by the project staff and labeled as OScAR (Observation Schedule and Rating). In terms of the objectivity of the items, it was said that in spite of the "major hope of the project staff . . . to restrict the schedule to objective acts . . . it soon became apparent that certain characteristics of student teachers did not manifest themselves in such neat categories . . . such as grooming, clarity of speech, and style of presentation. . . , thus a number of ratings were added to the pool of observable behaviors."

It was reported that the analysis of kinescopes, using the evaluation instrument developed, indicated improvement of student teachers in general but did not establish significant differences among the three methods employed. However, the "subjective reactions of student
teachers and supervising teachers definitely favored the use of kinescopes alone or with in-person visitation."

The researchers reported that this experiment developed in them a conviction that this new media (observation via kinescope) can make a significant contribution to educational inquiry. However, they suggested the need for more research and the potential of video recordings as a means for self-appraisal in performance skills such as counseling, dramatics and public speaking.

Tintera (nd) studied the relative effectiveness of three supervisory methods in teaching, with variations in observational methods. Conventional supervisory observation, supervisory observation supplemented by three voice tape recordings, and supervisory observation with three kinescopes of student teachers' performances made the three treatment groups of twenty-two teachers in each. The evaluations were made immediately after and six months later. In both cases, the instruments used were Minnesota Teacher Attitude Inventory, The Student Attitude Scale of Teaching, Teacher Self-Describer and Ryan Observation Scale and Supervisory Ratings. No significant differences were detected among the groups' performances right after the experiment. This was attributed to insensitivity of instruments used. But after six months of teaching, the groups who had either tape recordings or kinescopes rated significantly better on all measuring instruments than conventional supervisory observation groups. Self-analysis of teachers via kinescopes seemed to make the greatest difference. He noted that there was a favorable force at work which caused some evident changes in teachers'
behaviors but that did not emerge or be accounted for in the test instruments used. Thus, he recommended further investigation to measure these "evident" changes.

Bern (December, 1967) reported a study at Indiana University which was aimed to evaluate the effect of video feedback on teaching quality of student teachers' experience. The experiment consisted of twenty-four students who were equally divided into video feedback and no video feedback groups. Out of four recorded microteaching sessions, the first and fourth sessions were evaluated by university methods teachers. The evaluation instrument that was used contained twenty-nine performance factors, including usage of vocabulary, grammar, pronunciation, rate of speech, voice, mannerisms, dress, grooming, facial expressions, gestures, bodily movement, poise, knowledge of subject matter, lesson developmental techniques, technical vocabulary, use of examples, use of blackboard, use of demonstration materials, interaction with students, overall class climate, and lesson organization. Each factor was rated on a seven-point scale with the extreme points of "yes" and "no". From all the statistical analyses which were made on total and individual items, it was reported that there were no significant differences between the performance of groups who received video feedback and those who did not receive it. The "unexpected" results were attributed to the "erroneous statistical comparison" (on which they did not elaborate) and also to the "extreme variations in feedback content." It was then concluded that the results should not discourage the users of video recorders, because the "obvious" improvement of teaching due to video feedback may not be proved through experimental comparisons of "group methods."
There have been ten experiments conducted at The Center for Vocational and Technical Education (called The Center from here on), The Ohio State University, Columbus, Ohio, in "Assessment of Micro-teaching and Video Recording in Vocational and Technical Teacher Education." The writer provided statistical and data processing service to most of these studies while being employed as a research associate at The Center. The reports were in the process of being published at the time of this writing. However, they were reported in a summary form to the Third Annual Vocational-Technical Teacher Education Seminar (Cotrell and Bice, 1970). Some of these reported experiments, which tested the impact of video feedback on pre- and in-service vocational teachers, were briefly examined from the original draft copies of the reports. In each of these experiments the teachers practiced one or more of the following teaching skills (that were developed at The Center): "Introducing a Lesson," "Questionning," "Demonstrating a Manipulative Skill," "Summarizing a Lesson," and "Teaching a Complete Lesson." Teachers' performances on these teaching skills were rated by (at least two) independent panel members.

The first three experiments conducted at The Center were mainly feasibility testing laboratory studies (Cotrell and Doty, 1970). The fourth one was a classroom application of the techniques developed in previous laboratory studies (Doty and Cotrell, 1970). In all of these four experiments, immediate and delayed supervisory conferences with video feedback were tested against conventional "face-to-face" supervision, "remote supervision" which is replay of the teacher's lesson and audio playback of the teacher educator's recorded critique, and "remote
supervision plus instructional video recorded models." The number of subjects in each treatment group ranged from four to six with one to seven feedback opportunities. There were no statistically significant differences among the teachers' performances in different feedback groups. However, from all available indications, it was clear that all participants expressed their satisfaction with the feedback techniques, especially the ones with video feedback.

The fifth study of The Center (Hoerner et al., 1970) was partly concerned with investigating the effect of video feedback in improving the teaching skills of forty-eight trade and industrial teachers in a pre-service workshop. Half of the group received one or three video feedbacks of their teachings while the other half did not have video feedback. Statistical testing (on individual items on the instrument and on the complete instrument) did not show significant differences between the groups' performances. However, opinionnaires taken immediately after and six months later revealed strong support in favor of the video feedback.

The eighth study at The Center (Smith et al., 1970) was a testing of three (face-to-face, audio-phone, and video-phone) supervision techniques with thirty-six home economics student teachers. After three to five feedback sessions, there were no statistical differences among the three groups' performances. However, it was noted that the video-phone group (the only group that had video feedback) showed signs of concern for personal mannerisms throughout the study. Since the concern with mannerisms was not the main goal of the study, it was viewed as a
possible area in which further investigation may be done to determine
the impact of video feedback on the mannerisms of teachers.

The tenth study of The Center (Cameron, et al., 1970) was concerned
with assessing the relative effectiveness of three remote (video-phone,
video-mail and video-self-evaluation) feedback techniques. In the
study, thirty-nine in-service vocational and technical teachers partici-
pated in the State of Colorado. After five feedback sessions, there were
no statistical differences among the groups in their teaching skill
performances. However, it should be remembered that the study was not
testing the impact of video feedback since all treatment groups had video
feedback available. Although it was not pre-planned, changes in
mannerisms due to remote feedbacks were explored by using a ten-item
instrument which included posture, gesture, eye-contact, etc. Two panel
members evaluated the tapes for performances on both teaching skills and
teaching mannerisms. It was found that the teachers who received video
or audio mail treatments improved their mannerisms significantly while
the video-phone group did not record any significant change.

The Center's seventh experiment was carried out in New York State
(Doty and Cotrell, 1970). This experiment involved three separate
studies which tested the effectiveness of video feedback in improving
teaching skills. They were conducted in three different locations
within the state, New York City, Elmira and Rochester. The number of
in-service teachers involved and the number of feedbacks available to
the teachers were: 31 teachers and 5 feedback sessions in New York
City, 19 teachers and 8 feedback sessions in Elmira, and 25 teachers
and 3 feedback sessions in Rochester. While all of the teachers who
received video feedback expressed enthusiasm about the use of video recordings, there were no significant differences in their performances due to video feedback in any of the three experiments. However, representing one of the most common expressions of the investigators on the impact of video feedback, a field technician who made the video recordings in the Elmira and New York City, N.W. experiments (Doty and Cotrell, 1970) reported that:

 Teachers . . . have shown . . . a desire to improve: diction, grammar, and speaking appearance. Awareness of these defects were left entirely to each individual. Personal quirks, idiosyncracies, facial and body movements were not discussed in class, but subjects were acutely aware of deficiencies and cured the most obvious of them.

(Most of the tapes from Elmira and New York City were re-evaluated for eye-contact mannerisms in the present study.)

**Summary.**— The following is the summary of the important points emerged from the review of the related literature.

Video recording has had an extensive use as an observational aid in stage art. It is mostly used with specific objectives and with deep convictions in its value. Industry uses the video recordings in a variety of training situations with broadly defined objectives and favorable judgments on its value. Counselor training had a breakthrough in its observational methods with the use of video tape recordings. Research has been done to test the effectiveness of the video recorder as an observational tool and as a feedback source. Whenever there were specific objectives with concentrated effort to attain the objectives, it was found that video recordings added significantly to changing counseling behavior.
In teacher education, there have been many uses of video recordings for improving certain teaching skills and personal behaviors. In almost all cases, the differences between the performance of the teachers receiving video feedback and those receiving no video feedback was statistically insignificant. However, many complained about the possibility of not having sensitive measuring methodology or not including the essential behaviors that really may have been changed that were not accounted for. From their own observations and the expressions of the participating teachers, many investigators have noted that the video feedback does have some very favorable effect on teachers' behaviors. And the possibility was raised that when teachers view their own video recordings, they may even focus most of their attention on various mannerisms, which may cause them to neglect the aimed aspects of improving specific teaching performances.

After reviewing the literature, one certainly agrees with Hermanowicz (1967, p. 3) who said:

The 1960's and perhaps the 1970's in the history of American Teacher Education probably will be remembered as decades triggering intensified examinations, criticism and experimentation. . . .

Traditionally, teachers consider themselves autonomous. In many cases, this concept of academic freedom is improperly used to justify poor performance. Most teachers prefer to view teaching as an art and choose to ignore any scientific aspect of teaching (Sharpe, 1967). However, this is not all it takes. Most of the so-called "scientific" research on the uses of video recordings is a reflection of feelings rather than facts. As Siegel and Siegel (1964) mentioned, most of these
nonsignificant results may be a reflection of the inadequacies in research design, and insensitive measuring instruments and selection of criterion measures.

From the review of the literature, it seems clear that the major ways of evaluating video feedback's impact have been through:

1. Participants opinionnaires
2. Investigators' judgments
3. Ratings by independent panels with various evaluation instruments.

As Stroh (1969, p. 19) reported, in general, the users of videotape recorders have been . . . , "so impressed by the extensive interest generated by self-confrontation that they have concentrated on determining the degree of interest rather than the degree of learning."

The number of studies which employs quantitative methods for measuring the impact of video feedback on teaching behavior has been increasing but at a very slow rate.

It seems that most researchers in this area follow what the writer calls, the "Wise Man's Approach." A Turkish story tells that there was a "wise man" to whom everyone used to look for advice. One day a traveler saw him trying to make "yogurt" (which is made out of milk) out of the water of a big lake. The traveler was very much surprised to see the "wise man" performing such an illogical act. Losing his respect for him, the traveler asked, "wise man, don't you realize what you are doing here. . . . How can you make yogurt out of lake. . . . ?" The "wise man" replied to him in a convincing manner: "My dear fellow, I know what you mean, but just think of it if it works. . . ."
Almost all studies reviewed by the researcher (with possible exceptions of Ivey and Acheson) tried to manipulate too many variables concurrently, thus failing to exert the needed precision in the control and evaluations. Therefore, they made little headway in terms of scientific findings. Whenever there were specific objectives expressed in behavioral terms and concentrated efforts on them, the findings were mostly conclusive and in favor of the use of video tape recordings.

When one adds to these basic deficiencies, some improper interpretations of statistical testings and their findings, then one wouldn't be surprised to see "opinionnaire" types of conclusions. As Schueler and Lesser (1967) said, illogical conclusions are usually drawn from the "nonsignificant" differences found in research studies. Lack of experimentally observing the inequality of effectiveness of treatments has led many investigators to presume that equality exists. However, it is logically indefensible to interpret the failure to demonstrate that the conditions are equal as proof of their equality. Therefore, teachers concerned with method and media selection, usually make these selections on some extra-scientific criteria, such as administrative ease and economy.

There are still many questions for the proper use of video recordings in teacher education to which "opinionated" answers are many and varied, and to which scientific answers are all the more necessary.

Focus of the Study

A model.— In studying teaching scientifically, many schemas have been used to divide teaching into its logical elements. But basically,
teaching implies modification of behavior, which is done through communication. Therefore, the study of communication is one way of studying teaching.

Communication can occur through two main modes:

1. Verbal

2. Nonverbal

Written language is the most technical of the message systems. It is used as a model for analyses of others. In spoken language while the words are still used as a model, what is communicated through words is only one side of the picture. As Hall (1965, p. 38) said: "We must never seem that we are fully aware of what we communicate to someone else," meaning that one must continuously try to improve the communication. The other side involves nonverbal facts expressed in interplay of hidden gestures, feelings, bodily reactions, glances, etc. (Barbara, 1958). It is this nonverbal side that makes communication complete by raising the qualitative level of information communicated (Behman, 1963).

Cogan (1967, p. 70) in his article "Theory and Design of a Study of Teacher-Pupil Interaction" described the process by which the classroom behaviors of the teacher are linked to pupil change in following logic:

<table>
<thead>
<tr>
<th>The behaviors of teachers as perceived by the pupils</th>
<th>influence the nature and extent of pupil behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which may instigate</td>
<td>Resulting in pupil change</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. the motivation of pupils
2. communication with pupils
3. the classroom experiences of pupils

In the classroom situation, nonverbal behaviors of the teacher have great significance. Students learn these very quickly and learn
also to judge accurately their significance. Waller (1961, pp. 222-30) called these as mannerisms, and said:

...mannerisms, by making communication more complete than either teacher or pupil realizes or intends, may serve a very useful purpose in the classroom.

...In all social situations the experience of the face and eyes of the persons concerned is one of the most important facts.

Galloway (1966) rightly pointed out that the nonverbal languages are influenced by socio-economic and literary levels, and nonverbal messages may be more significant too in communicating with pupils from lower socio-economic classes—who are usually linguistically disadvantaged. He cited the research which shows that these pupils depend almost exclusively upon the nonverbal for the detection of meaning in school situations.

Eye-contact; a nonverbal behavior.- From the recommendations made by many investigators using video feedback and the writer's own exploratory study, there was a clear indication that the nonverbal component of teaching (communication) may be most effected as a result of video feedback. Many teacher educators and researchers while not being able to justify their use of video feedback in teaching-learning situations through statistical analyses, strongly argued that there were "obvious" improvements in participants' various mannerisms which were not measured either because they were not included as possible behavioral items in evaluation instruments, or the methods of evaluating them were not sensitive enough. Therefore, many developed in themselves "logical" convictions in the value of video feedback. This belief that teachers do pay much attention to their mannerisms was also substantiated by the
writer's own interviewing of teachers and teacher educators who were participants in one of the experiments (Chase, 1970) at The Center. Almost all of the 16 (out of 24) participants interviewed said that video feedback was very valuable and they were very much interested in their mannerisms as they planned to view the videotape, and in actual viewing of the tape, they said they tried to make improvement on their mannerisms although this was not part of the teaching skill that they were supposed to practice. As crucial areas of concern on mannerism, they mentioned gesture, posture, speech and eye-contact. These, they believed, can be improved through video feedback thus helping in conveying the nature of the task of becoming a performer in one's area.

Out of the broad category of "nonverbal" behaviors of teachers, only one type of behavior, eye-contact, was chosen by the author for in-depth study. The reasons for selecting this particular nonverbal behavior were 1) its significance in teaching as supported by theoretical reasonings (Ivey, et al., 1968; Kennedy and Thompson, 1967; Agger tt and Bowen, 1956); 2) teachers' expressed concerns over their eye-contact mannerisms when they view their video recordings as reported both in previous experiments and to the writer when interviewing teachers and teacher educators; 3) inadequacy of teachers' eye-contact as measured on video recordings of teachers from the previous experiments. The last measurements were done by the writer and were compared with theoretical amount of eye-contact figures said to be needed in effective communication as given in the literature. For effective communication, while it was said that the speaker should have eye-contact with his listeners about 90 percent of the time (Byrant and Wallace, 1947), the preliminary
measurements from the tapes showed that the teachers were on the average having eye-contact only up to 50 percent of the time. Therefore, the need for improved teacher eye-contact with the students was uncovered.

As to the quality of eye-contact, it is suggested that when speaking to a small group, like in microteaching cases, one should establish eye-contact with as many individuals as possible. When speaking to a large group, one should establish eye-contact with individuals in representative sections of the audience (Aggertt and Bowen, 1956).

Eye-contact manner of a teacher seems to serve four important but related functions in the classroom. These are:

1. Maintain attention
2. Maintain discipline
3. Facilitate learning experience by using as reinforcing feedback
4. Prevent undue accidents in laboratory or shop situations

Eye-contact is said to facilitate communication mainly because of its potential for keeping one's attention alive. Eye movement itself is one of the psychological measures that has been used to measure attention (Sjogren and Lyons, 1967).

For maintaining classroom discipline, eye-contact seems to be very effective. Martin (December, 1967, p. 21) maintains that

... if more teachers would learn the effective use of good eye-contact, many potentially troublesome classroom incidents could be avoided. ... If a teacher appears to be foggy-eyed or not to notice misdemeanors, some students may grow bolder. Even normally well-behaved students may join in on the fun....
The problems of maintaining classroom discipline are counted as one of the most important reasons why many teachers leave their profession after only a brief stay (Chamberlin, December, 1967).

Eye-contact can also be used very effectively to reinforce learning experiences of the students, thus facilitating better learning atmosphere. A smiling look is sometimes more effective than praising someone by words.

While eye-contact is considered an important nonverbal communication mode, it deserves a special recognition in teaching skilled and occupational subjects. In student demonstration of a manipulative skill or examination of a part of a mechanical device, eye-contact is not only helpful for learning purposes but also equally or more important for safety practices. Thus, a vocational teacher should be skilled in maintaining an effective eye-contact with his students at all times.

For learning purposes, one needs to consider both quantity and the quality of eye-contact. While it is easy to get quantitative measurement of eye-contact, it is usually difficult to get a qualitative measurement. One way of evaluating eye-contact quality may be to record when the eye-contact mostly takes place in a given teaching situation. For learning purposes, eye-contact may be most effective at the beginning and also at the end of a lesson. At the beginning (introduction) of a lesson, the teacher may be able to tune the students in by effective eye-contact so that they'll understand the purpose of the lesson, which is essential for learning. It is also at the end (summary) of a lesson that the student's attention must be aroused to more than its normal level in order for him to conceptualize and put the pieces together in a given topic of concern.
The Purpose of the Study

The study had two basic and related purposes. These were

1. To test the impact of video feedback (viewing one's own video recording) on teachers' eye-contact mannerisms in microteaching in in-service vocational teacher education—in a situation where there were no major research efforts to change eye-contact mannerisms of the teachers, and

2. To test, in a limited way, the validity of previously made speculations that "although the video feedback was insignificant for improving certain teaching skills that were emphasized, the video feedback may have had its most observable impact on changing teachers' mannerisms—including eye-contact—which were not measured."

The specific objectives of the study were to measure the impact of the video feedback on teachers' eye-contact mannerisms in the:

a. Introduction,
b. Presentation (demonstration of a manipulative skill),
c. Summary part and in a
d. Complete lesson (the composite of the above three skills).

A caution is in order to remind the reader that the findings of this study must not be interpreted as a testing of the "potential impact" of the video feedback on changing eye-contact mannerisms as such, since the purposes of the study were not set up to test that situation.

The Hypothesis to be Tested

The hypothesis to be tested was that:

The teachers who view the video recordings of their teaching after each of the microteaching sessions, will significantly increase their eye-contact with students as compared with those who do not view their video recordings—in a situation where no major attempt was made by the
teacher educators to change eye-contact mannerisms of the teachers in an in-service vocational teacher education program in the: a) introduction, b) presentation, c) summary parts of micro lessons, and d) complete (composite of the above three parts) micro lessons.

Assumptions

1. In each five-minute microteaching unit, the teachers were instructed to demonstrate three teaching skills: a) introducing a lesson; b) presenting (demonstrating) a lesson; c) summarizing a lesson. Thus, performances of the teachers that were examined at the beginning, in the middle, and at the end of the five-minute long video tape lessons are assumed to represent theses teaching skills respectively, and the combination of the three parts represents "teaching a complete lesson." (The term "parts of the lesson" is used to represent the three: introduction, presentation and summary parts of a lesson.)

2. The selected video tape recordings viewed by the subjects are similar to any tapes recorded in a teaching-learning situation.

Definition of Terms

Microteaching is a training concept that is applied at various pre-service and in-service stages in the professional development of teachers. Microteaching provides teachers with a practice setting for instruction in which the normal complexities of the classroom are reduced; the length of the lesson is reduced to approximately five
minutes, the scope of the lesson is narrowed by concentrating on a specific skill or technique, the number of students is reduced from the usual classroom size of 25 or 30 to 4 or 5.

The microteaching concept follows a sequence of teach-analyze and reteach cycle which can be repeated as many times as it might be needed. After the first microteaching practice session, the teacher analyzes his lesson. In addition to his self-appraisal, the teacher may have feedback from supervisor, peers, students and, if available, video playback of his lesson. The teacher then decides what specific changes (if any) to make in his organization of the teaching-learning situation; then, repeats the entire process of teaching the same lesson with a different group of students. Thus, a complete cycle of microteaching would be completed.

In summary, five essential propositions characterize microteaching. They are: (Allen and Ryan, 1969)

1. Microteaching is real teaching.
2. Microteaching minimizes the complexities of normal classroom teaching.
3. Microteaching focuses training for accomplishment of specific tasks.
4. Microteaching allows for the increased control of practice.
5. Microteaching greatly expands the normal knowledge of--results or feedback dimension in teaching.

Video feedback (VF) is seeing and analyzing one's microteaching session from replay of video recordings.

Eye-contact is the teacher's direct visual attention to student(s). This may be direct eye-to-eye contact or directly looking at the students' hands when they are manipulating something in their hands.
Eye-contact time is the cumulative amount of time (in seconds) during which the teacher has eye-contact with his students.

Observation time is the potential eye-contact time (in seconds) during which the teacher is seen on the TV from the video-replay so that eye-contact can be recorded.

Video counter time is the actual video recorder machine running time (in seconds) for eye-contact observation. It is usually sixty seconds, but can be up to ninety seconds if one minute of observation time is not completed.

Percentage of eye-contact score is the ratio of measured eye-contact time to observation time (dividing eye-contact time by observation time).
CHAPTER II
METHODOLOGY

Introduction

The methodology of the study is given in this section. The following specific features are explained: the description of the subjects who made up the sample, experimental design used, treatment descriptions, measurement procedures, selection and training of panel members, and statistical analyses of the data.

Subjects

In order to attain the two basic purposes of the study (see the purpose of the study) this investigation utilized the video tape recordings made from previous experiments in the data bank at The Center for Vocational and Technical Education at The Ohio State University. Previously, the same tapes were evaluated for particular teaching skills improvement where the impact of video feedback was found to be insignificant on improving the teaching skills. For purposes of this investigation, the same tapes were evaluated to determine the impact of video feedback on teachers' eye-contact mannerisms. The tapes were selected by the use of a stratified randomization from various experiments to form new treatment groups in order to increase the number of subjects in each group thus increasing the power of subsequent statistical tests.
Two experiments done in New York City and Elmira met the conditions set by the objectives for this study. The minimum criteria for the selection of the tapes from the experiments were that they 1) be at least three minutes long; 2) have corresponding pre- and posttest tapes; and 3) be of a high-quality picture to allow eye-contact measurement. Eighteen (out of 19 possible) subjects from Elmira and 28 (out of 31 possible) subjects from New York City were selected for this study, making a total of 46 subjects. Half of the subjects from each city were in the treatment group with video feedback, and the other half was in the treatment group without video feedback. Thus, a balance was obtained in combining the tapes of the two (similar in many ways) experiments for the present study.

The teachers whose video tapes were used had the following characteristics:

Type: In-service, being prepared to teach 10th, 11th and 12th grades.
Service Area: Trade and industrial, health and technical.
Age: Mean = 45, Range = 30-60.
Achieved Level of Education: 12-16 years.
College Level Educational Courses Taken: 21.8 semester hours (average) most had one three-hour credit course in psychology.
Teaching Experience: Mean = 2.5 years, Range = 5 months to 10 years.
Industrial Work Experience: Mean = 21 years, Range = 8 to 40 years.

At the time of the experiment, all teachers were enrolled in a "demonstration teaching" course which was required of them for in-service teacher certification.

High school (11th and 12th grades) students were employed for microteaching sessions in Elmira. In New York City the peer group also served as students.
The teacher educators who participated in the study were experienced vocational-technical teacher educators who had taught the "demonstration teaching" course many times previously.

**Experimental Design**

The nature of investigation necessitates the use of "the Pretest-Posttest Control Group Design," usually called Design 4 (Campbell and Stanley, 1967). This design controls for all sources of internal invalidity, thus increasing the validity of the measurements to be made. Since the pre- and post-video recordings of each teacher in the previous experiments were used for this study, the design was already carried out in practice.

The pretest--posttest control group design has the following general form:

\[
\begin{align*}
G_1 & \quad R & \quad O_1 & \quad X & \quad O_2 \\
G_0 & \quad R & \quad O_3 & \quad O_4
\end{align*}
\]

G stands for group, R stands for randomization, O stands for observation and X stands for experimental treatment.

Each of the groups consisted of twenty-three subjects.

**Treatments**

The reader is to be reminded that the descriptions given refer to the original study whose videotapes were utilized in the present study. All the teachers taught a five-minute lesson on "demonstrating a manipulative skill" of their own choice on the pretests and posttests. Following the pretest, all teachers were given a videotaped model presentation illustrating the teaching behaviors on teaching a complete lesson which was developed at The Center (Doty and Cotrell, 1970, Phase 7).
Beginning from the second microteaching lesson, each subject received immediate feedback on his performance, which provided a total of eight feedback sessions for Elmira subjects and a total of five feedback sessions for New York City subjects during the four months of research. In addition to peer and teacher educators' feedback which were received by all subjects following the sessions, the experimental group subjects had video feedback available to them, thus making the only differentiation between experimental and control group treatments.

The instrument on "teaching a complete lesson" was used both to practice the teaching skills and to evaluate all teachers' teaching sessions, including pretests and posttests. The instrument was made up of sixteen individual items representing teaching skills of "introduction," "presentation," and "summary," which included "application" and "testing." (See Appendix F for the sample of the instrument used.) There were no major educational efforts to change eye-contact mannerisms of the teacher, although one item in the instrument indirectly dealt with eye-contact. This one item merely instructed the teachers not to ignore the students by looking at the teaching materials all the time. Besides this, the behavior (eye-contact) had no objective criteria. The decision on how much eye-contact was necessary was left to the opinions of the teacher educators and the teachers. Furthermore, the teacher educators were instructed to emphasize only one or two items from the instrument in any given supervisory session which lessened the chances for concentrating on any certain item on the instrument.
Measurement

There are a number of serious obstacles facing the research worker in the area of mannerism such as the problems of 1) definition, 2) instrumentation, and 3) criterion. In the absence of clear-cut theoretical guidelines, it was necessary to utilize some strategic methods by continually experimenting and making use of previous findings for possible generalizations.

With these limitations, a strategy was developed to determine the procedure and criteria to be used in measuring the eye-contact mannerisms of teachers. Because of the difficulties involved in observations, an adequate account of what was observed was only possible if the observations were recorded immediately. There was so much to see, and one event was much like others that to rely upon memory to provide an accurate after-the-fact account of the behavior was considered fatal (Thorndike and Hagen, 1967). With the distinct advantage provided by video tape, each teacher's performance was observed for a total of three minutes; one minute in the introduction, one minute in the presentation (demonstration), and one minute in summarization of the lesson. The measurement was made by the use of stop-watches (which were borrowed from the Athletic Department of The Ohio State University). The criterion measure was in terms of percentage of eye-contact time for each minute of observation. The technique for measurement was validated by the involvement of six Center specialists and one faculty member who is known as an expert in nonverbal communication.

In order to arrive at percentage of eye-contact measure, four stop-watches were used—one by each of the two panel members and two
by the timekeeper. The timekeeper had to use two stop-watches, one for eye-contact observation and one for video recorder counter time measurement. Eye-contact observation time was not the same as tape running time (see the definitions); therefore, the timekeeper had to stop the watch whenever observation time criteria were not met. So in all cases the pre-determined one-minute observation time was obtained for each measurement. Some exceptions to the one-minute observation time occurred when: a) the machine running time exceeded one and a half minutes before providing one-minute observation time, and b) the summary part of the lesson ended before providing one-minute observation time. Since the video recorder's counter was attached to one of the tape disks, the number of turns for one minute of time was different at each point of the tape. However, for each micro session it was assumed that the number of turns for the first minute of recorder running time would be the same in other (middle and end) parts of the same lesson. This required the timekeeper to keep another watch running during the whole observation, so that his information enabled the video recorder technician to figure out where to start the other measurements. (See the Appendixes A, B and C for specific instructions for panel members, timekeeper and technician.)

Two panel members were selected for the actual evaluation of the videotapes. Both were doctoral students, one in agricultural education and the other one in communication. Both had teaching and supervisory experiences.

After a brief two-hour training period, the reliability of panel members' ratings was .98. This was considered as a satisfactory
precision of measurement. In this training period the panel members were shown samples of videotapes illustrating various quality of the tapes and angles from which the pictures were recorded. The panel practiced the measurement by the use of stop-watches. After ten cases, the panel members felt that they were ready for actual measurement. At this point they made another twelve measurements on twelve different individuals' eye-contact which were used to calculate the reliability of ratings through variance analysis (Winer, 1962).

As Flanders (1967) mentioned in "The Problems of Observer Training and Reliability," once training of the review panel has produced an acceptable level of reliability of judgments, it can still deteriorate due to the variety of situations that might arise and require consistent re-examining of the criteria for evaluation. Thus, during the actual observation of the tapes, there were periodic checks on the measurements made by the panel members. Also, refreshing sessions were provided for discussing the criteria for the measurement.

For panel evaluation, pretest and posttest tapes were introduced from control and experimental groups in a random way so that the panel did not know which tapes they were viewing. Also, they did not view pre- and post-tapes of the same individual in a given viewing session.

All video tapes evaluated for this study were one-inch tapes which were replayed on Ampex video recorders.

**Statistical Design**

The use of the pretest--posttest control group research design made it possible to analyze the data using an analysis of covariance.
method on posttest scores (pretest scores as covariate) for testing major research hypotheses.

It is known that random assignment of subjects to treatment groups (as different from the random sampling of the subjects for a study which aims at contributing to external validity of a study) is aimed at assuring equality of groups before the treatment is applied, thus contributing to the internal validity of the experiment. However, it is also known that the assurance of equality is greater for large numbers of random assignments than for small (Campbell and Stanley, 1967). Therefore, in this relatively small sample (N = 46) studied here, in addition to random assignments, it seemed logical that each individual’s final score be corrected by taking into account possible differences in their initial scores. So it is hoped that the results more accurately reflect the differences that were due to tested feedback techniques.

McNemar (1962, p. 372) stated that:

The extent to which the adjusted variances lead to a level of significance different from that based on an analysis of the unadjusted values will obviously depend on three things: the degree of correlation between the dependent and uncontrolled variable, the size of the differences between the groups on the uncontrolled variable, and the found differences on the dependent variable. The applicability of the covariance technique does not depend on a minimum degree of correlation or on a definite amount of group differences on the uncontrolled variable. But, if the within groups correlation is low and/or there is only a small, chance difference between the groups on the uncontrolled variable, the use of the covariance adjustment may not be worth the effort. Obviously, if a variable correlates near zero with the dependent variable, it need not be controlled experimentally or statistically.
Although the paired t test was not used for testing the main research hypothesis, this statistical technique was used in testing for significant changes from pre-performance to post performance within each group on parts and whole of the microteachings studied.

In each case, the research hypothesis \( (H_1) \), which predicts the outcome of the experiment on theoretical grounds, was tested against the alternative statistical (null) hypothesis \( (H_0) \) which claims "no differences."

The .05 level of probability was used as the significance level for testing the statistical hypotheses. However, up to a .10 level, the closest level of probability was given in rejecting the null hypotheses.

With the theoretical argument in favor of potential advantages of video feedback over no video feedback, and the type of precision that was employed in this study, the author decided to use one-tailed statistical tests in all statistical analyses in which directions were predicted, the danger of having negative outcome was considered of no value. (McNemar, 1962; Page and Marotle, 1966)

For estimating the reliability of measurements, Winer's (1962) use of Analysis of Variance method was used. The resulting correlation figure expresses the estimated correlation between the mean percentage ratings obtained from two sets of data on the same people if the rating experiment were to be repeated with the same experimental subjects but with another random sample of two panel members.

All of the statistical analyses, except preliminary reliability checks on panel's ratings, were done by the use of IBM 360 Model-75
computer at Ohio State University's Computer Center. Main computer programs used were BMD01V, BMD02V, BMD03V, BMD04V (Dixon, 1967), and QAWS (Galhor, 1969).
CHAPTER III
RESULTS AND DISCUSSION

Introduction

Major findings of the study and their discussions are given in this section. Included in the presentations are: reliability of measurements; pretest comparisons and posttest comparisons (after adjusting for pretest differences) of the teachers' eye-contact mannerisms in the two treatment groups, and finally, the pretest-to-posttest gain score analyses within each treatment group.

Discussion of the findings is reported in light of the previously structured theoretical base, and possible reasons as to why the findings came out in the way that they did were explored.

Reliability of Measurements

Reliability tests of measurements made by the two panel members on three parts (introduction, presentation and summary) of lessons were done with pre- and posttest data. The resultant Pearson Product Moment correlation coefficients ranged from .95 to .99. (See Appendix E.)

Pretest Comparisons

Pretest scores for the two treatment groups were compared to see if the differences between them were at an acceptable level for making adjustment on posttest means through covariance analysis (Winer, 1962).
Analyses of variance (ANOVA) tests revealed that there were no significant differences between the performances of the teachers in two treatment groups before they received any treatment (feedback). See Tables 1 and 2.

**TABLE 1**

**ANALYSES OF VARIANCE ON PRETEST EYE-CONTACT SCORES**

<table>
<thead>
<tr>
<th>Behavior Observed</th>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Between Groups</td>
<td>0.0352</td>
<td>1</td>
<td>0.0352</td>
<td>0.7637</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>2.0265</td>
<td>44</td>
<td>0.0461</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>Between Groups</td>
<td>0.0032</td>
<td>1</td>
<td>0.0032</td>
<td>0.0606</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>2.3401</td>
<td>44</td>
<td>0.0532</td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td>Between Groups</td>
<td>0.0009</td>
<td>1</td>
<td>0.0009</td>
<td>0.0209</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>1.7905</td>
<td>44</td>
<td>0.0407</td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td>Between Groups</td>
<td>0.0083</td>
<td>1</td>
<td>0.0083</td>
<td>0.3728</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>0.9832</td>
<td>44</td>
<td>0.0223</td>
<td></td>
</tr>
</tbody>
</table>
## TABLE 2

**PRETEST EYE-CONTACT SCORES AND STANDARD DEVIATIONS**

<table>
<thead>
<tr>
<th>Behavior Observed</th>
<th>Group</th>
<th>Sample Size</th>
<th>Eye-Contact Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Control</td>
<td>23</td>
<td>0.4172</td>
<td>0.1965</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>23</td>
<td>0.4725</td>
<td>0.2313</td>
</tr>
<tr>
<td>Presentation</td>
<td>Control</td>
<td>23</td>
<td>0.3582</td>
<td>0.2214</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>23</td>
<td>0.3750</td>
<td>0.2394</td>
</tr>
<tr>
<td>Summary</td>
<td>Control</td>
<td>23</td>
<td>0.6206</td>
<td>0.2068</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>23</td>
<td>0.6292</td>
<td>0.1965</td>
</tr>
<tr>
<td>Complete Lesson</td>
<td>Control</td>
<td>23</td>
<td>0.4653</td>
<td>0.1245</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>23</td>
<td>0.4922</td>
<td>0.1708</td>
</tr>
</tbody>
</table>

Control------No video feedback group  
Experimental---Video feedback group
Impact of Video Feedback on Teachers' Eye-Contact Mannerisms

Posttest comparisons.- In the investigation of the impact of video feedback on teachers' eye-contact mannerisms, the general research hypothesis was that the teachers who received video feedback of their teaching would significantly increase their eye-contact within subsequent lessons as compared with those who received no video feedback in introducing, presenting, summarizing and in teaching a complete lesson (the composite of the three parts of a lesson).

This major research hypothesis was first tested by covariance analysis (BMD03V) on 2 x 3 design. The first variable was treatment effect with two levels of control and experimental groups, and the second variable was parts of a lesson with three levels of repeated measurements. See Table 3 and Figure 1.

TABLE 3
ANALYSIS OF COVARIANCE ON POSTTEST (PRETEST USED AS COVARIATE) EYE-CONTACT SCORES IN A 2 X 3 (TREATMENT X PARTS OF LESSON) DESIGN WITH REPEATED MEASUREMENTS ON THE SECOND VARIABLE

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatments</td>
<td>0.01121</td>
<td>1</td>
<td>0.01121</td>
<td>0.016</td>
</tr>
<tr>
<td>Within</td>
<td>3.03577</td>
<td>44</td>
<td>0.06899</td>
<td></td>
</tr>
<tr>
<td>Parts of lesson</td>
<td>1.04635</td>
<td>2</td>
<td>0.52318</td>
<td>14.41</td>
</tr>
<tr>
<td>Treatment x parts of lesson</td>
<td>0.02514</td>
<td>2</td>
<td>0.01257</td>
<td>0.346</td>
</tr>
<tr>
<td>Within</td>
<td>3.16094</td>
<td>87</td>
<td>0.03630</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $\alpha = .01$ level.
The data revealed no overall significant differences between the two treatment groups' eye-contact mannerisms. Thus, the research hypothesis was not supported. However, there were significant differences among the three parts of a lesson in terms of teachers' having eye-contact with the students. There was no significant interaction effect between these two major variables, thus making the resulted F ratios as true representatives of actual variable effects.

Further analyses of these differences were made within each treatment group. The analyses revealed that the teachers who received video feedback had the highest amount of eye-contact in 1) summarizing the lesson, which was followed by 2) introduction, and 3) presentation parts of the lesson. All three parts differed from each other significantly at \( \alpha = .05 \) level. The teachers who received no video feedback also had the highest amount of eye-contact in summarizing the lesson which again was followed by the introduction and presentation parts of the lesson. But, in this case, only the summary part differed from the other two parts significantly at \( \alpha = .05 \) level.
Eye-Contact Scores (in ratio)

--- Experimental (Video feedback)
--- Control (No video feedback)

Introduction Summary
Presentation Parts of the Lesson

Fig. 1.--Adjusted eye-contact scores in parts of the lesson
While the overall results were obtained in the above analyses, an analysis of covariance (BMD04V) was run for testing eye-contact mannerism differences between the two treatment groups on each of the three parts of the lesson and the complete lesson (combination of the three). The analyses gave: F ratios (Table 4), means, adjusted means, standard error of adjusted means (Table 5), and within coefficients (Table 6), which are measures of effectiveness of covariates.

The analyses, confirming the findings from the overall test, revealed that there was no significant difference in the amount of eye-contact that teachers had in the two treatment groups (video feedback and no video feedback) in the "introduction" (F1, 43:0.051) and the "presentation" (F1, 43:0.289) parts, and the "complete lesson" (F1, 43:1.256) at the five percent level. However, there was a significant difference in the "summary" part of the micro lessons (F1, 43:3.852) at .10 level, which was in favor of the control group in which there was no video feedback.

As can be seen from the low within coefficient figures (Table 6), the covariance adjustments for pre-eye-contact scores did not contribute to the analyses to any significant degree. This extra effort was made only to increase the precision of the analyses.
### TABLE 4
ANALYSES OF COVARIANCE ON POSTTEST
(USING PRETEST AS COVARIATE) EYE-CONTACT SCORES

<table>
<thead>
<tr>
<th>Behavior Observed</th>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Between Treatments</td>
<td>0.0020</td>
<td>1</td>
<td>0.0020</td>
<td>0.051</td>
</tr>
<tr>
<td>Introduction</td>
<td>Within Treatments</td>
<td>1.6599</td>
<td>43</td>
<td>0.0386</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Treatments</td>
<td>0.0170</td>
<td>1</td>
<td>0.0170</td>
<td>0.289</td>
</tr>
<tr>
<td>Presentation</td>
<td>Within Treatments</td>
<td>2.5322</td>
<td>43</td>
<td>0.0589</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Treatments</td>
<td>0.1330</td>
<td>1</td>
<td>0.1330</td>
<td>3.852a</td>
</tr>
<tr>
<td>Summary</td>
<td>Within Treatments</td>
<td>1.4842</td>
<td>43</td>
<td>0.0345</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Treatments</td>
<td>0.0503</td>
<td>1</td>
<td>0.0303</td>
<td>1.256</td>
</tr>
<tr>
<td>Complete Lesson</td>
<td>Within Treatments</td>
<td>1.0384</td>
<td>43</td>
<td>0.0241</td>
<td></td>
</tr>
</tbody>
</table>

*aSignificant at α = .10 level.

### TABLE 5
TABLE OF ADJUSTED POSTTEST MEANS AND STANDARD ERRORS FOR EYE-CONTACT SCORES

<table>
<thead>
<tr>
<th>Behavior Observed</th>
<th>Group</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Standard Error of Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>0.5220</td>
<td>0.5167</td>
<td>0.0411</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>0.5245</td>
<td>0.5299</td>
<td>0.0411</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>0.4151</td>
<td>0.4158</td>
<td>0.0506</td>
</tr>
<tr>
<td>Presentation</td>
<td>Experimental</td>
<td>0.3779</td>
<td>0.3772</td>
<td>0.0506</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>0.7124</td>
<td>0.7133</td>
<td>0.0387</td>
</tr>
<tr>
<td>Summary</td>
<td>Experimental</td>
<td>0.6066</td>
<td>0.6057</td>
<td>0.0387</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>0.5500</td>
<td>0.5523</td>
<td>0.0325</td>
</tr>
<tr>
<td>Complete Lesson</td>
<td>Experimental</td>
<td>0.5030</td>
<td>0.5007</td>
<td>0.0325</td>
</tr>
</tbody>
</table>

Control---------No video feedback
Experimental---Video feedback
TABLE 6

TABLE OF WITHIN COEFFICIENTS IN COVARIANCE ANALYSES
* FOR EYE-CONTACT SCORES

<table>
<thead>
<tr>
<th>Behavior Observed</th>
<th>Correlation Coefficient</th>
<th>Standard Error</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>-0.1932</td>
<td>0.1380</td>
<td>-1.3997</td>
</tr>
<tr>
<td>Presentation</td>
<td>0.0803</td>
<td>0.1586</td>
<td>0.5063</td>
</tr>
<tr>
<td>Summary</td>
<td>0.2059</td>
<td>0.1388</td>
<td>1.4830</td>
</tr>
<tr>
<td>Complete Lesson</td>
<td>0.1717</td>
<td>0.1567</td>
<td>1.0957</td>
</tr>
</tbody>
</table>

Pretest to posttest gain within each treatment group. - Gain scores, in terms of pre- to posttest performances of individual teachers in each group were analyzed to see if the teachers in each treatment group made improvement in their eye-contact mannerisms from pre- to posttest performances.

Paired t-test analyses revealed that the teachers who received no video feedback improved their eye-contact with the students significantly in introducing, summarizing, and teaching a complete lesson at probability levels of .10, .05 and .01, respectively. See Table 7 and Figure 2.

The teachers who received video feedback, however, did not make any significant increase in the amount of eye-contact they had with the students. And, in one case (summarizing a lesson), there was even a slight decrease in eye-contact scores from pre- to post performance. See Table 7 and Figure 2.
# Table 7

**Paired t-tests on pretest to posttest eye-contact gain scores**

<table>
<thead>
<tr>
<th>Group</th>
<th>Behavior Observed</th>
<th>Source</th>
<th>Number of Subjects</th>
<th>Mean Score</th>
<th>Standard Deviation</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(No video feedback)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>Pretest</td>
<td>23</td>
<td>0.4172</td>
<td>0.1922</td>
<td>1.6916a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.5220</td>
<td>0.1854</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation</td>
<td>Pretest</td>
<td>23</td>
<td>0.3582</td>
<td>0.2166</td>
<td>0.9087</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.4151</td>
<td>0.2468</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>Pretest</td>
<td>23</td>
<td>0.6206</td>
<td>0.2022</td>
<td>1.7672b</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.7124</td>
<td>0.1578</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete Lesson</td>
<td>Pretest</td>
<td>23</td>
<td>0.4553</td>
<td>0.1218</td>
<td>2.5085c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.5500</td>
<td>0.1497</td>
<td></td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Video feedback)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>Pretest</td>
<td>23</td>
<td>0.4725</td>
<td>0.2262</td>
<td>0.7260</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.5245</td>
<td>0.2027</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation</td>
<td>Pretest</td>
<td>23</td>
<td>0.3750</td>
<td>0.2342</td>
<td>0.0418</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.3779</td>
<td>0.2232</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>Pretest</td>
<td>23</td>
<td>0.6292</td>
<td>0.1922</td>
<td>-0.4552</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.6066</td>
<td>0.2072</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete Lesson</td>
<td>Pretest</td>
<td>23</td>
<td>0.4922</td>
<td>0.1671</td>
<td>0.2285</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>23</td>
<td>0.5030</td>
<td>0.1549</td>
<td></td>
</tr>
</tbody>
</table>

*a* Significant at $\alpha = .10$ level.

*Significant at $\alpha = .05$ level.

**Significant at $\alpha = .01$ level.
Eye-Contact Scores (in ratio)

--- Experimental (Video feedback)
--- Control (No video feedback)

Fig. 2.—Pretest and posttest eye-contact scores
Discussion of the Findings

The hypothesis was not substantiated by the experiment. There were no significant differences (at .05 level of probability) between the teachers who received video feedback and those who received no video feedback, in their eye-contact mannerisms in introducing, presenting, summarizing, and teaching a complete lesson. The only significant difference (at $\alpha = .10$ level) between the two groups' eye-contact mannerisms was in summarizing a lesson where the control group had more eye-contact with the students than the experimental group. See Table 4. Although not a part of the hypothesis, it was found by paired t-test analyses that the control group (without video feedback) made some significant improvement from pre- to post performance but the experimental group (with video feedback) did not show significant improvement.

At face value, the findings of the study classified this research in the "no significant differences" category which is very familiar to most educational researchers. However, these "no significant differences" are significant findings as they may shed light on interpretation of the previous experiments. It was a common reaction of many researchers, who previously found "no significant differences" in their studies, that video feedback may have a substantial impact on the teachers' behaviors, but either the behaviors analyzed do not include those things that are affected most or the instruments used were not capable of measuring the behavior changes. Therefore, the "no significant difference" findings of this study may be interpreted as a
piece of unconfirming evidence of the widespread belief that "video feedback does affect the teachers' behavior although one is not able to measure it."

With the design and precision employed in this study there seems to be no reason to believe that the results are not reflecting the reality. This study dealt with a very specific behavior, eye-contact, and was designed to determine if the video feedback really had any significant impact on it. The criteria for the measurement and the measurement procedures were very definite and sensitive. Thus, most of the complaints about insensitivity of the measurements were eliminated.

One serious speculation for having "no significant differences" findings may be found in the basic conditions under which the hypotheses were tested. Because of the lack of 1) definite behavioral objectives, 2) objective standards of goal achievements relative to eye-contact mannerisms, and the 3) structured educational experiences (since the teacher educators were not instructed to do so) for the teachers to change their eye-contact mannerisms, the teachers should not have been expected to increase their eye-contact with the students as a result of video feedback. As Lewin (1958, p. 101) said:

\[\text{...In a field that lacks objective standards of achievement, no learning can take place. If we cannot judge whether an action has led forward or backward, if we have no criteria for evaluating the relation between effort and achievement, there is nothing to prevent us from coming to the wrong conclusions and encouraging the wrong work habits.} \]

For structuring educational experience, Lewin's (1947) "Three-stage Model of Learning," which is comparable to the four-step method (see
Appendix F, p. 2) that is generally used in teaching, may be helpful to consider as it may make easier the conceptualization of what is involved in changing one's behavior. Lewin said that there should be three stages of activities for change in behavior to take place in a laboratory training:

1. Unfreezing
2. Moving
3. Refreezing

To affect individuals through training, his normal habits have first to be questioned and disturbed—unfrozen—by focusing attention on needs that individuals cannot satisfy by habitual behavior.

He says, "the state of unfreezing is for training, what ploughing is for agriculture." Into this disturbed stage the trainer should introduce other events which allow participants to try new ways of behaving which is moving. He calls this as the "seeding and planting stage." If the participants then find the new behavior more useful to meet the "new" needs, they should be helped to make it habitual in turn, thus refreezing this until newer insights are gained.

If one accepts Lewin's argument, as this writer does, then there seems to be three important criteria by which an experimenter in teacher education is to be concerned in order to contribute for learning (change in behavior) to take place in an efficient way:

1. There must be specific objectives to be attained and corresponding objective criteria to evaluate the process and product for attaining the objectives.
2. Necessary learning experiences must be carefully structured and the individual learner must go through the three stages of learning: unfreezing, moving and refreezing.

3. A trainer, who is skilled in unfreezing, moving and refreezing one's behavior is necessary to carry the learner through these three stages of learning.

Since eye-contact was not a factor as such in the instrument and the teacher educators were not instructed to try to improve the teachers' eye-contact per se, it may be safe to assume that these principles were not followed for changing teachers' eye-contact mannerisms in the actual implementation of the research study from which the video recordings were obtained for the present study. However, this was the condition under which the objectives and hypotheses were designed. Even if one thinks that the teacher educators may have provided voluntary help (mainly because of that one item which was indirectly related) in changing teachers' eye-contact mannerisms, one may not expect the teacher educators to emphasize it in each of the five or eight (five minutes each) supervisory sessions. First of all, there were sixteen different items on the instrument that the teacher educators had to consider, and secondly they were instructed to pick one or two items from a lesson to emphasize at each supervisory session. Therefore, it is very unlikely that the learner went through the three stages that were said to be necessary for changing his eye-contact behavior.

This would then suggest that no matter how great the potential of the video feedback technique for changing behaviors, it would make no
difference if there is no structured plan to utilize this potential. Without a systematic effort, an individual may not go beyond the cosmetic level of awareness when watching a video recording of himself. While this may help to "unfreeze" the behavior, if the individual is not carried through "moving" and "refreezing" stages, he might be confused more than he was before, thus opening the possibility of a lowered performance quality. The slight decrease of the experimental subjects' eye-contact scores from pretest to posttest in the summary part of micro lessons may be a reflection of this phenomenon.
CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study investigated the impact of video feedback on teachers' eye-contact mannerisms in microteaching when there were no major educational efforts to change eye-contact mannerisms in an in-service vocational teacher education program. The specific objectives of the study were to measure the impact of the video feedback on teachers' eye-contact mannerisms in the a) introduction, b) presentation (demonstration of a manipulative skill), c) summary parts and in a d) complete lesson (the composite of these three parts). The basic research hypothesis tested was that teachers who view the video recordings of their teaching would significantly increase their eye-contact with the students as compared with those who do not view the video recordings.

The study utilized the data bank of video recordings generated by previous studies at The Center for Vocational and Technical Education at The Ohio State University, Columbus, Ohio.

The tapes in this study were assigned through a stratified random selection from two of the previous experiments done in Project 44, "Assessment of Microteaching and Video Recording in Vocational and Technical Teacher Education," at The Center to form two treatment groups with the only difference between the two being presence or absence of video feedback. This increased the total number of subjects to N of 46.
All subjects in the experiment originally taught a total of seven or ten micro sessions and received five or eight feedbacks of their teachings, respectively. In addition to the teacher educator feedback that was received by every teacher, the experimental subjects received video feedback of their teachings. In all cases, the supervisory (feedback) sessions lasted for five minutes.

Pretest and posttest eye-contact measurements were made from the tapes by two trained panel members. Precision measurement, in terms of cumulative eye-contact time, was obtained by having the panel members use stop-watches. The reliability coefficient of the ratings was between .95 and .99. The mean of the two panel members' measurement in terms of percentage of eye-contact scores was used as the criterion measure.

Through covariance analyses, the groups were compared on each part of the lesson and the combination of the three parts. There were no significant differences (at $\alpha = .05$) between the teachers who received video feedback and those who received no video feedback in their eye-contact mannerisms in introduction, presentation and summary parts, and the combination of these three parts of a micro lesson. At $\alpha = .10$ level the control group seemed to have significantly more eye-contact in summarizing the lesson as compared with the experimental group. While the control group made significant improvements from pretest to posttest, the experimental group did not make any significant improvement; in fact, in one case there was a slight decrease from pretest to posttest scores.

Findings were discussed within the framework of the theoretical propositions developed for the study.
Conclusions

After studying the "no significant differences" findings of this study in the light of theoretical base developed and the review of the pertinent literature, the following conclusions may be made:

1. Video feedback may not have any significant effect on eye-contact mannerisms of the teachers when there is no concentrated major effort with specific objectives on changing eye-contact mannerisms.

2. Findings of "no significant differences" should not be interpreted as refuting the basic notion that video feedback can be very effective in changing teachers' behaviors—in this case eye-contact mannerisms. However, it does give additional evidence to suspect that the acclaimed potential advantage of video feedback would have no value without some definitely structured use of it. Thus, the finding did not confirm the commonly held notion that "video feedback does affect the teachers' mannerisms—including eye-contact mannerisms—even though no major educational effort is made to change them."

Recommendations

The following recommendations were made for future study and reflection:

1. The original thrust of the "microteaching" idea, in which the scope of the lesson is narrowed by concentrating.
on specific tasks to be accomplished, must be reinforced in the minds of many researchers in teacher education.

2. As a theoretical model, Kurt Lewin's "Three Stage (unfreezing, moving and refreezing) Model of Learning—As Change Model for Laboratory Training" should be incorporated in the applications of microteaching and video recording techniques.

3. Video recordings, if any future use is expected of them, should be made to provide the potential for examining the teaching-learning process, by recording the teacher and learner simultaneously.

4. It is still an unresolved issue in the minds of many concerned teacher educators as to what is (or may) really being changed in teachers' behavior as a result of video feedback. The previous experimenters reported some broad behavioral dimensions in which they and the participant teachers thought video feedback had the most observable effect. However, true these findings might be, they do not lend themselves into specific researchable forms. Keeping in mind that even little mannerisms sometimes may bother the performer, while it may not be noticed by an outside observer, the following strategy may be recommended as a possible way of arriving at more specific guidelines to study the impact of video feedback on teachers' mannerisms. A microteaching experiment with
video recordings should be conducted. Each individual in the experiment is given video feedback of his performance after each micro session. After a number of teaching sessions (this may be four or five and there may even be two or more groups with variations in the number of feedback opportunities, thus studying the effect of number of feedback), the teachers should be shown their first and last tapes on two different video recorders = TV units—then each teacher should be asked privately to pinpoint on the tapes what kinds of mannerisms they were concerned with and what they did (if anything) about them. From these conferences (which may be recorded even on a tape recorder) a detailed list of mannerisms classifications is expected to come, which in turn may be used in making specific criteria for the measurement of each mannerism classified by the majority of the teachers.

5. Using the strategy and the precision model used in this study, further research should be done to test the impact of video feedback on other mannerisms through a process of elimination.

6. It is no secret to any social scientist that to change one's behavior (especially a habitual one) in a short period of time is extremely difficult. Thus, it may be possible that while the impact of video feedback may not be observable immediately, it may have an everlasting influence on the teacher's perception of himself and his
behaviors which may result in better student achievement. Therefore, it may be recommended that a long-term (follow-up) video feedback "impact" evaluation be done.

7. Testing the effectiveness of video feedback should not only be related to changing teachers' behaviors but also related to student achievement as a result of changes in teacher behavior.

8. Eye-contact should be considered as a part of teaching skills to be improved in vocational teacher education.
APPENDIX A

INSTRUCTIONS TO PANEL MEMBERS FOR EYE-CONTACT MEASUREMENT

Teacher's eye-contact with the students is to be measured in terms of the cumulative time he spends with the students while having eye-contact with them.

Eye-contact is defined as teacher's visual attention to student(s). This may be direct eye-to-eye contact or directly looking at the student's hands when they are manipulating something in their hands.

On each tape there are three measurements to be made. One from the beginning of the tape, one from the middle of the tape, and one from the end of the tape. Each will be one minute of observation time.

Specifics to be Followed

1. IN ALL CASES FOLLOW THE INSTRUCTIONS FROM THE TIMEKEEPER.
2. Be ready for starting the measurement by setting the stopwatch to zero, and be alert to the instruction of the timekeeper who will signal starting time by saying "START."
3. Keep the watch running only when the teacher is having eye-contact with the students. The watch is the kind that will provide cumulative eye-contact time for the whole observation time (of one minute).
4. Be ready for stopping the measurement during or at the end of the one-minute observation time. The timekeeper will signal stopping time by saying "CHECK."

5. At the end of the observation time, record the measurement on the "record keeping" sheet. Also on the same sheet record "observation time" as given by the "timekeeper," the teacher's name and the tape number as given by the technician.

6. Be ready for the next measurement by setting the watch to zero again and repeat steps 2-5.
INSTRUCTIONS TO TIMEKEEPER FOR EYE-CONTACT OBSERVATIONS

Teacher's eye-contact with the students is to be measured in terms of the cumulative time he spends with the students while having eye-contact with them.

Eye-contact is defined as teacher's visual attention to student(s). This may be direct eye-to-eye contact or directly looking at the student's hands when they are manipulating something in their hands.

On each tape there are three measurements to be made. One from the beginning of the tape, one from the middle of the tape, and one from the end of the tape. Each will be one minute of observation time.

Specifics to be Followed

1. Start the observation three seconds after you see the picture on the TV, BUT
   If the teacher did not start teaching yet, allow time until he starts off.
   If the picture is still distorted (case of not being able to see the movements clearly) allow time for better picture to come.

2. Give the starting signal to the panel by saying "start."
3. Stop the recording of observation time only when the teacher's head is not seen, and start it right after you see his head again.

4. Continue the recording of observation time for "one minute."*

5. Give the signal for the stopping of measurement by saying "check," to the panel members.

6. Give the recorded observation time to the panel members to record on data sheet.

7. Repeat the same procedures for other observations.

*For some reason, if the observation time exceeds or falls short of the pre-established "one minute" time by a small amount (five to ten seconds) when reporting the measurement be sure to report it as it is, do not repeat the measurement.
APPENDIX C

INSTRUCTIONS TO TECHNICIAN FOR OPERATION OF VIDEO RECORDER FOR EYE-CONTACT OBSERVATIONS

Teacher's eye-contact with the students is to be measured in terms of the cumulative time he spends with the students while having eye-contact with them.

Eye-contact is defined as teacher's visual attention to student(s). This may be direct eye-to-eye contact or directly looking at the student's hands when they are manipulating something in their hands.

On each tape there are three measurements to be made. One from the beginning of the tape, one from the middle of the tape, and one from the end of the tape. Each will be one minute of observation time.

Specifics to be Followed

In taking three one-minute segments of each lesson on the tape, do the following:

1. Write down the number on counter when the lesson starts off.
2. At the end of one minute (during which panel will be viewing the tape), take the number on the counter again.
3. Subtract the (1) from (2) (2-1). This is to be used as a relative measurement of number of turns in one minute of tape viewing.
4. Run the VR fast forward to the end of the lesson and take the number on the counter as the lesson comes to the end.

5. Subtract (1) from (4) (4-1).

6. Divide this number by 2.

7. Divide (3) by 2.

8. Subtract (7) from (6).

9. Add (1) to (8) and start the second minute of observation from there.

10. Subtract (3) from (4) (4-3), and start the third minute of observation from there.
### APPENDIX D

**RECORD KEEPING SHEET FOR EYE-CONTACT MEASUREMENTS**

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Teacher's Name</th>
<th>Tape Number</th>
<th>Panel Member</th>
<th>Observation Time</th>
<th>Eye-Contact</th>
<th>Percent</th>
<th>Observation Time</th>
<th>Eye-Contact</th>
<th>Percent</th>
<th>Observation Time</th>
<th>Eye-Contact</th>
<th>Percent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
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<td>P1 &amp; P2</td>
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</tbody>
</table>
APPENDIX E

TABLE 8
RELIABILITY OF MEASUREMENTS

<table>
<thead>
<tr>
<th>Parts of the lessons</th>
<th>Pretest</th>
<th>Posttest</th>
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<tbody>
<tr>
<td>Introduction</td>
<td>.95</td>
<td>.98</td>
</tr>
<tr>
<td>Presentation</td>
<td>.99</td>
<td>.99</td>
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<tr>
<td>Summary</td>
<td>.98</td>
<td>.98</td>
</tr>
</tbody>
</table>
APPENDIX F

CRITIQUE FORM

Teaching A Complete Lesson (Skill #4)

Developed by the Staff of Project 44,
Assessment of Microteaching and Video Recording
Vocational and Technical Teacher Education

The Center For
Vocational and Technical Education
The Ohio State University
Columbus, Ohio

and

Adapted for use by the City University of New York
Manhattan, N.Y.,
and
University of State of New York, Oswego, N.Y.

The writer's note: This critique form was used in the original study from which the video recordings were obtained for eye-contact examination, but it was not used in the dissertation study.
To the Student

A complete lesson consists of four steps: 1) Introduction (Preparation), 2) Presentation, 3) Application, and 4) Testing (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 testing 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 testing stage may be brief. It should be understood that further application and testing 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 appealed to me and helped 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 toward 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:**

(Preparation)

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 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 or skill 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 Testing: (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 ________________________________ Lesson (1, 2, etc.) __________
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