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ABSTRACT

This project investigated three methods of providing supervisory feedback to junior-year student teachers about specific verbal teaching behaviors. Subjects were divided into three groups and, during their regular 9-week student teaching assignments, completed two 20-minute teaching situations which were coded with Flanders' Interaction Analysis. Behaviors were analyzed according to prescribed group treatment: Group A (N=20) received comments from a university supervisor and a coded analysis of their teaching made by a trained observer; Group B (N=20) viewed, coded, and analyzed videotaped recordings of their teaching; and Group C (N=17) analyzed their own videotapes and received supervisory comments on their analyses. Analysis of data showed no significant difference among groups in the ratio between indirect and direct teacher verbal statements. The results of this study imply that the particular type of feedback student teachers receive is relatively unimportant in changing teacher behavior. (Author/LP)

Final Report

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A STUDY TO EVALUATE SUPERVISORY FEEDBACK FOR STUDENT TEACHERS

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Chapter I

INTRODUCTION

Problem and Objectives

A major problem in preservice education of teachers is the supervision of student teachers. Specifically, it is difficult to provide supervisory feedback with continuity for particular teaching behaviors which have been emphasized in previous course work.

While specific teaching skills can be developed in simulated settings on campus, practice and refinement of these skills in actual teaching situations is necessary if the skills are to become an effective part of a teacher's repertory of behaviors in the classroom. Supervision is given to provide feedback to the student on his progress in acquiring teaching skills.

Supervisory visits to students are at best inefficient. No matter how well a supervisor schedules his time in the public schools, there are frequent visits which prove to be unproductive. Students may not be teaching at the expected time or the teaching situation may not be appropriate for the specific teaching behavior which the supervisor wishes to observe.

If the behavior is observed once, allowing for criticism and feedback to the student, it may not be observed again, as additional observations may not be feasible. Some student teacher-to-supervisor ratios are so large or students are dispersed over so great a geographic area that only one or two visits per student are possible.

To summarize, some of the problems which plague supervision of student teachers are infrequent visits, a lack of continuity in visits, and visits in which the teaching behavior under consideration may not be observed. Because of these difficulties, many teacher education institutions are seeking other methods to provide feedback to student teachers.

How do these methods compare with traditional supervisory visits regarding the development of particular teaching skills? It is the purpose of this project to investigate three possible methods to provide such feedback to student teachers. Since videotaping is being used in some teacher education programs and may be an effective tool to provide feedback on specific teaching skills, it was used in two of the

methods under investigation in this study.

Because a teacher's verbal behaviors have been considered as a major influence in pupil learning (Flanders, 1960), these teaching behaviors were the focus of this research. Specifically, students were expected to develop those verbal behaviors which lead to indirect teaching as measured by Flanders' System of Interaction Analysis.

Review of Literature

A brief review of the current body of literature dealing with the factors of prominent concern to this study follows. These factors are: the use of videotaping in teacher education, the Flanders' System of Interaction Analysis, and indirect teaching behaviors.

Videotaping as Feedback

Johnson and Tettemer (1970) state that videotape recording equipment may be used in teacher education by 1) allowing the student teacher to view a tape of himself to analyze and hopefully to improve his teaching; 2) allowing the student teacher, his cooperating teacher, and/or his college supervisor to analyze the tape and suggest ways of improving his teaching; 3) using them periodically throughout the student teaching experience to keep an accurate record of pupil progress. Charles W. Vlcek (1970) states that the "most practical use of videotape recording is for teacher self-assessment". Another report claims that students were favorable to having their micro-lessons videotaped. In this way they could evaluate themselves and this self-evaluation helped them to formulate a concept of themselves as teachers (Kohn, 1970).

Parsons and Shaftel (1967) asked in-service teachers to view videotapes of their lessons for one week. Such consistent viewing increased the quantity of probing questions asked by the teachers. Davis, Morse, and Kysilka (1969) found, in a supervision study of preservice students enrolled in a laboratory-type methods course, that significant differences in refocusing behaviors were evident when students reviewed their own audiotapes and discussed the results with their instructor as compared to the students who only listened to their tapes or received no feedback whatsoever.

Morse (1969) divided preservice secondary methods students into two groups. Group I received instruction in questioning techniques, played Questioneze, a game designed to help students formulate questions at various cognitive levels, then taught a micro-lesson focused on questioning behaviors. Group II received instruction in questioning techniques, taught a micro-lesson, listened to the lesson, evaluated it with respect to the task, retaught the lesson. Students who had feedback of their effectiveness were able to alter their questioning behavior to a more significant degree than those students who did not have the benefit of feedback.

Research by Fuller (1969) used feedback counseling with junior and senior teacher candidates. Videotapes were made of the candidates as they taught in role-playing situations and in student teaching. Over a period of time, significant changes were observed in three of fifteen Flanders' type categories.

Flanders' Interaction Analysis

Amidon and Simon (1965) have concluded that "application of teacher-pupil interaction analyses in teacher education programs appears to hold great promise for the improvement of education." Obviously, this opinion has permeated all fields of education as evidenced by the numerous studies centered around teacher-pupil interaction. In the majority of these studies the observational system was Flanders' Interaction Analysis. This system has been described as "the most sophisticated technique for observing the classroom climate..., one which preserves a certain amount of information regarding the sequence of behavior." (Medley and Mitzel, 1963)

Flanders' system is a result of efforts to quantify teacher behaviors in terms of Integrative-Dominant and Indirect-Direct and the relationships of these behaviors to student achievement. Studies conducted by Flanders and Amidon (1965) subsequently found that there exists a positive correlation between pupil gains and indirect teaching behaviors.

Sandeful (1967) has as one of his objectives "to evaluate interaction analysis as an observation tool in reviewing videotapes of teaching-learning situations." The results indicated that students familiar with Flanders' system of interaction as an observational tool were more positive toward videotapes than those who were unfamiliar with Flanders.

Simon (1966) found that student teachers trained in Flanders' system tended to be more accepting, less critical, less directive, have more student initiated talk, more extended student initiated talk, less silence and confusion than students trained in learning theory alone. Simon concluded that interaction analysis provided the students with a maximum opportunity to develop their own style of teaching as well as increase their individuality.

Additional studies by Amidon and Powell (1966), Moskowitz (1967), McLeod (1967), and Furst (1967) contribute additional supportive findings for the idea that training in Flanders' system leads to more indirect teaching behaviors.

Indirect Teaching Behaviors

Several studies (e.g., Gammatio, 1963; Amidon and Gammatio, 1965; Castelli, 1964; Bogener, 1967) conducted in elementary schools have compared teacher behavior at different grade levels and in different

curricular fields. In general, the results of these studies reveal some important features in teaching in elementary classrooms. For example, creative teachers shifted behaviors more than did less creative teachers; elementary teachers were generally more direct than indirect, the most direct teachers being in the middle grades; primary teachers commanded and criticized more than did other elementary teachers; teachers did not alter their verbal behaviors from one observation to the next and teachers identified as superior teachers by administrators or supervisors were more indirect than those who were rated as mediocre.

Soar (1965, 1968) found a positive correlation between indirect teacher influence and vocabulary and reading growth in the elementary schools. He also found that different levels of teachers' indirectness were found for optimal pupil growth in reading, vocabulary, and creativity. Reading growth was greater when teachers were direct and creativity greater when teachers were more indirect. Consequently, talk of directness and indirectness needs to be tempered with thought to the objectives being studied.

This review of literature indicates that videotape recording, feedback, and indirect teaching behaviors all have some positive effect on the teaching act. It is the intent of this study to use a combination of these ingredients in attempting to find a solution to the supervision problem for student teachers.

Hypothesis

The hypothesis is:

> There will be no significant differences in the I/D ratio* of students in
>
> (A) traditional supervisory self-analysis group
>
> (B) videotaped self-analysis group
>
> (C) videotaped supervisor analysis group

Significance of the Study

Research results indicating the effectiveness of these supervisory methods would provide helpful information for teacher education institutions. Input of this information would help provide a basis for decision making in such areas as expenditure of funds for videotaping equipment, hiring of videotaping technicians, and scheduling workloads for supervisory personnel.

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*Ratio between indirect and direct teacher verbal statements.

Some Limitations of the Study

This study is not without some limitations. Therefore, interpretation of the obtained results properly must be restricted by an understanding of these limitations.

(1) Treatments were not randomly assigned to respective groups. The assignment of treatments was necessarily determined by the location of the Teacher Centers as video equipment, video operators, and time were limited.

(2) The number of subjects (20, 20, 17) in each of the sub-groups is small. Generalizations about effectiveness of feedback based upon such a limited number of subjects and a relatively non-random sample must be tempered with caution.

(3) Only a small number of teaching segments (2) were used for observation and feedback purposes. The number of sessions devoted to feedback was limited by time.

(4) The junior year student teaching situation as it is regularly scheduled at the University is quite unique. Attempts to alter the normal experience were undesirable as the study was attempting to discover alternatives to traditional supervisory techniques.

(5) The Flanders instrument, carefully developed as it has been, misses some important and, at times, critical verbal teaching behaviors. For example, it does not distinguish between varieties of questions asked, nor does it distinguish whether behavior is substantive or non-substantive. Flanders is a gross descriptive instrument not designed to investigate specifics. Thus, conclusions and interpretations of the obtained data are restricted to the language of the Flanders system.

Chapter II

PROCEDURE

The research was designed to investigate three methods of supervision of student teachers. The supervisory methods were all used to develop indirect teaching behaviors as measured by Flanders' System of Interaction Analysis. The three methods were designated as:

(A) traditional supervisory self-analysis

(B) videotaped self-analysis

(C) videotaped supervisor analysis

The null hypothesis expected no significant difference among the three methods in the I/D ratio, that is, the ratios between the indirect and direct verbal behaviors of the student teachers.

Subjects

This project was conducted during a normal junior year student teaching experience. The subjects were assigned to Teaching Centers which are public elementary schools in three counties near the University. These public schools cooperate in the teacher education program with the University and provide laboratory experiences for the students in their junior and senior years.

For nine weeks the subjects were assigned to the Centers for four half-days per week. Subjects were required to complete teaching assignments in four subject matter areas. The subjects were concurrently enrolled in special methods courses in these subject matter areas. For the first five weeks the subjects were assigned to one elementary classroom and were reassigned to another classroom and teacher for the last four weeks. They had previously completed nine weeks of half-day student teaching, functioning as teacher aides in elementary classrooms.

The students received review instruction in coding sample tapes provided in the Flanders material and achieved a minimum reliability level of .75 as measured by Scott's coefficient. They had previous experience coding and interpreting coded results with respect to Flanders' indirect teaching ratios. In addition they had coded and analyzed a teacher's verbal behaviors in a normal classroom situation and

discussed the merits of indirect teaching techniques to achieve particular objectives.

A University coordinator was assigned to each group of student teachers at a Teaching Center. The coordinator arranged assignments to classrooms, helped classroom teachers provide experiences for the students, and visited the students periodically to provide teaching criticism. These visits occurred approximately once every two weeks for any given student. All University coordinators were experienced in using Flanders' Interaction Analysis.

Data Collection

The data for the study were collected during the spring quarter of 1971. There were three sections of junior student teachers available during this quarter and all three were used for the study. Students were assigned to sections on a random basis except for those students who had a geographic preference due to transportation difficulties. The sections were assigned to Teaching Centers on the basis of available openings.

The data gathering portion of the project was completed during the ten-week spring quarter from March 23 to June 9, 1971. The schedule for the project was as follows:

Week of Quarter	Activity
1	Review Flanders' Coding
2	Flanders' Proficiency Tests
4	Teaching Segment #1
5	View Tapes #1
6	Teaching Segment #2
7	View Tapes #2
8	Analysis Teaching Segments

There were three treatment groups in the study to investigate different methods of supervising a student teacher's verbal behavior. The assignment of the treatments involving videotaping were determined by the location of the Teaching Centers and availability of videotaping equipment.

During the nine-week teaching period, all subjects completed two twenty-minute teaching situations which were coded by Flanders' Interaction Analysis. These teaching segments were in any subject field, the only stipulation being that there be a suitable classroom activity for verbal interaction. Students were asked to avoid silent reading, seatwork situations, or testing activities. Group work rather than whole class activities was acceptable for the teaching segments.

In addition to this, treatment Group A (traditional supervisory self-analysis group) was visited by the University coordinator periodically.

During these visits the coordinator commented on any teaching situations observed which were appropriate for criticism of indirect teaching techniques. The teaching segments to be coded using Flanders' Interaction Analysis, were recorded by another student teacher in the group. The student who was teaching received the coding results for analysis of his verbal behavior.

Treatment Group B received similar coordinator visits but the coordinator made no comments on indirect teaching techniques. The teaching segments to be coded were videotaped. The student teacher viewed the tape, coded the segment, and analyzed the results. Group B was the videotaped self-analysis group.

Treatment Group C (videotaped supervisor analysis) also received periodic visits by the coordinator but no comments on indirect teaching. The two twenty-minute teaching situations to be coded were videotaped, then coded and analyzed by the student teacher. The coordinator viewed and discussed the tape with the student, providing feedback on indirect teaching techniques, coding, and analysis of the segment.

After the two teaching segments were coded and analyzed, a third twenty-minute teaching situation was coded by observers for analysis purposes. Again, any subject area for group or whole class instruction was acceptable for this teaching segment, as long as verbal interaction was possible. Observers visited the classrooms and coded the twenty-minute teaching segments.

Description of Flanders' System of Interaction Analysis

The instrument used to collect the data was Flanders' System of Interaction Analysis, subsequently referred to as Flanders (Flanders, 1960). This instrument is a ten-category system which is designed to describe rather than evaluate a teacher's verbal behavior. It was designed to be read in a classroom while teacher-pupil interaction was in progress, but can be used equally as well with videotape. Flanders has been reported to be highly reliable.

Seven of the ten categories are devoted to teacher behavior, two to pupil behavior, and the last category is used to record periods of confusion or silence. Of the seven categories for teacher behavior, four are used to describe indirect teacher behavior--these are: accept feelings; praise and encouragement; accepts ideas; asks questions. The remaining teacher categories--lectures, gives directions, criticizes--are considered to be direct behaviors. A complete description of the Flanders categories can be found in Appendix A.

When observers use Flanders, they write the respective category number down every three seconds or whenever the behavior changes. These numbers are then paired and placed on a matrix. The matrix can then be used to analyze the teacher's behavior. Ratios can also be computed to analyze specific behaviors. One of these ratios, I/D Ratio, was the

specific element under analysis in this study. (See Appendix A for a copy of the matrix and some computed ratios).

Observers and Observer Training

Observers were undergraduate students enrolled in an education course where Flanders was regularly taught as a means of describing teacher behavior. Observers engaged in a series of five instructor taught sessions and several independent sessions for a total of fifteen hours of training. Audiotapes used in the training sessions were recordings of actual classroom situations. Only those students who achieved an inter-observer reliability ratio of .85 as measured by Scott's Coefficient of Reliability (1955) were used as observers for the study.

Chapter III

FINDINGS AND CONCLUSION

The hypothesis under investigation in this study was:

> There will be no significant differences in the I/D ratio* of students in
>
> (A) traditional supervisory self-analysis group
>
> (B) videotaped self-analysis group
>
> (C) videotaped supervisor analysis group

All data were analyzed in an analysis of variance design employing the computer program available through the University of Florida Computer Center. This analysis of variance procedure indicated that there were no significant differences in the I/D ratio between the treatment groups; thus supporting the null hypothesis.

The mean I/D ratio for Group A was .559, for Group B--.609, and for Group C--.554. The sample size for Groups A and B was 20 and 17 for Croup C. An F ratio of 5.1 was needed for significance at the .01 level. The F ratio obtained was .508 and thus was not significant. The complete statistical summary is found in Tables 1 and 2.

Table 1

Mean I/D Ratio and Standard Deviation
of Flanders' Results by Treatment Groups

FLANDERS' CAT.	TREATMENT A			TREATMENT B			TREATMENT C		
I/D Ratio	Sample Size	$\bar{x}$	S.D	Sample Size	$\bar{x}$	S.D	Sample Size	$\bar{x}$	S.D
Indirect to direct Teacher Behavior	20	.599	.140	20	.609	.203	17	.554	.177

*Ratio between indirect and direct teacher verbal statements.

Table 2

Analysis of Variance of I/D Ratio

FLANDERS' CAT.	BETWEEN TREATMENT GROUPS (MS)	WITHIN TREATMENT GROUPS (MS)
I/D Ratio	(df=2)	(df=54)
Indirect to direct Teacher Behavior	.016 F=(.508)	.031

Discussion

Since the study indicated that there were no significant differences in the I/D ratio between treatment groups, it is possible to assume that the type of supervisory feedback is not crucial. Thus teacher education institutions could employ several methods of supervisory feedback to student teachers rather than the traditional role of college supervisor. Evidently the manner in which feedback is provided is relatively unimportant in changing teacher behavior. The feedback may be obtained from an analysis of information received from trained observer, a college supervisor, or videotapes.

Since the I/D ratio is a general description of teacher behavior, additional analyses were performed to investigate the possibilities of significant differences in more specific descriptive categories of verbal behavior. The additional categories were:

(1) Revised i/d ratio

(2) Percent of Teacher Talk

(3) Percent of Pupil Talk

(4) Percent of Silence

(5) Percent of Content

(6) Extended Indirect Behavior

(7) Extended Direct Behavior

Only one of the seven categories (percent of pupil talk) was significant. Group A (traditional supervisory self-analysis) had a larger proportion of pupil talk ($p < .01$) than either Group B, or Group C. This difference could be attributed to the fact that pupils in the other groups may have felt inhibited by the presence of video

equipment. (See Appendix A for Tables summarizing the supplemental analysis.)

Recommendations

Findings indicate that teacher education institutions should feel free to experiment with a variety of feedback techniques for student teachers.

The use of college supervisors and/or videotape can prove to be highly expensive means of providing feedback to student teachers. Perhaps institutions concerned with instructional costs should consider greater use of students to provide feedback on teaching behavior. Specific guidelines and training should be provided for student evaluators to maximize their effectiveness.

Additional research seems desirable in several areas. One area of concern is the instrument used to describe teacher behavior. The instrument used in this study measured but one aspect of teaching behavior. Perhaps what is needed is a study or a series of studies which measure different aspects of the teaching art such as verbal or non-verbal behaviors, classroom management techniques, and subject matter competency.

In addition, it would be advantageous to replicate this study using:

(A) more subjects

(B) extended time

(C) secondary student teachers

(D) senior year interns

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APPENDIX A

SUMMARY OF
CATEGORIES FOR INTERACTION ANALYSIS

TEACHER TALK	INDIRECT INFLUENCE	1. * ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included. 2. * PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or go on" are included. 3. * ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5. 4. * ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5. * LECTURING: giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions. 6. * GIVING DIRECTIONS: directions, commands, or orders with which a student is expected to comply. 7. * CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8. * STUDENT TALK - RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement. 9. * STUDENT TALK - INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. * SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

*There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate--not to judge a position on a scale.

APPENDIX B

WORK MATRIX

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
TOTAL										
%										

Matrix Total

I/D Ratio _____

Revised i/d Ratio _____

i/d Row 8 _____

i/d Rows 8 & 9 _____

Extended Indirect _____

Extended Direct _____

Extended i/d _____

3-3 Cell _____

9-9 Cell _____

Vicious Circle _____

APPENDIX C

SOME POSSIBLE RATIOS USED WITH FLANDERS

1. I/D Ratio (Indirect to Direct Teacher Behavior)
   (Categories 1-4)/(Categories 1-7)

2. Revised i/d Ratio (Motivation and Control)
   (Categories 1-3)/Categories (1-3) and (6 and 7)

3. Teacher Talk
   (Categories 1-7)/Matrix Total

4. Content
   (Categories 4 and 5)/Matrix Total

5. Extended Indirect Ratio
   (Sum of Cols. (1-1), (1-2), (1-3), (2-1), (2-2), (2-3), (3-1), (3-2), (3-3))/Matrix Total

6. Extended Direct Ratio
   Sum of Cols. (6-6), (6-7), (7-6), (7-7)/Matrix Total

7. Silence or Confusion
   Category 10/Matrix Total

8. Pupil Talk
   Categories (8 and 9)/Matrix Total

APPENDIX D

Table 3

Means and Standard Deviations
of Flanders' Categories by Treatment Groups

FLANDERS' CATEGORIES	TREATMENT A		TREATMENT B		TREATMENT C	
	$\bar{x}$	S.D	$\bar{x}$	S.D	$\bar{x}$	S.D
I/D	.599	.140	.609	.203	.544	.177
Revised i/d	.642	.201	.659	.180	.645	.242
Teacher Talk	.548	.147	.617	.081	.612	.153
Content	.371	.117	.360	.126	.408	.148
Extended Indirect	.012	.013	.027	.028	.028	.037
Extended Direct	.015	.017	.032	.031	.023	.028
Silence or Confusion	.072	.056	.096	.062	.087	.081
Pupil Talk	.371	.157	.258	.089	.263	.126

APPENDIX E

Table 4

Summary of Analysis of Variance of Computed Flanders' Categories

FLANDERS' CATEGORIES	BETWEEN GROUPS (MS) (df=2)	WITHIN GROUPS (MS) (df=54)
I/D	.016	.031
Revised i/d	.002	.043
Teacher talk	.030	.012
Content	.011	.017
Extended indirect	.002	.000
Extended direct	.001	.001
Silence or confusion	.003	.004
Pupil talk	.082 ($F=5.08$; $p<.01$)	.016