A STUDY OF THE EFFECT OF THE COOPERATING TEACHER ON THE VERBAL CLASSROOM INTERACTION OF STUDENT TEACHERS IN SECONDARY ENGLISH

APPROVED:

Graduate Committee:

Ben Coody
Major Professor

R T Hardy
Committee Member

Harold A. Holloway
Committee Member

Duane Kingery
Dean of the School of Education

Robert B. Toulouse
Dean of the Graduate School

A STUDY OF THE EFFECT OF THE COOPERATING TEACHER ON THE VERBAL CLASSROOM INTERACTION OF STUDENT TEACHERS IN SECONDARY ENGLISH

DISSERTATION

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

James W. Mitchell, B. S., M. Ed.
Denton, Texas
August, 1969

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The student teacher participates in many educational experiences that include many different variables that will eventually produce the type of teacher he will be. The student has courses in the subject he plans to teach. He has courses in other subject fields to broaden his knowledge in other areas. He takes courses in psychology so he will better understand the students he teaches. He has courses in education to acquaint him with the ways people learn, and he has methods courses to teach him how to teach his subject and how to lead his pupils. There is another part of the teacher education program referred to as student teaching.

Of all of the many facets of teacher education programs, many professional educators believe the time spent in student teaching is the most useful and productive part of the teacher's professional preparation. Student teaching may have a greater impact on the student than his methods courses, because he often pays little attention to the principles and practices presented in the methods courses. As the students enter their student teaching, many have no idea of how to start or what to do. Because this is often true, college supervisors suggest that the student observe his cooperating teacher for a while. The student may pick up from these observations the

cooperating teacher's methods and incorporate them into his own teaching style. This possibility causes concern over the extent to which the student teacher is affected by the cooperating teacher. Will the student teacher tend to pick up any undesirable teaching habits his cooperating teacher might have? It is important that all the variables that might affect the student teacher be investigated so that teacher education programs can continue to be improved. If student teaching is considered the most vital facet of teacher education, the question can be asked, "What aspects of student teaching affect the student teacher to make this experience so important?"

Statement of the Problem

The problem of this study was the extent of the relationship between the classroom verbal behavior of the cooperating teacher and that of the student teacher.

Purpose of the Study

The purpose of this study was to determine if the student teacher tends to imitate the verbal classroom behavior of the cooperating teacher.

Hypotheses

This study tested the hypothesis that there would be a significantly higher positive relationship in verbal behavior between the student teachers and their cooperating teachers than that of the student teachers and the control teachers.

Background and Significance

Researchers are continually investigating the variables which affect the student teacher and contribute to the development of his teaching style. Because of the complexity of the variables and the difficulty in observing them, investigators are always seeking better instruments to objectively observe and identify these variables.

Flanders' System of Interaction Analysis is one technique that can give relatively objective information about the verbal interaction in the classroom. Much of the educative process involving the teacher is verbal, so interaction analysis gives a good picture of what is taking place in the classroom and can be used as a research instrument, although it was not designed with this objective in mind.

Flanders' System of Interaction Analysis produces a ratio of indirect to direct teaching influence known as an I/D ratio. One teacher may have highly indirect methods of teaching while another may have extensive direct influence. By comparing the student teacher's I/D ratio to that of his cooperating teacher's, it is possible to determine if they tend to have similar teaching patterns. If the patterns are very similar, this may indicate the student teacher tends to imitate his cooperating teacher.

This supposition is supported by psychological theory and research in the area of imitation. Brode (7) shows evidence from Mowrer and Bandura that subjects do develop behaviors

from observation and that the subject does not need to perform overt responses during the acquisition process.

Examples of imitative learning can also be found in everyday events. An infant learns to speak by imitating the sounds made by his mother. Aspects of behavior are often patterned after an admired person such as when a teenager emulates the behavior of a movie idol. It is possible that imitation also plays an important part in the way a student teacher acquires his classroom behavior.

There was little research in the area of the relationship of the cooperating teacher and the student teacher until the 1960's. Recently, research in this area has increased somewhat. Johnson (15) studied the change in student teacher dogmatism as affected by the influence of the dogmatism of the cooperating teacher. He found that fifty-three student teachers out of eighty moved significantly in the direction of the cooperating teacher. Elliott (10) found in a study of changes in openness during student teaching that the changes in the student teachers were significantly related to their cooperating teachers but not to their college supervisors.

Farrow (11) studied the change in elementary student teacher's verbal behavior for his doctoral dissertation. He did not find significant evidence that the student teachers modeled their verbal behavior after that of their cooperating teachers. In a dissertation done at the Pennsylvania State University in 1965, Terwilliger (22) used Withall's observation technique and found no significant changes in the

student teacher's verbal behavior. He also revealed that no cooperating teacher influence could be demonstrated.

These studies failed to demonstrate that the cooperating teacher has a significant influence upon the verbal behavior of the student teacher, but other studies have shown evidence to contradict these findings.

In a dissertation that surveyed research relative to supervision of student teachers, Cornett (8) cited studies that showed cooperating teachers tend to have more influence on the student teacher's attitudes than the college supervisors have. Flint (14) used an Observation Schedule developed by Medley and Mitzel in her dissertation and found that the verbal behavior of student teachers changed significantly during the student teaching period. She found a high relationship between the verbal behavior of student teachers and their cooperating teachers. Price (20) used Sanders' Observation Schedule and found the attitudes of student teachers as a group tend to change during their student teaching experience. These changes in attitude tended to be in the direction of the attitudes held by their respective cooperating teachers. He discovered that these findings were not entirely true when considered on an individual basis. Recent work by Zahn (25) suggests that the influence of the cooperating teacher and the classroom situation on the behavior and attitudes of student teachers is great. Other studies have been done in this area and similar evidence has been found.

New techniques need to be utilized so that more objective measurements of the variables affecting teacher behavior can be found. Amidon and Flanders have done extensive work in the area of teacher behavior. Flanders' System of Interaction Analysis has contributed a great deal to the efforts to objectively observe the methods of teachers in their classrooms.

Some of the studies on the influence of cooperating teachers were done in controlled laboratory circumstances. This study attempted to shed more light on the subject by using Flanders' system to observe teachers in discussion with secondary level pupils in the actual public school classroom situation. A group of public school teachers unrelated to the student teachers were used as a control group to discern whether the student teachers are modeling their behavior after their respective cooperating teachers or whether the discipline dictates the methods used and that all teachers in this discipline tend to teach the same way.

Definition of Terms

1. Verbal behavior.--The communication which occurs through verbal means between teacher and students

2. Student teacher.--A student of North Texas State University who teaches under the supervision of a public school classroom teacher as part of his educational training

3. Cooperating teacher.--A public school classroom teacher who supervised a student teacher during his student teaching

4. Direct influence.--Consists of stating the teacher's own opinions or ideas, directing the pupil's action, criticizing his behavior, or justifying the teacher's authority or use of that authority

5. Indirect influence.--Consists of soliciting the opinions or ideas of the pupils, applying or enlarging the opinions or ideas of the pupils, praising or encouraging the participation of pupils, or clarifying and accepting the feelings of pupils

6. Verbal behavior pattern.--The pattern formed when verbal interaction in the classroom is observed through the use of Flanders' Interaction Analysis and put into a matrix

Procedures for Collecting Data

Thirty-two student teachers with English as their teaching area were selected during the 1969 spring semester. These student teachers were from North Texas State University and did their student teaching in the North Texas area. Special arrangements were made with the area schools to observe the student teachers as they held discussions with the secondary pupils whom they taught. The thirty-two public school teachers who supervised the student teachers were observed in the same manner as the student teachers. A third group, consisting of thirty-two public school teachers who did not have

student teachers, was selected to form a control group and was observed in the same way as the student teachers and their cooperating teachers.

The control teachers were selected in order to match the cooperating teachers. The two groups were matched so that for each cooperating teacher a control teacher was selected from the same school system, at the same grade level, and the same academic level (whether the classes were honors, average, or low academic level).

Flanders' System of Interaction Analysis was the instrument used to record the data through classroom observation. The Flanders technique categorizes the verbal interaction between the teacher and students into ten categories. The observer records the appropriate category number in three-second intervals or when the behavior shifts categories as the teacher and students discuss their lesson topics.

Three observers trained in the use of Flanders' System of Interaction Analysis gathered the data. Observer reliability was determined prior to data collection. Using training tapes developed by Flanders, the observers categorized selected passages. A coefficient of observer agreement was then determined by using Scott's coefficient, "pi," which is computed by the following formulas:

(1) $\pi = \frac{Po-Pe}{1-Pe}$

(2) $Pe = \sum_{i=1}^{k} pi^2$

Po is the proportion of agreement, and Pe is the proportion of agreement expected by chance, which is found by squaring the proportion of tallies in each category and summing these over all categories. In formula two, there are k categories and Pi is the proportion of tallies falling into each category. Pi can be expressed as the amount by which the tallies of two observers exceeded chance agreement, divided by the amount by which perfect agreement exceeds chance.

The reliability coefficients between observers A and B and observers A and C are the most important because no teacher was observed by both observers B and C. Table I reports the coefficients of observer reliability.

TABLE I

OBSERVER RELIABILITY COEFFICIENTS

Observers	Reliability Coefficients
A and B	.85
A and C	.86
B and C	.79
Average	.84

Two observations of three hundred tallies each were made by one of the observers on each student teacher, cooperating teacher, and control teacher. The two observations on each teacher were made on different days.

Procedures for Treating the Data

After the data were collected, a matrix with a total of six hundred tallies was constructed for each teacher from the

two combined observations. For an example of a matrix, see Appendix B. The matrix reveals the percentages of class time that the teacher and the students talk. The I/D ratio, a ratio of indirect teacher influence to direct teacher influence, was then calculated by the computer center at North Texas State University. Flanders uses two ways to figure the I/D ratio. For this study, the I/D ratios for each matrix were figured by dividing the sum of all the column totals in categories 1, 2, 3, and 4 by the sum of all the column totals in categories 1 through 7. This method actually yields a percentage of indirect teacher talk from total teacher talk (see Appendix B).

By use of the Pearson product-moment correlation coefficient, the I/D ratios of the student teachers were correlated with the I/D ratios of the cooperating teachers. Correlations were also computed between the I/D ratios of the student teachers and those of the control teachers. A third correlation between the I/D ratios of the cooperating teachers and the control teachers was computed. All correlations were computed by the North Texas State University computer center.

The percentage of student talk was calculated for each teacher, and correlations were computed between the same groups as the correlations between I/D ratios.

The hypothesis that the correlations would differ significantly was tested by using Fisher's z_r transformation, as illustrated in Ferguson (12). The correlation coefficients were

converted to z_r's by a conversion table. The differences were then computed on a hand calculator, by use of the following formula.

$$z = \frac{z_r^1 - z_r^2}{\sqrt{1/(N_1-3) + 1/(N_2-3)}}$$

Because of the directional nature of the hypothesis, a one-tailed test at the five percent level was used to test the hypothesis that there was no difference between the two correlation coefficients. Differences were significant if the z was as large as 1.65.

CHAPTER BIBLIOGRAPHY

1. Amidon, Edmund J., "Analysis and Techniques in Teaching," Partnership in Teacher Education, edited by B. E. Smith and others, American Association of Colleges for Teacher Education, Washington, 1968.

2. _____ and E. Hunter, "Implications of Interaction Analysis Research for the Education of Secondary School Teachers," High School Journal, LI (October, 1967), 3-6.

3. _____ and Ned A. Flanders, The Role of the Teacher in the Classroom, Minneapolis, Minnesota, Association for Productive Teaching, Inc., 1967.

4. Andrews, L. O., Student Teaching, The Center for Applied Research in Education, New York, 1964.

5. Bellack, Arno A., editor, Theory and Research in Teaching, New York, Bureau of Publications, Teachers College, Columbia University, 1963.

6. Brekke, Gerald W., "The Cooperating Teacher's Role," Minnesota Journal of Education, XLVIII (December, 1967), 29-31.

7. Brode, E. Leland, "The Supervisor as a Model in Teacher Classroom Behavior," High School Journal, LIII (October, 1967), 53-60.

8. Cornett, Joe DeLayne, "A Survey of Research Relative to Supervision of Student Teachers at the Secondary Level," unpublished doctoral dissertation, University of Arkansas, Fayetteville, Arkansas, 1966.

9. Doyle, Walter and Manfred Prokop, "Computerized Analysis of Behavior Patterns in a Flanders Interaction Analysis Matrix," unpublished paper read before the American Educational Research Association, Los Angeles, California, February 8, 1969.

10. Elliott, Richard Jay, "Changes in Openness of Student Teachers as a Function of Openness of Supervising and Cooperating Teachers," unpublished doctoral dissertation, University of Alabama, University, Alabama, 1964.

11. Farrow, Ralph Arthur, "Change in Student Teachers' Verbal Behavior," unpublished doctoral dissertation, Stanford University, Stanford, California, 1964.

12. Ferguson, George A., Statistical Analysis in Psychology and Education, New York, McGraw-Hill Book Company, Inc., 1959.

13. Flanders, Ned A., "Teacher Influence, Pupil Attitudes, and Achievement," Cooperative Research Monograph No. 12, OE-25040, Washington, Government Printing Office, 1965.

14. Flint, Shirley Helene, "The Relationship Between the Classroom Verbal Behavior of Student Teachers and the Classroom Verbal Behavior of Their Cooperating Teachers," unpublished doctoral dissertation, Columbia University Teachers College, New York, 1965.

15. Johnson, James S., "Change in Student Teacher Dogmatism," Journal of Educational Research, LXII (January, 1969), 224-226.

16. Ledbetter, Howard P., "The Effects of Feedback From the Use of Interaction Analysis in Supervising Student Teachers," unpublished doctoral dissertation, North Texas State University, Denton, Texas, 1967.

17. Nelson, Jack L., and T. Kaltsounis, "The Mythology of Student Teaching," Journal of Teacher Education, XIX (Fall, 1968), 277-281.

18. Ober, Richard L., "The Nature of Interaction Analysis," High School Journal, LI (October, 1967), 7-16.

19. Phillips, James A., Jr., "Teacher Typologies," High School Journal, LI (October, 1967), 26-31.

20. Price, Robert D., "The Influence of Supervising Teachers," Journal of Teacher Education, XII (December, 1961), 471-475.

21. Simon, Anita, editor, Classroom Interaction Newsletter, IV (December, 1968).

22. Terwilliger, Ronald Irwin, "Assessing the Cooperating Teacher's Influence on the Student Teacher Using Withall's Technique," unpublished doctoral dissertation, Pennsylvania State University, University Park, Pennsylvania, 1965.

CHAPTER II

A REVIEW OF THE LITERATURE AND RELATED RESEARCH

This review of related literature is concerned with the following areas:

1. The importance of research in the areas of student teaching and the cooperating teacher

2. Research related to the development of classroom observational systems

3. Research related to the use of Flanders System of Interaction Analysis as a research instrument

4. Research related to the relationship of student teachers and cooperating teachers

This review of the research by no means exhausts the extensive amount of literature in the area, but it does provide a sufficient synthesis of the literature.

The Importance of Research in the Areas of Student Teaching and the Cooperating Teacher

The learning process is very complex; and because of this, research is continually being conducted to determine ways by which people learn and effective methods for learning. It is in the area of guiding learning that the teacher plays a most important role. To an already complex situation,

the teacher and his personality add greater complexity. Many factors are involved in determining the effectiveness of the teacher. James Phillips points out:

> Teacher effectiveness is a critical issue of long standing. . . . if there is a "best" type teacher, surely we should mold others in his likeness as a visible way to improve teaching and learning. Identifying the most effective teacher is no longer a matter to be left to chance and the hope that the "born teacher" will somehow find his way to the classroom (30, p. 26).

Phillips (30) goes on to point out that research efforts have failed to find that teacher personality types are generally predictive of the effectiveness or success of a teacher. In a study of secondary student teachers, he found they differed in the ways they taught from one subject to another in the areas of interest, types of thinking, flexibility, and originality. The reason for the failure of research in this area is because "the teacher act and human personality both are highly complex multi-variable factors (30, p. 26)."

It is important to continue to study the variables affecting teaching. One of the best and most convenient ways to carry out research in this area is to study the teachers before and after they begin their careers. Andrews (8) points out that student teaching has long been an opportunity for the neophyte to gain initial experience in the work of the profession. Success in student teaching is generally accepted as evidence that the person is able to lead the learning process. The most severe critics of professional teacher education generally accept student teaching as the most valuable

experience in teacher preparation. In spite of the progress and changes taking place in student teaching, L. O. Andrews warns that

> Very important people, both within and without the profession, are viewing the persistent problems of student teaching with deep concern and a few are beginning seriously to question the effectiveness of much that is called "student teaching" (8, p. 3).

An important issue is the effectiveness of student teaching and related experiences in meeting the objectives proposed for them. The student teacher is placed with an experienced teacher who is expected to provide an example and guidance in the best teaching methods. In discussing the factors that determine the nature of the outcomes in the student teaching experience, Albert H. Yee states, "Not knowing for sure what really matters in student-teaching, very little empirical research has been conducted to explain how it affects the candidate in his professional development (39, p. 96)."

If student teaching is the most productive and essential element in the teacher's professional preparation, then surely the cooperating teacher shares a significant role in this preparation. In fact, Gerald W. Brekke claims the cooperating teacher is the "most important person in teacher education (11, p. 30)." Yet, apart from successful student teaching and first-hand teaching experience, the cooperating teacher is unprepared to guide the student teacher in this important and most significant phase of preparation. It is readily recognizable that some teachers practice more educationally

experience in teacher preparation. In spite of the progress and changes taking place in student teaching, L. O. Andrews warns that

> Very important people, both within and without the profession, are viewing the persistent problems of student teaching with deep concern and a few are beginning seriously to question the effectiveness of much that is called "student teaching" (8, p. 3).

An important issue is the effectiveness of student teaching and related experiences in meeting the objectives proposed for them. The student teacher is placed with an experienced teacher who is expected to provide an example and guidance in the best teaching methods. In discussing the factors that determine the nature of the outcomes in the student teaching experience, Albert H. Yee states, "Not knowing for sure what really matters in student-teaching, very little empirical research has been conducted to explain how it affects the candidate in his professional development (39, p. 96)."

If student teaching is the most productive and essential element in the teacher's professional preparation, then surely the cooperating teacher shares a significant role in this preparation. In fact, Gerald W. Brekke claims the cooperating teacher is the "most important person in teacher education (11, p. 30)." Yet, apart from successful student teaching and first-hand teaching experience, the cooperating teacher is unprepared to guide the student teacher in this important and most significant phase of preparation. It is readily recognizable that some teachers practice more educationally

sound methods than others; therefore, the problem arises concerning the effect of the cooperating teacher on the student teacher.

Before examining the research on the relationship of the student teacher and cooperating teacher, it might be well to look at the development of classroom observational systems such as the one used in this investigation.

Research Related to the Development of Classroom Observational Systems

Until recent years, research concerning observation of classroom behavior has been limited. Medley and Mitzel (27) report that, in 1914, E. Horn made one of the earliest attempts to develop a way to objectively measure classroom behavior. Horn had observers record both verbal and non-verbal pupil participation through the use of symbols, such as circles and squares, on seating charts. In this way he studied the distribution of classroom participation by children. Somewhat later a more elaborate symbol system was developed by Puckett (32). He used a seating chart, similar to Horn's, on which a single aspect of student behavior was recorded by one of fourteen symbols. The collected material included items calling for qualitative judgment. These recorded observations allowed discussions of the classroom events to be carried out with teachers at a later time.

The next major contribution to objective measurement of classroom behavior was made by A. S. Barr (9). Because there

was no standard vocabulary being used by supervisors, it was difficult for them to communicate easily. Barr attempted to produce objective terminology for supervision by using symbols and abbreviations for behaviors. He studied the characteristics of good and poor social studies teachers and obtained a great variety of data which was quite cumbersome.

In the 1940's, C. D. Jayne (19) worked at combining items into dimensions which could differentiate between teachers and classes. He studied the relationship between specific teacher activities and pupil changes; and through the use of sound recording, he identified one hundred and eighty-four behaviors.

About this same time, H. H. Anderson (7), in order to give a behavioral picture of teacher and pupil interaction, was attempting to develop a system to measure dominative and integrative behavior between nursery school children. His system produced a ratio of teacher dominant behavior to integrative behavior which he called an I-D index. His study manifested a significant relationship between pupil behavior and the personality of the teacher. The study also provided implications that the study of behavioral change and mental hygiene should be included as a part of teacher preparation.

The studies by Lippitt and White (23) confirmed most of Anderson's findings. Lippitt and White studied the effects of adult leaders, using different types of influence, on boys' groups. The three major categories of adult influence were authoritarian, democratic, and laissez-faire. The results of

this research found the leader to be very important in determining group behavior.

In the late 1940's, Withall (38) developed a technique to measure the social-emotional climate in classrooms. He found that teacher behavior tended to fall into two major categories much like the dominative and integrative categories of Anderson (7).

In order to furnish quantitative data from the observations of student teachers, Medley and Mitzel (27) developed the Observation Schedule and Record (OSCAR). With this technique, classroom behavior can be recorded objectively by relatively untrained observers. This technique consists of a checklist of teacher and pupil behavior which is divided into three major factors.

One of the most recent and objective methods of classroom observation is Flanders' System of Interaction Analysis which was the instrument used in collecting the data for this investigation. Therefore, the next section will be devoted to the research related to Interaction Analysis.

Research Related to the Use of Flanders' System of Interaction Analysis as a Research Instrument

Interaction Analysis was developed by Ned Flanders early in the 1950's. Early research with this system was concerned with the relationship of students' attitudes to teacher behavior patterns. Flanders (15) discovered that students with indirect teachers developed more positive attitudes than the students with teachers who were observed to be direct. The

findings of these studies indicated that students taught by indirect methods became more interested in subject matter and liked the techniques used by their teachers more than did the pupils of teachers who used direct methods.

Amidon and Flanders (2) used Interaction Analysis to study the effects of direct and indirect teacher influence on dependent-prone students learning geometry. They discovered that the students learned significantly more under the influence of indirect teaching. Anderson (7) contributed to the validation of the system by finding that observers, trained in Interaction Analysis, and students perceived the influence of the teacher in essentially the same way. Schantz (33) studied the effects of indirect and direct influence on high and low ability fourth grade children. The results of this study showed greater recall among the high ability group under indirect influence than under direct influence.

In a study of student teachers in biology by LaShier (22), student achievement and student attitude were found to be significantly related to indirect teacher influence. In this study the indirect student teachers praised students twice as much as the direct student teachers and accepted the feelings of students four times as much.

Giammatteo (17), using Flanders' categories to observe reading lessons, studied the differences in interaction among elementary school grade levels. This study showed that first and second grade teachers used question-and-answer-type

teaching most, while fifth and sixth grade teachers used this type of teaching least. He also found that in grades three through six, a teacher lectures about 50 percent of the time he talks and in the first and second grades about one-third of the time; first and second grade teachers used more commands than other groups of teachers; and the students stimulated one-third of all the talk in the fifth and sixth grades. In a similar study Wilk (37), using Flanders' system and the OScAR, studied the differences in teaching behavior between student teachers teaching grades one through three and student teachers teaching grades four through six. He found that student teachers in grades four through six were more supportive, used a wider variety of learning materials, had a better classroom climate, and gave more emphasis to verbal materials and activities. The student teachers in grades one through three allowed pupils to lead the class more often, talked more, and were more restrictive of students' responses.

When Amidon and Giammatteo (4) compared average teachers to teachers nominated as superior by their supervisors, they found the superior teachers talked less and used more indirect influence.

Hough and Amidon (18) studied the relationship of personality structure and training in Interaction Analysis to attitude change during student teaching. They found that student teachers trained in Interaction Analysis differ significantly from those not trained. Kirk (21) studied the

effect of training in Interaction Analysis on the verbal behavior patterns of student teachers. He found the teaching patterns of those trained in the system could be modified to some degree. Zahn (40) also conducted a study in which he studied the effects of training in Interaction Analysis on student teachers' attitudes and performance. He concluded that training in Interaction Analysis caused student teachers to develop more positive attitudes toward student teaching.

Amidon and Powell (5) conducted a similar study comparing student teachers taught Interaction Analysis with those taught learning theory. They found the student teachers who were taught Interaction Analysis talked less in the classroom and were more indirect in overall teaching patterns. Simon (34) studied the effects of training in Interaction Analysis on the teaching patterns of student teachers in favored and non-favored classes. She concluded that training in the Flanders system allows student teachers to reduce their use of criticism and commands in favored as compared with non-favored classes. Training tends to increase the use of integrative behaviors.

Research Related to the Relationship of Student Teachers and Their Cooperating Teachers

The variables affecting the student teacher are many. In a summary of research on student teaching prior to 1960, Michaelis (28) reported that because of the difficulties involved and lack of interest, the research had been poor. One

of the most important factors influencing the student teacher is the cooperating teacher. Steeves (35) reported in 1952 that there had been little serious research on the cooperating teacher.

Recently research on student teaching and the cooperating teacher has increased. This is very likely a result of the development of better classroom observation systems.

McAulay (24) studied the influence of the cooperating teacher on the student teacher as to methods of teaching reading, methods of housekeeping in the classroom, and relations with pupils. He concluded that generally the cooperating teacher greatly influences the student teacher in all of these areas; and the more formal the cooperating teacher, the more the student teacher is influenced.

Price (31), using Sanders' Observation Schedule, studied the relationship of the student teacher and the cooperating teacher and found a significant relationship. He found a considerable change in student teachers' attitudes during student teaching which tended to be in the direction of their respective cooperating teachers.

Elliott (13) conducted research concerned with the changes in openness of student teachers which occur during student teaching. The results of this research revealed significant changes in openness which were significantly related to the openness of the cooperating teachers but not to that of the college supervisors. Bills, et al. (10) produced results very

similar to those of Elliott. In a similar study using the OScAR, Flint (16) found significant changes in student teachers' verbal behavior in the direction of their cooperating teachers. The student teachers were found to become more supportive, less repeating, and less accepting of pupils' responses.

Terwilliger (36) studied the cooperating teachers' influence on the student teacher using Withall's technique. His results revealed that no cooperating teacher influence could be demonstrated. Farrow (14) also studied the change in student teachers' verbal behavior during student teaching. His results were similar to those of Terwilliger. Although Farrow's results did not show evidence that the student teachers modeled their teaching patterns after their cooperating teachers, he recommended further research in this area.

Moskowitz (29) reported that student teachers' attitudes and teaching patterns tended to be affected by their cooperating teachers and by training in Interaction Analysis. He found that training in Interaction Analysis appeared to increase individuality and variability in teaching patterns and produced more positive attitudes toward teaching. Matthews (26) found that changes in verbal behavior of student teachers toward that of their cooperating teachers are more pronounced during the early part of student teaching.

McLeod (25) trained one group of student teachers in Interaction Analysis and studied their changes in verbal

behavior in relation to a control group not trained in the system. The experimental group experienced more non-random changes in verbal patterns in the direction of their cooperating teachers than the control group. Amidon and Powell (5) found that student teachers whose cooperating teachers learned Interaction Analysis used less extended direct influence than student teachers whose cooperating teachers had not been so trained.

A study of research relative to supervision of student teachers at the secondary level by Cornett (12) revealed that cooperating teachers had more influence on student teachers' attitudes than college supervisors.

One of the most recent studies on the relationship of student teachers and cooperating teachers was conducted by Johnson (20). The results of his research tend to support the findings of the other studies in this area. He found that the dogmatism of the cooperating teacher significantly influences the open- and closed-mindedness of the student teacher. Evidence from this study shows that the more open-minded student teacher is more susceptible to the influence of his cooperating teacher than would the relatively dogmatic student teacher.

The research related to the influence of the cooperating teacher is quite extensive. Yet, no research was found that investigated the possibility that the changes in attitude and verbal behavior of student teachers might be a result of

becoming accustomed to the discipline they are teaching. In other words, it might be possible that the subject area more or less dictates the way a teacher behaves and that most teachers in a particular discipline teach enough alike to cause the results of the studies mentioned. Phillips (30) reports that student teachers differ in the methods used from one discipline to another. Research shows that methods used by teachers in the same subject area resemble one another more than they resemble methods in other subject areas. By testing the relationship of student teachers to both their cooperating teachers and other teachers in the same subject area, this study will investigate this possibility of an intervening variable.

CHAPTER BIBLIOGRAPHY

1. Amidon, Edmund J., "Interaction Analysis and Its Application to Student Teaching," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, Forty-Fourth Yearbook, Dubuque, Iowa, The Association for Student Teaching, 1965.

2. _____ and N. A. Flanders, "The Effects of Direct and Indirect Teacher Influence on Dependent-Prone Students Learning Geometry," Journal of Education Psychology, LII (1961), 286-291.

3. _____, The Role of the Teacher in the Classroom, Minneapolis, Minnesota, Paul S. Amidon and Associates, 1963.

4. _____ and M. Giammatteo, "The Verbal Behavior of Superior Teachers," Elementary School Journal, LXV (1965), 283-285.

5. _____ and Evan Powell, "Interaction Analysis as a Feedback System in Teacher Preparation," The Supervisor--Agent for Change in Teaching, edited by James Raths and Robert R. Leeper, Washington, D.C., Association for Supervision and Curriculum Development, 1966.

6. _____ and Anita Simon, "Teacher-Pupil Interaction," Review of Educational Research, XXXV (February, 1965), 130-139.

7. Anderson, H. H., J. E. Brewer, and Mary F. Reed, "Studies of Teachers' Classroom Personalities, III," Psychological Monographs, XI (1946), 202-209.

8. Andrews, L. O., Student Teaching, New York, The Center for Applied Research in Education, 1964.

9. Barr, Avvil S., Characteristic Differences in the Teaching Performance of Good and Poor Teachers of the Social Studies, Bloomington, Illinois, Public School Publishing Company, 1929.

10. Bills, Robert E., Virginia M. Macagnoni, and Richard J. Elliott, Student Teacher Personality Change as a Function of the Personalities of Supervising and Cooperating Teachers, Washington, Government Printing Office, 1964.

11. Brekke, G. W., "The Cooperating Teacher's Role," Minnesota Journal of Education, VIIIL (December, 1967), 29-31.

12. Cornett, J. D., "A Survey of Research Relative to Supervision of Student Teachers at the Secondary Level," unpublished doctoral dissertation, University of Arkansas, Fayetteville, 1966.

13. Elliott, Richard J., "Changes in Openness of Student Teachers as a Function of Openness of Supervising and Cooperating Teachers," unpublished doctoral dissertation, University of Alabama, University, 1964.

14. Farrow, R. A., "Change in Student Teachers' Verbal Behavior," unpublished doctoral dissertation, Stanford University, Stanford, California, 1964.

15. Flanders, N. A., "Intent, Action, and Feedback: A Preparation for Teaching," Journal of Teacher Education, XIV (September, 1963), 251-260.

16. Flint, S. H., "The Relationship Between the Classroom Verbal Behavior of Student Teachers and the Classroom Verbal Behavior of Their Cooperating Teachers," unpublished doctoral dissertation, Columbia University Teachers College, New York, 1965.

17. Grammatteo, M. C., "Interaction Patterns of Elementary Teachers Using the Minnesota Categories for Interaction," unpublished doctoral dissertation, University of Pittsburgh, Pittsburgh, Pennsylvania, 1964.

18. Hough, J. and E. J. Amidon, "An Experiment in Pre-Service Teacher Education," cited in Theoretical Bases for Professional Laboratory Experiences in Teacher Education, Forty-Fourth Yearbook, Dubuque, Iowa, The Association for Student Teaching, 1965.

19. Jayne, C. D., "A Study of the Relationship Between Teaching Procedures and Educational Outcomes," Journal of Experimental Education, XIV (1945), 101-134.

20. Johnson, James S., "Change in Student Teacher Dogmatism," Journal of Educational Research, LXII (January, 1969), 224-226.

21. Kirk, Jeffery, "Effects of Teaching the Minnesota System of Interaction Analysis to Intermediate Grade Student Teachers," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1964.

22. La Shier, W. S., "An Analysis of Certain Aspects of the Verbal Behavior of Student Teachers of Eighth Grade Students Participating in a BSCS Laboratory Block," unpublished doctoral dissertation, University of Texas, Austin, Texas, 1965.

23. Lippitt, R. and R. K. White, Autocracy and Democracy: An Experimental Inquiry, New York, Harper, 1960.

24. McAulay, J. D., "How Much Influence Has a Co-operating Teacher?" Journal of Teacher Education, XI (March, 1960), 79-83.

25. McLeod, R. J., "Changes in the Verbal Interaction Patterns of Secondary Science Student Teachers Who Have Had Training in Interaction Analysis and the Relationship of These Changes to the Verbal Interaction of Their Cooperating Teachers," unpublished doctoral dissertation, Cornell University, Ithaca, New York, 1967.

26. Matthews, C. C., "The Classroom Verbal Behavior of Selected Secondary School Science Student Teachers and Their Cooperating Classroom Teachers," unpublished doctoral dissertation, Cornell University, Ithaca, New York, 1967.

27. Medley, Donald M. and H. E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," cited in Handbook of Educational Research on Teaching, edited by N. L. Gage, Rand-McNally, 1963.

28. Michaelis, J. U., "Student Teaching and Internship," Encyclopedia of Educational Research, edited by C. W. Harris, MacMillan, New York, 1960.

29. Moskowitz, G., "The Effect of Training in Interaction Analysis on the Attitudes and Teaching Patterns of Cooperating Teachers and Their Student Teachers," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1966.

30. Phillips, J. A., "Teacher Typologies," High School Journal, LI (October, 1967), 26-31.

31. Price, R. D., "Influence of Supervising Teachers," Journal of Teacher Education, XII (December, 1961), 471-475.

32. Puckett, R. C., "Making Supervision Objective," School Review, XXXVI (1928), 209-212.

33. Schantz, B. M. B., "An Experimental Study Comparing the Effects of Verbal Recall by Children in Direct and Indirect Teaching Methods as a Tool of Measurement," unpublished doctoral dissertation, Pennsylvania State University, University Park, Pennsylvania, 1964.

34. Simon, Anita, "The Effects of Training in Interaction Analysis on the Teaching Patterns of Student Teachers in Favored and Non-Favored Classes," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1966.

35. Steeves, Frank L., "A Summary of the Literature on the Off-Campus Co-operating Teacher," Educational Administration and Supervision, XXXVIII (March, 1952), 129-137.

36. Terwilliger, R. I., "Assessing the Cooperating Teacher's Influence on the Student Teacher Using Withall's Technique," unpublished doctoral dissertation, Pennsylvania State University, University Park, Pennsylvania, 1965.

37. Wilk, R. E., "An Experimental Study of the Effects of the Classroom Placement Variables of Student Teacher Performance," Journal of Educational Psychology, LV (1964), 375-380.

38. Withall, J., "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," Journal of Experimental Education, XVII (March, 1949), 347-361.

39. Yee, A. H., "Interpersonal Relationships in the Student-Teaching Triad," Journal of Teacher Education, XIX (Spring, 1968), 95-112.

40. Zahn, Richard D., "The Effect Upon Student Teachers' Attitudes of Training in Interaction Analysis and the Attitudes of Cooperating Teachers," unpublished paper read before the American Educational Research Association, Chicago, Illinois, February, 1965.

CHAPTER III

PRESENTATION OF DATA

The findings of this investigation were organized in terms of (a) the indirect-direct (I/D) ratios of the student teachers, cooperating teachers, and control teachers, (b) the correlations between the I/D ratios of the three combinations of the three groups, (c) the differences between the combinations of the correlations, (d) the percentages of student talk for each group of teachers, (e) the correlations of the student talk percentages between the combinations of the groups, and (f) the differences between the correlations of student talk.

The hypothesis of this investigation, that there would be a significantly greater positive correlation in verbal behavior between the student teachers and their cooperating teachers than that of the student teachers and the control teachers, was tested by the following procedures. After the data were collected, ten-by-ten matrices were constructed from the raw data for each teacher. The columns representing the ten categories of the Flanders system were then totaled, and percentages for the columns were calculated. The I/D ratio for each matrix was tabulated, and the means and standard deviations of the I/D ratios were computed. Table II presents the means and standard deviations for the three groups: student teachers, cooperating teachers, and control teachers.

TABLE II

MEANS AND STANDARD DEVIATION OF I/D RATIOS

Group	Mean	SD
Student teachers	.51	.15
Cooperating teachers	.46	.14
Control teachers	.43	.13

The I/D ratio of each student teacher was correlated with the I/D ratio of his or her cooperating teacher. Note in Table III that the coefficient of correlation between these two groups was .46, which was significant at the .01 level.

TABLE III

CORRELATION COEFFICIENTS OF I/D RATIOS

Group	Coefficients	Level of Significance
(1) Student teachers Cooperating teachers	.46	.01
(2) Student teachers Control teachers	.07	NS
(3) Cooperating teachers Control teachers	-.20	NS

The I/D ratio of each student teacher was correlated with that of the control teacher who had been matched with the respective cooperating teacher. Likewise, the coefficient of correlation was computed between the I/D ratios of the cooperating teacher and the respective control teacher. Since a coefficient of .35 was required for significance at the .05 level of confidence for thirty degrees of freedom, these last two correlation coefficients were not significant.

Fisher's z_r transformation was used to test the research hypothesis that the student teacher-cooperating teacher correlation would be significantly higher than the student teacher-control teacher correlation (see Table IV).

TABLE IV

DIFFERENCES BETWEEN CORRELATION COEFFICIENTS OF I/D RATIOS

Correlations	Fisher's z	Level of Significance
(1) *.46 and (2) **.07	1.65	.05
(1) .46 and (3) ***-.20	2.65	.01
(2) .07 and (3) -.20	1.02	NS

*The correlation coefficient between the student teachers and their cooperating teachers.

**The correlation coefficient between the student teachers and the control teachers.

***The correlation coefficient between the cooperating teachers and the control teachers.

This test yielded a z of 1.65, which was significant at the .05 level for a one-tail test with thirty degrees of freedom. This result allowed the research hypotheses to be accepted. The results of these correlations and their tests of difference further support the results of the studies by Flint (3), who used a different observational technique, and Zahn (5), who obtained similar results using Flanders' Interaction Analysis.

The other tests of difference between correlations were calculated because of the additional information they yielded to the relationships of the study's three groups. The test of difference between correlation coefficients of the student teacher-cooperating teacher and the cooperating teacher-control teacher obtained a z of 2.65, which was significant at the .01 level of confidence. The test of difference between the correlation coefficients of the student teacher-control teacher and the cooperating teacher-control teacher was tabulated and a z of 1.02, which did not reach the .05 level of confidence, was obtained.

The ratio of teacher talk to student talk that can be obtained from the matrix lends additional information and interest when analyzing teaching patterns. For this reason and because it is important to investigate every variable in a study, the percentage of student talk was tabulated for each teacher. This calculation was done by summing the totals of columns 1 through 7 and dividing that sum by the sum of the totals of columns 1 through 9. Afterwards, the means and

standard deviations of these percentages were calculated for each of the three groups in the study. Table V presents these means and standard deviations.

TABLE V

MEANS AND SD'S OF THE PERCENTAGES OF STUDENT TALK

Group	Mean	SD
Student teachers	.37	.08
Cooperating teachers	.30	.09
Control teachers	.28	.09

Table VI presents the correlation coefficients of student talk.

TABLE VI

CORRELATION COEFFICIENTS OF STUDENT TALK

Group	Coefficient	Level of Significance
(1) Student teachers Cooperating teachers	.13	NS
(2) Student teachers Control teachers	.18	NS
(3) Cooperating teachers Control teachers	.36	.05

The coefficient between the cooperating teachers and control teachers was .36, which was significant at the .05 level. The coefficient of correlation between the student teachers and the cooperating teachers and the correlation coefficient between the student teachers and the control teachers did not reach .35, which was required for significance.

Next, the tests of the differences between the correlation coefficients for student talk were calculated by use of Fisher's z_r. A z of 1.65 was required for significance at the .05 level; hence none of the results of these tests were significant.

TABLE VII

DIFFERENCES BETWEEN CORRELATION COEFFICIENTS OF STUDENT TALK

Correlations	Fisher's z	Level of Significance
(1) *.13 and (2) **.18	.19	NS
(1) .13 and (3) ***.36	.91	NS
(2) .18 and (3) .36	.72	NS

*The correlation coefficient between the student teachers and their cooperating teachers.

**The correlation coefficient between the student teachers and the control teachers.

***The correlation coefficient between the cooperating teachers and the control teachers.

CHAPTER BIBLIOGRAPHY

1. Ferguson, George A., Statistical Analysis in Psychology and Education, New York, McGraw-Hill Book Company, Inc., 1959.

2. Flanders, Ned A., "Teacher Influence, Pupil Attitudes, and Achievement," Cooperative Research Monograph No. 12, OE-25040, Washington, Government Printing Office, 1965.

3. Flint, Shirley Helene, "The Relationship Between the Classroom Verbal Behavior of Student Teachers and the Classroom Verbal Behavior of Their Cooperating Teachers," unpublished doctoral dissertation, Columbia University Teachers College, New York, 1965.

4. McNemar, Quinn, Psychological Statistics, New York, John Wiley and Sons, Inc., 1962.

5. Zahn, Richard D., "The Effect Upon Student Teachers' Attitudes of Training in Interaction Analysis and the Attitudes of Cooperating Teachers," unpublished paper read before the American Educational Research Association, Chicago, Illinois, February, 1965.

CHAPTER IV

SUMMARY, FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents a summary of the investigation, a discussion of the findings, the implications, and recommendations for further research.

Summary of the Study

This study involved the investigation of the effect of the verbal classroom behavior of public school cooperating English teachers on the verbal classroom behavior of their student teachers. The purpose of the study was to determine if the student teacher tended to imitate the verbal classroom behavior style of the cooperating teacher. A correlational design was used in the study. A control group was introduced to identify possible causal factors responsible for the relationship between the student teacher and cooperating teacher. It was hypothesized that there would be a higher positive relationship between the student teacher and cooperating teacher than between the student teacher and control teacher.

The three groups studied consisted of thirty-two student English teachers from North Texas State University, thirty-two public school cooperating English teachers, and thirty-two

public school English teachers who did not have student teachers during the semester the study was conducted. The teachers making up the third group, referred to as the control group, were individually matched with the cooperating teachers on the following variables: both teachers taught the same subject, in the same school system, at the same grade and academic level.

Three trained observers, using Flanders' System of Interaction Analysis, categorized the verbal interaction of the teachers as they discussed topics from their regular lesson units with their secondary public school students. Two observations, totaling six hundred tallies (approximately 15 minutes for each observation), were made on each teacher.

The I/D ratios of the individual teachers were tabulated and coefficients of correlation were computed between the combinations of the three groups. The correlation coefficient between the student teachers and cooperating teachers was .46 and was statistically significant at the .01 level of confidence. Fisher's z_r transformation was used to test the significance of difference between the student teacher-cooperating teacher coefficient and the student teacher-control teacher coefficient. Because of the directional nature of the research hypothesis, a one-tail test was used. The z obtained was 1.65 and was significant at the .05 level. Hence, the research hypothesis that there would be a significantly stronger positive relationship between the student teachers and the

cooperating teachers than between the student teachers and control teachers was confirmed.

Discussion of the Findings

This section presents the findings of the study.

1. A significant positive relationship was found between the indirect-direct (I/D) ratios of the student teachers and their cooperating teachers.

This relationship between the student teacher and cooperating teacher could have been caused by the student teacher's imitating the cooperating teacher. The results of the studies by Flint (1) and Zahn (2) support this hypothesis. If this hypothesis is tenable, several factors may have been responsible. The relationship could be the result of the law of imitation discussed earlier in the study. Since the student teacher's observation of the cooperating teacher's methods was the most recent experience in his or her educational history, it was possibly the strongest variable affecting the student teacher's behavior. The influence of this variable may tend to dissipate as time elapses after student teaching.

Another factor that could have caused the student teacher to imitate the cooperating teacher might be the student teacher's grade consciousness. The knowledge that the cooperating teacher was interviewed by the college supervising teacher may have induced the student teacher to adopt the cooperating teacher's methods.

Many cooperating teachers are possessive and may convey the feeling to the student teacher that she is a visitor in the classroom and should not upset the students' routine. Cooperating teachers allow their student teachers varying degrees of freedom in handling the pupils. The student teacher may feel restricted because she recognizes the cooperating teacher practices poor teaching methods and is defensive of her way of teaching.

A further alternative which might cause imitation is the student teacher's lack of creativity to initiate her own style and to use various methods.

2. No significant relationship was found in the verbal behavior patterns between the student teachers and the control teachers.

On the basis of this finding, it may be implied that the subject area was not the only factor determining the style of teaching. This implication lends further support to the belief that the cooperating teacher had a definite effect upon the student teacher.

3. No significant relationship was found between the cooperating teachers' and the control teachers' verbal behavior patterns.

This finding has two possible explanations. One possibility is that the teachers who agreed to work with student teachers were initially different from teachers who did not work with student teachers.

The other possible explanation for the lack of a significant relationship between the cooperating teachers and control teachers is that the cooperating teacher changed her methods because of the presence of the student teacher in the classroom. This possibility may also be an alternative explanation for the significant relationship between the cooperating teacher and the student teacher. Instead of the student teacher's imitating the cooperating teacher, the cooperating teacher may have tended to imitate the student teacher because of the fresh techniques the student teacher brought with her. The negative correlation coefficient between the cooperating teacher and control teacher might indicate that the cooperating teacher was motivated to change her usual style somewhat in order to set an example for the student teacher. The cooperating teacher may have felt that the way the student teacher was perceived by the college supervisor was an indication of her own worth as a teacher and may have deviated from her usual teaching style.

4. A significant relationship was found between the cooperating teachers and the control teachers regarding the amount of student talk.

On the basis of this finding, it may be implied that the number of years of teaching experience was an influential factor in determining the percentage of pupil talk allowed by the teacher.

Implications

1. The implied effect of the cooperating teacher on the student teacher suggests that careful screening procedures

should be used in selecting cooperating teachers to work with prospective student teachers. The screening criteria should include professional attitude, relations with pupils, classroom methods, attitude toward working with student teachers, and the personality variables that will best complement those of the particular student teacher assigned to the cooperating teacher.

2. Inservice training, including training in Interaction Analysis, for cooperating teachers would seem to be beneficial in helping to better prepare them to work with student teachers.

Recommendations

Since this study was correlational in nature, no causes of student teacher-cooperating teacher relationships can be definitely identified. Therefore, it is recommended that further studies be made with different research designs in an attempt to discover the factors contributing to the student teacher-cooperating teacher relationship.

Because of many problems encountered in performing this investigation, it is recommended that this study be repeated, with the following controls added:

1. The relationship between the cooperating teachers and control teachers should be determined before the student teacher begins student teaching.

2. If possible, the style of the student teacher should be studied before he begins student teaching.

3. Discussion lessons should be prepared by the investigator for the teachers to present to their classes so that each teacher teaches the same lesson.

4. A follow-up study of the styles of the student teachers should be made after they finish student teaching and begin teaching their own students, to see if the relationship they have with their cooperating teachers is maintained or if their styles change.

Other variables affecting the student teacher-cooperating teacher relationship should be investigated. As a final recommendation, further study should be made to determine what influence the student teacher may have upon the cooperating teacher's methods.

CHAPTER BIBLIOGRAPHY

1. Flint, Shirley Helene, "The Relationship Between the Classroom Verbal Behavior of Student Teachers and the Classroom Verbal Behavior of Their Cooperating Teacher," unpublished doctoral dissertation, Columbia University Teachers College, New York, 1965.

2. Zahn, Richard D., "The Effect Upon Student Teachers' Attitudes of Training in Interaction Analysis and the Attitudes of Cooperating Teachers," unpublished paper read before the American Educational Research Association, Chicago, Illinois, February, 1965.

APPENDIX

APPENDIX A

SUMMARY OF
CATEGORIES FOR INTERACTION ANALYSIS

TEACHER TALK	Indirect Influence	1. ACCEPTS FEELING: accepts and clarifies the tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.
		2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying "uhhuh?" or "go on" are included.
		3. ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building or developing ideas or suggestions by a student. As teacher brings more of his own ideas into play, shift to category five.
		4. ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	Direct Influence	5. LECTURES: giving facts or opinions about content or procedures; expressing his own idea; asking theoretical questions.
		6. GIVES DIRECTIONS: directions, commands, or orders with which a student is expected to comply.
		7. CRITICIZES OR JUSTIFIES 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's questions in which predetermined responses are expected.
		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. In addition, student's response to open ended questions such as "What is your opinion," "What do you suggest?" etc. would go in this category.
		10. SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

APPENDIX B

An Example of a Matrix

	1	2	3	4	5	6	7	8	9	10	
1	1				1				1		
2		4	1					2			
3		1	6	1				2			
4			1	14				5			
5	1				48			6			
6						1		4			
7							4		1		
8		2	2	5	6	4		11			
9	1						1		9	1	
10									1	2	Matrix Total
Total	3	7	10	20	55	5	5	30	12	3	150
%	2	4½	6½	13½	36½	3½	3½	20	8	2	

Teacher Talk
Columns 1-7 = 105

105 ÷ 150 = 70%

Student Talk
Columns 8-9 = 42

42 ÷ 150 = 28%

Indirect (1-4) ÷ Direct (1-4) plus (5-7) = I/D Ratio

$$\frac{40}{40 \text{ plus } 65} = \frac{40}{105} = .38$$

BIBLIOGRAPHY

Books

Amidon, Edmund J. and N. A. Flanders, The Role of the Teacher in the Classroom, Minneapolis, Minnesota, Paul S. Amidon and Associates, 1963.

Andrews, L. O., Student Teaching, New York, The Center for Applied Research in Education, 1964.

Barr, Avril S., Characteristic Differences in the Teaching Performance of Good and Poor Teachers of the Social Studies, Bloomington, Illinois, Public School Publishing Company, 1929.

Bellack, Arno A., editor, Theory and Research in Teaching, New York, Bureau of Publications, Teachers College, Columbia University, 1963.

Biddle, J. B. and W. J. Ellena, editors, Contemporary Research on Teacher Effectiveness, New York, Holt, Rinehart, and Winston, 1964.

Ferguson, George A., Statistical Analysis in Psychology and Education, New York, McGraw-Hill Book Company, Inc., 1959.

Lippitt, R. and R. K. White, Autocracy and Democracy: An Experimental Inquiry, New York, Harper, 1960.

McNemar, Quinn, Psychological Statistics, New York, John Wiley and Sons, Inc., 1962.

Medley, Donald M. and H. E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," cited in Handbook of Educational Research on Teaching, edited by N. L. Gage, Chicago, Illinois, Rand-McNally, 1963.

Michaelis, J. U., "Student Teaching and Internship," Encyclopedia of Educational Research, edited by C. W. Harris, MacMillan, New York, 1960.

Walker, Helen M. and Joseph Lev, Statistical Inference, New York, Henry Holt and Company, 1953.

Articles

Amidon, Edmund J. and N. A. Flanders, "The Effects of Direct and Indirect Teacher-Influence on Dependent-Prone Students Learning Geometry," Journal of Education Psychology, LII (1961), 286-291.

_____ and M. Giammatteo, "The Verbal Behavior of Superior Teachers," Elementary School Journal, LXV (1965), 283-285.

_____ and E. Hunter, "Implications of Interaction Analysis Research for the Education of Secondary School Teachers," High School Journal, LI (October, 1967), 3-6.

_____ and Anita Simon, "Teacher-Pupil Interaction," Review of Educational Research, XXXV (February, 1965), 130-139.

Anderson, H. H., J. E. Brewer and Mary F. Reed, "Studies of Teachers' Classroom Personalities, III," Psychological Monographs, XI (1946), 202-209.

Bjerstedt, A., "Interaction-Oriented Approaches to the Assessment of Student Teachers," Journal of Teacher Education, XVIII (Fall, 1967), 339-357.

Brekke, G. W., "The Cooperating Teacher's Role," Minnesota Journal of Education, VIIIL (December, 1967), 29-31.

Brode, E. Leland, "The Supervisor as a Model in Teacher Classroom Behavior," High School Journal, LIII (October, 1967), 53-60.

Duncan, J. K. and J. R. Frymier, "Research in Teacher Education: A Syntactical View," Journal of Teacher Education, XI (Spring, 1960), 357-364.

Flanders, N. A., "Intent, Action, and Feedback: A Preparation for Teaching," Journal of Teacher Education, XIV (September, 1963), 251-260.

_____ and E. J. Amidon, "Two Approaches to the Teaching Process," National Education Association Journal, LII (May, 1962), 43-45.

Jayne, C. D., "A Study of the Relationship Between Teaching Procedures and Education Outcomes," Journal of Experimental Education, XIV (1945), 101-134.

Johnson, James S., "Change in Student Teacher Dogmatism," Journal of Educational Research, LXII (January, 1969), 224-226.

Lowther, M. A., "Most and Least Helpful Activities of Supervising Teachers," Clearing House, IIIL (Spring, 1968), 40-43.

McAulay, J. D., "How Much Influence Has a Co-operating Teacher?" Journal of Teacher Education, XI (March, 1960), 79-83.

Mercer, W. A., "What Research and Related Literature Have to Say About Off-Campus Student Teaching and Professional Laboratory Experiences," Journal of Educational Research, LVII (May, 1964), 489-491.

Nelson, Jack L. and T. Kaltsounis, "The Mythology of Student Teaching," Journal of Teacher Education, XIX (Fall, 1968), 277-281.

Ober, Richard L., "The Nature of Interaction Analysis," High School Journal, LI (October, 1967), 7-16.

Phillips, James A., Jr., "Teacher Typologies," High School Journal, LI (October, 1967), 26-31.

Popham, W. J., "Student Teachers' Classroom Performance and Recency of Instructional Methods Coursework," Journal of Experimental Education, XXXIV (Fall, 1965), 85-88.

Price, Robert D., "The Influence of Supervising Teachers," Journal of Teacher Education, XII (December, 1961).

Puckett, R. C., "Making Supervision Objective," School Review, XXXVI (1928), 209-212.

Simon, Anita, editor, Classroom Interaction Newsletter, IV (December, 1968).

Steeves, Frank L., "A Summary of the Literature on the Off-Campus Co-operating Teacher," Educational Administration and Supervision, XXXVIII (March, 1952), 129-137.

Swineford, E. J., "Study of Factors That Affect Teaching Behavior," California Journal of Educational Research, XIV (November, 1963), 214-224.

Wilk, R. E., "An Experimental Study of the Effects of the Classroom Placement Variables of Student Teacher Performance," Journal of Educational Psychology, LV (1964), 375-380.

Withall, J., "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," Journal of Experimental Education, XVIII (March, 1949), 347-361.

Yee, A. H., "Interpersonal Relationships in the Student-Teaching Triad," Journal of Teacher Education, XIX (Spring, 1968), 95-112.

Publications of Learned Organizations

Amidon, Edmund J., "Analysis and Techniques in Teaching," Partnership in Teacher Education, edited by B. E. Smith and others, American Association of Colleges for Teacher Education, Washington, 1968.

_____, "Interaction Analysis and Its Application to Student Teaching," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, Forty-Fourth Yearbook, Dubuque, Iowa, The Association for Student Teaching, 1965.

_____ and Evan Powell, "Interaction Analysis as a Feedback System in Teacher Preparation," The Supervisor--Agent for Change in Teaching, edited by James Raths and Robert R. Leeper, Washington, D. C., Association for Supervision and Curriculum Development, 1966.

Hough, J. and E. J. Amidon, "An Experiment in Pre-Service Teacher Education," cited in Theoretical Bases for Professional Laboratory Experiences in Teacher Education, Forty-Fourth Yearbook, Dubuque, Iowa, The Association for Student Teaching, 1965.

Public Documents

Bills, Robert E., Virginia M. Macagnoni, and Richard J. Elliott, Student Teacher Personality Change as a Function of the Personalities of Supervising and Cooperating Teachers, Washington, Government Printing Office, 1964.

Flanders, Ned A., "Teacher Influence, Pupil Attitudes, and Achievement," Cooperative Research Monograph No. 12, OE-25040, Washington, Government Printing Office, 1965.

Unpublished Materials

Amidon, E. J., "Interaction Analysis: Recent Developments," unpublished paper read before the American Education Research Association, Chicago, Illinois, February 8, 1966.

Cornett, Joe DeLayne, "A Survey of Research Relative to Supervision of Student Teachers at the Secondary Level," unpublished doctoral dissertation, University of Arkansas, Fayetteville, Arkansas, 1966.

Doyle, Walter and Manfred Prokop, "Computerized Analysis of Behavior Patterns in a Flanders Interaction Analysis Matrix," unpublished paper read before the American Educational Research Association, Los Angeles, California, February 8, 1969.

Elliott, Richard Jay, "Changes in Openness of Student Teachers as a Function of Openness of Supervising and Cooperating Teachers," unpublished doctoral dissertation, University of Alabama, University, Alabama, 1964.

Farrow, Ralph Arthur, "Change in Student Teachers' Verbal Behavior," unpublished doctoral dissertation, Stanford University, Stanford, California, 1964.

Flint, Shirley Helene, "The Relationship Between the Classroom Verbal Behavior of Student Teachers and the Classroom Verbal Behavior of Their Cooperating Teachers," unpublished doctoral dissertation, Columbia University Teachers College, New York, 1965.

Grammatteo, M. C., "Interaction Patterns of Elementary Teachers Using the Minnesota Categories for Interaction," unpublished doctoral dissertation, University of Pittsburgh, Pittsburgh, Pennsylvania, 1964.

Kirk, Jeffery, "Effects of Teaching the Minnesota System of Interaction Analysis to Intermediate Grade Student Teachers," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1964.

La Shier, W. S., "An Analysis of Certain Aspects of the Verbal Behavior of Student Teachers of Eighth Grade Students Participating in a BSCS Laboratory Block," unpublished doctoral dissertation, University of Texas, Austin, Texas, 1965.

Ledbetter, Howard P., "The Effects of Feedback From the Use of Interaction Analysis in Supervising Student Teachers," unpublished doctoral dissertation, North Texas State University, Denton, Texas, 1967.

McLeod, R. J., "Changes in the Verbal Interaction Patterns of Secondary Science Student Teachers Who Have Had Training in Interaction Analysis and the Relationship of These Changes to the Verbal Interaction of Their Cooperating Teachers," unpublished doctoral dissertation, Cornell University, Ithaca, New York, 1967.

Matthews, C. C., "The Classroom Verbal Behavior of Selected Secondary School Science Student Teachers and Their Cooperating Classroom Teachers," unpublished doctoral dissertation, Cornell University, Ithaca, New York, 1966.

Moskowitz, G., "The Effect of Training in Interaction Analysis on the Attitudes and Teaching Patterns of Cooperating Teachers and Their Student Teachers," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1966.

Schantz, B. M. B., "An Experimental Study Comparing the Effects of Verbal Recall by Children in Direct and Indirect Teaching Methods as a Tool of Measurement," unpublished doctoral dissertation, Pennsylvania State University, University Park, Pennsylvania, 1964.

Simon, Anita, "The Effects of Training in Interaction Analysis on the Teaching Patterns of Student Teachers in Favored and Non-Favored Classes," unpublished doctoral dissertation, Temple University, Philadelphia, Pennsylvania, 1966.

Terwilliger, R. I., "Assessing the Cooperating Teacher's Influence on the Student Teacher Using Withall's Technique," unpublished doctoral dissertation, Pennsylvania State University, University Park, Pennsylvania, 1965.

Zahn, Richard D., "The Effect Upon Student Teachers' Attitudes of Training in Interaction Analysis and the Attitudes of Cooperating Teachers," unpublished paper read before the American Educational Research Association, Chicago, Illinois, February, 1965.