A comparison of the verbal teaching patterns of two groups of secondary student teachers, Montana State University, 1969-70
by Dennis Larry Martinen

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree \ of DOCTOR OF EDUCATION in Secondary Education
Montana State University

Abstract:
The problem in this study was to investigate the verbal teaching patterns of secondary student teachers and to determine essentially what these teaching patterns were. As a corollary to the problem, the Rokeach Dogmatism Scale and the Teaching Situation Reaction Test were administered to student teachers to determine if these tests could predict successful student teachers prior to their student teaching experience in the secondary schools of Montana.

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Another aspect of the problem dealt with the possible predictive value of the Teaching Situation Reaction Test and the Rokeach Dogmatism Scale as they pertained to superior teaching. A comparison and analysis was made between scores achieved on the two tests and such quantitative elements as grade point average in the major subject area, mean scores on the rating forms used by Montana State University supervisors and the grade given to measure the success in student teaching.

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Results. The student teachers trained with Flanders' coding of classroom techniques provided a more open classroom atmosphere.

The student teacher accepted more student ideas and praised them more, partly as a result, they criticized them less. The students talked considerably more and the teacher a little less. The amount of time devoted to content was the same, but it was used differently and the ratio of teacher to student talk was reduced.

The Dogmatism Scale was effective in predicting desirable change as measured by the Teaching Situation Reaction Test. Those people scoring high in flexibility and non-authoritarianism made significant growth while those judged authoritarian made little or no growth. The evaluation system used at Montana State University did not reflect these differences.

A COMPARISON OF THE VERBAL TEACHING PATTERNS OF TWO GROUPS OF SECONDARY STUDENT TEACHERS, MONTANA STATE UNIVERSITY, 1969-70

by

DENNIS LARRY MARTINEN

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree

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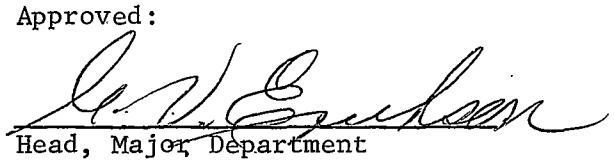
Approved:



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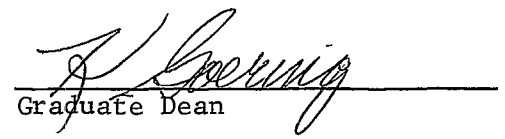

Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

June, 1970

ACKNOWLEDGEMENTS

The writer wishes to express thanks to the many people who helped make this study possible. In particular the writer wishes to thank his major professor, Dr. Robert Van Woert, for his constructive suggestions and assistance. Gratitude is also expressed to the other members of the committee, Dr. Earl Ringo, Dr. Adrien Hess, Dr. Arthur McDonald, Professor Nathaniel Kutzman, and Dr. Max Amberson for their thought provoking questions and their constructive criticisms.

The writer also wishes to express thanks to all the secondary student teachers Fall Quarter, 1969, and Winter Quarter, 1970, for their cooperation. Without their cooperation the data for the study would be unattainable.

Sincere appreciation is also extended to Mrs. Barbara Kapinos and Mrs. Joyce Forsgren for their many instances of secretarial assistance.

Finally, the writer wishes to thank his wife, Kay, for her unswerving faith and loyalty. This support was a never ending source of strength that was extremely important to the writer.

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ABSTRACT

The problem in this study was to investigate the verbal teaching patterns of secondary student teachers and to determine essentially what these teaching patterns were. As a corollary to the problem, the Rokeach Dogmatism Scale and the Teaching Situation Reaction Test were administered to student teachers to determine if these tests could predict successful student teachers prior to their student teaching experience in the secondary schools of Montana.

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Chapter 1

INTRODUCTION

Education, today, is a topic that is of vital interest to Montana, as well as the nation. Few people deny that the interactive process of teaching and learning is a complex one that makes scientific research difficult.

There is little doubt that scientific research has lagged in the analysis of the proper procedures for teaching. (Flanders, 1951) This lack of research is due to several reasons.

People concerned with research in education have found it difficult to develop reliable and valid instruments that can stand the test of replication. (Mitzel, 1960) To understand their difficulty, the subject must be understood. People are so highly complex and at times irrational, it is extremely difficult to predict their behavior. Research in science does not have this problem. A subject such as crystal, also highly complex, always reacts in a predictable fashion following the laws of nature.

Another problem in the analysis of the teaching pattern is the natural suspicion classroom teachers have for any kind of outside influence. This basic resistance to change was noted by such early psychologists as William James and Ivan Pavlov. (Hilgard and Bower, 1966)

Teaching is by nature a very personal process. The inner egos of both students and teachers are constantly exposed. Each party can hurt the other either intentionally or unintentionally. Much of the hurt and consequent withdrawal can be avoided with proper training of the teacher.(Flanders, 1951)

Some speak of the "born teacher" and his natural effectiveness with youngsters. It is wonderful to see such outstanding examples of teaching competency, but unfortunately, they don't seem to be born in sufficient numbers to fill all our classrooms.

For those people who are not born to teach, it is necessary to provide a program where they may attain the highest level of teaching competency possible before they are placed in teaching siutations and then they should be provided with the proper techniques and tools for continued self-analysis. It is only through constant work and vigilance that teachers can achieve and retain a high level of excellence.

Many institutions of higher learning offer teacher training programs. If these programs are to meet the challenges of the ever changing modern day student, the programs must be frequently evaluated an updated. Youngsters are changing and the program that trains their teachers must change with them or become increasingly less effective.

However, before one can look at possible avenues or directions of change, one must first determine a base line of present day performance. This study attempted to gather base line information on the present program, as well as explore areas of training never before offered at Montana State University.

Statement of the Problem

The problem in this study was to investigate the verbal teaching patterns of secondary student teachers and to determine essentially what these teaching patterns were. As a corollary to the problem, the Rokeach Dogmatism Scale and the Teaching Situation Reaction Test were administered to student teachers to determine if these tests could predict successful student teachers prior to their placement in the secondary schools of Montana.

It was the purpose of this study, then, to record and analyze the verbal behavior patterns of two groups of secondary student teachers. One group, the control group, consisted of students who went through the regular training program. The other group received twenty hours of training in interaction analysis. Selected aspects of the reconstructed Flanders' matrix were compared and analyzed. (Flanders, 1965)

Another aspect of the problem dealt with the possible predictive value of the Teaching Situation Reaction Test (Duncan with

Hough, 1966) and the Rokeach Dogmatism Scale (Rokeach, 1960) as they pertain to superior teaching. A comparison and analysis was made between scores achieved on the two tests and such quantitative elements as grade point average in the major and minor, grade point average in professional subjects, mean scores on the rating forms used by Montana State University supervisors and the grade given to measure the success in student teaching.

Need for the Study

A survey of available literature indicated that a relatively quantitative study of verbal teaching patterns of secondary student teachers had never been done at Montana State University, nor had the possible predictive aspects of the Teaching Situation Reaction Test and the Rokeach Dogmatism Scale been explored at this institution. Additional information is available in Chapter Two concerning the use of these instruments at other institutions.

The period of time when student teachers work actively in a classroom under the direction of a classroom teacher is often viewed by them as a culmination of their undergraduate college education. During a personal interview in January, 1970, Mr. G. V. Erickson, former Director of Student Teaching at Montana State University stated, "some student teachers fail because they are unable to master basic teaching competencies." These unfortunate incidents of

failure can be reduced if more reliable instruments of selection can be developed.

In order to properly assess the excellence of any program, it must be analyzed in terms of its objectives. Presumably one of the measures of success for prospective teachers is the ability to obtain and hold a teaching job.

In a study by McMurchy (1969), the four-year education graduates of 1966, 1967, and 1968 were polled. Of the fifty-four percent who responded to the questionnaire, seventy-five percent of the 1966 graduates were still teaching and eighty-two percent of the 1967 graduating teachers were currently teaching. (McMurchy, 1969)

The student teachers that are graduates of Montana State University are successful; the records show this. They are able to obtain jobs and hold them, but what is really known about the teaching patterns of these people? Are some of them placed in positions that result in unhappiness for them and their students? The records show that this is also true. McMurchy noted that approximately three percent of those leaving teaching were doing so because of poor health, inability to keep discipline, or dislike for teaching (McMurchy, 1969, p. 60) If more were known about the kinds of teaching patterns student teachers possessed at graduation, some misplacement could be avoided. Not only could misplacement be avoided, but greater efforts could be made to teach the identi-

fiable skills of superior student teachers to the students in training. Presumably the most critical measure of excellence for prospective teachers would be the creation of a classroom climate that would encourage every child to develop his abilities to the fullest extent possible. Studies will be cited in Chapter Three showing the relationship between teaching style and achievement. These studies will also show a relationship between teaching style and student attitudes toward peers and teachers. The time may well come when some teachers will not only be hired on the basis of subject content, but also on the basis of demonstrable skill they possess in direct or indirect teaching proficiencies.

As a result of this study, the College of Education at Montana State University will have on record the relatively quantitative teaching patterns exhibited by the twenty-two student teachers who were closely observed. The basic teaching pattern of each can be accurately re-constructed and evaluated, and decisions can be reached as to whether these patterns are desirable. This study should result in a greater understanding of the techniques our student teachers use.

Limitations of the Study

It is recognized that this study contains a number of variables that are impossible to control and yet could be a deter-

mining factor in the style of verbal interaction present in the classroom. Fortunately class size remained relatively constant, near an average of twenty-five students per class. However, such factors as the effects of the different cooperating teachers, ethnic and geographic location remain unassessed. In spite of the factors noted plus other equally potent variables, it was felt that information gained from a random sample of student teachers over a two-quarter period of time would be a valuable piece of data.

Another rather severe limitation was imposed on the study by the relatively short period of time (thirty teaching days) that the secondary student teachers spent in the classroom. During the Fall Quarter, two days of the thirty were school holidays. Of the remaining twenty-eight, the writer spent fifteen days with fourteen student teachers. Unfortunately, three of the fifteen days produced no usable information as the lessons presented were unsuitable to code.

Virtually all interaction presented on those observation days was coded. The matrices, later presented, are a fairly comprehensive version of one day's teaching.

The study is limited to those secondary student teachers selected at random Fall Quarter, 1969, and matched as closely as possible Winter Quarter, 1970, by those with appropriate majors and minors. The majors and minors considered were English, social studies, history, mathematics and biology since it was assumed that

there would be more continual teacher-student interaction in these subject matter areas than in such subjects as physical education or industrial arts.

Definition of Terms

Secondary student teacher--Student enrolled in Education 410 and Education 411 at Montana State University and teaching in one or more of the grades seven through twelve in public schools of Montana.

Flanders' matrix--Ten by ten array of unit cells grouped according to rectangular coordinate system used in elementary mathematics systems. A more complete description of the categories, and cells, as well as the matrix is offered in Chapter Three.

Example

		1	2	3	4	5	6	7	8	9	10
Accepts Feeling	1										
Praises or Encourages	2										
Accepts or Uses Ideas of Students	3										
Asks Questions	4										
Lecturing	5										
Giving Directions	6										
Criticizing or Justifying Authority	7										
Student Talk - Response	8										
Student Talk - Initiation	9										
Silence of Confusion	10										

I/D ratio--Total of columns 1, 2, 3, 4 divided by the total of columns 5, 6, 7. (Amidon and Flanders, 1967, p. 131) This ratio compares the time spent praising or asking questions to the time spent lecturing, giving directions or offering criticism.

Revised I/D ratio (RID)--Total of columns 1, 2, 3, (kinds of praise) divided by the total of columns 6 and 7 (direction and criticism).

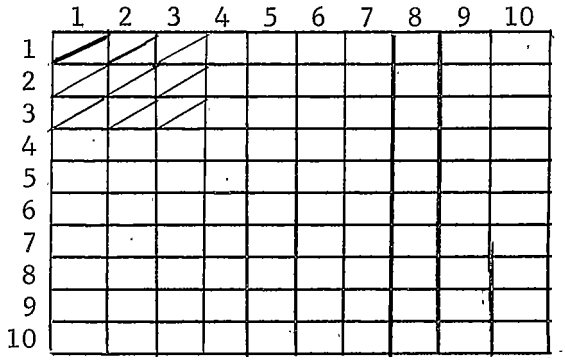
Teacher-talk--Total of columns 1, 2, 3, 4, 5, 6, 7.

Student-talk--Total of columns 8, 9.

T/S--Total of columns 8 and 9 divided into the total of columns 1, 2, 3, 4, 5, 6, 7.

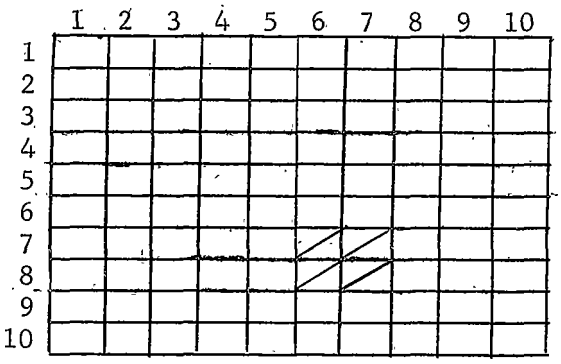
Extended indirect influence--Total of cells (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,3), (3,3). These cells reflect the amount of time spent in different categories of praising the students.

Example



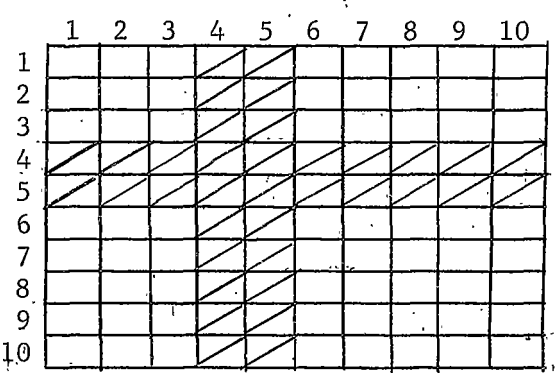
Extended direct influence--Total of cells (6,6), (6,7), (7,6), (7,7). These cells reflect the amount of time spent giving directions and criticism.

Example



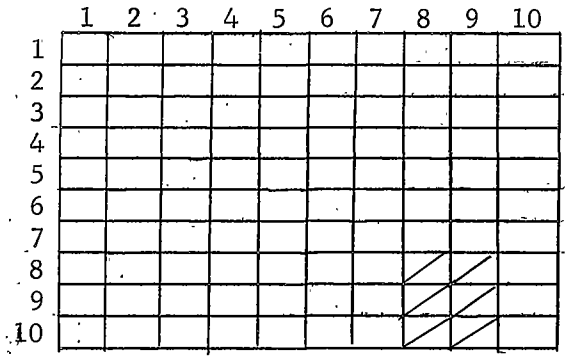
The "content cross"--Total of cells (1,4), (1,5), (2,4), (2,5), (3,4), (3,5), (4,1), (4,2), (4,3), (4,4), (4,5), (4,6), (4,7), (4,8), (4,9), (4,10), (5,1), (5,2), (5,3), (5,4), (5,5), (5,6), (5,7), (5,8), (5,9), (5,10), (6,4), (6,5), (7,4), (7,5), (8,4), (8,5), (9,4), (9,5), (10,4), (10,5). These cells carry the content covered in the teaching period.

Example



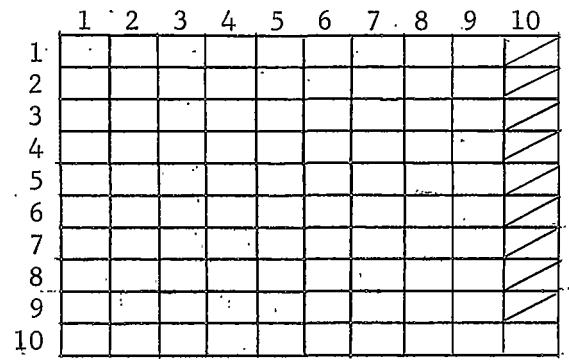
Student-talk following student-talk--Total of cells (8,8), (8,9), (9,9), (10,8), (10,9).

Example



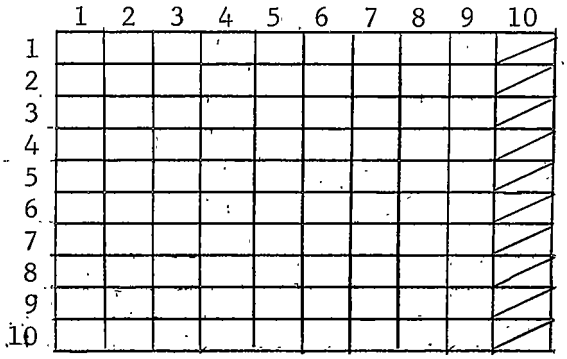
Silence or confusion following teacher-talk or student-talk--Total of cells (1,10). (2,10). (3,10), (4,10). (5,10), (6,10), (7,10), (8,10), (9,10).

Example



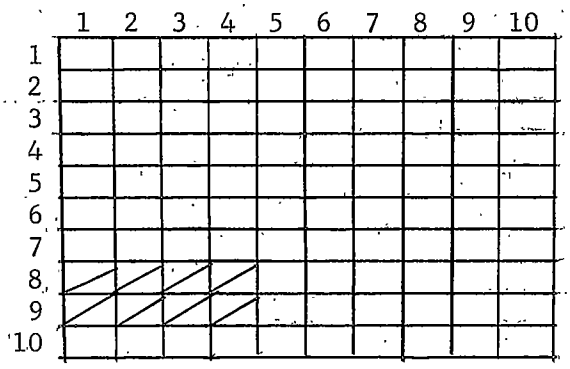
Total silence or confusion--Total of cells (1,10), (2,10), (3,10), (4,10), (5,10), (6,10), (7,10), (8,10), (9,10). (10,10).

Example



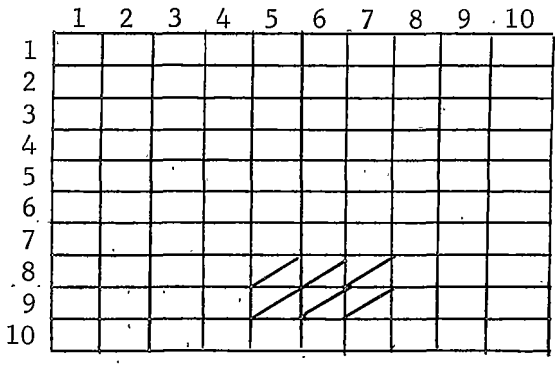
Indirect teacher response to student comments--Total of cells (8,1), (8,2), (8,3), (8,4), (9,1), (9,2), (9,3), (9,4).

Example



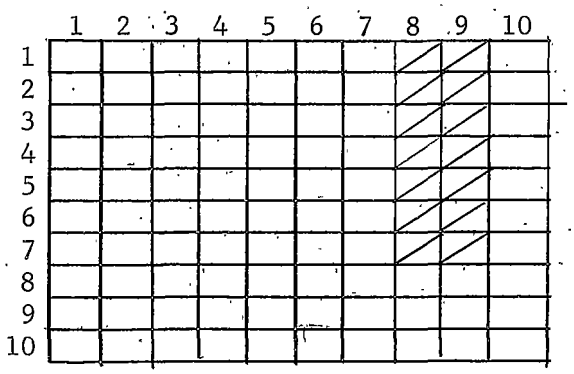
Direct teacher response as a result of student comments--Total of cells (8,5), (8,6), (8,7), (9,5), (9,6), (9,7).

Example



Student-talk following teacher-talk--Total of cells (1,8), (1,9), (2,8), (2,9), (3,8), (3,9), (4,8), (4,9), (5,8), (5,9), (6,8), (6,9), (7,8), (7,9).

Example



Summary

The availability of research information about the verbal teaching patterns of the secondary student teachers at Montana State University was explored and its lack was noted. It was the problem of this study, then, to investigate the verbal teaching patterns of

selected secondary student teachers and to determine essentially what these teaching patterns were. As a corollary to the problem, the Rokeach Dogmatism Scale and the Teaching Situation Reaction Test were administered to student teachers to determine if these tests could predict successful student teachers prior to their student teaching experience in the secondary schools of Montana. The Flanders' system of recording and analysis was used to investigate the verbal teaching patterns of the student teachers.

Chapter 2

REVIEW OF LITERATURE

In reviewing the literature, two basic categories were covered: (1) literature pertaining to interaction analysis, and (2) literature pertaining to the information gathering instruments. The information gathering instruments included: (1) Flanders' system of coding classroom behavior; (2) Teaching Situation Reaction Test; and (3) Rokeach Dogmatism Scale.

Early Studies of Teacher-Student Interaction

Some of the earliest studies regarding a type of interaction of students and teachers stems from the work of H. H. Anderson and his associates, Joseph and Helen Brewer and Mary Frances Reed. (Anderson, 1939) These studies and later ones tended to polarize human contacts as either "dominative" or "integrative" contacts. Since most research on classroom climate tends to dwell in these areas it is essential that they be understood.

Early researchers thought of these two kinds of behavior in this way.

> A preliminary study showed that it was possible to devise reliable measures of behavior of young children. Behavior was recorded as "contacts" divided into two groups of categories. If a child snatched a toy, struck a playmate, or commanded him, or if he attempted to force him in some way, such contacts were included under the term "domination". By such behavior he ignored the rights of the companion; he tended to reduce the

> interplay of differences and to lead toward resistance or conformity in responding or adapting to another.
>
> Other contacts were recorded which tended to increase the interplay of differences. Offering a companion a choice or soliciting an expression of his desires were gestures of flexibility and adaptation. These tended in the direction of discovering common purposes among differences. Such contacts were grouped under the term "socially integrative behavior". (Anderson and Reed, 1946, p. 5)

Anderson's work was based primarily on youngsters in the pre-school and elementary stage of development. It involved five different teachers over a period of several years. Over a period of time, certain consistent findings appeared. One of the most significant findings related to the behavior of the teacher as it set the climate for the class. Dominative contacts by the teacher spread further dominative contacts throughout the room, while integrative contacts cited further integrative contacts. This tendency persisted when the teacher no longer was present in the room. A second significant finding concerned those teachers with a high proportion of integrative contacts. Pupils in this setting were more spontaneous, showed more initiative and exhibited more acts of problem solving. (Anderson, 1939)

A third finding by Anderson and Reed (1946) showed that students with a high proportion of dominative contacts were easily distracted and showed greater rejection of teacher domination.

A second early study done by Lippitt and White (1943) made an independent analysis of the effect of adult leaders on boys' groups. This study was done under more closely controlled laboratory conditions. The role of the adult leaders was made more consistent as a result of careful training and role playing. The basic differences evolving from different personalities were minimized by rotation of leaders among the groups. To intensify the effect of the adult leaders, the groups were kept at five boys. The experiments of Lippitt and White contained some slight variations when compared to the work of Anderson. Essentially though, Lippitt and White used "authoritarian leadership" as the integrative contact; and "laissez-faire" as a pattern of infrequent integrative contacts mixed with an element of indifference to the rest of the group. This latter pattern is seldom found in the classroom and Anderson and others did not consider it in their studies.

A most interesting aspect of this second independent study concerns its relationship to the work by Anderson. With some changes in semantics, but with virtually no changes in behavioral actions the two studies are mutually supportive. One interesting facet of Lippitt and White involved a conceptual extension of Anderson's "conforming to teacher domination." Under the more intensive social climate of the laboratory it was readily seen that extensive compli-

ance by youngsters occurred if a generalized condition of dependence was maintained. (Lippitt, 1940)

These two supportive studies resulted in several other studies concerning the social climate of the classroom. In a study by Withall (1949) a seven category system of integrative-dominative behavior gave results similar to Anderson's. In an early study by Flanders (1951) youngsters were exposed to contrasting patterns of teacher behavior one pupil at a time. Flanders noted that the dominative pattern was consistently disliked by the youngsters. The dislike was measured in terms of inability to recall information; anxiety as measured by the galvanic skin response and changes in the heart beat. All three indicators showed positive gains when integrative contacts were used.

A study by Perkins (1951) supported the general theme of greater learning brought about by an integrative type of leader. Cogan (1956), in a large cross-sectional study involving 987 eighth grade students in 33 classrooms had a similar finding. Cogan did not use a system of spontaneous observations as did Perkins and Withall, but a pencil and paper type instrument that assessed (a) student perceptions of the teacher; (b) how often they did required homework; and (c) how often they did non-required homework. Cogan found that they did more required and non-required homework

when they, the students, perceived the teacher as an integrative type rather than a dominant type.

These research projects cited all support the notion of the importance of classroom climate. A summarization of the two types of teaching patterns follows:

The Integrative or Indirect Pattern

(a) Accepts, clarifies, and supports the ideas and feelings of pupils.

(b) Praises and encourages.

(c) Asks questions to stimulate pupil participation in decision-making.

(d) Asks questions to orient pupils to school work.

The Dominative or Direct Pattern

(a) Expresses or lectures about own ideas or knowledge.

(b) Gives directions or orders.

(c) Criticizes or deprecates pupil behavior with intent to change it.

(d) Justifies own position or authority. (Flanders, 1965, p. 6)

Recent Studies of Teacher-Student Interaction

The year 1956-57 is taken as an arbitrary point to distinguish studies of two periods. It was at this point that Flanders first used the notion of a matrix in his analysis of data.

In a study done in New Zealand in 1956-57, Flanders (1965) found a significant relationship between attitudes of elementary youngsters and teaching style exhibited by the teacher. It was shown that:

> ....classes that scored high on liking the teacher, motivation, fair rewards and punishments, lack of anxiety, and independence used more indirect influence, while teachers of classes that scored low used less indirect influence. (Flanders, 1965, p. 64)

A concurrent study done in Minnesota also confirms this. (Flanders, 1965)

Table 1 gives the interaction analysis data for the five high and low scoring attitude classes in New Zealand. The subjects were standard 4 youngsters, 10 to 12 years old. (Flanders, 1965, p. 57)

TABLE 1

INTERACTION ANALYSIS DATA FOR NEW ZEALAND STUDENTS

		Category in Percent Type of Class	
		Highest	Lowest
Accepts and clarifies feelings	1	0.41	0.05
Praises and encourages	2	2.28	0.09
Accepts and clarifies student ideas	3	6.28	2.89
Asks questions	4	8.71	5.85
Routine administration or statements unrelated to learning	5	0.40	0.67
Gives information or lectures	6	24.15	25.40
Gives direction	7	9.58	16.50
Gives criticism	8	2.58	6.31
Justifies own authority	9	31.52	20.35
Pupil talks	10		
Silence, pauses or confusion	11	13.71	19.99
Total Tallies		10,769	29,054

A third study in Minnesota involved seventh grade social studies and eighth grade mathematics classes. The general results are consistent with those studies cited previously, i.e., those teachers using indirect teaching patterns stimulated greater achievement than those who were more direct. In fact, it was found that "direct teacher influence restricts learning when a student's perception of the goal is ambiguous."(Flanders, 1965, p. 108)

In an intensive study conducted by Norma Furst and Edmund Amidon at the elementary level, variation in verbal communication was noted in grade level and subject taught. The schools involved were divided by economic level; low, medium or high. At least twenty-five classrooms were involved at each level. Table 2 is a description of talk by grade level.

TABLE 2

TALK BY GRADE LEVEL

Grade	Teacher Talk Percentage	Student Talk Percentage	Silence Percentage
1	47	32	21
2	41	42	17
3	42	40	18
4	49	39	12
5	47	29	14
6	47	35	16

(Furst and Amidon, 1965)

The results of the study show that primary teachers used a large amount of time in question and answer sessions while the intermediate teachers appeared to feel that more extensive lecture was conducive to learning. In the upper grades more time was given to independent work by the student.

In Table 2 the column under silence is fairly constant, but an analysis of the matrix reflects different kinds of silence. In the lower grades silence was recorded as a result of changing seats, opening books or a general change of activity. In the upper grades large blocks of silence reflected more extensive seat work.

Praise is used rather extensively at the elementary level and it is interesting to note in this study that it was used most persistently by the first and fifth grade teachers. Variation in techniques of subjects was also apparent. Either by design or accident teaching of social studies was more indirect than teaching of reading or arithmetic. The amount of talk initiated by the students was at its lowest level in grade one, but in grade six it had increased by a factor of ten.

It is apparent from this examination of the material cited that different teaching styles can be identified by grade level, but underlying the grade level differences one still finds the consistent results first noted by H. H. Anderson thirty years ago.

No one in education today believes that all students are alike. Some would argue that it is folly to expect that any single method would be effective with all students, and rightly so. Certainly, thought and research need to be done in the area of pupil personality as it meshes with teacher methods and goals.

A study by Amidon and Flanders explores this area. The study revolved about four treatments done to four different groups of students by a single teacher. The treatments included:

(1) Direct teacher influence: clear goals, 35 dependent-prone students.
(2) Direct teacher influence: unclear goals, 35 dependent-prone students.
(3) Indirect teacher influence: clear goals, 35 dependent-prone students.
(4) Indirect teacher influence: unclear goals, 35 depen-dependent-prone students. (Amidon and Flanders, 1961)

The 140 students were selected on the basis of scores of a dependence proneness test developed by Flanders, Anderson and Amidon. They consisted of the top 25 percent of a larger group of 540 students selected at random.

An examination of Table 3 shows that the single teacher was able to alter his behavior effectively. This was noted in the amount of the category represented under the various treatments.

The results of the study are especially interesting. First, no significant difference was found in achievement whether the groups understood the goals or not. Second, it was found that those students in the indirect group scored significantly higher than those in a direct group upon a post examination. This second conclusion has many meaningful connotations. This is especially true when further study shows that as youngsters show more independence these differences of indirect versus direct become less significant.

TABLE 3

PERCENTAGE OF TALLIES OF INTERACTION CATEGORIES

Category Definition	Treatment			
	1	2	3	4
Teacher Talk: Praise and encouragement	1.35	1.61	27.04	24.90
Clarification and development of ideas suggested by students	2.48	0.92	15.78	16.10
Asks questions	2.58	1.73	28.07	30.04
Gives own opinion and facts (lectures)	63.10	61.40	13.52	15.97
Gives directions	8.67	10.36	0.28	0.27
Criticizes students	13.03	15.54	1.27	0.94
Student talk	5.07	5.29	16.47	17.17
No one talking	3.49	3.45	7.75	4.69
Total tallies on which the percentage figures are based	889	869	711	746

When youngsters scoring in the top 25 percent of independence are used, no significant difference results. When compared to the total sample of students the more dependent prone student is more influenced by the teaching pattern.

Studies have been done at various levels and content areas comparing the verbal behavior patterns of superior teachers with those judged not as proficient. One study done by Amidon and Giammateo (Amidon and Hough, ed., 1967) involved 153 elementary teachers from eleven districts. This group included thirty-three teachers identified as superior by their administrators or supervisors and 120 for the normative group selected at random.

The results of analyzing the Flanders Matrix indicate that

> ....the superior teachers talked approximately 40% of their total class time while the normative group talked approximately 52% of the time. The superior teachers were more accepting of student-initiated ideas, tended to encourage these ideas more and also made more of an effort to build on these ideas than did the average group of teachers. The superior teachers dominated their classrooms less, used indirect verbal behavior more, and used direction-giving and criticism less than the normative group of teachers. The superior teachers asked questions which were broader in nature than the normative group, and their lectures were interrupted more by questions from the students. There was about 12% more participation in the classes of the superior teachers. (Amidon and Hough, ed., 1967, p. 187-188)

One might tend to dismiss this study on the basis that it simply shows that administrators and supervisors tend to pick

certain kinds of teachers as superior. The concept of a superior teacher and teaching must be identified in more objective terms. If superior teaching is linked with greater achievement by students on standardized achievement tests and more positive attitudes towards others in their peer groups, then studies are available to supply relatively objective information about superior teaching. Several examples will be cited.

Nelson (1966) did a study on the elementary level. She found a positive or favorable relationship between indirect teacher influence and inhibition of students development of written language skills.

Furst (1965) also identified certain relationships between teacher influence patterns and student achievement at the elementary level. She also concluded that there was a positive relationship between amount of talk and student achievement.

La Shier (1966) found that students working with indirect student teachers achieved more than students working with direct student teachers. This study covered a six week unit in biological science.

Soar (1966) found similar conclusions at the elementary level in a reading comparison. A particularly interesting facet of Soar's study concerned reading growth in the summer period. Those students who had direct teachers during the regular year advanced

three months in reading comprehension while those who experienced the indirect influence made a five and one-half month advance in reading comprehension. This seems to indicate that the indirect teacher has an influence after the formal learning situation ceases.

The whole problem of achievement can be related to the student's sensitivity to the teacher as an authority figure. If the teacher is directive the student finds increasing satisfaction in compliance to authority and his understanding of the subject can decrease as the course progresses. Only if a climate of reassurance, freedom and respect for human dignity is maintained does such a youngster do as well as he is able.

> One implication of this study is that closer supervision through the use of direct influence, an all too common antidote to lower achievement, may be more harmful than helpful for dependent-prone students. (Amdion and Flanders, 1969, p. 291)

This last statement is especially important because it implies that a youngster's development is being retarded while it is supposedly being stimulated. Those who already may have a weak desire for education may find it further extinguished by remedial programs. (Amidon and Flanders, 1961)

The above quotation also has implications for grouping and teacher selection. The time appears to be past when grouping of youngsters can take place on the basis of age, sex, or I.Q. and the teacher selected solely on the basis of subject content. Now it

becomes increasingly apparent that personality factors in students and verbal teaching patterns of teachers must also be matched to bring about the desired behavioral change in youngsters. (Amidon and Flanders, 1964)

At the present time no national averages are available which represent hard and fast rules as to what is "desirable" or "undesirable" in the classroom. Probably the person most able to make the final decision is the individual teacher. It is possible, in a general way, to discuss the implications of the reconstructed matrix.

Some data are cited below to give the reader some insight into average percentages available on experienced junior high teachers. These figures represent current practices and not necessarily the best practices. The actual number of teachers involved in this part of the study was not available, but these figures were a result of early research at the University of Minnesota and later research at Temple University.

Statements that belong to category one, accepts feeling, are seldom used, but due to the nature of what they portray, are considered valuable indicators of the nature of the climate in the classroom. The average amount of time spent in this category is less than .5 percent. There appears to be little difference in the use of this category by indirect teachers as compared to direct

teachers. It has been found that indirect teachers use up to .5 percent while direct teachers usually use less than .1 percent. These differences in amounts were considered minimal in the context of total class time. (Amidon and Flanders, 1967)

Little difference is found between the number of times the indirect teacher uses category two, praises or encourages, as compared to the direct teacher. Both use it about 2 percent of the total class time. However, the (2,2) cell, indicating extended praise, is used about twice as much by the indirect teacher as the direct teacher.

In category three, accepts or uses ideas of students, there is a striking difference between the indirect as compared to the direct. Approximately two percent of the time is utilized by direct teachers, while indirect teachers use it about 9 percent of the time. Although some difference in usage is due to subject content, large cross-sectional studies indicate that it is largely due to teacher differences rather than subject area. (Amidon and Hough, 1967) In particular, it is felt that extensive use of the (3,3) cell is a reliable indicator of the indirect teacher. (Amidon and Hough, 1967)

There seems to be little difference in the use of categories four and five as used by indirect and direct teachers. Category four, teacher questions, is used about 8 percent of the time by the direct teacher, while the indirect teacher uses it about 11 percent

of the time. Category five, lecture, varies from 25 to 50 percent of the time with little consistency in determining the direct or indirect teacher. (Amidon and Flanders, 1967)

Category six, giving directions, involves a significant difference in the use of time spent by the two kinds of teachers discussed. The direct teacher is involved in giving directions 8 percent of the time while the indirect teacher is involved 4 percent of the time.

Category seven, criticizing or justifying authority, also involves differences in teaching style. The direct teacher uses criticism or self-justification about 5 percent of the time, while the indirect teacher uses it less than 1 percent of the time.

A basic difference in category eight, student talk-response, is noted in how students are permitted to talk. The direct teacher is marked by about 50 percent of the tallies in the (4,8) cell, while the indirect teacher is identified by about 30 percent of the tallies there. The indirect teacher has a much heavier loading in the (8,8) cell, indicating more lengthy response to the teacher question. (Amidon and Flanders, 1967)

The same kind of pattern also occurs in category nine, student talk-initiation, indicator of the indirect teacher is the large number of tallies in the (9,9) cell. This category will run

as high as 10 percent or more of the classroom time for some teachers.(Amidon and Flanders, 1967)

Category ten, silence or confusion, shows a heavier loading for direct teachers as compared to indirect teachers. Ten percent of the time spend in silence and confusion was considered average in a study done with student teachers by Lohman, Ober, and Hough.(Amidon and Hough, eds., 1967)

Predictive Studies Involving Validity of the Teaching Situation Reaction Test

Several studies have been done using the Teaching Situation Reaction Test as a predictor of student teaching success. One of the first studies involved seventy-three science student teachers at The Ohio State University, Columbus, Ohio. The basic null hypothesis stated that there was no relationship between the grades in student teaching and scores achieved on the T.S.R.T. A tetrachoric r value of .51 resulted. This value is significant beyond the .01 level. Therefore, it was concluded that the T.S.R.T. had some value in predicting student teacher grades.(Duncan with Hough, 1966)

Another study involved forty-eight student teachers at Keene State, Keene, New Hampshire. Two supervisors ranked the top ten student teachers and the eleven who were deemed the poorest. It was hypothesized that there was no difference in the average

score achieved on the T.S.R.T. Using a *t* value with nineteen degrees of freedom, results were significant at better than the .05 level.(Duncan with Hough, 1966) Once again, the T.S.R.T. exhibited potential for predicting success in student teaching.

A third study involved seventy experienced teachers in a single school system. Two supervisors ranked the nineteen best teachers and nineteen poorest teachers. It was hypothesized that there would be no difference in the average score of the two groups. A *t* test was applied and results were significant beyond the .01 level.(Duncan with Hough, 1966)

Studies Involving Reliability of the Teaching Situation Reaction Test

One study concerned with the reliability of the T.S.R.T. involved eighty-four student teachers at The Ohio State University. A test-retest situation with an intervening interval of eighty days resulted in a product moment correlation of .84. This value indicates a good degree of reliability.(Duncan with Hough, 1966)

Two studies have been done involving fake resistance. Both studies resulted in the same conclusions. Undergraduate students were unable to fake results to get a "good" score. (Duncan with Hough, 1966) According to the studies cited the T.S.R.T. appears to have good reliability and validity in predicting student teacher success.

Studies Involving the Rokeach Dogmatism Scale

The Dogmatism Scale is a result of the work of Dr. Milton Rokeach and his associates. Essentially the test is a measure of general authoritarianism and general intolerance.(Rokeach, 1960)

Table four shows the general development of the test and the search for test reliability. This table shows the development of five forms of the test and the good reliability when the test is used in different geographic regions. This table is, in general, restricted to university students.

A second study by Rokeach found a positive relationship between the selection of groups by peers and scores on the Dogmatism Scale. This and other studies are discussed in Rokeach.(1960)

Hough and Amidon (1964) explored the possible link between scores on the Dogmatism Scale, and successful experience in student teaching. They found that students with relatively low scores on the Dogmatism Scale were seen by their supervisors as more effective teachers. They suggest a link between the Teaching Situation Reaction Test and the Dogmatism Scale.(Hough and Amidon, 1964)

Zahn (1965) also explored the relationship between proficiency in teaching and scores achieved on the Dogmatism Scale. He found that student teachers who scored one standard deviation below the mean (more open belief system) were more proficient in

TABLE 4

RELIABILITIES, MEANS AND STANDARD DEVIATIONS
OF SUCCESSIVE FORMS OF THE
DOGMATISM SCALE

Form	No.of items	Group	No.of Cases	Reliability	Mean	S.D.
A	57	Mich. State U., I	202	.70	182.5	26.2
B	43	New York Colleges	207	.75	141.4	27.2
C	36	Mich. State U., II	153	.73	126.9	20.1
		Mich. State U., III	186	.71	128.3	19.2
		Purdue U.	171	.76	---	--
D	66	English Colleges I	137	.91	219.1	28.3
E	40	English Colleges II	80	.81	152.8	26.2
		English Workers	60	.78	175.8	26.0
		Ohio State U., I	22	.85	142.6	27.6
		Ohio State U., II	28	.74	143.8	22.1
		Ohio State U., III	21	.74	142.6	23.3
		Ohio State U., IV	29	.68	141.5	27.8
		Ohio State U., V[a]	58	.71	141.3	28.2
					143.2	27.9
		Mich. State U., IV	89	.78	---	--
		V. A. Domiciliary	80	--	183.2	26.6
			24	.93	---	--
			17	.84	---	--

[a]The Ohio State University V reliability was obtained by a test-retest, with five to six months between tests. The reliability of .84 for the V.A. group was obtained in the same was with at least a month between tests.(Rokeach, 1960, p. 90)

their student teaching performance. One of Zahn's indicators of performance was the Teaching Situation Reaction Test.

In his analysis of validity, Rokeach used groups chosen on the basis of open or closed belief system as they appeared to others. A comparison of the scores of these known groups established a general relationship between the known group and the score on the Dogmatism Scale. (Rokeach, 1960)

It is interesting to note the failure of one of the first experiments. College professors were asked to select from among their graduate students groups that were relatively open and groups relatively closed. Scores achieved by these groups as measured by the Dogmatism Scale were not significant. It is possible the college professors were poor judges of character or simply did not know the graduate students well enough. Another alternative could be the professor-student relationship produces a masking effect by the student. As Rokeach points out "there is little room for arrogance, bigotry, or cocksureness in dealings with professorial authority."(Rokeach, 1960, p. 106)

Summary

As one reads the literature available linking teaching style and achievement, the consistency of the studies tends to emphasize the importance of teaching style as it relates to student

achievement as well as student attitudes. The general teaching style which stresses maximum student involvement and warm acceptance of the students as a worthwhile human being seems to bring significantly greater benefits in the form of greater achievement and better attitudes with less measurable stress on the students. If one accepts the rather consistent findings, then it behooves one to bring about the kinds of teaching behavior in student teachers deemed desirable.

Both the Teaching Situation Reaction Test and the Dogmatism Scale have been used before with good results in predicting student teacher success. Validity and reliability for both instruments have been explored and found.

Chapter 3

METHOD

The purpose of this chapter is to describe the groups of student teachers involved in the study as well as the instruments used to collect the data.

Selection and Description of the Control Groups

There were a total of 80 secondary student teachers involved initially with this study Fall Quarter, 1969. This group was reduced to 77 because of the failure of people to properly follow directions on the initial information gathering instrument. This group will hereafter be referred to as "Group A". Of this group, all those people teaching in the subject areas of English, social studies, mathematics, and science were placed in a subgroup referred to as "Group B". Group B consisted of 37 people. These areas were picked to restrict the study and lend greater homogeneity to the group involved. It was also felt that there would be more teacher-student interaction in these subject matter areas than in such subjects as physical education or industrial arts.

From the people in Group B fifteen names were selected on a random basis by lottery as described by Cochran (1953) and Weinberg and Schumaker (1962). This group will be referred to as "Group C".

There will be no "Group D" in this study. "Group E" was chosen to represent the experimental aspect of this study.

Selection and Description of the Experimental Group

There were a total of 33 secondary student teachers involved with the student teaching experience Winter Quarter, 1970. Thirty-two of these were involved in the study. This group will hereafter be referred to as "Group E". Of this group, all those people teaching in the subject areas of English, social studies, mathematics and science were placed in a sub-group referred to as "Group F". No further reduction of Group F was necessary as it contained the desired number to match Group C in the control group.

Instruments Used in the Study

The following is a description of the instruments used to collect data for the study.

Teaching Situation Reaction Test (TSRT).

As the name of the test implies, the student is faced with a teaching situation and asked to respond to it by ranking four possible courses of action. The ranking is done in accordance with four theoretical dimensions:

> (a) the type of control a teacher would use in the classroom, direct or indirect; (b) the relationship the teacher would have with students in the classroom, empathetic or self-oriented;

> (c) the approach the teacher would take to classroom problems of instruction and control, objective or subjective; and (d) the approach the teacher would have to classroom methodology, experimental or conservative. (Hough and Amidon, 1964, p.22-23)

The situations are of such a nature that they may be considered subject matter neutral. The situations deal with such items as teacher planning, management in the classroom and teacher-pupil relationships. There are forty-eight items in the test. (Duncan with Hough, 1966)

The general situation posed to the individual taking the test is essentially this:

> You have been employed by a school system which is engaged in a series of experimental studies. One of these studies involves a class designed to improve pupils' general adjustment to their environment. A heterogeneous group (physically, mentally, socially) of twenty-five thirteen to fourteen year-old youngsters have signed up for this class entitled "Teen Topics" because they thought it would be interesting.
>
> The class is scheduled to meet the last period of the day on Tuesday and Thursday during the second semester. Arrangements have been made so that the class might take trips and students might meet informally with the teacher after class.
>
> You have accepted the principal's invitation to take this class. You have been given pretty much of a free hand to develop the course. You have a teacher-counselor to help you and a good supply of instructional materials available. Studies will be made of the personal adjustment gains evidenced by a selected number of your twenty-five students. (Duncan with Hough, 1966, p. 3)

The foregoing statement describes the general situation. Eleven modifications are posed to the testee. The modifications

include situations dealing with "course planning, handling restlessness and inattention, handling conflict between two students, handling conflict between a student and the class as a whole, working with shy students and many others."(Duncan with Hough, 1966, p. 3) A copy of this instrument is included as Appendix A.

Rokeach Dogmatism Scale.

The Dogmatism Scale used in this study was developed over a period of years by Milton Rokeach and has associates. The test measures essentially the openness or closedness of a person's belief-disbelief system, which, as Rokeach defines the terms, really measures general authoritarianism and intolerance. The various forms and development of the test are discussed in The Open and Closed Mind.(Rokeach, 1960) Form E of the Dogmatism Scale was used and it is included in Appendix B.

Supervisor's Report on Student Teaching.

This is a check-list form used by Montana State University supervisors. It contains five categories ranging from "1" being superior to "5" being poor. There are three general headings. They include (1) personal characteristics; (2) teaching characteristics; and (3) professional attitudes. This form is used primarily for conferences between college supervisors and student teacher. It is included in Appendix C.

Classroom Teacher's Evaluation of Student Teachers.

This is a second check-list form used by the classroom teacher. It also consists of a five category checklist ranging from "1" being superior to "5" being poor. The evaluation form is included in Appendix D.

Flanders' System of Interaction Analysis.

The Flanders' System of coding verbal interaction between teacher and student involves ten categories. These categories include: (1) accepts feeling; (2) praises or encourages; (3) accepts or uses ideas of students; (4) asks questions; (5) lectures; (6) gives directions; (7) criticizes or justifies authority; (8) student talk-response; (9) student talk-initiation; (10) silence or confusion. A trained observer records an appropriate number every three seconds. Additional information about the categories is included in Appendix E. Information concerning the ground rules of coding can be found in Amidon and Flanders, pages 24-29 (1967). As an example, ground rule 13 is cited. "Rhetorical questions are not really questions; they are merely part of lecturing techniques and should be categorized as 5's."(Amidon and Flanders, 1967, p.29)

After a minimum of four hundred entries describing the various categories were recorded, an appropriate ten by ten matrix

is constructed and analyzed. An example of how the matrix is constructed follows:

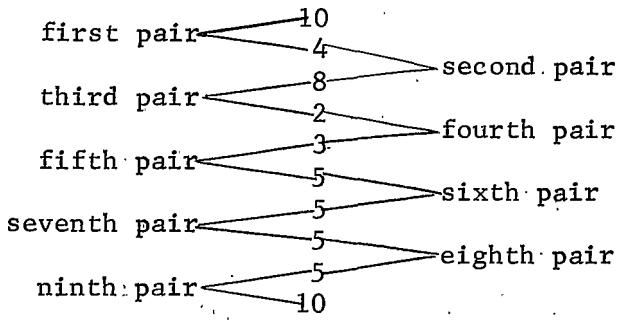
A trained observer may record the following sequence as a result of classroom observation:

4
8
2
3
5
5
5
5

For the purpose of analysis a ten would be placed at the beginning and ending of the sequence giving this appearance. The tens are used to balance the matrix as it is assumed that each recording period began and ended in silence.

10
4
8
2
3
5
5
5
5
10

The tabulation involves every adjacent pair of numbers.



The first pair is plotted as row ten, column four. The second pair is plotted as row four, column eight. The third pair is plotted as row eight, column two. This continues until all adjacent pairs are plotted.

A sample matrix follows below:

TABLE 5

SAMPLE INTERACTION MATRIX

Columns

	1	2	3	4	5	6	7	8	9	10	
1											
2			1								
3					1						
4								1			
5					3					1	
6											
7											
8		1									
9											
10				1							
Total	0	1	1	1	4	0	0	1	0	1	9

In table 5, cell (4,8) represents a shift in verbal behavior from teacher question to student response. Cell (8,2)

represents a shift from student response to teacher praise. Following this kind of procedure percentages of different kinds of teacher-student talk can be determined and teacher styles and classroom climate can be assessed.

Description of the Study

All groups were given the Teaching Situation Reaction Test prior to student teaching and again on a post-test basis immediately following student teaching. The Dogmatism Scale was administered to both the Fall Quarter group of student teachers and the Winter Quarter group at the same time to preserve the validity of the test. Both the Dogmatism Scale and the pre-test of the Teaching Situation Reaction Test were administered to the experimental Group F prior to receiving the additional Flanders' training.

Of the fifteen people originally selected in experimental Group C, one was later excluded because of an assignment error, and two more were excluded because of insufficient data received as a result of coding. This left a group of twelve for close scrutiny by the writer, using Flanders' methods of coding and analysis.

The twelve students were assigned to various schools throughout the state of Montana using normal college rules for

assignment. There is no reason to suspect any systematic bias in the assignment procedures.

The experimental group (Group F) of eleven student teachers was selected by the writer on the basis of subject major and minor areas as closely as availability permitted. The writer gave the eleven student teachers twenty hours of training with the Flanders' method of coding interaction analysis. Emphasis was given equally to coding and interpretation of the reconstructed matrix. Some "live" coding was done by the students on each other. The majority of coding revolved around two training tapes purchased from the Association for Productive Teaching, Minneapolis, Minnesota. The text used was The Role of The Teacher in the Classroom, revised edition by Edmund J. Amidon and Ned A. Flanders.

Class attendance remained high in spite of meeting two hours per night on consecutive nights of the week. The students made frequent suggestions for inclusion of this experimental class into the regular education program at Montana State University.

Following this training, Group F taught Winter Quarter, 1970. The writer observed and coded them using the procedures followed by Flanders.

A descriptive analysis was made on pertinent areas of the reconstructed matrix of experimental Group F as compared to

control Group C. No statistical tests were performed on mean scores of areas of the matrix following the wishes of the writer's graduate committee.

Statistical tests were performed on the various sub-groups using the Dogmatism Scale, the pre-test of the Teaching Situation Reaction Test and grades in the student's major areas as indicators of likeness or unlikeness prior to student teaching. The Fisher F-test with the criterion being $F^{n-1}_{n-2} \geq \frac{S_1^2}{S_2^2}$ was used to determine the homogeneity of the two population variances. Following this the appropriate t test was used to test the significance of the means under investigation. The procedure used was outlined in Educational Statistics by W. James Popham. (1967)

The predictive aspects of the Dogmatism Scale and the Teaching Situation Reaction Test were also explored. Both were used as independent and dependent variables. These results were compared against the grades given in student teaching and the mean score achieved on the college supervisor's evaluation form. (Appendix C) The F and t tests were used to test homogeneity of variances and equality of means, respectively.

The Pearson r correlation was used to determine the degree of correlation between the average score achieved on the college supervisor's form (Appendix C) and the classroom teacher's evaluation

form (Appendix D). The formula used is given below:

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}}{\sqrt{\left(\Sigma X^2 - \frac{(\Sigma X)^2}{n}\right)\left(\Sigma Y^2 - \frac{(\Sigma Y)^2}{n}\right)}}$$

The process of selection of the different groups involved in the predictive aspects of the Dogmatism Scale and the Teaching Situation Reaction Test are described in Chapter Four.

Summary

The various groups and sub-groups of student teachers involved in the study were identified. Procedures of random selection were noted and documented.

The instruments used in the study were identified and described. These instruments included: (1) the Teaching Situation Reaction Test, (2) the Rokeach Dogmatism Scale, (3) Supervisor's Evaluation of Student Teachers, (4) Classroom Teacher's Report on Student Teaching, and (5) Flanders' System of Interaction Analysis.

The Teaching Situation Reaction Test has been used at other institutions to predict those who will be successful teachers. It consists of forty-eight forced-choice response items. By ranking these responses the testee indicates how he would respond to a series of educational situations.

The Rokeach Dogmatism Scale attempts to determine the relative openness of closedness of a person's belief-disbelief system. The use of this test has been successfully linked with the Teaching Situation Reaction Test.

The Supervisor's Evaluation of Student Teachers is a checklist form of student teacher evaluation. The Classroom Teacher's Report on Student Teaching is a similar checklist form used by the classroom teacher.

The Flanders' System of Interaction Analysis includes ten categories. The identity and use of these categories were explained. The rudimentary rules of the reconstructed matrix were also included.

The various statistical instruments used in the study were identified. Statistical source books were noted.

Chapter 4

PRESENTATION AND ANALYSIS OF THE DATA

This area of the study will first explore the possible predictive value of the Dogmatism Scale and the Teaching Situation Reaction Test as they pertain to success in student teaching as viewed by the college supervisor. Both tests will be used as both dependent and independent variables.

The first portion of this study that deals with the predictive aspects of the Dogmatic Scale and the Teaching Situation Reaction Test applies to the Fall Quarter group of student teachers only. The relatively large number of people available Fall Quarter (77) enabled a larger number of people to be in the sample selected. From a statistical standpoint it would be desirable to have more student teachers available than seventy-seven for the study, however, this was not possible at Montana State University.

The statistical instruments used in this part of the study included the mean, standard deviation, Z variable, F-test, t-test, and r correlation. Two forms of the t-test were used. They included:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{\Sigma x_1^2 + \Sigma x_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n} + \frac{1}{n_2}\right)}} \qquad t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

The Fisher F-test used to check homogeneity of variances was:

$$F^{n_1-1}_{n_2-1} \geq \frac{S_g^2}{S_s^2}$$

The formula for the r correlation used is listed below.

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}}{\sqrt{\left(\Sigma X^2 - \frac{(\Sigma X)^2}{n}\right)\left(\Sigma Y^2 - \frac{(\Sigma Y)^2}{n}\right)}}$$

Heavy reliance was made on statistical source books by Popham (1967) and Lentner (1968).

An Analysis Using the Dogmatism Scale as an Independent Variable

An investigation of the possible predictive value of the Dogmatism Scale was done in the following manner. Dogmatism scores of the Fall Quarter student teachers greater than one standard deviation (21.045) from the mean (142.816) were used as independent variables determining the selection of scores on both the pre- and post-Teaching Situation Reaction Test, the college supervisor's evaluation mean score and the corresponding grade given in student teaching. The data are listed in Tables 6 and 7. Dogmatism scores were 164 or higher to indicate those high in authoritarianism and 121 or lower to indicate those low in this quality.

TABLE 6

CORRESPONDING SCORES TO HIGH DOGMATISM SCORES

Dogmatism Score I.S.D. or higher from mean	Pre-TSRT	Post-TSRT	Average College Supervisor	GPA for Student Teaching
173	207	192	1.164	3.56
178	206	200	1.257	3.56
166	203	198	1.285	4.00
164	228	218	n/a	4.00
165	196	207	2.000	3.00
166	190	194	3.500	2.56
184	202	223	1.285	3.00
169	239	220	2.285	3.00
167	178	194	n/a	3.44
166	194	196	1.571	3.56
171	195	196	1.923	3.44
165	199	192	2.000	4.00
n = 12	$\bar{x}$ = 203.083	$\bar{x}$ = 202.50	$\bar{x}$ = 1.645	$\bar{x}$ = 3.426

TABLE 7

CORRESPONDING SCORES DETERMINED BY
LOW DOGMATISM SCORES

Dogmatism Scores I.S.D. or higher from mean	Pre-TSRT	Post-TSRT	Average College Supervisor	GPA for Student Teaching
110	225	219	1.285	4.00
112	217	216	3.500	2.56
114	226	216	1.214	4.00
77	217	209	1.859	3.00
110	232	222	1.928	3.00
110	208	216	2.285	4.00
118	190	209	1.857	3.56
116	208	219	1.000	4.00
114	184	218	1.357	4.00
120	203	216	n/a	3.56
118	202	215	1.285	4.00
121	220	215	1.000	3.00
120	216	203	1.714	3.56
n = 13	$\bar{x}$ = 211.384	$\bar{x}$ = 214.615	$\bar{x}$ = 1.773	$\bar{x}$ = 3.556

Table 6 and Table 7 were included so that the reader may determine how the raw data were linked together for the various instruments used in this phase of the study. Comparisons of average scores were made on the last four columns of Table 6 and Table 7 with the results in Table 8.

TABLE 8

AN ANALYSIS OF SCORES USING DOGMATISM SCORES AS AN INDEPENDENT VARIABLE

High Dogmatism Group				Low Dogmatism Group			
n	Group	Mean	S.D.	n	Group	Mean	S.D.
12	Pre-TSRT	203.083	16.378	13	Pre-TSRT	211.384	16.056
12	Post-TSRT	202.500	11.532	13	Post-TSRT	214.615	5.140
10	College Supervisor	1.645	1.109	12	College Supervisor	1.773	0.667
12	GPA for Student Teaching	3.426	0.460	13	GPA for Student Teaching	3.556	0.507

After the means and variances were calculated, the variances were checked for equality using the F-test. This was used as a guide to determine the appropriate t model to use as advised by Popham (1967). A summary of the statistical check of the means for the high and low dogmatism scores determined the following results.

TABLE 9

STATISTICAL SIGNIFICANCE OF SCORES USING DOGMATISM SCORES AS AN INDEPENDENT VARIABLE

Comparison of Groups	t-value	2-tailed Testing criterion at .05 level	Significance
High/Low Pre-TSRT	1.368	2.069	Not Significant
High/Low Post-TSRT	3.349	2.190	Significant
High/Low College Supervisor	.335	2.086	Not Significant
High/Low GPA for Student Teaching	.687	2.069	Not Significant

*Significant at .01 level.

An analysis of Table 9 and the data leading to its preparation showed that the two groups of student teachers, one rated high by the Dogmatism Scale, and the other low, did not differ statistically on the pre-Teaching Situation Reaction Test. However, when the same groups were given the post-Teaching Situation Reaction Test, those students rated as flexible and more non-authoritarian made a significant change.

In the light of previous studies done with this test a desirable change in the teaching competency occurred. A comparison of the mean scores of the college evaluation form showed no difference between the competency of the two groups. A check of the grades

grades achieved in student teaching also failed to detect a difference. As far as the College supervisor was concerned, the traits of flexibility or non-authoritarianism and the ensuing change as measured by the TSRT were not factors in their evaluation.

An Analysis Using the Pre-Test of the Teaching Situation Reaction Test as an Independent Variable

Another aspect of this investigation used the pre-test of the Teaching Situation Reaction Test as an independent variable. It governed the selection of the corresponding dogmatism score, post-test of the Teaching Situation Reaction Test, the college supervisors evaluation mean score and the grade point average achieved during student teaching. Pre-test scores of the Fall Quarter student teachers one standard deviation above and below the mean were used. The mean pre-Teaching Situation Reaction Test for Group A was 204.263, and the standard deviation was 13.667. This included scores 218 or higher and 190 or lower. Data are given in Tables 10 and 11.

Table 11 shows the corresponding scores determined by low Teaching Situation Reaction Test scores. These data are for Fall Quarter student teaching.

Table 10 and Table 11 were included so that the reader may determine the type of linkage between corresponding data when the Teaching Situation Reaction Test was used to determine the selection

TABLE 10

218 AND ABOVE

Pre-TSRT	Dogmatism	Post-TSRT	College Supervisor	GPA for Student Teaching
225	110	219	1.385	4.00
226	n/a	227	n/a	4.00
226	114	216	1.214	4.00
228	152	213	1.857	4.00
228	164	218	n/a	4.00
228	164	218	n/a	4.00
232	110	222	1.928	3.00
239	169	220	2.285	3.00
229	178	224	2.363	3.00
220	121	215	2.000	3.00
219	148	214	1.500	3.00

TABLE 11

190 OR LOWER

Pre-TSRT	Dogmatism	Post-TSRT	College Supervisor	GPA for Student Teaching
190	159	191	2.357	3.00
188	160	204	1.928	4.00
177	147	167	1.000	4.00
190	137	206	2.285	3.00
187	n/a	198	1.500	4.00
187	171	199	3.500	3.00
182	130	195	2.071	3.56
190	166	194	3.500	2.56
190	118	209	1.857	3.56
186	159	180	2.071	3.56
184	114	218	1.357	4.00
188	160	191	1.714	3.56
178	167	194	n/a	3.44
189	n/a	202	2.214	3.00
170	126	181	n/a	4.00

of the other scores. Comparisons of mean scores were made on the last four columns of Table 10 and Table 11 with results listed in Tables 12 and 13.

TABLE 12

AN ANALYSIS OF SCORES USING PRE-TSRT AS AN INDEPENDENT VARIABLE

High Pre-TSRT				Low Pre-TSRT			
n	Group	Mean	S.D.	n	Group	Mean	S.D.
9	Dogmatism	140.666	27.161	13	Dogmatism	147.230	19.837
10	Post-TSRT	218.800	4.451	15	Post-TSRT	195.333	12.697
8	College Supervisor	1.804	0.432	13	College Supervisor	2.104	0.791
10	GPA for Student Teaching	3.400	0.918	15	GPA for Student Teaching	3.482	0.473

After the means and variances were calculated, the variances were checked for equality using the F-test. This was used as a guide to determine the appropriate t-model to use. A summary of the statistical check of the means for the high and low pre-TSRT showed the following results.

TABLE 13

STATISTICAL SIGNIFICANCE OF SCORES USING PRE-TSRT AS AN INDEPENDENT VARIABLE

Comparison of Groups	t-value	Testing Criterion at .05 level	Significance
High/Low Dogmatism	.658	2.086	Not Significant
High/Low Post-TSRT	6.556*	2.204	Significant
High/Low College Supervisor	.261	2.204	Not Significant
High/Low GPA for Student Teaching	1.056	2.093	Not Significant

*Significant at the .01 level.

An analysis of Table 13 and the data shows a failure of the pre-test of the Teaching Situation Reaction Test to predict corresponding people high or low in flexibility or non-authoritarianism. Neither does the pre-test of the TSRT predict grades achieved in student teaching or the evaluation score recorded by the college supervisor. A significant relationship does exist between the pre- and post-test scores of the TSRT.

An Analysis Using the Grade Point Average Achieved in Student Teaching as an Independent Variable

During the Fall Quarter seventy-seven secondary student teachers were involved with the testing program discussed in this

study. Thirty-five of these people achieved a 4.0 grade point average for student teaching, while twenty-four achieved a 3.0 or less. For purposes of analysis the thirty-five who achieved a 4.0 average for student teaching were placed in one group and the twenty-four with a 3.0 or less in a second group. The grade point average in student teaching was used as a basis for selecting scores on the Dogmatism Scale, Teaching Situation Reaction Test, and the college supervisor's evaluation form. The results are presented in tabular form in Table 14.

TABLE 14

AN ANALYSIS OF SCORES USING GPA IN STUDENT TEACHING AS AN INDEPENDENT VARIABLE

Four-Point GPA in Student Teaching Group				Three-Point GPA or less in Student Teaching Group			
n	Group	Mean	S.D.	n	Group	Mean	S.D.
31	Dogmatism Scale	140.580	18.828	23	Dogmatism Scale	144.434	24.053
35	Pre-TSRT	204.580	13.703	24	Pre-TSRT	206.500	6.612
35	Post-TSRT	207.371	14.820	24	Post-TSRT	202.375	11.590
29	College Supervisor	1.518	0.450	24	College Supervisor	2.485	0.654

After the means and variances were calculated, the variances were checked for equality using the F-test. This was used as a guide

to determine the appropriate t model. A summary of the statistical check of the means for the high and low grade point averages achieved in student teaching determined the following results.

TABLE 15

STATISTICAL SIGNIFICANCE OF SCORES USING GPA IN STUDENT TEACHING AS AN INDEPENDENT VARIABLE

Comparison of Groups	t-value	Testing criterion at .05 level	Significance
High/Low Dogmatism	.670	2.01	Not significant
High/Low Pre-TSRT	.666	2.05	Not significant
High/Low Post-TSRT	1.397	2.00	Not significant
High/Low College Supervisor	6.715*	2.05	Significant

*significant at .01 level.

An analysis of Table 15 and the data leading to its preparation shows general flexibility and non-authoritarianism does not seem to be a significant factor in the grade achieved in student teaching. In a like manner, scores achieve on both pre- and post-Teaching Situation Reaction Tests for the high and low grade point average groups do not differ. On the basis of this test, one may conclude that neither the Dogmatism Scale nor the Teaching Situation Reaction Test had value in predicting the success of student teachers

as it was measured by their college supervisor at Montana State University during Fall Quarter, 1969. There does appear to be a highly significant relationship between the college supervisor evaluation form and the grade achieved in student teaching. A Pearson r correlation was computed using the results of the college supervisor's evaluation form (Appendix C) and the classroom teacher's evaluation form (Appendix D). The r value computed was .634. Even though different forms were used there is a significant relationship between the views of the classroom teacher and the college supervisor.

A Comparison of Groups A, B, C, E and F Using the Flanders' System of Coding and Analysis

Since several different groups of student teachers were involved in various aspects of this part of the study, a comparison of the mean scores achieved by them on the Dogmatism Scale, the Teaching Situational Reaction Test, and grade point average achieved in their subject area major was made to determine if the groups compare favorably in the qualities measured by these instruments. Techniques of analysis involving the F-tests and t-tests were used.

TABLE 16

DOGMATISM SCORES

Group	Mean	S.D.
A	142.816	21.045
B	143.405	22.957
C	137.000	16.596
E	131.437	20.297
F	129.400	23.791

Table 16 is a listing of all the different groups of student teachers involved in the study. Means and standard deviations given in this table were used in later analysis.

TABLE 17

INTERGROUP COMPARISONS OF DOGMATISM SCORES

Group Pairs	F-value	Critical Value at .10 level	Significance	t-value	Critical Value at .05 level	Significance
A/E	1.074	1.72	Not Significant	2.576	1.990	Significant
C/F	2.054	2.90	Not Significant	1.079	2.086	Not Significant

Under the assumption that both Group A and Group E could be considered the entire population of secondary school teachers for

their respective quarters Z-tests were made to test the subsample group against the entire population groups, i.e., A and E. The Z variable used was $Z = \frac{\bar{x} - u_o}{\sigma_{\bar{x}}}$. The null hypothesis was rejected if $|Z| \geq Z_{1-\alpha/2}$.

TABLE 18

INTRAGROUP COMPARISONS OF DOGMATISM SCORES

Group Pairs	Z value	Critical Value at .05 level	Significance
A/C	2.329	1.960	Significant
A/B	.235	1.960	Not Significant
B/C	1.691	1.960	Not Significant
E/F	.565	1.960	Not Significant

In comparing Group A and Group C the results were significant at the .05 level, but they were not significant at the .01 level. This means, then, that there was some question whether those people who major in math, science, social studies and English had the same degree of flexibility as the total secondary population Fall Quarter, 1969.

The same tests were applied to the Winter Quarter Groups of E and F. In this case the results were not significant. Group F reflected the entire Group E.

As a check on the random sampling techniques employed, Group C was compared against Group B. The results show that Group C reflected the mean of the larger Group B.

To summarize Table 18, one could conclude that nearly all subsamples reflected the population as a whole in the area of general authoritarianism. Only Group C appeared to deviate from this pattern and this deviation was not significant at the .01 level.

An identical analysis to that just concluded with the Dogmatism Scale was performed on the various groups using the pre-test of the Teaching Situation Reaction Test as a measuring device. The statistical summary is given in Tables 19, 20, and 21.

TABLE 19

PRE-TEST OF TSRT

Group	Mean	S.D.
A	204.263	13.667
B	204.324	13.474
C	206.416	13.924
E	211.812	11.982
F	215.600	8.000

Table 19 is a listing of all the different groups of student teachers involved in this aspect of the study. The means and standard deviations given in this table are further analyzed in Tables 20 and 21.

TABLE 20

INTERGROUP COMPARISON OF PRE-TSRT SCORES

Group Pairs	F-value	Critical Value at .10 level	Significance	t-value	Critical Value at .05 level	Significance
A/E	1.301	1.69	Not Significant	2.727	1.980	Significant
C/F	2.027	3.10	Not Significant	1.844	2.086	Not Significant

Table 20 shows a statistical summary of both the F-test and the t-test. An examination of the results cited in Table 20 showed that the Teaching Situation Reaction Test reflected a significant difference between all available secondary student teachers Fall Quarter, 1969, i.e., Group A and all available secondary student teachers Winter Quarter, 1970, i.e., Group B. The Winter Quarter group had a significantly higher, or more desirable mean. However, a comparison of the mean scores of Groups C and F, i.e., the Flanders and non-Flanders group respectively, showed values that were not statistically significant. This is important because these two groups will be compared extensively later in the study.

TABLE 21

INTRAGROUP COMPARISON OF PRE-TSRT SCORES

Group Pairs	Z value	Critical Value at .05 level	Significance
A/C	1.373	1.960	Not Significant
A/B	.038	1.960	Not Significant
B/C	.944	1.960	Not Significant
E/F	1.788	1.960	Not Significant

Table 21 shows the same kind of Z-test described earlier in reference to the subsample testing using the data from the Dogmatism Scale. All intragroup comparisons were not significant. Therefore, one may conclude that Group C approached educational problems posed by the Teaching Situation Reaction Test in a manner similar to the total Group A. In a like manner, the subgroup F approached educational problems in a manner similar to Group E. However, especially in the latter case, there was some evidence that the approaches of Groups E and F might be different.

A third comparison involving the same subgroups was made. The analysis followed identical procedures to the previous two. This

time the grade point average achieved in the major subject area was the criterion used. The results of this aspect of the study are given in Tables 22, 23, and 24.

TABLE 22

GPA IN MAJOR

n	Group	Mean	Standard Deviation
77	A	2.942	.433
38	B	2.792	.382
12	C	2.710	.334
32	E	2.782	.432
10	F	2.946	.507

Table 22 is a listing of all the different groups of student teachers involved in this aspect of the study. The means and standard deviations were further analyzed in Tables 23 and 24.

TABLE 23

INTERGROUP COMPARISON OF GPA IN MAJOR SUBJECT

Group Pairs	F-value	Critical Value at .10 level	Significance	t-value	Critical Value at .05 level	Significance
A/E	1.000	1.72	Not Significant	1.797	1.98	Not Significant
C/F	5.848	3.10	Significant	1.255	2.23	Not Significant

As a result of the information presented in Table 23, one may conclude that the total available number of student teachers Fall Quarter, 1969, did not have a significantly different grade point average in the major area when compared to a like group Winter Quarter, 1970. In a like manner, it was found that there was no significant difference between the two special groups, i.e., Groups C and F.

TABLE 24

INTRAGROUP COMPARISONS OF GPA IN MAJOR SUBJECT

Group Pairs	Z value	Critical Value at .05 level	Significance
A/C	4.734	1.960	Significant
A/B	3.061	1.960	Significant
B/C	.231	1.960	Not Significant
E/F	2.197	1.960	Significant

Table 24 shows the same kind of Z-test used previously. In this case a number of significant results occurred. The intragroup comparisons pointed up the fact that subgroups B and C had a significantly lower grade point average than group A. In a similar manner, subgroup F had a significantly higher value than Group E.

Summary of Group Comparisons

Since extensive comparisons of Groups C and F follow, a summary was made at this point. No significant difference was found between Groups C and F in any of the areas checked. They were statistically the same in the areas of flexibility and non-authoritarianism. They compared favorably in the areas of grade point average in their major subject areas and how they approached educational problems as measured by the TSRT.

When one compared the Groups A and E, however, some differences were noted. The total group of secondary student teachers Fall Quarter, 1969, appeared to be more dogmatic and scored significantly lower on the Teaching Situation Reaction Test. There was no significant difference in grade point average in the major area over the two quarters.

An extensive comparison of Groups C and F using the Flanders system of coding and analysis follows. The remainder of this chapter is divided into two sections. The first section presents the results of classroom visitations on non-interaction student teachers, Group C, while the second section presents results on the interaction student teachers, Group F.

Fall Quarter Student Teacher Number 1

Matrix number one was probably atypical. Certainly the writer noted nothing like it in the literature or any other student teachers that were visited.

The extremely large amount of time spent in category ten, confusion, indicated a problem in the classroom management. The 54.260 percent indicated a very severe loss of classroom time. The 1.118 percent which was the combined totals of all categories of praise likewise reflected a possible lack of rapport and possibly a basic lack of knowledge in psychological learning theories. Due to over half the time being spent in noise and confusion, the amount of time spend in teacher-talk (26.470 percent) and student-talk (19.275 percent) may not be relevant.

Each of seven cells in the matrix contained three percent of the tallies or more. Three of these were steady-state cells. They included the (5,5), (6,6), and (10,10) cells. These indicated extended lecture, extended directions and extended confusion, respectively. The other four cells were the (4,8), (8,10), (10,4) and (10,8) cells. These transition cells reflected the most prominent kinds of interaction present in the classroom. The (4,8) cell reflected the teacher-question to student-answer phase. The (8,10) cell reflected the nature of the student-answer to confusion phase.

TABLE 25

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 1

	1	2	3	4	5	6	7	8	9	10
1										
2				0.140				0.070		0.629
3		0.070			0.070			0.140		
4				0.210				4.260	0.210	0.419
5				0.210	11.104	0.908	0.070		0.210	0.769
6				0.210	0.629	3.003	1.140	1.140	0.070	1.397
7				0.210	0.070	0.280	0.070	0.070	0.070	0.559
8		0.769	0.280	0.908	0.280	0.140	0.280	2.305		13.408
9				0.070	0.350	0.070			0.140	0.280
10				3.143	0.838	1.188	0.769	11.383	0.210	36.802
T*										

*T indicates Total

The (10,4) cell was confusion back to a teacher-question. The (10,8) cell reflected the confusion back to a student-answer. This was basically a question-answer type lesson with little praise and a great amount of class confusion.

Fall Quarter Student Teacher Number 2

An analysis of the matrix for teacher number two presents a much different case than the one discussed previously. In this case teacher-talk was 76.127 percent of the time, while student-talk was 17.788 percent. If these figures were compared to averages for Fall Quarter, 1969, the teacher was talking more than average and the students less than average. The lessons were intended to be essentially lecture with some question and answer and it is evident from the matrix.

Each of six cells contained over three percent of the tallies in the matrix. Four of these cells were steady-state cells. They included the (4,4), (5,5), (7,7), and (10,10) cells. Two other cells were transitional cells. They included the (4,8) and (5,4) cells. The (4,4) cell indicated extended question or repetitious questions; the (5,5) was extended lecture; the (7,7) was extended criticism; the (10,10) cell indicated a shift from teacher-question to student-answer and the cell (5,4) reflected a shift from teacher-lecture to teacher-question.

TABLE 26

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 2

	1	2	3	4	5	6	7	8	9	10
1	0.034	0.034		0.102	0.034			0.034		
2	0.068	0.442	0.781	0.679	0.611	0.068	0.068	0.204	0.170	0.306
3		0.068	0.136	0.306	1.121	0.034		0.034	0.102	0.034
4	0.034	0.136		3.599	0.374	0.136	0.476	7.842	0.578	1.256
5	0.034	0.170	0.034	3.734	25.730	0.374	0.679	0.272	1.630	1.460
6		0.068		0.340	0.374	2.682	0.170	0.068	0.374	0.408
7			0.068	1.358	0.883	0.272	3.666	0.102	0.171	0.713
8	0.034	1.867	0.985	1.969	1.256	0.340	0.951	2.037	0.442	1.155
9	0.034	0.408	0.136	0.340	2.241	0.068	0.442	0.102	2.648	0.340
10		0.204		2.003	1.494	0.510	0.883	0.340	0.544	10.116
*T	0.238	3.395	2.139	14.427	34.115	4.481	7.332	11.032	6.755	16.090

*T indicates Total

This teacher was one of the highest in the area of extended direct, extended indirect, and confusion. This was an unusual situation in which both large amounts of praise and criticism were given. This teacher was largely lecture oriented with sincere efforts made by the teacher to "reach" the students on a more "human level."

Fall Quarter Student Teacher Number 3

An examination of the matrix for teacher number three showed teacher-talk covered 75.976 percent of the time while student-talk was 13.207 percent. The teacher-talk was above average for Fall Quarter, 1969, while the student-talk was below average for the same period. Class methods revolved essentially around the lecture with some efforts to include the students in question and answer procedures.

Each of six cells contained at least three percent of the tallies in the matrix. Five of these cells were steady-state cells indicating a deliberate style of teaching. These cells included the (5,5), (6,6), (7,7), (9,9) and (10,10) cells. The heavy loading of the (5,5) cell (41.977 percent) indicated extended lecture; the (6,6) was extended direction; (7,7) was extended criticism; the (9,9) was extended student-answer; and the (10,10) was extended silence. The one transition cell, (4,8) reflected a shift from teacher-question to student answer.

TABLE 27

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 3

	1	2	3	4	5	6	7	8	9	10
1				0.029						
2		0.057	0.427	0.341	0.569			0.029	0.171	0.029
3		0.029	0.086	0.313	0.796	0.029			0.057	0.086
4				0.023	0.455	0.144	0.057	3.522	1.563	0.853
5		0.086	0.114	2.926	41.977	1.051	1.023	0.177	1.648	0.711
6				0.285	0.569	4.743	0.398	0.143	0.143	0.540
7			0.029	0.427	1.023	0.256	6.078	0.029	0.256	0.739
8	0.029	0.682	0.427	0.767	1.080	0.057	0.398	1.364	0.144	0.560
9		0.682	0.313	0.285	2.187	0.029	0.455		3.465	0.313
10		0.086		1.193	1.051	0.540	0.427	0.228	0.313	6.987
*T	0.029	1.619	1.329	7.584	49.702	6.817	8.833	5.482	7.726	10.821

*T indicates Total

Of the relatively low percentage of student-talk (13.207 percent), over half (7.726 percent) was student initiated. The area of extended direct contained the most tallies of any of the student teachers observed. This teacher would typify many aspects of a direct teacher. The class remained orderly at all times but the atmosphere was somewhat strained.

Fall Quarter Student Teacher Number 4

An analysis of matrix number four showed a number of interesting and exciting teaching proficiencies. Teacher-talk was 53.508 percent and student-talk was 37.696 percent. Student-talk was much above average for Fall Quarter, 1969, while teacher-talk was substantially less than average for the same period. Class procedures revolved around the discussion method.

Each of six cell contained over three percent of the tallies in the matrix. Three of these cells were steady-state cells, while three were the transitional cells. The steady-state cells included the (5,5), (8,8) and (9,9) cells. The (5,5) cell was extended lecture; the (8,8) cell was extended student-response to a narrow question, while the (9,9) cell indicated extended student-response to broad teacher-questions. The transition cells included the (4,8), (4,9), and the (5,8) cells. The (4,8) and (4,9) cells reflected the transition from teacher-question to student-answer, while the (5,8)

TABLE 28

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 4

	1	2	3	4	5	6	7	8	9	10
1					0.039					
2		0.078	0.390	1.286	1.480	0.274		0.234	1.013	0.117
3		0.312	0.234	0.546	1.363		0.039	0.312	0.312	0.156
4			0.117	1.363	0.701	0.117	0.078	3.233	4.362	1.441
5	0.039	0.195	0.117	2.960	17.212	0.974	0.156	3.466	2.376	1.091
6				0.234	0.546	1.247	0.117	0.662	0.195	0.546
7			0.039	0.351	0.351	0.039	0.156	0.195	0.468	0.195
8		1.025	0.974	1.519	2.648	0.195	0.429	10.592	0.156	1.130
9		2.181	1.69	1.986	1.687	0.234	0.624	0.078	8.567	0.507
10		0.078	0.234	1.169	1.558	0.468	0.195	0.896	0.585	3.622
*T	0.039	4.848	3.232	11.410	28.583	3.544	1.792	19.666	18.030	8.901

cell reflected the intermittent teacher-student interaction. This teacher used praise rather extensively (8.179 percent) as compared to criticism (1.792 percent).

It was obvious that this teacher was well liked by the classroom teacher and the students. It seemed likely that some of this affection was brought about by the indirect style that was exhibited in several areas of the matrix.

Fall Quarter Student Teacher Number 5

An analysis of the matrix for teacher number five showed teacher-talk covered 74.239 percent of the time while student-talk covered 15.557 percent of the time. Teacher-talk was somewhat above average for Fall Quarter, 1969, while, once again, student-talk was below average for the same period of time. The class situation was of a rather formal nature with the class technique revolving around the lecture method with some question and answer included.

Each of five cells contained over three percent of the tallies in the matrix. Two of these cells were steady-state cells. They included the (5,5) and (10,10) cells. The rather high percentage in the (5,5) cell (39.823 percent) reflected the extended lecture which was dominant in the lesson. The (10,10) cell showed extended periods of silence. The three interactive or transitional cells included the (4,8), (8,3) and (5,4) cells. The (4,8) cell reflected the

TABLE 29

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 5

	1	2	3	4	5	6	7	8	9	10
1	0.031			0.031	0.184					
2			0.153	0.887	0.826				0.062	0.367
3		0.031	0.062	1.345	2.598		0.031	0.062		0.214
4		0.031		1.865	0.795	0.031	0.062	9.383	0.153	1.315
5	0.031	0.062	0.062	6.235	39.823	0.489	0.367	0.520	1.315	1.437
6	0.031			0.123	0.428	0.428	0.062	0.031	0.031	0.276
7				0.337	0.520	0.123	0.398	0.276	0.123	0.214
8	0.153	2.048	3.821	1.467	1.865	0.092	0.795	2.170	0.062	0.489
9		0.123	0.184	0.062	1.437	0.031	0.092		0.612	0.062
10			0.062	1.284	1.865	0.214	0.184	0.520	0.245	5.838
*T	0.245	2.293	4.340	13.631	50.337	1.406	1.987	12.959	2.598	10.208

*T indicates Total

transition from teacher-question to student-answer, while the (8,3) cell showed the teacher acceptance of the student-answer. The (5,4) cell demonstrated the shift from lecture to teacher-question.

The lesson would be typified by a more formal lecture approach with student involvement about narrow questions. This approach was softened somewhat by a fairly extensive use of praise and acceptance of student ideas. The 4.3 percent total for column three was one of the highest totals of the group observed.

Fall Quarter Student Teacher Number 6

An analysis of matrix number six showed teacher-talk utilizing 59.919 percent of the time while student-talk occupied 22.625 percent of the class time. Teacher-talk was considerably below average for this group of student teachers, while student-talk was above average.

As it is obvious from the matrix, the class was organized around student involvement. Students were involved in demonstrations as well as a discussion type lesson.

Each of eight cells contained over three percent of the tallies in the matrix. This indicated a greater number of teacher-student interactions than has been observed before. This variety would tend to hold class interest. Four steady-state cells were involved. They included the (4,4), (5,5), (8,8) and (10,10) cells. The (4,4) cell reflected the extended question or paraphrasing ques-

TABLE 30

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 6

	1	2	3	4	5	6	7	8	9	10
1		0.036		0.036						
2		0.284	0.922	2.022	1.383	0.107		0.071	0.107	0.710
3		0.178	0.107	1.561	1.383			0.213		0.497
4		0.036	0.071	8.015	0.497			10.213	1.029	2.164
5	0.036	0.071		4.362	13.688	0.391	0.107	0.391	0.674	1.774
6				0.213	0.071	1.029	0.071	0.071	0.071	0.639
7				0.710	0.178	0.142	0.178	0.071	0.107	0.284
8		4.717	2.412	1.738	1.100	0.071	0.710	5.852	0.284	1.490
9	0.036	0.249	0.284	0.284	1.206	0.036	0.249	0.071	1.454	0.391
10			0.142	3.086	2.022	0.391	0.355	1.419	0.532	12.518
*T	0.071	5.568	3.937	22.022	21.490	2.164	1.667	18.369	4.256	20.461

*T indicated Total

tion, while the (5,5) reflected extended lecture. The 13.688 percent for the (5,5) cell was relatively low. The (8,8) cell signified extended student response to narrow questions while the (10,10) cell determined the amount of extended silence. There were also four transition cells. They included the (4,8), (8,2), (10,4) and (5,4) cells. The pair of cells (4,8) and (8,2) showed a definite pattern of teacher-question--student-answer--teacher-praise. If one checks the (2,4) cell, the sequence will be completed by another teacher-question. The other transition cells showed a shift from lecture to teacher-question and a shift from silence to teacher-question. The relatively large amount of silence (20.461 percent) indicated that perhaps the class pace was a little too slow and too much time was elapsing between questions.

Fall Quarter Student Teacher Number 7

An analysis of matrix seven showed teacher-talk was 78.994 percent of the time, while student-talk was 10.197 percent of the classtime. The teacher-talk was much above average for this group.

The class procedure was oriented around the lecture with allowance for some questions. The lessons included the showing of rock samples and slides.

TABLE 31

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 7

	1	2	3	4	5	6	7	8	9	10
1										
2		0.103	0.103	1.648	1.854		0.103		0.103	0.515
3			0.309	0.412	0.515					
4				4.326	0.309			6.489	0.824	1.678
5		0.206		4.841	49.228	0.309		0.103	0.721	1.442
6				0.103	0.103	0.618			0.103	0.412
7				0.103	0.309				0.103	
8		4.017	0.721	0.618	0.618		0.412	1.133		0.206
9		0.103	0.103		1.751	0.103			0.412	
10				2.575	2.163	0.309			0.206	5.562
*T		4.429	1.236	14.625	56.849	1.339	0.515	7.724	2.474	10.814

*T indicates Total

Each of six cells contained over three percent of the tallies in the matrix. Three of these cells were steady-state cells. They included the (4,4), (5,5) and (10,10) cells. The (4,4) cell reflected extended questions, while the (5,5) showed extended lecture, and the (10,10) cell indicated extended silence. The heavy loading of 49.228 percent in the (5,5) cell showed the extent of lecture in this person's teaching style. The transition cells of (4,8) and (8,2) followed as natural results of the extended questions in the (4,4) cell. They indicated a sequence of teacher-question--student-answer--teacher-praise, which was generally considered a favorable style of teaching by research cited earlier. The other transition cell of (5,4) reflected a shift from teacher-lecture to teacher-question.

In a conversation with this teacher after the observation, he indicated he felt the pressure of staying abreast, content-wise, with his classroom teacher. This pressure of coverage turned a lesson that could have had great student involvement into one dominated by the teacher. This was expecially noted in the decrease of student involvement as the lesson progressed. The teacher was watching the clock and making sure that his lesson plan was covered by the end of the period.

Fall Quarter Student Teacher Number 8

An analysis of matrix number eight showed teacher-talk occupied 83.829 percent of the time while student-talk covered 8.866 percent of the class time. This was much above average for the Fall Quarter, 1969, teacher-talk, and much below for student-talk for the same period. Of the student-talk, only 1.089 percent was student initiated. The class procedure was lecture oriented with some question and answer.

Each of five cells contained over three percent of the tallies in the matrix. Three of the cells were steady-state cells. These included the (4,4), (5,5) and the (10,10) cells. The (4,4) cell reflected extended teacher-questions, while the (5,5) cell signified teacher-lecture. This value of 58.632 percent was particularly large when compared to the other student teachers in this group. The periods of silence were quite small in this classroom. The two transition cells of (4,8) and (5,4) showed shifts from teacher-question to student-answer and from lecture to question, respectively.

An examination of the "content cross" showed the highest figure for all student teachers. This person was well organized and spend 88.198 percent of the time communicating course content. This was also reflected in the low figure for total silence.

TABLE 32

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 8

	1	2	3	4	5	6	7	8	9	10
1										
2		0.052	0.208	0.260	1.504			0.052		
3			0.052	0.156	2.178			0.104		0.052
4				3.733	0.830			4.459	0.312	2.644
5			0.104	5.288	58.632	0.260		0.674	0.571	0.830
6				0.520	0.520	0.156		0.363		0.208
7					0.520					
8		1.970	2.074	1.089	0.778	0.363	0.052	1.348		0.104
9		0.052	0.104		0.778				0.156	
10				1.400	1.556	0.052		0.778	0.052	3.474
*T		2.074	2.541	11.976	66.356	0.830	0.052	7.777	1.089	7.310

*T indicates Total

In a conversation with the student teacher after the observation, the student teacher expressed surprise at the small number of times the students were involved in the lesson. Apparently, the classroom teacher asked for even less student involvement, and got it. The student teacher was trying for involvement and at this point failed to realize the lack of success.

Fall Quarter Student Teacher Number 9

An analysis of matrix number nine showed teacher-talk occupied 63.870 percent and student-talk covered 19.083 percent of the time. Both figures were near average for this group of student teachers. An unusual feature regarding the student-talk was the relatively high amount (14.774 percent) that was student initiated. This would tend to indicate a more open classroom climate. The class lessons used lecture in combination with teacher-student discussion.

Each of six cells contained over three percent of the tallies in the matrix. Three were steady-state cells. They included the (5,5), (9,9), and (10,10) cells. The (5,5) cell reflected extended lecture while the relatively high use of the (9,9) cell was an indicator of the indirect teacher. The (10,10) cell signified silence. The transition cells included the (5,10), (10,5), and (9,5) cells. The (5,10) and (10,5) cells showed a

TABLE 33

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 9

	1	2	3	4	5	6	7	8	9	10
1										
2		0.072	0.214	0.250	0.356	0.036			0.855	0.072
3			0.143	0.392	0.606	0.072		0.036	0.143	0.143
4				0.890	0.570	0.072	0.036	1.994	2.279	2.172
5			0.107	2.920	38.840	0.926	0.143	0.072	2.314	3.062
6		0.036		0.285	0.250	1.531	0.036		0.356	0.712
7				0.036	0.178		0.214	0.107	0.250	0.107
8		0.214	0.107	0.499	0.677	0.036	0.072	1.887	0.285	0.534
9		1.424	0.855	0.819	3.560	0.072	0.250	0.036	6.551	1.211
10		0.107	0.107	1.923	3.347	0.463	0.143	0.178	1.745	9.043
*T		1.852	1.531	8.010	48.381	3.204	0.890	4.308	14.774	17.053

*T indicates Total

deliberate style of teacher-lecture, perhaps even a little too slow because over 17 percent of the class time was silence. The (9,5) cell showed the interplay between student initiated statement and the teacher's response.

Although many student teachers avoid the issue of discipline by allowing little "give and take", this teacher met the issue and was extremely skillful in working with students that could be classroom problems. Neither force nor sarcasm were used, but skill in asking questions or turning a phrase were the only approaches used.

Fall Quarter Student Teacher Number 10

An analysis of matrix number ten showed teacher-talk of 69.466 percent while student-talk occupied 22.328 percent of the class time. Both figures were slightly above average for their respective groups Fall Quarter, 1969. Of the total student-talk approximately one-fourth was self-initiated. The classroom style was a combination of lecture and question and answer.

Each of ten cells contained over three percent of the tallies in the matrix. This showed a wide variety of teaching style and would tend to increase class interest. Four of these cells were steady-state cells. They included the (4,4), (5,5), (8,8) and (10,10) cells. The (4,4) cell showed extended teacher-questions while the (5,5) cell signified extended teacher-lecture.

TABLE 34

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 10

	1	2	3	4	5	6	7	8	9	10
1										
2			0.355	3.131	1.300		0.060	0.295	0.060	0.237
3		0.119		1.773	0.887			0.060		
4		0.119		6.380	0.709	0.119	0.060	12.050	2.954	2.422
5		0.060		6.498	24.395	0.119		0.237	2.304	1.064
6				0.060	0.119	0.119		0.119	0.060	0.119
7				0.709	0.178				0.060	0.178
8		4.962	2.304	2.208	1.359		0.887	3.131	0.060	0.119
9		0.119	0.119	0.532	4.667	0.060	0.060		0.473	0.178
10		0.060	0.060	2.422	1.064	0.178	0.060	0.237	0.237	3.899
*T		5.435	2.836	24.809	34.673	0.591	1.123	16.126	6.203	8.211

*T indicates Total

The (8,8) cell indicated student response to narrow questions while the (10,10) cell showed extensive silence.

There were six transition cells. They included the (4,8), (8,2), (8,4), (9,5), (5,4) and (2,4) cells. The (4,8), (8,2) and (8,4) cells reflected the question-answer type style of the lesson. They followed naturally from the (4,4) cell. The sequence might also take the form of teacher-question--student-answer--teacher-question. The (9,5) cell showed the intermittent student-teacher interaction, while the (5,4) cell showed the shift from lecture to question. The (2,4) cell indicated the change from teacher-praise to another question.

Fall Quarter Student Teacher Number 11

An analysis of matrix number eleven showed teacher-talk covered 67.164 percent of the class time while student-talk used 17.792 percent of the class time. Both figures were very near average for this group of people. Of the student-talk, nearly one-half of the total was student initiated. The class procedures revolved around the lecture with some question and answer to clarify points of confusion.

Each of five cells contained over three percent of the tallies in the matrix. Two of these cells were steady-state cells. They were the (5,5) and (10,10) cells. Once again, there was a

TABLE 35

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 11

	1	2	3	4	5	6	7	8	9	10
1										
2				0.297						0.445
3			0.075	0.223	0.371			0.075		0.075
4				2.892	0.233			6.079	1.631	2.076
5				4.448	39.141	0.371	0.075	0.742	2.966	1.631
6						1.038		0.075	0.371	0.149
7					0.233					0.149
8		1.780	0.742	2.373	1.854	0.075	0.075	1.631		1.261
9		0.297		0.371	3.929	0.075	0.075		2.743	0.519
10				2.298	2.298	0.075	0.149	1.187	0.297	8.748
*T		2.076	0.816	12.899	49.370	1.631	0.371	9.786	9.006	15.049

*T indicates Total

large amount of extended teacher-lecture (39.141 percent). The (10,10) cell reflected extended silence. The three transition cells included the (4,8), (5,4), and (9,5) cells. The relatively large percentage in the (4,8) cell when compared to the smaller amount in the (4,4) cell indicated a number of brief student answers. The (5,4) showed a shift from teacher-lecture to teacher-question. The (9,5) cell showed intermittent student-teacher interaction.

Relatively small amounts of praise were used considering the amount of student response noted. This can be confirmed by noting the sum of columns 1, 2, and 3 and the extended indirect area in Table 35.

Fall Quarter Student Teacher Number 12

An analysis of matrix number twelve showed teacher-talk of 78.265 percent and student-talk of 15.943 percent. The teacher-talk was considerably above normal while the student-talk was below normal for the group. Of the student-talk, about one half of the total was student initiated. The class was lecture oriented with some student reports.

Each of four cells contained over three percent of the tallies in the matrix. Three of these cells were steady-state cells. They included the (5,5), (8,8) and (10,10) cells. The (5,5) cell,

TABLE 36

PERCENTAGE MATRIX FOR FALL STUDENT TEACHER NUMBER 12

	1	2	3	4	5	6	7	8	9	10
1										
2		0.044		0.132	0.528				0.044	
3		0.044		0.088	0.308				0.044	
4				0.571	0.176	0.044		1.230	1.362	0.308
5		0.044		2.284	64.735	0.396	0.396	0.132	2.855	0.747
6				0.088	0.352	0.132			0.088	0.308
7				0.044	0.308	0.044	0.088		0.264	0.044
8		0.352	0.176	0.132	0.659		0.044	7.308		0.044
9		0.264	0.308	0.132	3.470	0.132	0.264		1.828	0.835
10				0.220	1.055	0.220		0.044	0.747	3.514
*T		0.747	0.484	3.609	71.586	0.967	0.791	8.713	7.230	5.798

*T indicates total

with over sixty-four percent of the time spent in extended teacher-lecture was very high. The (8,8) cell covered extended student participation while the (10,10) cell signified extended periods of silence. The transition cell, (9,5) showed the relative amounts of student initiated talk followed by a teacher response to that talk.

In a later conversation with this student teacher, the student teacher showed complete satisfaction with the results of this observation. The lesson was intended to be a lecture, and in this success must be noted. The class that this close supervision was used in was a low achieving class. This brings up to a point cited earlier, "closer supervision through the use of direct influence, an all too common antidote to lower achievement, may be more harmful than helpful for dependent-prone students."(Amidon and Flanders, 1961, p. 289)

Fall Quarter Composite Student Teacher Matrix

An analysis of the composite student teacher matrix covering all student teachers Fall Quarter showed teacher-talk covered 66.928 percent of the class time, while student-talk occupied 18.745 percent of the time. These figures were considered averages for Fall Quarter. More than one-third of the student-talk was student initiated. This compares with another study done with 65.11 percent teacher-

TABLE 37

COMPOSITE PERCENTAGE MATRIX FOR FALL STUDENT TEACHERS

	1	2	3	4	5	6	7	8	9	10
1	0.008	0.008		0.022	0.029			0.004		
2	0.008	0.106	0.356	0.878	0.917	0.050	0.015	0.078	0.268	0.251
3		0.075	0.099	0.631	1.135	0.015	0.008	0.092	0.075	0.163
4	0.044	0.029	0.018	2.739	0.512	0.064	0.078	5.827	1.442	1.562
5	0.015	0.075	0.057	3.924	34.902	0.600	0.325	0.596	1.678	1.358
6	0.004	0.011		0.191	0.325	1.555	0.103	0.141	0.156	0.519
7			0.015	0.409	0.448	0.113	1.255	0.096	0.184	0.300
8	0.025	1.985	1.336	1.298	1.241	0.120	0.476	3.046	0.141	1.319
9	0.008	0.586	0.353	0.431	2.327	0.071	0.261	0.029	3.189	0.413
10		0.053	0.057	1.752	1.696	0.416	0.300	1.079	0.533	8.488
*T	0.067	2.922	2.288	12.270	43.527	3.000	2.817	10.984	7.762	14.367

*T indicates Total.

talk and 26.29 percent student talk.(Amidon and Hough, 1967) This second study was done at the Ohio State University and involved thirty student teachers.

Each of six cells contained over three percent of the tallies in the matrix. Four of these cells were steady-state cells. They included the (5,5), (8,8), (9,9) and (10,10) cells. The inclusion of the (8,8) and (9,9) cells reflected the amount of time spent in extended student-response. The use of extended teacher-lecture was a dominant teaching style, as it was nearly 35 percent of the class time.

The two transition cells that fall into the category of over three percent were the (5,4) and (4,8) cells. The (5,4) cell showed the shift from lecture to question, while the (4,8) cell showed the shift from question to answer.

The low figures in the first three column total showed that praise was used only one-half as much as in the study involving thirty student teachers at the Ohio State University cited earlier. (Amidon and Hough, 1967)

The low total in column six reflected the fact that the directions given by student teachers were often incomplete. It is pleasing to note that the small amount of direct criticism tends to mark a good relationship between teacher and class, but this must be tempered with the thought that the discipline is usually a product of the classroom teacher.

TABLE 38

FALL QUARTER STUDENT TEACHERS

Category	Student Teacher Number												Mean
	1	2	3	4	5	6	7	8	9	10	11	12	
I/D Ratio	0.307	0.440	0.163	0.478	0.382	1.284	0.346	0.247	0.217	0.909	0.307	0.067	0.434
Revised I/D Ratio	0.162	0.489	0.195	1.533	2.028	2.500	3.056	5.236	0.827	4.828	1.445	0.700	1.916
Extended Indirect	0.074	1.566	0.601	1.017	0.280	1.529	0.519	0.316	0.532	0.477	0.079	0.092	0.581
Extended Direct	3.494	6.791	11.476	1.560	1.011	1.420	0.620	0.158	1.782	0.120	1.040	0.266	2.478
Content Cross	25.297	63.663	68.209	57.767	79.235	60.479	84.261	88.198	69.580	80.998	77.853	82.802	69.861
Indirect Teacher Response to Student Comments	2.029	5.775	3.185	9.856	7.859	9.720	5.565	5.292	3.920	11.345	5.564	1.365	5.956
Direct Teacher Response to Student Comments	1.120	5.298	4.206	6.818	4.312	3.372	2.887	1.973	4.667	7.032	6.082	4.579	4.361
Student Talk Following Teacher Talk	5.344	11.684	7.732	16.829	11.957	13.021	8.452	6.539	8.409	18.199	11.942	6.024	10.502
Student Talk Following Student Talk	14.039	6.113	5.484	10.975	3.609	9.613	1.754	2.336	10.683	4.138	5.859	9.928	7.869
Silence or Confusion Following Teacher of Student Talk	17.463	5.979	3.839	5.184	4.375	7.948	5.257	3.841	8.014	4.316	6.305	2.288	6.234
Total Silence or Confusion	54.260	16.090	10.821	8.801	10.208	20.461	10.814	7.310	17.053	8.211	15.049	5.798	15.406
Steady State Cells	53.636	51.091	65.782	43.073	51.227	43.126	61.694	67.605	59.172	38.398	56.269	78.222	55.774
3-3 Cell	0.000	0.136	0.086	0.234	0.062	0.107	0.309	0.052	0.143	0.000	0.075	0.000	0.100
9-9 Cell	0.140	2.648	3.465	8.567	0.612	1.454	0.412	0.156	6.551	0.473	2.743	1.828	3.004
Student Talk	19.275	17.788	13.207	37.696	15.557	22.625	10.197	8.866	19.083	22.328	17.792	15.792	18.363
Teacher Talk	26.470	76.127	75.976	53.508	74.239	56.919	78.994	83.829	63.870	69.466	67.164	78.265	67.068
Teacher/Student Talk Ratio	1.373	4.279	5.752	1.419	4.772	2.515	7.746	9.455	3.346	3.111	3.774	4.909	3.652

Table 38 is included at this point to summarize the teaching style exhibited by the Fall Quarter, 1969, group of student teachers. The reader may need to refer to the definition of terms in Chapter One for aid in their identification. A comparison of Table 38 along with its counterpart (Table 50) for the special Winter Quarter group (Group E) will follow later in the study.

Winter Quarter Student Teacher Number 1

An analysis of Winter Quarter matrix number one showed teacher-talk covered 72.107 percent of the time while student-talk covered 21.619 percent of the time. When these figures were compared to the averages for the Winter Quarter student teachers, teacher-talk was above average while student-talk was below average.

Each of nine cells in the matrix contained three percent of the tallies or more. Only two of these cells were steady-state cells. The (4,4) cell indicated the extended, deliberate type of teacher question. The (5,5) cell showed the amount of extended teacher-lecture. The other seven cells in the matrix were transition cells. They included the (4,8), (4,10), (8,2), (8,3), (3,4), (2,4) and (5,4) cells. Even though teacher talk was somewhat above average for Winter quarter, 1970, these transition cells showed the variety of ways it was used. The (4,8) cell showed the shift from teacher-question to student response, while the (4,10) cell showed that the teacher frequently needed to wait for a brief span of time for the students to respond. Both the (8,2) and (8,3) cells showed forms of teacher-praise following student-response. The (3,4) and (2,4) cells showed the transition from forms of praise by the teacher back to questions directed to the students. The (5,4) cell showed the shift from lecture to question.

TABLE 39

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 1

	1	2	3	4	5	6	7	8	9	10
1					0.065					
2		0.324	0.971	3.366	1.878			0.650		0.650
3		0.195	0.777	3.431	2.719	0.065	0.065	0.324	0.259	0.130
4			0.065	4.208	1.295			11.975	2.072	3.172
5		0.130	0.259	5.502	23.431	1.036	0.065	0.777	0.971	0.389
6				0.259	0.583	0.389		0.130	0.065	0.389
7			0.065	0.130						
8		5.826	4.272	2.784	0.583	0.195	0.130	2.395	0.065	0.454
9	0.065	0.195	1.489	0.777	0.971	0.065			1.230	0.130
10			0.065	2.395	0.842	0.130		1.036	0.259	1.554
*T	0.065	6.667	7.962	22.784	32.492	1.878	0.259	16.700	4.920	6.279

*T indicates Total.

The almost total lack of criticism was a reflection of the skill of the student teacher. Several situations arose that would have resulted in direct criticism by a less knowledgeable teacher. This teacher used a style indicating partial acceptance and let the peer group make the correction.

Winter Quarter Student Teacher Number 2

An analysis of Winter Quarter matrix number two showed teacher-talk covered 59.774 percent while student-talk covered 27.111 percent. Teacher-talk was below average while student-talk was considerably above average for the Winter Quarter, 1970, group.

Each of eight cells in the matrix contained three percent of the tallies or more. Four of these cells were steady-state cells. They included the (4,4), (5,5), (8,8) and (9,9) cells. The (4,4) cell showed extended teacher-question. In this case, there was some difficulty with excessive teacher paraphrasing before the students were allowed to answer. The (5,5) cell showed a relatively low incidence of extended teacher lecture (15.326 percent). The (8,8) and (9,9) cells showed an unusual amount of continuous student involvement. There were also four transition cells. They included the (4,8), (8,2), (2,4) and (5,4) cells. The first three cells identified a pattern of teacher-question--student-response--teacher-praise and back to another teacher-question. The (5,4) cell indicated the transition from lecture to question.

TABLE 40

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 2

	1	2	3	4	5	6	7	8	9	10
1										
2		0.274	1.588	3.011	1.861	0.055		1.697	0.055	
3		0.110	2.080	2.737	2.135			0.165	0.274	0.055
4		0.219		5.146	1.095			10.072	1.478	0.767
5		0.219	0.548	5.419	15.326	0.110		0.657	1.314	0.438
6					0.110	0.219		0.329		0.055
7			0.110	0.055						
8		6.325	2.245	0.986	1.259	0.165	0.165	14.724	0.438	0.603
9		0.384	0.986	0.438	1.807	0.055		0.055	5.246	0.329
10				0.986	0.438	0.110		0.219	0.493	0.876
*T		8.539	7.554	10.774	24.029	0.712	0.165	27.915	9.196	3.120

*T indicates Total.

An analysis of the (3,3) cell was especially interesting. This student teacher used this cell about two percent of the time. This was nearly twenty times as frequently as the average non-Flanders trained teacher Fall Quarter. The use of (3,3) cell is considered especially important by Flanders, Amidon and others. Its use is generally considered a reliable indicator of a superior teacher.

Winter Quarter Student Teacher Number 3

An analysis of Winter matrix number three showed that teacher-talk covered 76.861 percent of the time while student-talk occupied 16.964 percent of the time. These two figures represented the high and low mark in their respective categories for Winter Quarter, 1970. However, when these figures were compared to the untrained Fall teachers, one finds that about 25 percent of the Fall student teachers talked more while about one-half of the students talked more than the 16.964 percent of the time cited above.

Each of seven cells in the matrix contained three percent of the tallies or more. Only two of these were steady-state cells. They included the (4,4) and (5,5) cells. The (4,4) cell showed the use of extended teacher-questions, while the (5,5) cell showed extended teacher-lecture. The 35.219 percent spent in cell (5,5) was a high for the Winter Quarter student teachers, but only average when compared to the Fall Quarter group. There were five transition cells. They included the (4,8), (8,2), (2,4), (2,5) and (5,4) cells. The

TABLE 41

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 3

	1	2	3	4	5	6	7	8	9	10
1				0.081						
2		0.324	0.687	4.766	4.362			0.283	0.081	0.445
3			0.162	0.445	0.566			0.081		0.041
4				3.918	0.687			11.188	0.364	2.303
5		0.445	0.081	5.534	35.219	0.445		0.243	1.778	1.091
6				0.122	0.283	0.485			0.041	0.081
7				0.243						
8	0.041	9.976	0.283	1.414	0.364		0.202	1.535		0.364
9		0.081	1.081	1.979			0.041		0.485	0.041
10	0.041	0.122		1.858	1.374	1.081		0.849	0.041	1.818
*T	0.081	10.946	1.293	18.458	44.831	1.010	0.243	14.177	2.787	6.180

*T indicates Total.

first four reflected a teaching style of teacher-question--student-response--teacher-praise followed by either another question or a shift into lecture. The (5,4) cell showed a shift from teacher-lecture to teacher-question.

Winter Quarter Student Teacher Number 4

An analysis of Winter matrix number four showed that teacher-talk covered 57.403 percent of the time while student-talk covered 36.058 percent of the time. This showed a relatively low level of teacher involvement with a high percentage of student involvement.

Each of ten cells of the matrix contained three percent of the tallies or more. This showed a wide variety of interaction present. Four of these cells were steady-state cells. They included the (4,4), (5,5), (8,8) and (9,9) cells. The first two cells showed the measure of extended teacher-question and lecture, respectively, while the last two cells were measures of different kinds of student participation. There were six transition cells. They included the (4,8), (4,9), (8,2), (5,9), (9,5) and (5,4) cells. The first three cells showed a teaching style of teacher-question--two kinds of student-response--and teacher-praise, while the (5,9) and (9,5) cells showed a type of teacher-explanation--student-question style not recorded before. The (5,4) cell was a shift from teacher-lecture to teacher-question.

TABLE 42

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 4

	1	2	3	4	5	6	7	8	9	10
1				0.042						
2		0.126	0.709	1.793	1.208			0.376	0.459	0.042
3			0.417	1.543	2.126	0.042		0.334	0.501	0.084
4		0.042		3.085	0.501		0.042	9.213	3.335	0.959
5		0.084	0.209	5.544	16.716	0.376	0.084	0.584	4.127	0.792
6					0.376	0.459		0.292	0.126	0.167
7				0.126	0.167	0.042		0.042	0.042	0.042
8		4.252	2.001	2.668	1.084	0.251	0.209	6.295	0.084	1.960
9	0.042	0.167	1.668	1.334	5.544	0.084	0.084		7.337	1.001
10		0.042	0.042	1.043	0.834	0.167	0.042	1.668	1.251	1.501
*T	0.042	4.711	5.044	17.174	28.554	1.418	0.459	18.800	17.258	6.545

*T indicates Total.

Winter Quarter Student Teacher Number 5

An analysis of Winter matrix number five showed that teacher-talk covered 57.867 percent while student-talk involved 31.867 percent of the time. Teacher-talk was below average for Winter Quarter, 1970, while student-talk was somewhat above average for the same period. Approximately one-third of the student-talk was student initiated.

Each of twelve cells of the matrix contained three percent of the tallies or more. This showed a very wide variety of interaction present. Three of these cells were steady-state cells. They included the (4,4), (5,5) and (8,8) cells. The (4,4) cell reflected the amount of extended teacher-question while the (5,5) cell was a very low 7.309 percent of teacher-lecture. This teacher was able to teach a class without a great deal of extended talk. The (8,8) cell showed the amount of extended student-response. There were nine transition cells. This was one of the highest numbers of transition cells recorded in this study. The transition cells included the (4,8), (4,9), (8,2), (8,3), (2,4), (3,4), (10,9), (9,10) and (5,4) cells. The (4,8), (8,2) and (8,3) cells showed a teaching style of narrow teacher-question--student-response--and two different kinds of teacher-praise. The (4,9) cell showed a more general type of teacher-question followed by

TABLE 43

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 5

	1	2	3	4	5	6	7	8	9	10
1										
2		0.556	1.203	4.811	1.573	0.093		2.359	0.556	0.972
3		0.417	1.943	3.516	0.833	0.047		0.972	0.648	0.556
4			0.139	3.655	1.111			11.148	4.580	1.342
5		0.093	0.463	3.146	7.309	0.186		0.787	1.064	0.787
6			0.047	0.139	0.093	0.324			0.232	0.093
7			0.047							
8		8.974	3.053	2.406	0.741	0.047	0.047	4.025		0.879
9		1.989	1.804	1.666	1.712	0.093			1.342	3.053
10		0.139	0.232	2.637	0.463	0.139		0.878	3.238	2.637
*T		12.165	8.927	21.971	13.830	0.926	0.047	20.167	11.656	10.315

*T indicates Total.

a more imaginative student-response. The (9,10) and (10,9) cells showed the extent of students offering their own differing ideas about the topic. The (5,4) cell was a shift from teacher-lecture to teacher-question.

Winter Quarter Student Teacher Number 6

An analysis of Winter matrix number six showed that teacher-talk covered 62.649 percent while student-talk covered 31.065 percent. Teacher-talk was somewhat below average for Winter Quarter, 1970, while student-talk was somewhat above average for the same period. Approximately one third of the student-talk was student initiated. Each of nine cells of the matrix contained three percent of the tallies or more. This showed a fairly wide variety of classroom interaction. There were four steady-state cells. They included the (4,4), (5,5), (8,8), and (9,9) cells. This showed the amount of teacher involvement in extended question and lecture as well as the student participation in the form of response or initiation. There were five transition cells. They included the (4,8), (8,2), (4,9), (2,4), and (5,4) cells. The (4,8), (8,2) and (2,4) cells showed a teaching style of teacher-question--student-response--teacher-praise. The (4,9) cell showed a different, more general, teacher-question followed by the student's own ideas as a response. The (5,4) cell showed a shift from lecture to teacher-question.

TABLE 44

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 6

	1	2	3	4	5	6	7	8	9	10
1				0.044	0.044					
2		0.259	0.690	3.103	1.078	0.044		0.528	0.259	0.087
3	0.087	0.044	0.388	0.911	1.164	0.044		0.130	0.388	0.044
4		0.087	0.087	5.128	0.911	0.087		7.497	3.821	2.758
5		0.044		5.817	22.663	0.388		0.388	1.250	0.431
6				0.087	0.173	0.431		0.087	0.044	0.604
7				0.216	0.044					
8		4.654	0.862	1.896	0.948	0.130	0.130	11.332	0.216	0.259
9		0.905	1.207	0.991	2.672	0.044	0.130	0.044	4.438	0.216
10		0.044	0.044	2.284	1.207	0.302		0.431	0.130	1.896
*T	0.087	6.032	3.275	20.552	30.979	1.465	0.259	20.423	10.642	6.291

*T indicates Total.

An anlysis of Winter matrix number seven showed that teacher-talk covered 71.960 percent while student-talk involved 23.953 percent of class time. Teacher-talk was above average for the same period. The amount of student initiated talk was small (3.498 percent).

Each of seven cells of the matrix contained three percent of the tallies or more. Three of these cells were steady-state cells. They included the (4,4), (5,5) and (8,8) cells. The relatively high figure in the (4,4) cell (7.061 percent) could indicate a teacher problem of excessive paraphrasing of questions. This was confirmed by analyzing the coding numbers in sequence on the raw data sheets. The (5,5) cell showed extended teacher-lecture, while the relatively small figure in the (8,8) cell (3,498 percent) indicated a brief student-response. There were four transition cells. They included the (4,8), (8,2), (2,4) and (5,4) cells. The first three cells showed a teacher-style of teacher-question--narrow student-response--teacher-praise, and back to another teacher-question. This was typical of a drill type lesson in preparation for a test. The (5,4) cell showed a shift from teacher-lecture to teacher-question.

TABLE 45

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 7

	1	2	3	4	5	6	7	8	9	10
1										
2		0.363	2.475	7.589	2.640		0.066	0.330	0.033	0.396
3			1.386	2.276	1.386			0.033	0.099	0.132
4			0.033	7.061	0.726	0.165	0.165	15.870	1.056	0.957
5		0.165	0.033	5.345	16.992	0.099	0.099	0.297	1.518	0.693
6				0.066	0.033	0.033		0.132		0.330
7				0.396	0.132		0.132		0.066	0.066
8		13.263	1.056	1.353	0.924	0.066	0.198	3.498		0.099
9		0.099	0.429	0.231	1.980		0.066		0.627	0.066
10				1.617	0.429	0.231	0.066	0.297	0.099	1.353
*T		13.890	5.411	26.031	25.240	0.594	0.792	20.456	3.498	4.092

*T indicates Total.

Winter Quarter Student Teacher Number 8

An analysis of Winter matrix number eight showed that teacher-talk covered 72.557 percent of the time while student-talk covered 20.867 percent of the time. Teacher-talk was above average for Winter Quarter, 1970, while student-talk was below average. Approximately twice as much of the student-talk was initiated by them as compared to talk initiated by the teacher.

Each of seven cells of the matrix contained three percent of the tallies or more. Four of these cells were steady-state cells, showing a fairly deliberate teaching style. These cells included the (4,4), (5,5), (9,9), and (10,10) cells. The (4,4) and (5,5) cells showed the amount of extended teacher-question and extended teacher-lecture. The (9,9) cell showed the amount of extended student initiated participation and the (10,10) cell showed the amount of extended silence. The three transition cells included the (4,8), (4,9) and (5,4) cells. The (4,8) and (4,9) cells showed both narrow and general student response to a teacher-question, while the (5,4) cell showed the shift from lecture to teacher-question.

Winter Quarter Student Teacher Number 9

An analysis of Winter matrix number nine showed that teahcer-talk occupied 67.156 percent of the time, while student talk involved 25.948 percent of the time. Both figures were near average for their

TABLE 46

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 8

	1	2	3	4	5	6	7	8	9	10
1				0.087	0.087					
2		0.433	0.793	1.905	1.386	0.260		0.347	0.520	0.087
3		0.174	0.866	1.646	1.905	0.087			0.607	0.087
4		0.087	0.260	3.377	1.299	0.087		5.542	4.243	1.126
5		0.174	0.780	5.801	31.602	1.213	0.174		1.905	0.780
6				0.174	1.472	0.693		0.087	0.087	0.260
7					0.087				0.087	
8		2.511	0.607	0.866	1.299	0.174		0.780	0.433	0.260
9	0.174	2.165	2.165	1.213	2.252	0.087			5.542	0.347
10		0.087		0.953	1.039	0.174		0.174	0.520	3.637
*T	0.174	5.628	5.368	16.018	42.425	2.771	0.174	6.927	13.940	6.581

*T indicates Total.

TABLE 47

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 9

	1	2	3	4	5	6	7	8	9	10
1										
2		0.827	1.264	2.284	2.381	0.098	0.049	0.292		0.146
3		0.049	0.535	0.972	1.361	0.098			0.098	0.146
4		0.098	0.049	4.762	1.264	0.146		8.455	1.312	1.458
5		0.292	0.159	5.588	25.316	0.827	0.146	0.486	1.701	0.729
6				0.049	0.438	1.118		0.438	0.098	0.584
7			0.049	0.292	0.146		0.195	0.098	0.049	0.146
8		5.831	0.632	1.653	1.201	0.293	0.486	10.350	0.049	0.584
9		0.243	0.535	0.295	2.576		0.049		1.361	0.098
10				1.750	0.827	0.246	0.049	0.778	0.389	3.013
*T		7.338	3.256	17.542	35.326	2.722	0.972	20.895	5.054	6.900

*T indicates Total.

respective groups. Approximately one-fifth of the student talk was initiated by the students.

Each of seven cells of the matrix contained three percent of the tallies or more. Four of these cells were steady-state cells. They included the (4,4), (5,5), (8,8) and (10,10) cells. They showed extended teacher-question, extended teacher-lecture, extended student-response and silence, respectively. The three transition cells included the (4,8), (8,2) and (5,4) cells. The (4,8) cell showed the shift from teacher-question to narrow student-response, while the (8,2) cell showed the shift from narrow student-response to teacher-praise. The (5,4) cell showed the shift from lecture to teacher-question.

Winter Quarter Student Teacher Number 10

An analysis of Winter matrix number ten showed that teacher-talk covered 49.469 percent of the time, while student-talk involved 45.340 percent of the time. This was one of the lowest values for teacher-talk recorded Winter Quarter, 1970, and the highest value for student-talk. Approximately two-thirds of the student-talk was student initiated and of a broad general nature. Each of eight cells of the matrix contained three percent of the tallies or more. This showed a fairly wide variety of interaction present in the classroom. Four of these cells were steady-state cells. They included the (4,4)

TABLE 48

PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHER NUMBER 10

	1	2	3	4	5	6	7	8	9	10
1										
2		0.159	0.239	1.706	0.953			0.120	0.239	0.040
3		0.040	0.834	2.103	0.913	0.040		0.120	0.278	
4		0.040	0.040	3.848	0.834	0.080	0.040	5.990	6.347	0.953
5		0.080	0.040	3.650	16.462	0.080	0.040	0.318	1.706	0.675
6				0.040	0.040	0.040		0.120	0.040	0.040
7					0.040				0.040	
8		2.222	1.270	2.182	0.715	0.040		7.815	0.437	0.318
9	0.040	0.913	1.905	3.729	2.539	0.040			19.715	1.468
10				0.873	0.596			0.516	1.548	1.706
*T	0.040	3.452	4.324	18.168	23.087	0.318	0.080	14.995	30.346	5.197

*T indicates Total.

(5,5), (8,8) and (9,9) cells. The first two showed extended teacher-question and lecture, respectively, while the last two showed two kinds of student participation. The 19.715 percent in the (9,9) cells was a very high figure. This reflected a lengthy student involvement expressing his own ideas. The four transition cells included the (4,8), (4,9), (9,4), and (5,4) cells. The (4,8) cell was the transition from teacher-question to a narrow student-response. The (4,9) and (9,4) cells showed a style of broad teacher-question--general student-response, followed by another question. The (5,4) cell was a shift from lecture to teacher-question.

Winter Quarter Composite Student Teacher

An analysis of the composite Winter matrix showed that teacher-talk covered 64.386 percent of the time, while student-talk covered 29.543 percent of the time. This compared to the Fall Quarter totals of 66.928 and 18.745 percent, respectively. Approximately one-third of the student talk each quarter was student initiated.

Each of eight cells of the matrix contained three percent of the tallies or more. This compared to the six cells in the Fall Quarter composite student teacher. Four of these cells were steady-state cells. They included the (4,4), (5,5), (8,8) and (9,9) cells. The (4,4) and (5,5) cells showed extended teacher-questions and teacher-lecture,

TABLE 49

COMPOSITE PERCENTAGE MATRIX FOR WINTER QUARTER STUDENT TEACHERS

	1	2	3	4	5	6	7	8	9	10
1				0.028	0.014					
2		0.354	1.094	3.657	1.992	0.042	0.014	0.624	0.210	0.247
3	0.010	0.089	0.926	1.927	1.424	0.038	0.005	0.215	0.294	0.126
4		0.052	0.056	4.541	0.931	0.061	0.033	10.012	2.820	1.545
5		0.173	0.215	5.085	20.540	0.405	0.056	0.452	1.768	0.694
6			0.005	0.084	0.284	0.387		0.159	0.070	0.256
7		-	0.024	0.159	0.075	0.005	0.038	0.014	0.028	0.028
8	0.005	6.895	1.545	1.843	0.870	0.126	0.163	6.374	0.154	0.582
9	0.024	0.633	1.150	1.080	2.475	0.042	0.042	0.010	4.843	0.694
10	0.005	0.042	0.038	1.647	0.791	0.149	0.019	0.698	0.805	1.908
*T	0.042	8.235	5.048	20.047	29.393	1.252	0.368	18.554	10.989	6.076

*T indicates Total.

respectively. The (8,8) and (9,9) cells showed two kinds of student participation. The first was extended response to narrow teacher-questions, while the second involves student initiation or student-response to a general teacher-question. Four cells of the matrix were transition cells. They included the (4,8), (8,2), (2,4) and (5,4) cells. The first three cells showed a teaching style of teacher-question--student-response--teacher-praise and back to another teacher-question. The (5,4) cell showed a shift from teacher-lecture to teacher-question.

Table 50 is included at this point to summarize the teaching style exhibited by the Winter Quarter, 1970, group of student teachers. A summarization of the composite matrices of both the Fall and Winter groups of student teachers is offered in Chapter Five.

Summary

Various statistical analyses were made involving the data collected. Primarily these analyses were concerned with the predictive aspect of the Domatism Scale and the Teaching Situation Reaction Test. These tests were used as both independent and dependent variables linking the scores achieved on these tests to the mean scores achieved on the Supervisor's Evaluation Form for Student Teachers, and to the grade achieved in student teaching.

TABLE 50

WINTER QUARTER STUDENT TEACHERS

Cateogry	Student Teacher Number										Mean
	1	2	3	4	5	6	7	8	9	10	
I/D Ratio	1.082	1.400	0.668	0.886	2.909	0.916	1.703	0.599	0.721	1.106	1.199
Revised I/D Ratio	6.879	18.375	9.839	5.223	21.715	5.450	13.929	3.795	2.869	19.700	10.777
Extended Indirect	2.270	4.055	1.176	1.255	4.121	1.469	4.228	2.169	2.677	1.274	2.469
Extended Direct	0.390	0.221	0.487	0.502	0.326	0.433	0.167	0.695	1.341	0.042	0.458
Content Cross	76.199	58.638	81.238	65.587	56.401	68.480	72.436	72.823	68.774	57.693	68.027
Indirect Teacher Response to Student Comments	15.409	12.374	11.959	12.134	19.893	10.517	16.434	9.701	9.090	12.261	12.977
Direct Teacher Response to Student Comments	1.945	3.451	2.588	7.256	2.639	4.053	3.236	3.813	4.425	3.335	3.674
Student Talk Following Teacher Talk	16.641	16.044	14.062	19.432	22.347	14.484	19.439	13.427	13.029	15.318	16.422
Student Talk Following Student Talk	4.987	21.076	2.911	16.635	9.485	16.591	4.523	7.449	12.928	30.031	12.662
Silence or Confusion Following Teacher or Student Talk	4.729	2.249	4.366	5.048	7.683	4.399	2.743	2.948	3.892	3.495	4.155
Total Silence or Confusion	6.279	3.120	6.180	6.545	10.315	6.291	4.092	6.581	6.900	5.197	6.150
Steady-State Cells	34.309	43.793	43.947	35.937	21.790	46.537	31.447	46.931	47.478	50.580	40.275
3-3 Cell	0.777	2.080	0.162	0.417	1.943	0.388	1.386	0.866	0.535	0.834	0.939
9-9 Cell	1.230	5.146	0.485	7.337	1.342	4.438	0.627	5.542	1.361	19.715	4.722
Student Talk	21.619	37.111	16.964	36.058	31.823	31.065	23.953	20.867	25.948	45.340	29.074
Teacher Talk	72.107	59.774	76.861	57.403	57.867	62.649	71.960	72.557	67.156	49.467	64.780
Teacher/Student Talk Ratio	3.335	1.610	4.530	1.591	1.818	2.016	3.004	3.477	2.588	1.091	2.228

Scores on the Dogmatism Scale one standard deviation or more above and below the mean were used to choose corresponding Teaching Situation Reaction Test scores and grades achieved in student teaching. The same practice was followed with the Teaching Situation Reaction Test being the independent variable and the Dogmatism Scale and the grades achieved in student teaching as the dependent variables.

The people judged most open-valued by the Dogmatism Scale made significant growth in their student teaching experience as determined by the Teaching Situation Reaction Test. This growth was not noted by the Montana State University supervisors in the grades given to evaluate the student teachers. There was no significant difference in grades given to the "growth" group as compared to the "non-growth" group.

A comparison was also made between groups of student teachers who achieve a 4.0 grade point average in student teaching and those who achieved a 3.0 or less. No differences were noted in the scores achieved on the Dogmatism Scale and the Teaching Situation Reaction Test. This further confirms the fact that neither of these two instruments cited were effective in predicting those people who would be must successful in their student teaching experience at Montana State University.

A second aspect of the study concerned the coding and analysis of two groups of student teachers. One group was trained with the Flanders' system of coding and analysis while the other was not. The reconstructed matrices of the student teachers were presented with mention given to the general style of teaching presented.

A number of behavioral changes were noted between the two groups. The Flanders' group praised the students more and criticized them less. The Flanders' group permitted and encouraged more student-talk and they (the Flanders' group) talked less. The Flanders' group lectured less and questioned their students more. Both groups spent the same amount of time covering content but the Flanders' group had more variety in their classes. The Flanders' group was also better organized, and tended to operate in a much more indirect manner.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The problem for this study was to investigate the verbal teaching patterns of secondary student teachers and to determine essentially what these teaching patterns were. As a corollary to the problem, the Rokeach Dogmatism Scale and the Teaching Situation Reaction Test were administered to student teachers to determine if these tests could predict successful student teachers prior to their placement in the secondary schools of Montana.

As one reads the literature concerning the importance of teaching style one becomes impressed with the consistency of the studies as they relate the importance of teaching style to student achievement and attitudes. The general teaching style which stresses maximum student involvement and warm acceptance of the students as worthwhile human beings seems to bring significantly greater benefits in the form of greater achievement and better attitudes with less measurable stress on the students. If one accepts the rather consistent findings, then it behooves one to bring about the kinds of teaching behavior in student teachers deemed desirable.

Both the Teaching Situation Reaction Test and the Rokeach Dogmatism Scale have been used before with good results in predicting student teacher success. Validity and reliability for both instruments have been explored and found.

To determine verbal teaching patterns various groups of student teachers were selected and tested. In particular, no significant difference was found between the non-Flanders' group Fall Quarter, 1969, (Group E), and the Flanders' group Winter Quarter, 1970, (Group F), as they were measured by the Dogmatism Scale, the Teaching Situation Reaction Test and the grade point average achieved in the student's major content area. This means they were statistically the same in the areas of flexibility and non-authoritarianism. They compared favorably in the areas of grade point average in their major subject areas and how they approached educational problems as measured by the TSRT.

When one compared the total groups available Fall Quarter, 1969, (Group A), and Winter Quarter, 1970, (Group E), some differences were noted. The total group of secondary student teachers Fall Quarter, 1969, appeared to be more dogmatic and scored significantly lower on the Teaching Situation Reaction Test. There was no significant difference in grade point average in the major area over the two quarters.

In summarizing the possible predictive value of the Dogmatism Scale, one notes that those people one standard deviation from the mean in the area of high flexibility scored higher initially and concluded their student teaching experience with a significant growth in coping with education problems as posed by the TSRT.

This change is not noted by higher grade in student teaching or higher marks on the evaluation form. Those student teachers with fixed values showed little growth in student teaching as measured by the TSRT, but received the same grades and evaluations as the change group.

Although the Teaching Situation Reaction Test has been used in a number of situations with good results, it failed to predict or distinguish between those student teachers with high evaluations and those with low evaluations. This tends to illustrate the difficulty of devising a single test to predict teaching competency.

Table 51 gives a summary of pertinent cell information from the composite student teachers of both Fall and Winter Quarters. Cells were included if one or both cells were three percent or more.

An analysis of Table 51 by item revealed the following information. Item one showed that the Winter Quarter student teachers used the transition cell (2,4) more than four times as much as the Fall Quarter student teachers. This meant that teacher-praise or encouragement followed by another teacher-question was a much more common teaching style used by the Flanders'-trained group.

Item two showed that the Winter Quarter group used extended teacher-questions about one and one-half times more often than the Fall Quarter group. This was largely due to the greater number of questions asked by the Winter Quarter group. Both groups had some

TABLE 51

Summary of Composite Student Teachers

Item	Cell		Percentage Figures Fall Quarter	Winter Quarter
1	(2,4)	Praises or encourages followed by teacher-question	0.878	3.657
2	(4,4)	Extended teacher-question	2.739	4.541
3	(4,8)	Teacher-question followed by student-response	5.827	10.012
4	(5,4)	Shift from teacher-lecture to teacher-question	3.924	5.085
5	(5,5)	Extended teacher-lecture	34.902	20.540
6	(8,2)	Student-response followed by teacher-praise.	1.985	6.895
7	(8,8)	Extended student-response	3.046	6.374
8	(9,9)	Extended student-talk--initiation	3.289	4.843
9	(10,10)	Extended silence or confusion	8.488	1.908

Total items Fall Quarter 28,371 Based on 12 student teachers

Total items Winter Quarter 21,495. Based on 10 student teachers

difficulty with poorly worded or vague questions. This resulted in excessive paraphrasing.

Item three showed the relationship between teacher-question and ensuing student-response. This category was used more than 1.7 times more by the Winter Quarter group as compared to the Fall Quarter group.

Item four showed the shift from lecture to teacher-question. The Winter Quarter group used it 1.2 times more than the Fall Quarter group.

Item five showed a comparison of the time spent in extended lecture over the two quarters. The Fall Quarter student teachers lectured about 1.7 times more than the Winter Quarter group. The Fall Quarter group tended to use the methods with which they had been taught most recently. The additional training that the Winter Quarter group received seemed to have brought about a sizeable change in teaching technique.

Item six showed that pupil-response followed by teacher-praise or encouragement occurred over three times more often during the Winter Quarter student teaching than during the Fall Quarter. Since youngsters tend to respond positively in situations that they find rewarding, this was a particularly important behavioral change.

Item seven showed that when the students were given situations in which they could give extended answers to teacher-questions, they responded twice as frequently during the Winter Quarter as during the Fall Quarter student teaching. This was one of the indicators of actual student involvement in the learning process.

Item eight showed an increase in extended student initiated talk during Winter Quarter by a factor of 1.4 over Fall Quarter student teaching. This was again an indicator of a more open classroom climate.

Item nine showed that silence or confusion was much less prevalent Winter Quarter than Fall Quarter. Certainly some of the student teachers Fall Quarter needed better organization and control. Some of the Winter Quarter group might have been a little overly concerned with silence in the classroom. Time for students to think is a very important aspect of learning; however, poor organization and control are not the hallmark of the superior teacher.

Table 52 offers a comparison of seventeen pertinent ratios or percentages that include unit cells or related multiple cells. These figures are mean values taken from all twelve student teachers of the Fall Quarter group and all ten student teachers of Winter Quarter.

TABLE 52

Mean Ratios or Percentages

Category	Fall Quarter	Winter Quarter
I/D ratio (total of columns 1,2,3,4 divided by total of columns 5,6,7)	0.434	1.199
Revised I/D ratio (total of columns 1,2,3 divided by total of columns 6,7)	1.916	10.777
Extended indirect influence	0.581	2.469
Extended direct influence	2.478	0.458
Content Cross	69.861	68.027
Indirect teacher response to student comments	5.956	12.977
Direct teacher response to student comments	4.361	3.674
Student talk following teacher talk	10.502	16.422
Student talk following student talk	7.869	12.662
Silence or confusion following teacher or student talk	6.234	4.155
Total silence or confusion	15.405	6.150
Steady-state cells	55.774	40.275
3-3 cell	.100	.939
9-9 cell	3.004	4.722
Student talk	18.363	29.074
Teacher talk	67.068	64.780
Teacher/student talk ratio	3.652	2.228

A comparison of the I/D ratios in Table 52 showed that the Winter Quarter group used a teaching style that was more than two and one-half times more indirect than the Fall Quarter group. The real meaning behind this statement reflected a Winter Quarter teaching style that was quite indirect in that more than one-half of the teacher statements were forms of praise, acceptance of students in various ways, or questions directed to the students. Less than one-half of the Winter Quarter teacher-talk was given in the form of lecture, giving directions or criticism.

These statements were further substantiated in an examination of the Revised I/D ratio. A surface examination showed that the Fall Quarter group gave twice as much student praise or acceptance compared to directions or criticism, while the Winter Quarter group gave more than ten times as much praise or student acceptance as compared to directions or criticism. A closer examination of the data showed that both groups were rather weak in giving directions and the general procedures from changing over from some kind of teacher-student interaction to a possible supervised study program, or some other student activity, left something to be desired. The real difference in the two groups concerned the area of criticism. The Winter Quarter group was much more skilled in directing questions to the student so he

could correct himself, or in directing leading questions to other students in the class so they could do the correcting by responding with the desired answer. A teacher response of "No, that isn't right," to a student's best effort was very rarely observed Winter Quarter. It was much more frequently observed Fall Quarter. A comparison of the data showed that criticism was reduced by a factor of three and one-half during the Winter Quarter.

These kinds of statements were further substantiated in an examination of the extended indirect influence and extended direct influence. The first showed a gain of influence through praise and student acceptance by a factor of four for the Winter Quarter group. In the area of extended direct influence, i.e., directions and criticism, the Winter Quarter group reduced this area by a factor of five. This further points up the fact that the Winter Quarter group was able to function as effective teachers without authoritative methods.

Some critics of this system might say that students must be primarily concerned with the content area. Be this as it may, in spite of some rather interesting difference in time spent in different areas of the matrix, an examination of the "content cross" showed a rather close correlation between Fall and Winter Quarters. Fall Quarter used this category 69.9 percent of the

time. As this study points up, the Winter Quarter group was just as concerned with content as the Fall Quarter group, but they used a style of teaching that tended to involve the learner in a more active role. The lecture or "telling method" was used much less in favor of the question-answer or "you tell me or ask me" method. The many studies cited previously in Chapter Two tend to suggest that this is the better method.

A reliable indicator of this acceptance of student ideas was the (3,3) cell. A comparison of the two quarters showed that the Winter Quarter group provided opportunities for and accepted student ideas more than nine times as often as the Fall Quarter group. The highest student teacher in the Winter Quarter group used this category more than twenty times more frequently than the Fall Quarter average. Others in the group used it nineteen and thirteen times more frequently, respectively. The lowest student teacher in this category still used it more than one and one-half times more than the average for Fall Quarter.

The area of student talk was related in part to the greater use of the (3,3) cell. Certainly before the teacher can accept a student's ideas the student must participate. This was measured in several areas of the matrix, but the (9,9) cell showed a more extensive and lengthy student involvement. This was a category that was increased by a factor of one and one-half by the Winter

Quarter group of student teachers. This meant that the students in the classroom were given that much more opportunity to develop their own ideas in a school setting. They were not merely "parroting back" ideas that they are supposed to "parrot" back.

Conclusions

The Dogmatism Scale was effective in predicting desirable change as measured by the Teaching Situation Reaction Test. Those people scoring high in flexibility and non-authoritarianism made significant growth while those judged authoritarian made little or no growth. The evaluation system used at Montana State University did not reflect these differences.

The student teachers who did not receive the Flanders' training tended to teach as they had most recently been taught. The predominate lecture method seemed to be a desirable way for them to teach all classes at all levels from grade seven through grade twelve.

The student teachers trained with Flanders' coding of classroom techniques provided a more open classroom atmosphere. The student teacher accepted more student ideas and praised them more; partly as a result, they criticized them less. The amount of time devoted to content was the same but it was used differently and the ratio of teacher to student talk was reduced.

Recommendations

The field of supervision of student teaching needs to be re-examined and some of the excesses corrected. Continued research should be made in the area of predictive testing. A battery of tests indicating the strength and weaknesses of the student teacher would be extremely helpful. A similar battery of tests should be given to the supervising classroom teacher. If more is known about both the classroom teacher and the student teacher, some personality conflicts would not arise.

Better uniformity in the area of college supervisors could be gained through in-service training programs. When one student teacher is coded with Flanders' techniques and spends 54 percent of the class time in confusion and earns an "A" in student teaching, it seems reasonable that other supervisory personnel should be so advised if this is the criterion for an "A" in student teaching.

In a similar vein, classroom teachers are often in a quandary as to their duties with respect to a student teacher. The statement "What do I do with him?", is all too often heard. Similar in-service training programs for them will enable the student teacher to have a much better school experience.

Montana, with its large geographic area and small population, has some unusual problems. The present plan of two visits

to secondary student teachers by the college supervisor is grossly inadequate. The student teachers should get the benefit of many new ideas and approaches to their daily lessons. A program to enable the supervisor to see the student teacher once a week for a full college quarter would be much better. This could be achieved with having more resident regional supervisors to reduce the travel time.

This study has shown that twenty additional hours of training for our student teachers can bring about marked behavioral changes. In nearly every case these changes were desirable changes. Inadequacies that appeared in the teaching patterns were primarily those of omission.

In the light of the consistent research findings cited earlier in this paper that these noteable indirect teaching styles exhibited by the Flanders' trained group of student teachers are stimulating greater achievement in their classroom, it is strongly recommended that all student teachers take a similar course. Every student sho starts his teaching career should be competent enough in Flanders' technique to code himself. This is a strong tool of self-evaluation.

The concept of greater student involvement and greater student acceptance by the teacher is a very important one to education and to the nation. Democracy depends on a rational, well-

educated citizen who is actively involved with the problems of the day, seeking their orderly solution. It does not seem unreasonable to expect that the schools can assume a greater role in the preparation of these citizens.

Suggested Additional Research

This study represents a small step in the extension of knowledge regarding the verbal teaching patterns of student teachers. Unquestionably, related studies need to be done. Studies analyzing the verbal teaching style by grade level and content area would be important. Studies comparing the verbal teaching style of the supervising classroom teacher and the student teacher would be worthwhile.

A further study should be conducted as a follow-up study for students who have been trained in the Flanders' process to determine whether or not the indirect teaching style has become permanent. The study should be conducted over a two year period following his entry into the teaching field.

SELECTED BIBLIOGRAPHY

BOOKS

Amidon, E. J., and Flanders, N. A. 1967. The role of the teacher in the classroom. Minneapolis: Association for Productive Teaching.

Ascher, M. J., and McCue, J. 1961. The analysis of verbal interaction in the classroom. Theory and Research in Teaching. Edited by Arno Bellock. New York: Bureau of Publications. Teachers College, Columbia University.

Bales, R. 1950. Interaction process analysis. Cambridge, Massachusetts: Addison-Wesley Publishing Co.

Barr, A. 1929. Characteristic differences in the teaching performance of good and poor teachers of social studies. Bloomington, Illinois: Public School Publishing Co.

Bellack, A. (ed.). 1963. Theory and research in teaching. New York: Bureau of Publications, Teachers College, Columbia University.

Biddle, B. J., and Ellena, W. J. (eds.). 1964. Contemporary research on teacher effectiveness. New York: Holt Rinehart and Winston, Inc.

Cochran, W. G. 1953. Sampling techniques. New York: John Wiley and Sons, Inc.

Dyak, A. J. 1963. Children's social interaction at school: a comparison of teachers and classmates. The Stream of Behavior. Edited by R. G. Barker. New York: Appleton-Century Crofts.

Flanders, N. A. 1963. Teacher influence in the classroom. Theory and Research in Teaching. Edited by Arno Bellock. New York: Bureau of Publications, Teachers College, Columbia University.

Heyns, R. W., and Zander, A. F. 1953. Observation of group behavior. Research Methods in the Behavioral Sciences. Edited by L. Festinger and D. Katz. New York: Dryden.

_____, and Lippitt, R. 1954. Systematic observational techniques. Handbook of Social Psychology. Edited by G. Lindzey. Cambridge: Addison-Wesley.

Hilgard, E. R., and Bower, G. H. 1964. Theories of learning. New York: Meredith Publishing Co.

Hough, J. B., and Amidon, E. J. 1964. An experiment in pre-service teacher education. Washington, D. C.: American Educational Research Association.

Lippitt, R., and White, R. K. 1943. The "social climate" of children's groups. Child Behavior and Development. Edited by R. G. Barker, J. S. Kounin and H. F. Wright. New York: McGraw-Hill Book Co.

Medley, D. M., and Mitzel, Harold. 1963. Measuring classroom behavior by systematic observation. Handbook of Research on Teaching. Edited by N. L. Gage. Chicago: Rand McNally and Co.

Mitzel, Harold. 1960. Teacher effectiveness. Encyclopedia of Educational Research. Edited by Chester W. Harris. New York: Macmillian Co.

Rokeach, M. 1960. The open and closed mind. New York: Basic books.

Ryans, D. B. 1960. Prediction of teacher effectiveness. Encyclopedia of Educational Research. Edited by Chester W. Harris. New York: Macmillian Co.

Soar, R. 1966. An integrative approach to classroom learning. Public Health Service, Final Report, No. 7-R11MHo2o45. Philadelphia: Temple University.

Suchman, J. R. 1961. Inquiry training: building skills for autonomous discovery. Psychology and Teaching. Edited by W. C. Morse and G. M. Wingo. Chicago: Scott Foresman.

Weinberg, G. H., and Schumaker, J. A. 1962. Statistics--an intuitive approach. Belmont, California: Wadsworth Publishing Co., Inc.

Popham, W. James. 1967. Educational Statistics. New York: Harper and Row, Publishers.

PERIODICALS

Amidon, E. J. 1961. The effects of direct and indirect teacher influence on dependent-prone students learning geometry. Journal of Educational Psychology. 52:206-291.

_____, and Giammateo, Michael. February, 1965. The verbal behavior of superior teachers. The Elementary School Journal. 65:5:283-285.

Anderson, H. June 1939. The measurement of domination and of socially integrative behavior in teachers' contacts with children. Child Development. 10:2.

_____, and Reed, M. F. December 1946. Studies of Teachers' classroom personalities, III: follow-up studies of the effects of dominative and integrative contacts on childrens' behavior. Applied Psychology Monographs of the American Psychological Association. No. 11. Stanford: Stanford University Press.

_____. September, 1964. A study of certain criteria of teaching effectiveness. Journal of Experimental Education. 23:41-47.

Bales, Robert. June, 1962. Conceptual frameworks for analysis of social interaction. Journal of Experimental Education. 30:4:323-324.

Barr, Arvil. 1948. The measurement and prediction of teaching efficiency: a summary of investigations. Journal of Experimental Education. 16:203-283.

_____, Eustice, David; and Noe, Edward. June, 1955. The measurement and prediction of teacher efficiency. Review of Education Research. 25:261-269.

_____, and others. September, 1961. Wisconsin studies of the measurement and prediction of teacher effectiveness: a summary of investigations. Journal of Experimental Education. 30:5-156.

Bowers, Norman D. and Soar, Robert S. June, 1962. The influence of teacher personality on classroom interaction. Journal of Experimental Education. 30:309-311.

Brookover, Wilbur B. December, 1940. Person-person interaction between teachers and pupils and teaching effectiveness. Journal of Educational Research. 272-287.

Brown, George I. May, 1961. The relationships between categories of behavior of third grade teachers. Journal of Educational Research. 54:338-344.

Christenson, C. M. 1960. Relationships between pupil achievement, affection, need, teacher warmth, and teacher permissiveness. Journal of Educational Psychology. 51:169-174.

Cogan, Morris. 1965. Theory and design of a study of teacher-pupil interaction. Harvard Educational Review. 26:315-342.

_____. December, 1958. The behavior of teachers and the productive behavior of their pupils. I perception analysis, II trait analysis. Journal of Experimental Education.

Fattu, N. A. September, 1963. Exploration of interactions among instruction, content, and aptitude variables. The Journal of Teacher Education. 14:3:244-250.

Fine, Harold J. and Zimer, Carl N. July, 1956. A quantitative method of scaling communication and interaction process. Journal of Clinical Psychology. 12:268-271.

Flanders, Ned A. October, 1951. Personal-social anxiety as a factor in experimental learning situations. Journal of Educational Research. 45:100-110.

_____. 1959. Teacher-pupil contacts and mental hygiene. Journal of Social Issues. 40:1:30-39.

_____. 1965. Teacher influence, pupil attitudes, and achievement. Cooperative Research Monograph No. 12. Washington: Government Printing Office.

_____. June, 1962. Using interaction analysis in the inservice training of teachers. Journal of Experimental Education. 30:2:313-316.

_____. September, 1963. Intent, action and feedback: a preparation for teaching. The Journal of Teacher Education. 14:3: 251-260.

_____; Anderson, John; and Amidon, Edmund. 1961. Measuring dependence-proneness in the classroom. Educational and Psychological Measurement. 24:3:573-587.

_____, and Amidon, E. May, 1962. Two approaches to the teaching process. NEA Journal. 51:43-45.

_____, and Havumaki, S. February, 1960. Group compliance to dominative teacher influence. Human Relations. 13:67-82.

Furst, Norma, and Amidon, E. 1965. Teacher-pupil interaction patterns in the teaching of reading in the elementary school. The Reading Teacher. 93:4:283-288.

Gage, N. L. September, 1963. A method for improving teacher behavior. Journal of Teacher Education. 14:261-266.

Gallagher, James J. and Aschner, Mary Jane. July, 1963. A preliminary report: analyses of classroom interaction. Merrill-Palmer Quarterly of Behavior and Development. 9:183-194.

Gibb, Cecil A. August, 1955. Classroom behavior of the college teacher. Educational and Psychological Measurement. 15:254-263.

Gangey, William J. February, 1960. Effects on classmates of a deviant student's power and response to a teacher-exerted control technique. Journal of Educational Psychology. 51:1-8.

Harrington, G. M. 1955. Smiling as a measure of teacher effectiveness. Journal of Educational Research. 48:715-717.

Heil, Louis M. and Washburne, Carleton. May, 1962. Brooklyn College research in teacher effectiveness. Journal of Educational Research. 60:347-351.

Lippitt, R. 1940. An experimental study of authoritarian and democratic group atmospheres. Studies in Child Welfare. 56:43-195.

Medley, Donald M. June, 1961. Teacher personality and teacher-pupil raport. Journal of Teacher Education. 12:152-156.

_____. September, 1963. Experiences with the OSCAR technique. Journal of Teacher Education. 14:3:267-273.

_____, and Mitzel, Harold. September, 1958. Application of analysis of variance to the estimation of the reliability of observations of teachers' classroom behavior. Journal of Experimental Education. 27.

_____, and Mitzel, Harold. 1958. A technique for measuring classroom behavior. Journal of Educational Psychology. 49:86-92.

_____, and Mitzel, Harold. 1959. Some behavioral correlates of teacher effectiveness. Journal of Educational Psychology. 50:239-246.

_____, and Mitzel, Harold. June, 1962. A tentative framework for the study of effective teacher behavior. Journal of Experimental Education. 30:4:317-320.

Meyer, William, and Thompson, George. November, 1956. Sex differences in the distribution of teacher approval and disapproval among sixth-grade children. Journal of Educational Psychology. 47:385-396.

Mitzel, Harold, and Medley, Donald. April, 1957. Pupil-growth in reading--an index of effective teaching. Journal of Educational Psychology. 48:227-239.

Moustakas, Clark; Sigel, Irving; and Schalock, Henry. June, 1956. An objective method of the measurement and analysis of child-adult interaction. Child Development. 27:109-134.

Nelson, L. 1966. Teacher leadership: an emperical approach to analyzing teacher behavior in the classroom. Classroom Interaction Newsletter. 2:31-32.

Perkins, Hugh. October, 1951. Climate influence group learning. Journal of Educational Research. 45:115-119.

_____. November, 1964. A procedure for assessing the classroom behavior of students and teachers. American Education Research Journal. 1:249-260.

_____. January, 1965. Classroom behavior and underachievement. American Education Research Journal. 2:1:1-12.

Ryans, D. G. 1949. Theory development and the study of teacher behavior. Journal of Educational Psychology. 42:169-175.

_____, and Wandt, E. 1952. A factor analysis of observed teacher behavior in the secondary school. Educational and Psychological Measurement. 12:547-586.

_____. 1961. Some relationships between pupil behavior and certain teacher characteristics. Journal of Educational Psychology. 52:82-90.

_____. 1962. Inventory estimated teacher characteristics as covariants of observer assessed public behavior. Journal of Educational Psychology. 52:91-92.

Smith, B. O. June, 1962. Conceptual frameworks for analysis of classroom social interaction. Journal of Experimental Education. 30:4:325-326.

Steinzor, B. 1949. The development and evaluation of a measure of social interaction. Human Relations. 2:103-120.

Thelan, H. A., and Withall, J. G. 1949. Three frames of reference: the description of climate. Human Relations. 2:159-176.

_____. 1953. Experimental research toward a theory of instruction. Journal of Educational Research. 3:212-219.

Turner, R. L. September, 1963. Task performance and teaching skill in the intermediate grades. The Journal of Teacher Education. 14:3:299-307.

Waimon, Morton D. December 1961. Observing the classroom action system. Journal of Teacher Education. 22:466-470.

_____. June, 1962. Feedback in classrooms: a study of corrective teacher responses. Journal of Experimental Education. 30:4: 355-359.

Wilk, Roger E. and Edson, William H. September, 1963. Predictions and performance: an experimental study of student teachers. Journal of Teacher Education. 14:308-317.

Withall, John. 1949. The development of a technique for the measurement of social-emotional climate in classroom. Journal of Experimental Education. 14:347-361.

_____. 1951. The development of a climate index. Journal of Educational Research. 45:93-99.

_____. 1952. Assessment of social-emotional climates experienced by a group of seventh graders as they moved from class to class. Educational and Psychological Measurements. 22:440-445.

_____. December, 1960. Research tools: observing and recording behavior. Review of Educational Research. 30:496-512.

_____. September, 1963. Mental Health--teacher education research project. Journal of Teacher Education. 14:3:318-325.

Wright, Muriel. 1959. Development of an instrument for studying verbal behaviors in a secondary school mathematics classroom. Journal of Experimental Education. 28:103-121.

Wrightstone, J. W. 1934. Measuring teacher conduct of class discussion. Elementary School Journal. 34:454-460.

UNPUBLISHED MANUSCRIPTS

Duncan, J. K., with Hough, J. B. 1966. Technical Review of the Teaching Situation Reaction Test. Unpublished manuscript, The Ohio State University.

Farrow, Ralph. 1964. Change in Student Teachers' Verbal Behavior. Unpublished Ph.D. Dissertation. Stanford University.

Furst, Norma. 1965. The Effects of Training In Interaction Analysis on the Behavior of Student Teachers in Secondary Schools. Paper presented at the meeting of the American Educational Research Association, Chicago, February, 1965.

La Shier, W. S. Jr. April 3, 1966. The Use of Interaction Analysis in BSCS Laboratory Block Classrooms. Paper presented at the meeting of the National Science Teachers Association in New York City.

Lentner, M. M. 1968. Applied Statistics. Unpublished manuscript.

McMurchy, J. W. 1969. Post-Graduate Occupations and Mobility of Montana State University Educational Graduates. Unpublished professional paper. Montana State University.

Schantz, B. 1963. An Experimental Study Comparing the Effects of Recall by Children in Direct and Indirect Teaching Methods as a Tool of Measurement. Unpublished doctoral dissertation. Pennsylvania State University, State College, Pennsylvania.

Weber, W. A. 1967. Teacher and Pupil Creativity. Unpublished Ph.D. dissertation. Temple University, Philadelphia, Pennsylvania.

Zahn, Richard D. 1965. The Use of Interaction Analysis in Supervising Student Teachers. Unpublished doctoral dissertation. Temple University, Philadelphia, Pennsylvania.

APPENDIX A

TEACHING SITUATION REACTION TEST

TEACHING SITUATION REACTION TEST

Revised September, 1966

Directions: The case example that follows has been planned to measure your ability to work through some of the problems of handling a classroom group. You will be given certain information about the classroom group and the working situation. You will then be asked to respond to a number of questions. This will be repeated through a series of problem situations. The case study has been designed so that you can respond regardless of your teaching subject field. You do not need technical subject matter knowledge to take this test.

You are asked to indicate your first, second, third and fourth choice under each question by inserting respectively the numbers 1, 2, 3, 4, in the spaces provided on the answer sheets under (a) (b) (c) and (d). The most desirable choice should be labeled 1, and the least desireable 4. For example if your first choice was response (c), your second choice was response (a), your third choice was response (b), and your fourth choice was response (d), you would record your responses on the answer sheet as follows:

(a)	(b)	(c)	(d)
2	3	1	4

Please do not write on the test booklet

The Situation:

You have been employed by a school system which is engaged in a series of experimental studies. One of these studies involves an experimental class designed to improve pupils' general adjustment to their environment. A heterogeneous group (physically, mentally, socially) of twenty-five fourteen year old youngsters have signed up for this class.

The class is scheduled to meet the last period of the day on Tuesday and Thursday during the last half year. Arrangements have been made so that the class might take trips and students might have an opportunity to meet informally with the teacher after class.

Around the first of November your principal calls you in to tell you that, if you are interested, you have been chosen to teach the experimental class. You were asked because of your background in adolescent psychology and your interest in helping youngsters with minor problems of adjustment typical of the young adolescent.

Your principal has given you pretty much of a "free hand" to develop the content of the course and the activities in which the students will be engaged. A food supply of instructional materials, books on the adolescent, and descriptions of similar programs in other schools has been made available to you. There will be no direct supervision of your work, but an evaluation by students and yourself will be requested at the middle and close of the semester. Studies will also be made of the gain in personal adjustment evidenced by your students. You know the names of the students who have signed up for your course. An experienced teacher-counselor has been asked by the principal to help you when and if you ask for help. The teacher-counselor knows well each of the youngsters who have signed up for your class.

The Group:

Some of the youngsters who have signed up for the course know each other very well, having gone through school together. Three do not know anyone else in the group. Others are only casually acquainted. Members of the group have a variety of interests and abilities, and they represent many levels of competence and come from a variety of socio-economic backgrounds. The quality of their personal adjustment varies, but none is seriously maladjusted.

A. You have about eight weeks plus the Christmas vacation to plan for your class:

1. When you begin planning the course you would:

   (a) Ask your teacher-counselor what he thinks should be in the course.

   (b) Examine the materials available to you and determine how they might be used by members of the class.

   (c) Read through the copies of publications describing other school programs of a similar nature and draw ideas from them.

   (d) Interview a randomly selected group of the young people signed up for the course and set your own tentative objectives based on these interviews.

2. During early December an important local civil group comes out against teaching sex education in the schools. Your planning had included some sex education. At this point in your planning you would:

   (a) Continue planning as you have been.

   (b) Ask the principal if you should include any sex education in your course.

   (c) Remove the lessons dealing with sex education.

   (d) Find ways to get the sex education material across without causing an issue.

3. About three weeks before your class is scheduled to meet for the first time, your principal asks you to come in and talk with him about the course. You would hope that your principal would:

   (a) Say that if there was anything that he could do to be of help that you should feel free to call on him.

   (b) Indicate to you what he would hope the course would accomplish during the semester.

(c) Encourage you to talk about the purposes of your course as you see them after several weeks of planning.

(d) Make specific suggestions to help you in your planning, and encourage you to drop in for further suggestions if you need help.

4. The weekend before the course is to start it would be natural for you to feel:

(a) Concern that your planning has been inappropriate.

(b) Anxious to get started and prove your ability to handle this rather difficult assignment.

(c) Hopeful that the course will prove of real value to the students.

(d) Confident knowing you have done the best you could under the circumstances.

B. You will have your first meeting with the group tomorrow.

5. It will be important that you have planned for:

(a) Students to get well acquainted with each other.

(b) Explaining your grading system.

(c) Activities to catch student interest.

(d) Explaining your complete program for the semester.

6. The teacher-counselor drops by your room and asks if he can be of help. You would ask him for:

(a) His opinion about what you have planned for tomorrow.

(b) Suggestions to help you make a good imoression.

(c) Suggestions as to what student reaction might be on the first day.

(d) Nothing until you had an opportunity to meet with the group.

7. The more important personal information to gather at the first meeting would be:

   (a) Interests of the different students.

   (b) Parent or guardian, home address and phone number.

   (c) What the students would like to do in the course.

   (d) Why they are taking the course.

8. Of the things you would do the evening before meeting the class, the most essential would be to:

   (a) Become familiar with the notes for such presentations as you might make.

   (b) Become familiar with students' names and any information you have about them from their files.

   (c) Become familiar with the sequence and nature of any activities you may have planned.

   (d) Be sure any materials you were to use were available and in good condition.

9. Your greatest concern on this night before the first meeting would be:

   (a) How to appear poised and at ease.

   (b) How to gain control of the group.

   (c) How to handle problem pupils.

   (d) How to get your program moving rapidly and well.

C. 10. With the students that come in late you would:

   (a) Simply acknowledge their presence and noticeably mark them present in the record book.

(b) Inform them politely about the time at which the class starts.

(c) Ask them politely why they were unable to get to class on time.

(d) Make clear to the class as a whole and the late students in particular the standards you will maintain with regard to tardiness.

11. You would handle the restlessness of the group by:

(a) Presenting your program more dynamically.

(b) Asking students why they were restless.

(c) Speaking to the group firmly about paying attention.

(d) Picking out one or two of the worst offenders and reprimanding them.

12. You would tell the group your name and:

(a) The rules of conduct for your class.

(b) Your expectations for the class.

(c) Some of your personal adjustment problems at their age.

(d) Some of your interests and hobbies.

13. You would, by your general behavior and manner, try to present yourself as:

(a) Firm and serious but fair.

(b) Efficient, orderly and business-like.

(c) Friendly, sympathetic and understanding.

(d) Understanding, friendly and firm.

14. You would prepare for the next meeting by:

(a) Discussing with pupils what they would like to do and deciding on one or two ideas.

(b) Telling them what pages to read.

(c) Giving students a choice of two ideas and determining in which the majority is interested.

(d) Discussing your plans for the next meeting with them.

D. You have met with your class four times and have made some observations. Two boys seem particularly dirty and you have found they come from a lower class slum area. One girl seems to be withdrawn. The students do not pay attention to her. She is a pleasant looking, well dressed girl. There are four or five youngsters, apparently very good friends (both boys and girls), who do most of the talking and take most of the initiative. Students seem to continually interrupt each other and you.

15. In the interests of the two boys from the slum area you would:

(a) Find the opportunity to discuss the matter of cleanliness with the class.

(b) Speak to the boys about their need to be clean in a conference with them.

(c) Inaugurate a cleanliness competition with a prize to that half of the class with the best record, putting one boy in each half.

(d) Speak to the boys about their need to be clean and arrange facilities at school where they could clean up.

16. In the interests of the apparently withdrawn girl you would:

(a) Talk to her informally over a period of time to see if you could determine her difficulty.

(b) Call on her regularly for contributions to the discussion.

(c) Discover a skill she has and have her demonstrate for the class.

(d) Have a conference with her and tell her to become involved with the class discussion and speak up.

17. To improve the relationship of the group to the apparently withdrawn girl you would:

(a) Determine who, if anyone, is friendly with her and arrange to have them work together on occasion.

(b) Take the girl aside and help her see how she can establish better relations with her classmates.

(c) Arrange to have her work with the group of boys and girls who take most of the initiative.

(d) Allow her to work out her own problem.

18. With regard to the four or five youngsters who do most of the talking and take the initiative you would tend to believe:

(a) They are brighter than most of the other students.

(b) They are the leaders of the class.

(c) There is considerable variation in student's ability to participate in class.

(d) They are a little too cocky and think they know more than the others.

19. With regard to the tendency of class members to interrupt while others are talking you would:

(a) Tell the class politely but firmly that interruptions are impolite and should not continue.

(b) Discuss the matter with the class, determining why this happens and what should be done about it.

(c) Organize a system of hand raising and set rules for student participation in discussion.

(d) Set rules for student participation in discussion and firmly but fairly reprimand each person who breaks the rules.

20. One of the important problems facing you now is to do something which:

(a) Will insure that no one is rejected or disliked.

(b) Will result in everybody's being liked.

(c) Will encourage each person's acceptance of the others.

(d) Will guarantee that no one's feelings get hurt.

E. At the beginning of the eighth class session (fourth week) Johnny comes into class holding on to his arm and very nearly crying. The tears are welled up in his eyes and he looks away from the others. You notice that Peter, the largest and strongest boy in the class, looks at Johnny occasionally with a sneering smile. You do not feel that you can let this pass so you arrange to meet with Johnny and Peter separately after class.

21. You would tend to believe:

(a) That Johnny probably did something for whic h this was just, but maybe severe, payment.

(b) That Peter is something of a bully.

(c) That Johnny was hit on the arm by Peter.

(d) That Johnny felt badly and Peter was quite aware of it.

22. When you meet with Johnny you would:

(a) Ask if Peter hit him and why.

(b) Engage him in conversation and slowly lead into the difficulty he had that afternoon.

(c) Tell him you were aware that he had some difficulty and offer your help to him.

(d) Let him guide the discussion and reveal what he would about the incident.

23. When you meet with Peter you would:

(a) Tell him that Johnny was upset this afternoon and you had noticed that he (Peter) was looking strange--proceed from there

(b) Make him aware that you know he had trouble with Johnny and proceed from there.

(c) Make him aware that he is bigger and stronger than the other boys and that he is a bully if he picks on smaller boys.

(d) Ask him if he and Johnny had had difficulty.

24. When young people get into conflict in school it would be best to:

(a) Let them resolve it themselves.

(b) Help them to establish a friendly relationship.

(c) Find the cause of the trouble and work to eleiminate it.

(d) Control the school situation so that the conflicts are less likely to arise.

F. In general your program has been moving along satisfactorily. After the eighth meeting you have a feeling that the students are beginning to lose interest. A number of students seem to be sitting through class without really getting involved. Others seem to stay interested and active. The teacher-counselor asks to see you informally over coffee.

25. When you meet with the teacher-counselor you would:

(a) Not talk about your class or its present lack of involvement.

(b) Discuss your concern with him and listen for suggestions he might have.

(c) Speak about how satisfactory the early meetings had been.

(d) Allow the teacher-counselor to orient the discussion.

26. Your planning for the next (ninth) session would include:

    (a) Some new ideas that you had not tried.

    (b) Some clarification of the importance of students doing well in their work.

    (c) A request for ideas from students as to how to make the class more interesting.

    (d) Ways to get more students actively doing something in class.

27. During the ninth session you would:

    (a) Behave much as you had in earlier sessions.

    (b) Put some stress on the importance of <u>everybody</u> paying attention in class.

    (c) By careful observation determine which students seem disinterested.

    (d) Speak pointedly to those who were not paying attention.

28. You would tend to believe the loss of interest due to:

    (a) A rather natural reaction in an elective experimental course.

    (b) Failure of students to realize that they must contribute much to a course of this kind.

    (c) A rather natural group reaction to the experience of working together on personal adjustment problems.

    (d) Your own failure in developing good human relationships in the class and stimulating the students.

G. Before the mid-term (eighteenth) meeting of the class you take time out to think about the experiences you have had. The class has been good some days and poor other days. You have had no word from your principal about how your work has been.

The teacher-counselor has seemed satisfied but not very much impressed with what you are doing. You have heard nothing about the young people who are being studied. You are asked to meet with the parents to discuss the experimental class in an informal way.

29. You would be most concerned about:

    (a) The failure of the principal and teacher-counselor to discuss the progress of the students before your meeting with the parents.

    (b) What you should say to the parents.

    (c) Your apparent failure to impress your teacher-counselor.

    (d) What the studies of the young people are showing.

30. You would resolve to:

    (a) Discuss your progress with the teacher-counselor.

    (b) Ask for an appointment with the principal to find out how he feels about your work.

    (c) Plan to work harder with your group.

    (d) Not let the present state of affairs worry you.

31. When talking with the parents you would:

    (a) Encourage them to ask questions about the program.

    (b) Tell them what the program has consisted of so far.

    (c) Tell them you don't know how well the program is going.

    (d) Impress upon them the importance of student participation in class activities.

32. In this case you would feel that parents:

(a) Ought to be told how their children are doing in this class.

(b) Ought not to become involved in such an experimental program.

(c) Are entitled to an opportunity to question you.

(d) Ought to be referred to those in charge of the experiment.

33. At your next class meeting:

(a) You would tell students what you told their parents.

(b) You would not initiate any discussion about your visit with the parents.

(c) You would discuss briefly the parents' interest in the class.

(d) You would tell the students that you expected more cooperation from them now that their parents were involved.

H. The nineteenth and twentieth class sessions are very unsatisfactory. You leave class at the end of the twentieth session with doubts in your mind as to whether students are gaining in personal and social adjustment. You can see problems with the structure and organization of the class and believe if these could be corrected or if you had done some things differently over the past few weeks that you would not have a problem with the class.

34. At this point you would:

(a) Decide to go to class the next day and ask your students how they feel about the progress of the course.

(b) Think through the problem carefully and start planning revisions for the course next year.

(c) Try to help yourself accept the fact that life

is often filled with disappointments and redouble your efforts to make your class better in the future by spending more time in preparation and encouraging your students to work harder.

(d) Mention your concern at the next meeting of your class and encourage students to talk with you after class about the progress of the course.

35. You would feel much better regarding the accuracy of your estimate about what is wrong with the class if you:

(a) Were sure that some of the students were not being difficult on purpose to test your authority as a new teacher.

(b) Knew more about the expectations of your students and to what extent they felt their expectations were being met.

(c) Could have a colleague in whom you could confide and in whom you could trust, come in and observe your class and talk with you.

(d) Were sure you understood your own needs for success and the extent to which these needs influence your feelings.

36. After the twentieth session, it would be natural for you to feel that:

(a) You would like to relax and think about the situation over the weekend.

(b) You wished students accepted the fact that things that are taught them in schools are usually good for them even though they may not like what they are learning all of the time.

(c) Things seldom go well all the time for everybody and that they couldn't be expected to always go well for you.

(d) It must have been wonderful to teach in the good old days when students were in school because they wanted to learn.

37. In an attempt to analyze the source of the problem you are having with your class you would:

    (a) Have a conference with several of the brighter and more interested students to see if they could give you any insight into the problem.

    (b) Take part of a class session to share your concerns with the class, get their reactions, and using the information, rethink the problem.

    (c) Ask the teacher-counselor to come in and observe the class several times and talk with you about his observations.

    (d) Consult the records of the students to see if you could find any clues there.

I. At your twenty-fourth meeting you wish to make plans for a series of visits to different community health and welfare agencies. You want to be sure that the youngsters learn from the experiences and conduct themselves while traveling to and from and visiting in the agencies.

38. In order to assure that all youngsters learned from their first trip you would:

    (a) Assign particular things for all of them to look for and listen to.

    (b) Ask each to write a brief commentary on the most important things they saw and heard.

    (c) Encourage them to ask questions while they were there.

    (d) Present them with a check sheet of items to be seen and heard and ask them to check off those that they saw or heard.

39. In preparation for the first trip you would:

    (a) Tell them as much as you could about the agency to which they were going.

(b) Tell them you were sure it would be interesting and fun and let them see and hear for themselves.

(c) Ask them what they thought they could expect and encourage guided discussions about their expectations.

(d) Tell them about the most interesting things they would see and hear.

40. To insure that the group conducted themselves properly you would:

(a) Set out rules of conduct for them.

(b) Ask them to behave as young ladies and gentlemen representing their school.

(c) Ask them what rules of conduct they would propose and develop a code with the group.

(d) Assure them that if they did not behave properly they would not go on trips in the future.

41. On the trip you would:

(a) Divide them into small groups with a leader responsible for each group and arrange their itinerary and meetings after you get to the agency.

(b) Ask the youngsters to get your permission first and on this basis allow them to pursue their own interests.

(c) Let the agency people take responsibility for deciding where they could go and when.

(d) Keep them all together as a manageable group.

J. At the close of the thirtieth class session Bob, one of the most able boys, summarizes a class discussion on boy-girl relationships with, "Well, we've talked around the subject but we never get down to the important questions." The agreement of a number of the class members is evident.

42. You would tend to believe:

(a) The class members are too young to be dealing with important questions in this area.

(b) You had allowed just a little too much freedom in the discussions of boy-girl relationships.

(c) This simply reflects a natural desire of the part of students to introduce some excitement into the class sessions.

(d) The class could handle important questions in this area with your guidance and support.

43. Before the thirty-first session you would:

(a) Clarify the significance and implications of Bob's statement in your own mind.

(b) Determine what you will and will not allow to be discussed in class in this area.

(c) Consult the principal and get direction from him.

(d) Discuss the situation with the teacher-counselor with a view to getting ideas for handling the next session.

44. During the thirty-first session you would:

(a) Propose a list of carefully selected questions you believe the students have in mind and begin discussions of the most manageable of these.

(b) Repeat Bob's comment and draw from the class a list of what they thought should be discussed.

(c) Suggest that some questions are not appropriate for discussion in school and that some of these fall in the area of boy-girl relationships.

(d) Ask Bob to pick up where he left off and guide him and other class members as they clarify the directions further discussion should take.

K. Your class has at last developed into a fairly cohesive unit. The discussions are more animated and everyone participates to some degree. Disagreements on ideas begin to appear and the students give evidence of intense feelings on a number of issues. George has been particularly outspoken. He has very radical ideas that seem to provoke the other students to disagree but you know that the ideas he expresses have some support from some adolescent psychologists that you consider to be the "lunatic fringe." George seldom gives in on a point.

45. You would believe that these conditions are likely to:

(a) Ultimately strengthen the group.

(b) Do little but make it uncomfortable until George learns his lesson.

(c) Destroy the group unity unless you intervene.

(d) Make it difficult for progress to be made for some students until they learn to accept George.

46. With regard to George you would:

(a) Refer him to the teacher-counselor.

(b) Point out to George that he is intolerant of the views of other class members.

(c) Encourage him to express his ideas in ways that would not irritate other students.

(d) Politely but firmly keep him from expressing such ideas.

47. With regard to the other students you would:

(a) Encourage them in their effort to stand up to George.

(b) Help them to understand what George is doing to them and why.

(c) Help them to get onto topics and ideas where George could not disagree with them so forcefully.

(d) Get into the discussion on their side and show George that he is wrong.

48. With regard to your concern for George as a person, you would feel that:

(a) He is developing undemocratic traits by behaving as he does, and you would hope to help him change.

(b) He does not understand how to behave in a democratic setting and may need help.

(c) He probably has never learned certain social skills necessary for democratic group behavior and the possibilities of developing such skills should be shown him.

(d) He will learn sooner or later that in a democracy some ideas are undesirable because they tend to destroy the group.

APPENDIX B

STUDENT OPINION QUESTIONNAIRE

STUDENT OPINION QUESTIONNAIRE

The following is a study of what students think and feel about a number of important social and personal questions. This is not an intelligence test, nor an information test. There are no right or wrong answers. The best answer is your personal opinion. We have tried to cover many different and oposing points of view; you may find yourself agreeing strongly with some statements, disagreeing just as strongly with others, and perhaps rather uncertain on others; whether you agree or disagree with any statement, you can be sure that many people feel the same way as you.

Respond to each statement by placing your response in the appropriate place on the answer sheet. Respond by writing +1, +2, +3, or -1, -2, -3 depending on how you feel in each case.

+1	I agree a little	-1	I disagree a little
+2	I agree on the whole	-2	I disagree on the whole
+3	I agree very much	-3	I disagree very much

---

1. The United States and Russia have just about nothing in common.

2. The principles I have come to believe in are quite different from those believed in by most people.

3. The highest form of government is a democracy, and the highest form of democracy is a government run by those who are most intelligent.

4. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

5. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

6. There are certain "isms" which are really the same even though those who believe in these "isms" try to tell you they are different.

7. Fundamentally, the world we live in is a pretty lonesome place.

8. Most people just don't give a "damn" for others.

9. I'd like it if I could find someone who would tell me how to solve my personal problems.

10. It is only natural for a person to be rather fearful of the future.

11. There is so much to be done and so little time to do it in.

12. Once I get wound up in a heated discussion, I just can't stop.

13. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

14. In a heated discussion, I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

15. It is better to be a dead hero than to be a live coward.

16. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beetoven, or Shakespeare.

17. Most people are failures and it is the system that is responsible for this.

18. It is only natural for a person to have a guilty conscience.

19. In the history of mankind there have probably been just a handful of really great thinkers.

20. There are a number of people I have come to hate because of the things they stand for.

21. A man who does not believe in some great cause has not really lived.

22. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

23. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

24. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

25. A group which tolerates too much difference of opinion among its own members cannot exist for long.

26. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

27. My blood boils whenever a person stubbornly refuses to admit he's wrong.

28. A person who thinks primarily of his own happiness is beneath contempt.

29. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

30. I sometimes have a tendency to be too critical of the ideas of others.

31. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

32. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

33. In the long run, the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

34. Young people should not have too easy access to books which are likely to confuse them.

35. The present is all too often full of unhappiness. It is only the future that counts.

36. There's no use wasting your money on newspapers which you know in advance are just plain propaganda.

37. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

38. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.

39. Most people just don't know what's good for them.

40. To one who really takes the trouble to understand the world he lives in, it's an easy matter to predict future events.

APPENDIX C

COLLEGE SUPERVISOR'S REPORT ON

STUDENT TEACHING

SUPERVISOR'S REPORT ON STUDENT TEACHING Qtr____ Year____

Name (St. Teacher)_____

Curriculum _____ Major_____ Minor_____ Minor_____

Assignment_____ School_____

Subject and Grade Supervisor

_____ _____

_____ _____

Ed 410 ____ ____

Ed 411 ____ ____

Ed 412 ____ ____

How long and under what circumstances have you known this person?

Statement: Be Specific

Please Check	No Oppt. to Obs.	Sup.	Ab.Av.	Be.Av.	Poor
Knowledge of Subject Matter					
Ability to Get Along with People					
Preparation of Work					
Effectiveness in Speaking					
Effectiveness in Written Expression					
Classroom Techniques					
Classroom Discipline					
Care of Room and Equipment					
Reaction to Advice and Criticism					
Dependability					
Personal Appearance					
Bearing, Poise, Self-Confidence					
Enthusiasm, Initiative, Drive					
Cooperation					
Probable Success as a Teacher					

Name _____ Position _____

School or Organization _____

Address _____ Date _____

APPENDIX D

CLASSROOM SUPERVISOR'S EVALUATION OF STUDENT TEACHERS

MONTANA STATE UNIVERSITY
SUPERVISOR'S EVALUATION OF STUDENT TEACHERS

Student Name _____ College Supervisor _____

School & Town _____ Date _____

_____Quarter, 19___ First Visitation? Yes_____No_____

Major _____ Classroom Supervisor _____

Minor _____ Classroom Supervisor _____

Suggested Grades: Major _____ Minor _____

In rating the items listed below, please check the appropriate column. 5=Superior; 4=Above Average; 3=Average; 2=Below Average; 1=Poor.

	5	4	3	2	1
Personal Characteristics					
1. Speaks and writes without common errors.					
2. Dresses well and in good taste.					
3. Shows enthusiasm for and interest in work.					
4. Is calm and self-confident under ordinary circumstances.					
5. Gets along well with others.					
Teaching Characteristics					
6. Uses blackboard appropriately and effectively.					
7. Uses timely visual materials for concept development.					
8. Uses questions that stimulate thinking.					
9. Gives daily attention to improving pupil ability to express.					
10. Uses techniques to economize on routines.					
11. Uses care in planning and presenting assignments.					
13. Stimulates purposeful use of library.					
14. Emphasizes both subject and general vocabulary development.					
15. Disciplines appropriately and well.					
16. Senses class deadness and adjusts accordingly.					
17. Emphasizes concepts, principles, and understandings.					
18. Tests appropriately and well.					
19. Plans and submits adequate daily lesson plans.					
20. Adequate plans and uses the unit plan.					
21. Shows alertness to individual pupil needs.					

Continued next page.

Professional Attitudes	5	4	3	2	1
22. Shows desire to grow by seeking added materials and experiences.					
23. Works cooperatively in all associations.					
24. Uses only constructive criticism.					

This evaluation was completed by:

_____

APPENDIX E

SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS

SUMMARY OF CATEGORIES FOR
INTERACTION ANALYSIS

TEACHER TALK	INDIRECT INFLUENCE	1. *ACCEPT FEELING: accepts and clarifies the feeling tone of the students in a non-threatening 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 precedure 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. *<u>STUDENT TALK-RESPONSE</u>: talk by students in response to teacher. Teacher initiates the contact or solicits student statement. 9. *<u>STUDENT TALK-INITIATION</u>: 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. *<u>SILENCE OR CONFUSION</u>: 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.