THE EFFECT OF TRAINING IN INTERACTION ANALYSIS ON THE VERBAL TEACHING BEHAVIORS AND ATTITUDES OF PROSPECTIVE SCHOOL INSTRUMENTAL MUSIC EDUCATION STUDENTS STUDYING CONDUCTING

> Dissertation for the Degree of Ph. D. MICHIGAN STATE UNIVERSITY CHARLES EUGENE HICKS 1976



This is to certify that the

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Charles Eugene Hicks

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ebert L Erber

Major professor

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ABSTRACT

THE EFFECT OF TRAINING IN INTERACTION ANALYSIS ON THE VERBAL TEACHING BEHAVIORS AND ATTITUDES OF PROSPECTIVE SCHOOL INSTRUMENTAL MUSIC EDUCATION STUDENTS STUDYING CONDUCTING

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Purpose

The purpose of this study was to collect and analyze information regarding the effects of instruction in the techniques of interaction analysis upon the verbal teaching behaviors and attitudes of university conducting students. Interaction analysis training was instituted as part of a training program for prospective school instrumental music teachers using the Rehearsal Interaction Observation System (RIOS).

Procedure

The sample consisted of fifty-two music education students enrolled in a beginning conducting curriculum during the fall of the 1975-76 academic year. The subjects were randomly assigned to one of two sections of the course with the experimental group being taught by the researcher and the control group taught by a faculty member in the music education department. Each section met five periods a week during a ten week term. Section A, consisting of twenty-seven students, was designated the control group. This section utilized the standard texts and the conventional teaching techniques of conducting. Each student's conducting of a laboratory band or orchestra consisting of his classmates was videotaped weekly and critiqued by the instructor. An additional ten periods of conducting experiences were added to the course requirements. Section B, the experimental group of twenty-five students, also used the standard texts, teaching methods, course content and videotape procedures of section A. Instead of the additional conducting experiences, ten periods of study were devoted to the theory and techniques of interaction analysis, using the RIOS system developed in 1972 by Robert L. Erbes. A pre- and posttest attitude scale measurement was given to the total sample at the beginning and the end of the experimental period. These scales were designed to measure the subject's amount of dogmatism and attitude toward traditional and progressive educational methods.

Results

A comparison of the pretest scores on the attitude variables indicated that the total sample was similar in both Dogmatism (belief-disbelef system) and Education (attitude toward traditional and progressive educational methods). There was no significant difference between the two groups on cumulative grade point average and the amount of previous conducting experience. To obtain an estimate of observer agreement among the twenty-five subjects in the experimental group, data from a thirty-five minute videotape session of a school rehearsal was coded by the subjects. This information was analyzed using a Hoyt Analysis of Variance, which produced a coefficient of r = .94 (between observer), and r = .99 (for the group average). The data for testing the sixteen hypotheses were subjected to multivariate analysis techniques.

Findings from the study indicated that prospective teachers receiving training in interaction analysis were less dogmatic in their thinking, used more indirect verbal behaviors, were generally more aware of a greater variety of verbal behaviors and used more of this variety in their teaching than did their counterparts.

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By

Charles Eugene Hicks

A DISSERTATION

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CHAPTER I

INTRODUCTION AND PROBLEM

Introduction

Personnel in teacher training programs who work with university students have become increasingly aware of the need for techniques to improve teaching effectiveness. Amidon and Hough have cited three important factors in helping young teachers bridge the gap between theory and practice. They include: (1) the prospective teacher should want to improve, (2) the prospective teacher should have a model of the kind of teaching behavior that he wants to develop and (3) the prospective teacher should receive feedback regarding his progress toward the development of those teaching behaviors that he has conceptualized as his goal.¹

Interaction analysis is one technique used in teacher education to improve instructional effectiveness. It is an observational and coding procedure for recording the verbal interchange between a teacher and his students. Gorman has stated that "interaction is a process of communication between two or more people where both the linguistic meaning and the emotional responses are

¹Edmund Amidon and John B. Hough, eds., <u>Interaction Analysis</u>: <u>Theory, Research and Application</u> (Reading, Mass.: Addison-Wesley Publishing Company, 1967), p. 252.

mutually clarified whenever clarification seems necessary."² Gorman has further stated that "true interaction produces a cohesive classroom where teacher and students share responsibility for the defining, carrying out, and evaluating the learning experiences."³ Research in teacher training has indicated that Amidon and Hough's second and third factors necessary for change in teaching behavior can be achieved through the technique of interaction analysis.

It has become evident that the various college and university teacher education programs have experienced difficulties in helping their students to translate theory into practice. Flanders states, "the point is that much of what is learned in education courses is neither conceptualized, quantified nor taught in a fashion that builds a bridge between theory and practice."⁴ To be understood, concepts in education must be verified by personal field experiences; in turn, field experiences must be efficiently conceptualized to gain insight into the teaching-learning process. One of the perplexities of teaching is the inability of the instructor in describing teaching as a series of acts through time and to provide models of teaching behaviors which are appropriate to different kinds of teaching situations.

²Alfred H. Gorman, <u>Teachers and Leaders: The Interaction</u> <u>Process of Education</u> (Boston: Allyn and Bacon, Inc., 1974), p. 25.

³Ibid., pp. 33-34.

⁴Ned A. Flanders, "Intent, Action and Feedback: A Preparation for Teaching," <u>Interaction Analysis: Theory, Research and Application</u>, ed. by Edmund Amidon and John Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1968), p. 283.

Steel and Stone have derived a set of principles under five major teaching skill clusters. They describe these as (1) Situational skills, (2) Readiness skills, (3) Ideational skills, (4) Taskdirecting skills, and (5) Feedback skills.⁵ Through analysis of studies and writings about the learning process, unique and critical skill areas in teaching and learning can be identified. Burke and Stone state that the model establishes teaching skills derived from psychological principles as the base . . . and recognizes teacher qualities . . . and knowledge in subject-fields in equal but distinct roles.⁶ Flanders has further suggested that in order for a teacher to improve his teaching he must: (1) learn how to define his concepts as part of a theory and (2) develop procedures for quantifying the qualitative aspects of teaching.⁷ These authorities support the need for a theoretical foundation that will guide teachers in the practical aspects of the teaching-learning process. Flander's suggest that "we will be closer to a scientific understanding of teaching than ever before, and indeed, a theory of teaching."⁸

The technique of Interaction Analysis was first developed as a research tool. Many researchers believe it can be effectively applied to teacher education in a fashion that is consistent with a

⁶Ibid., p. 238. ⁷Flanders, <u>op</u>. <u>cit</u>., p. 284. ⁸Ibid., pp. 285-294.

⁵Cassel D. Burke, and David R. Stone, "A Research-based Learning Process: Model for Developing and Evaluating Teacher Education Curricula," <u>Journal of Teacher Education</u>, XXVI, No. 3 (Fall, 1975), p. 235.

philosophy of personal inquiry. This inquiry involves finding ways of translating understanding into positive action as part of the teaching process and experimenting with one's own behavior. It further evaluates this information in terms of the teacher's role in gaining self-insight while applying the theory and practice in the act of teaching. Teacher educators state that field experiences are imperative to acquaint prospective teachers with manipulation of theoretical components of education. Many instructors believe that the experience should be strictly cognitive in nature. Appleton has summarized this subject with the following conclusion:

Teacher educators generally agree that the more closely the theoretical construct is related in time and space to actual application, the more effective the application will be. Thus, it is strongly recommended that field experiences be included whenever possible. Because the goal of foundations of education is to develop teachers' ability to analyze real situations and apply the appropriate theoretical concepts, prospective teachers must have experience in recognizing relevant factors and calling forth the appropriate behavior in actual situations.⁹

The Problem

The traditional means of teaching conducting in college music education curricula have relied on methods and texts that stress the authoritarian role of the conductor. Recent statements by many prominent music educators indicate that this authoritarian role is a transference of attitudes and procedures from professional performing organizations, and perhaps not always conducive to the best

⁹Nicholas Appleton, "A Modular Approach to Foundations of Education," <u>Journal of Teacher Education</u>, XXVI, No. 3 (Fall, 1975), p. 253.

educational interest of the students in musical organizations.¹⁰ Many educators believe that the conductor of school music groups can encourage students to become more involved in the rehearsal by creating a climate for teacher-student interaction.¹¹ Extensive research by Flanders in classroom instruction indicated that higher student achievement and independence resulted from less teachercentered or indirect teaching methods. These methods tended to stimulate verbal participation by students and increased their responsibility for diagnosing their own difficulties and developing plans for action.

The specific problem undertaken in this study was whether the effects of instruction in the techniques of interaction analysis would make a significant difference in the verbal teaching behaviors and attitudes of prospective school instrumental music education students studying conducting. The answer to this question will be sought by comparing the conventional methods of teaching conducting to college music education students trained not only by conventional methods, but also in the techniques of interaction analysis.

¹⁰Charles Leonard and Robert House, <u>Foundations and Principles of Music Education</u>, 2nd ed. (new York: McGraw-Hill Book Company, Inc., 1959), p. 230.

¹¹Ned A. Flanders and Edmund Amidon, <u>The Role of the Teacher</u> <u>in the Classroom</u> (Minneapolis: Association for Productive Teaching, Inc., 1967), pp. 72-85.

Need for the Study

According to many studies in the field of interaction analysis, "teachers have never had an empirically verified instructional theory to serve as a basis for their classroom behavior."¹² Perceptive teachers have sensed that the quality and quantity of teacher-pupil interaction is a critical dimension of effective classroom teaching. Without a theory, teachers on many occasions have been unable to generalize principles of instruction for specific classroom situations. Without objective means of focusing on classroom interaction, teachers had no method of capturing the phenomenon of the instructional processes, the climate that is created in their classrooms, and the possible effects of this climate on the attitudes and achievements of their pupils.

With the restrictive employment, many teacher training institutions are implementing competency based and screening procedures to select individuals for teacher education curricula. It must be recognized that neither of these processes will insure effective teachers. Cangelosi contends that effective teaching is a complex function of teacher personality, pupil needs, environment, and teacher capability."¹³ Martin Haberman, Professor of Curriculum and Instruction at the University of Wisconsin in Milwaukee, stated:

¹²Edmund Amidon and John Hough, eds., <u>Interaction Analysis</u>: <u>Theory, Research and Application</u> (Reading, Mass.: Addison-Wesley Publishing Co., 1967), p. 2.

¹³James S. Canagelosi, "Competency Based Teacher Education: A Cautionary Note," <u>Contemporary Education</u>, XLVI, No. 2 (Winter, 1974), p. 126.

"students do begin with the right to become teachers . . . the professional has the responsibility of justifying the admission of each candidate."¹⁴ He further commented that "neither student demand nor the employment market are suitable determinants of the number of students that should be admitted."¹⁵ These students should be allowed to enter the music education curriculum because of the following reasons: (1) academically qualified, (2) emotionally and physically stable, and (3) aware and sensitive to the problems students face in and out of the classroom.

Many supervisors of student teachers are in agreement with the college and university curriculum specialist. Some seem to put the blame for student teacher's failure directly on those responsible for teacher-training at the colleges and universities. One such supervisor of student teachers stated: "colleges of education will have to do a better job of screening out poor risks among potential teachers."¹⁶ Because of these problems, there must be a more comprehensive program of teacher training and more involvement on the part of the prospective teacher in the actual training process.

Prior to the research reported in this study, a brief pilot project was conducted to determine the usability of interaction

¹⁶Grace Muente, "Let's be More Selective with Student Teachers," Journal of Teacher Education, XXV, No. 3 (Summer, 1974), p. 236.

¹⁴Martin Haberman, "The admission to Professional Education is a Professional Decision, not a Student Right," <u>Journal of Teacher</u> <u>Education</u>, XXV, No. 3 (Summer, 1974), p. 234.

¹⁵Ibid., p. 235.

analysis in the present study. Twelve instrumental music education majors were randomly selected to participate in the experimental investigation. The purpose of the study was: (1) to determine the amount of training necessary to arrive at an acceptable level of observer agreement of students using an interaction analysis technique and (2) to assess the usability of the technique in teacher training as it related to coding problems and training procedures.

Statement of Purpose

The purpose of this investigation was to collect and analyze information regarding the effects of instruction and use of the techniques of interaction analysis upon the verbal behaviors and attitudes of university conducting students. Even though some research has been done in the area of teaching-training using interaction analysis techniques, it is hoped that this study will present further evidence that the interaction analysis technique is a viable instrument in the training of prospective teachers. Unfortunately, the vast majority of young teachers tend to teach the way they were taught. Campbell has stated that "many student teachers construe teaching as--teacher talk." He further stated, "If one views the learner as passive, he treats him in that manner, and what emerges is a teacher dominated classroom in which the teacher spends more of his time talking. But if the student is perceived as active

he is treated in a manner that allows him to become actively involved in self-appropriating kinds of activities."¹⁷

Definition of Terms

For the purpose of this study, the following terms are defined.

1. <u>Category</u>.--A category is a subdivision of a larger class of verbal or non-verbal behavior.

2. <u>Interaction Analysis Systems</u>.--Interaction analysis systems refer to the means for recording and analyzing the verbal and non-verbal communication between teachers and students within the confines of the classroom.

3. <u>Rehearsal Interaction Observation System (RIOS)</u>.--RIOS is an observational system for categorizing, analyzing, and reporting the verbal and non-verbal interaction between conductors and students during the rehearsal of large musical organizations.¹⁸

4. <u>Rehearsal</u>.--A rehearsal is the process by which a group of musicians are trained or instructed.

5. <u>Verbal Behavior</u>.--Verbal behavior is the form of talk by either teachers or students that occurs within the rehearsal or classroom.

¹⁷Lloyd P. Campbell, "Teaching Is Not Talking," <u>Journal of</u> <u>Contemporary Education</u>, XLV, No. 2 (Winter, 1974), pp. 106-107.

¹⁸Robert L. Erbes, "The Development of an Observational System for the Analysis of Interaction in the Rehearsal of Musical Organizations" (Ed. D. dissertation, University of Illinois, 1972), pp. 101-102.

6. <u>Attitude</u>.--Refers to a general tendency of an individual to act in a certain way under certain conditions. It is based on what someone says or what he does. It is based on visible behavior.¹⁹

7. <u>Non-verbal Behavior</u>.--Non-verbal behavior is the form of communication by either teachers or students other than talk that occurs within the rehearsal or classroom.

8. <u>Prospective Teachers</u>.--Prospective Teachers are those students who have not completed their formal student teaching assignments.

9. <u>Cumulative Grade Point Average (GPA)</u>.--The Cumulative G.P.A. is the grade point average of all courses taken at the university to date.

Hypotheses

The study is designed to test the following null hypotheses:

There is a difference between the percentages of direct teacher talk of conducting students trained in interaction analysis and the direct teacher talk of conducting students not trained in interaction analysis.

There is a difference between the percentages of indirect teacher talk of conducting students trained in interaction analysis and the indirect talk of conducting students not trained in interaction analysis.

There is a difference in the percentages of student talk in rehearsals led by conducting students who have been trained in interaction analysis and the student talk in rehearsals taught by conducting students not trained in interaction analysis.

¹⁹Robert F. Mager, <u>Developing an Attitude Toward Learning</u> (Palo Alto: Fearon Publishers, 1968), p. 14.

There is a difference in the indirect/direct ratio of conducting students trained in interaction analysis and those not trained in interaction analysis.

There is a difference in the pre- and post-attitude scores between conducting students trained in interaction analysis and those students not trained in interaction analysis.

There is a difference between conducting students who have 'open' belief-disbelief system trained in interaction analysis and those not trained in interaction analysis (the person's belief-disbelief system will be measured with form E of the Dogmatism scale).

There is a difference between conducting students who have 'closed' belief-disbelief system trained in interaction analysis and those not trained in interaction analysis.

Limitations

This study included only undergraduate university students majoring in instrumental music education at Michigan State University. The treatment was limited to a ten week session, one hour per week.

There were no attempts made to measure the effectiveness of the university's teacher education program.

attempt made to discover the effect of treatment upon the prospec-

tive student's teaching success

Assumptions

The following assumptions were made:

 The instrument used in this study, the Rehearsal Interaction Observation System, is valid, reliable and suitable to the purpose of the study. 2. The RIOS technique can measure the verbal interaction of teachers and students in the rehearsals of large musical organizations.

Procedures

The subjects for this study were fifty-one music education students enrolled in basic conducting during the fall term of 1975-76 school year. The subjects were randomly assigned to one of two sections of the course with the experimental group being taught by the researcher and the control group taught by a professor in music education. Each section met five periods a week during the term.

Section A, consisting of twenty-seven students was designated the control group. This section utilized the standard texts and teaching techniques of conducting. Emphasis was on the technical and physical aspects of conducting. Each student conducted a laboratory band or orchestra consisting of his classmates that was videotaped weekly and critiqued by the instructor. An additional ten periods of conducting experiences were added to the course requirements.

Section B, the experimental group of twenty-five students, also used the standard texts, teaching methods, course content and videotapping procedures of section A. Instead of the additional conducting experiences, ten periods of study were devoted to the theory and techniques of interaction analysis. The technique employed was the Rehearsal Interaction Observation System (RIOS), a system designed by Erbes (1972) for reporting, tabulating and analyzing the verbal interaction in large musical rehearsal situations.²⁰ The minimum proficiency required of the experimental group was:

 The ability to tabulate a ten-minute videotaped classroom rehearsal at a minimum reliability of 0.85 or higher.

Some secondary aspects of the training program included:

- 1. Experience in plotting a matrix;
- Experience in computing and interpreting the meaning of direct-indirect ratio and studentteacher ratio;
- Experience in reading and interpreting the meaning of heavy cell loadings in major areas of the matrix.

The instructor and students in section B (experimental) regularly recorded and analyzed their peer's use of verbal interaction through the use of the RIOS technique. This procedure served as a basis for feedback during the weekly critique sessions of the student's videotaped conducting performances.

²⁰Robert L. Erbes, <u>The Rehearsal Interaction Observation</u> <u>System Training Manual</u>, Michigan State University, 1972, p. 1.

Both sections were informed that the term's work represented a normal part of the curriculum in conducting. The ten hours of additional rehearsal techniques or interaction analysis training and videotaping procedures were used for the first time in the conducting class.

Group of Equivalency

Because of the small number of subjects utilized in the study, some means of determining group equivalency had to be established. Two means widely used in research in interaction analysis were employed. The Dogmatism Scale developed by Rokeach and the Education Scale both test dimensions of attitudes toward educational practices.

The Form E of the Dogmatism Scale describes the relative openness and closedness of a person's belief-disbelief system. This relative openness or closedness of a person's belief-disbelief system is related to a person's ability to receive, evaluate and act on revelant information received from outside on its own intrinsic merits, encumbered by irrelevant factors in the situation arising from within the person or from the outside.²¹

The Education Scale is a twenty-item likert type scale which isolates two major dimensions of educational attitude. The subjects are required to respond to statements which will reflect their attitude toward traditional and progressive educational practices.

²¹Milton Rokeach, <u>The Open and Closed Mind</u> (New York: Basic Books, 1960.

A final means of determining group equivalency was the student's cumulative grade point average and the amount of previous conducting experience.

Organization of the Paper

The survey of related literature will be reviewed in Chapter II. Research in interaction analysis theory will be discussed, the development of some observational instruments in music education will be described, and the application of interaction analysis to the problems of teacher education and training will conclude this chapter. Particular emphasis will be given to literature pertaining to the use of interaction analysis in music classrooms.

The design of the study will be discussed in Chapter III. The procedures, the description of the data gathering instruments, the method of data gathering, and the results of a pilot study will be described.

In Chapter IV the presentation and analysis of data will be reported. The pre-test data, analysis and summary will be discussed.

The results of the study will be described in Chapter V. Much of the data will be in table form, followed by a discussion of the findings. This paper concludes with the summary, conclusions, and recommendations for further research.

CHAPTER II

SURVEY OF RELATED LITERATURE

Introduction

The purpose of this chapter is to describe and summarize research concerning the theory of interaction analysis. Another body of research studies will focus on the development and application of observational instruments in classroom situation. A third section will be concerned with applying the technique of interaction analysis to the problems of teacher education and training. The final section of related studies are specifically pertinent to music education and this study.

Research in Interaction Analysis Background and Theory

A large body of research has evolved during the past twentyfive years incorporating the techniques of interaction analysis. Many of the early attempts to obtain objective measurements of classroom behavior seem to have come from school supervisory personnel. The first evidence of objective measurement techniques appeared shortly before World War I with the research of Morh (1914). He proposed that a small circle be recorded each time a student recited and a square for each time a student responded by some type of activity.¹

¹Donald M. Medley and Harold E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," <u>Handbook of Research on Teaching</u>, ed. by N. L. Gage (Chicago: Rand McNally and Co., 1963), p. 254.

Medley and Mitzel's synthesis of classroom observation techniques reported that Puckett (1928) and Wrightstene (1934) were others involved in early research with interaction techniques.²

During the early 1930's, Harold H. Anderson was one of the first to report research findings in the area of teaching behaviors. His earlier study attempted to assess the integrative and dominative behavior of teachers in their contacts with children. Anderson (1939a) collected data in support of the hypotheses that:

- Domination incites resistance, which is itself dominative.
- 2. Integrative behavior induces cooperation or integrative behavior is a companion.
- 3. Domination is not only different from, but where a potential avenues of escape is left open, it is dynamically unrelated to integrative behavior.³

As a result of this research, Anderson concluded that the dominative teacher produced higher occurrences of nonconforming behavior and conversely, the integrative behaviors of teachers induced integrative behaviors in students.⁴

²Ibid., pp. 254-256.

³Harold H. Anderson, "Domination and Integration in The Social Behavior of Young Children in an Experimental Play Situation," <u>Genetic Psychological Monographs</u>, XIX (1939a), pp. 341-408.

⁴Harold H. Anderson, et al., "Studies of Teachers' Classroom Personalities," <u>Applied Psychology Monographs</u>, Nos. 6, 8, and 11 (Standford, California: Standford University Press, 1945-46). Early research in the field of sociology attempted to discover varying patterns of group leadership by studying the polarity between autocratic and democratic forms of leadership. The studies of Lewin, Lippitt, and White were concerned with the sociological aspect of group situations and identified certain patterns of leadership within small groups. Lippitt compared one group of five 10-year old children under autocratic leadership to another group under democratic leadership. In a similar study, Lewin and White concentrated on three periods of leadership; "Autocratic," "Democratic," and "Laissez-faire." With the use of a category system, observers reported the social interaction under varying leadership conditions and styles. The conclusions from the studies were:

- 1. Different leadership styles produced different group and individual behaviors.
- 2. Conversation categories differentiated leader-behavior techniques more adequately than did social behavior categories.
- 3. Autocratic leader behavior resulted in agressive rebellion or apathetic submission.
- 4. Democratic behavior resulted in a more friendly and cooperative group spirit.
- 5. A club's personnel is less important than the leadership styles as far as Social climate is concerned.⁵

In the last decade, the study of classroom environment has emerged as an area of strong interest in social science

⁵Kurt Lewin, Ronald Lippitt, and Ralph K. White, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," <u>Interaction Analysis: Theory, Research and Application</u>, ed. by E. Amidon and C. Hough (Reading, Massachusetts: Addison-Wesley Publishing Co., 1967), pp. 24-46.

research.⁶ Much of this research has focused on the context, ecology, or milieu of behavior, particularly the socialpsychological aspects. Originating with Darwin, social-science research was applied to the study of society by Herbert Spencer and incorporated into the mainstreams of sociology and psychology by George H. Mead and John Dewey, becoming known as "Social" or "Symbolic Interactionism" in sociology and "Chicago functionalism" in Psychology during the 1920's.⁷ Egon Burnswick, Kurt Lewin, and Richard Snow are recent advocates of the Psychological study of the context behavior.

Development and Application of Observation Instruments

Walberg stated that the theoretical models and concepts upon which most of the climate studies are based come from social psychology and relate individual needs to social structure variables.⁸ These models have provided researchers with operational definitions of "climate" and have helped to generate theories about the relationship of climate to both antecedent and outcome variables.⁹

⁸H. Dean Nielsen and Diana Kirk, "Classroom Climates," H. J. Walberg, <u>op</u>. <u>cit</u>., p. 57.

⁹Ibid., pp. 57-58.

⁶Gary J. Anderson and Herbert J. Walberg, "Learning Environments," <u>Evaluating Educational Performance</u>, ed. by H. J. Walberg (Berkeley, California: McCutchan Publishing Corporation, 1974), p. 81.

⁷Ibid., pp. 81-82.
The research of Lewin, Lippitt, White and Anderson influenced Withall's development of the climate index. Their technique was capable of measuring the Social-Emotional Climate of the classroom in terms of the teacher's verbal behavior.¹⁰ As a result of the study of classroom Social-Emotional Climate, Withall stated:

Climate is considered in this study to represent the emotional tone which is a concomitant of interpersonal interaction. It is a general emotional factor which appears to be present in interactions occurring between individuals in face-to-face groups. It seems to have some relationship to the degree of acceptance expressed by members of a group regarding each other's needs or goals.¹¹

He further stated:

The principal motivational force of human behavior is postulated to be a drive toward self-actualization. This drive is said to be influenced by:

- 1. Need for self-consistency.
- 2. Interaction in terms of an internal frame of reference.
- 3. Self-directive behavior.
- 4. Achievement of personal significance and private meanings in a social milieu.¹²

Withall's Index allows the researcher to categorize teacher

statements as either "teacher-centered" or "learner centered"

according to the way they are categorized on the following continuum:

1. Learner-supportive statements that have the intent of reassuring or commending the pupil.

¹⁰John Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," <u>Journal</u> of Experimental Education, XVII (March, 1949), p. 347.

¹¹Ibid., pp. 347-361.

¹²John Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," <u>Interaction</u> <u>Analysis: Theory, Research and Application</u>, ed. by Amidon and Hough (Reading: Addison-Wesley Publishing Co., 1967), pp. 47-48.

- 2. Acceptant and clarifying statements having an intent to convay to the pupil the feeling that he was understood and help him elucidate his ideas and feelings.
- 3. Problem-structuring statements or questions which proffer information or raise questions about the problem in an objective manner with intent to facilitate learner's problem-solving.
- 4. Neutral statements which comprise polite formalities, administrative comments, verbatim repitition of something that has already been said. No intent inferable.
- 5. Directive or hertative statements with intent to have pupil follow a recommended course of action.
- 6. Repreving or deprecating remarks intended to sustain or justify the teacher's position or course of action.¹³

The climate Index has been widely used in its original form (Perkins, 1951; Mitzel and Rabinewitz, 1953), and has formed the basis for the development of new instruments.¹⁴

The culmination of much of the previous research cited is represented in the work of Ned A. Flanders. Flanders' ten category system was conceived in the 1940's during his studies at the University of Chicago. Table 2.1 shows Flanders complete ten-category system. The FIAC by Flanders has been the most widely used of all the early interaction analysis techniques. Many modifications have been made of the system for use in various subject-matter areas and classroom situations. Simon and Boyer describe many of these various systems.¹⁵

¹³Nielson and Kirk, <u>op</u>. <u>cit</u>., p. 59.

¹⁴Withall, <u>op</u>. <u>cit</u>., p. 349.

¹⁵Anita Simon and E. Gil Boyer, eds., <u>Mirror for Behavior</u> <u>II: An Anthology of Observation Instruments--Special Edition</u>, Two Volumes (Philadelphia: Research for Better Schools, Inc., 1970), summary, pp. 37-50. TABLE 2.1.--Flanders' Interaction Analysis Categories^{*} (FIAC).

		1.	Accepts feeling. Accepts and clarifies an attitude or the feeling tone of a pupil in a nonthreatening manner. Feelingsmay be positive or negative. Predicting and re-calling feelings are included.
	Response	2.	Praises or encourages. Praises or encourages pupil action or behavior. Jokes that re- lease 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 pupils. Clarifying, building, or developing ideas suggested by a pupil. Teacher extensions of pupil ideas are included but as the teacher brings more of his own ideas into play, shift to category five.
Teacher Talk		4.	Asks questions. Asking a question about content or procedure, based on teacher ideas, with the intent that a pupil will answer.
	Initiation	5.	Lecturing. Giving facts or opinions about content or procedures: expressing his own ideas, giving his own explanation, or citing an authority other than a pupil.
		6.	Giving directions. Directions, commands, or orders to which a pupil is expected to comply.
		7.	Criticizing or justifying authority. State- ments intended to change pupil behavior from nonacceptable to acceptable pattern: bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
Pupil	Response	8.	Pupil-talkresponse. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
Talk		9.	Pupil-talkinitiation. Talk by pupils which they initiate. Expressing own ideas: in- itiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.

TABLE 2.1.--Continued.

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Pupil	Response	8.	Pupil-talkresponse. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
Talk	Initiation	9.	Pupil-talkinitiation. Talk by pupils which they initiate. Expressing own ideas: in- itiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence		10.	Silance or confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

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

John B. Hough (1965) developed a system that was based on Flander's work.¹⁶ His first adaptation expanded Flander's ten categories to thirteen. His second modification was and expansion to sixteen categories but still maintained the basic characteristics of the ten-category system of Flander's. Hough's most recent system, developed jointly with Duncan was designed for describing and analyzing strategies of instruction as a means of correction and feedback.¹⁷

For an observational system to be useful to researchers and teachers, it must be reliable and easy to learn and use. The OSIA meets the criteria for a good measurement device because it preserves the categorization, matrix analysis and indirect-direct characteristics of Flander's original system. The OSIA was designed to measure certain behaviors and classroom activities that are consistent with the principles of instruction derived from learning theory.¹³ The OSIA is a sixteen category system in which the categories have been grouped into four major subdivisions. These includes: (1) teacher indirect verbal behavior, (2) teacher direct verbal behavior, and (3) silence or nonfunctional verbal behavior, (4) student behavior. The major contribution of this system is in

 16 John B. Hough, and Edmund J. Amidon, "An Observational System for the Analysis of Classroom Instruction," Amidon and Hough, <u>op</u>. <u>cit</u>., pp. 150-151.

¹⁸Amidon and Hough, <u>op</u>. <u>cit</u>., pp. 113-119.

¹⁷John B. Hough, and James K. Duncan, <u>Teaching: Description</u> <u>and Analysis</u> (Reading, Mass.: Addison-Wesley Publishing Co., 1970), p. 130.

its potential for testing instructional hypotheses derived from learning theory. Table 2.2 presents the complete categories of the Hough and Duncan system.

Flanders stated that the future will produce many codings plotted by computers into matrices with as many as 10,000 cells.¹⁹ With the use of electronically scored sequence charts, the impact of technology, the use of Keyboard Coding devices, and the instantaneous computer analysis of data, the use of observational instruments with many modifications and categories will emerge with improved quality and precision.

Teacher Education and Training

Those who have worked in a supervisory capacity with teachers are aware of the problems involved in helping prospective teachers improve their teaching. It is generally agreed by many in the field of education that in order for a teacher to improve his teaching, three factors should probably be present: (1) the individual teacher should want to improve, (2) the prospective teacher should have a model of the kind of teaching behavior that he wants to develop and (3) the teacher should get objective feedback regarding his progress toward the development of those teaching behaviors which he has conceptualized as a goal. Research on training using the technique of interaction analysis indicated that the second and third conditions for change mentioned above are produced through the techniques of interaction analysis.

¹⁹Ned A. Flanders, <u>Analyzing Teaching Behaviors</u> (Reading, Mass.: Addison-Wesley Publishing Co., 1970), p. VIII.

Teacher-b Symb	ehavio ols ^a	r Studen Behaviors S	it-behavior Symbols ^a	
	ТI	Substantive clarification	S 1	
	Τ2	Response to substantive solicitation	S2	
Substantive	Т3	Initiation of substantive information	S 3	Substantive
	Τ4	Solicitation of substantive response	S4	
	T5	Corrective feedback	S5	
	T6	Confirmation	S6	
Appraisal	Т7	Acceptance	S7	Appraisal
	Т8	Positive personal judgment	S8	
	Т9	Negative personal judgment	S 9	
	T]0	Managerial clarification	S10	
Managerial	т11	Response to managerial solicitation	S11	Managerial
	T12	Initiation of managerial information	S12	
	T13	Solicitation of managerial response	S13	
Silence	T14	Silent covert activity	S14	Silence
	T15	Silent overt activity	S15	
Other	X	Instructionally nonfunctiona behavior	1 X	Other
	Y	Interaction separation designation	Y	

TABLE 2.2.--Observational System for Instructional Analysis (1970).

^aCategories 1-4, and 10-13 may be further categorized as closed or open behaviors by using the subscript 0 for open behaviors, e.g., $T4_0$.

The observation instruments that are most used in teacher training research in interaction analysis are "category systems" which record and categorize discrete behavioral events in a low inference manner. These instruments concentrate on the behavior of the teacher or the interaction between students and teacher in a manner similar to the Getzels and Thelen model (1960). A particular teacher's transactional style is critical also in determining climate.²⁰ Amidon and Hough contend that the analysis of the classroom verbal behavior of teachers and students should do more than provide data that describe the type or classification of talk that is used. This process should yield data regarding the relative frequency of various types of talk and in addition should make possible a cause--and--effect analysis of classroom verbal behavior.²¹

An important consideration for those utilizing the techniques of interaction analysis in research is the problems of observer training and reliability. A persistent problem with category systems is the reliability of the instrument because of consistency of agreement among observers.

Flanders has stated that the problems of observer training and reliability are two fold. They include: (1) converting men

²⁰Nielsen and Kirk, <u>op</u>. <u>cit</u>., p. 58.

²¹Amidon and Hough, op. cit., p. 118.

into machines and (2) keeping them in that condition while they are observing.²² He suggested that once training has produced an acceptable level of reliability, it can deteriorate due to the unending variety of judgments that arise and require consistent treatment.²³

Ragosta (1974) dealt with the problem of reliability in classroom observation by studying the following: (1) Is a teacher consistent in his/her behavior? (3) Is an observer consistent in recording what he sees? (4) Are all observers equivalent? (4a) To what extent are they the same measuring instrument? (5) Is the observation instrument capable of revealing systematic differences between classrooms and teachers? In this study, answers to the questions raised above were sought by (1) analyzing the stability of classroom behaviors, (2) computing intra-observer (or withinobserver) reliabilities, (3) estimating inter-observer (or betweenobserver) reliabilities, and (4) computing overall reliability on each of the measures of behavior.²⁴ The data were collected using the Florida Climate and Control System (FLACCS) and the Teacher Practices Observation record (TPOR).

²²Ned A. Flanders, "The Problems of Observer Training and Reliability," <u>Interaction Analysis: Theory, Research and Applica-</u> <u>tion</u>, eds. Amidon and Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), p. 158.

²³Ibid., p. 158.

²⁴Marjorie Ragosta, "Reliability in Classroom Observation: Observer Effects and Stability of Behavior" (unpublished Ph.D. dissertation, The University of Florida, 1974).

Data from four series of observations represented four periods throughout the school day. Item data were T-scored by area transformation and reduced to incomplete factor scores on nine FLACCS factors and seven TPOR factors. A one-way analysis of variance was computed for each of the factors and reliabilities were calculated. Results indicated that (1) many teacher behaviors change significantly over the course of a day while others remain quite stable, (2) intra-observer reliabilities were in general, high, (3) interobserver reliabilities were not as high as intra-observer reliabilities and the inter-observer reliabilities of some factors were considerably better than others, and (4) overall reliabilities for each of the factors were in the 0.70 to 0.80 range. In addition, results of several two-way analysis of variance demonstrated that some perceived differences in classroom attitude toward observers or attention to observers are accompanies by significant differences in behaviors measured by FLACCS or TPOR factors. This study revealed that the most significant relationships were between teacher positive or negative affective behaviors and ratings of classroom attitude. In addition, she concluded that observation instruments can be reliable and stable.

Kirk (1964) conducted a study in which he attempted to discover (1) whether interaction analysis could discover elements of teaching style common to student teachers of immediate grades and (2) to determine whether the knowledge of interaction analysis would lead student teachers to alter their teaching styles in any manner. The conclusions of the study revealed the following:

Indirect student teaching and training in interaction analysis appears to be related, though how strong the relationship is and whether it is entirely good cannot be unequivocally expressed. All that we can say with certainty is that the student teachers in one group were made more aware of what they did in class and of what is possible than did the other group, and that they achieved a relaxed, conversational, and content-centered atmosphere without being ordered to. Those who learned interaction analysis became indirect through positive reactions to the objective instrument, changing as a group and thus statistically.²⁵

In a 1965 study, Hough and Amidon investigated the effectiveness of an experimental pre-service experience on student-teaching performance. A major concern of the study was to determine ways to help individual teachers discover personal meaning in cognitive knowledge regarding the teaching-learning process.²⁶ Combs (1958) summarized one dimension of this problem by stating "modern psychology tells us that it is only when knowledge becomes meaning that behavior is affected. If it is meaning that affects human behavior, then it is meaning with which educators must deal."²⁷

The investigators were concerned with finding methods by which teachers could (1) gain knowledge about principles of teaching and learning, (2) makes use of this knowledge in a situation characterized by personal meaning, (3) get immediate feedback regarding

²⁵Jeffery Kirk, "Elementary School Student Teachers and Interaction Analysis," <u>Interaction Analysis: Theory, Research and Appli-</u> <u>cation</u>, ed. by Amidon and Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), pp. 299-306.

²⁶John B. Hough and Edmund Amidon, "Behavioral Change in Student Teachers," <u>Interaction Analysis: Theory, Research and</u> <u>Application</u>, ed. by Amidon and Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), pp. 307-314.

²⁷A. Combs, "Seeing is Behaving," <u>Educational Leadership</u>, XVI (1958), pp. 21-26.

the effects of their behavior in the classroom, and (4) discover more effective patterns of teaching behavior. 28

Furst (1965) reported a study using English and Social Studies student teachers. This study was designed to observe the classroom behavior of student teachers by trained observers using an objective tool. The purposes of the study were:

- 1. To gather actual behavioral data along with pencil-andpaper attitude scores taken to show whether or not there were significant differences between student teachers trained in interaction analysis and those not so trained.
- 2. To gather evidence to help decide if the timing of instruction in interaction analysis makes any difference in the behavior and/or attitudes of student teachers.
- 3. To gather evidence as to the usability of Furst's Category System.²⁹

In summary, the Furst findings indicated that student teachers trained in interaction analysis before student teaching seem more "aware" of their own verbal behavior than those trained during student teaching or those not trained at all. Student teachers who were shown their matrix for feedback purposes were pleased with the differentation between student talk to teacher talk and student talk to other students. 30

²⁸ Hough and Amidon, <u>op</u>. <u>cit</u>., p. 307.

³⁰ Ibid., pp. 315-328.

²⁹ Norma Furst, "The Effects of Training in Interaction Analysis on the Behavior of Student Teachers in Secondary Schools," <u>Interaction Analysis: Theory, Research and Application</u>, ed. by Amidon and Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), pp. 315-328.

In a 1965 study, Zahn studied 92 elementary-education students, and their cooperating teachers. As a result of this study, there appeared to be a relationship between the type of instruction, supervision the student teachers received, and attitude change. A relationship was also established between the strength of the student teachers' belief system and his teaching as rated by the supervising teacher. The following results emerged from this study:

- 1. Student teachers undergoing instruction and supervision using interaction analysis had more positive teaching attitudes after student teaching than those students undergoing conventional supervision and instruction.
- 2. The student teachers undergoing instruction and supervision using interaction analysis tended to modify their teaching attitudes more positively than student teachers undergoing conventional instruction and supervision, regardless of the attitude of the cooperating teacher.
- 3. Student teachers with DOGMATISM SCALE scores that were above average but not more than one standard deviation above the mean tended to change their teaching attitudes positively if they experienced instruction and supervision using interaction analysis.
- 4. Student teachers with DOGMATISM SCALE scores one standard deviation below the mean (relatively open belief system) were judged to be significantly more proficient in their student teaching performance than those student teachers one standard deviation above the mean (relatively closed belief system), regardless of the kind of supervision received.³¹

³¹Richard Zahn, "The Use of Interaction Analysis in Supervising Student Teachers," <u>Interaction Analysis: Theory, Research</u> <u>and Application</u>, ed. by Edmund Amidon and John B. Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), pp. 295-298.

The results of research by Amidon and Hough $(1964)^{32}$ Hough and Ober (1964), ³³ Kirk (1964), ³⁴ Furst (1965), ³⁵ Flanders (1965), ³⁶ Amidon and Powell (1967), ³⁷ and Lantz (1967), ³⁸ in teacher education indicated that there are significant differences between the verbal behavior of teachers trained in interaction analysis and those not so trained.

Studies Related to Music Education

The improvement of music teaching has been a goal of teacher training programs since the beginning of public school education.

32 John B. Hough and Edmund J. Amidon, "Behavioral Change in Pre-Service Teacher Preparation: An Experimental Study" (Philadelphia, College of Education, Temple University, 1964).

³³John B. Hough and Richard Ober, "The Effect of Training in Interaction Analysis on the Verbal Behavior of Pre-Service Teachers" (A paper read at the annual meeting of the American Education Research Association, Chicago: February, 1966).

³⁴Jeffery Kirk, "The Effects of Teaching the Minnesota System of Interaction Analysis on the Verbal Behavior of Student Teachers" (Unpublished doctoral dissertation, Temple University, 1964).

³⁵Furst, <u>op</u>. <u>cit</u>. (A paper read at the Annual Meeting of the American Educational Research Association, Chicago: February 1965).

³⁶Ned A. Flanders, Teacher Influence: Pupil Attitudes and Achievement, U. S. Office of Education Cooperative Research Project No. 397 (Minneapolis: University of Minnesota, 1960).

³⁷Admund J. Amidon and Evan Powell, "Interaction Analysis as a Feedback System in Teacher Preparation" (Philadelphia, Pa.: Temple University, 1967).

³⁸Donald L. Lantz, "The Relationship of University Supervisors and Supervising Teachers' Ratings to Observed Student Teachers' Behavior," <u>American Educational Research Journal</u>, IV (May, 1967), pp. 279-288. Many articles and research studies have been devoted to philosophies and techniques of improving the teaching-learning process. The use of interaction analysis techniques in the area of music education has been very limited. The survey of research by Schneider and Cady³⁹ in music education and the listing of doctoral dissertations in music and music education by Gordon⁴⁰ provides little evidence of current or past research using interaction analysis.

College and University curricula in teacher education are being studied, critiqued and redesigned in order to keep pace with today's changing technology. These changes have prompted educators to explore other methods of training prospective teachers. One preliminary step to improving the effectiveness of the teacher in the classroom has been an identification of those behaviors displayed by teachers. These have included verbal, nonverbal, physical and musical. All of these factors constitute the basis for studentteacher interaction.

In a 1969 study, Nolin⁴¹ used Hough's (1965) "Observation System for the Analysis of Classroom Instruction" in studying the

40 Roderick D. Gordon "Doctoral Dissertations in Music and Music Education," <u>Journal of Research in Music Education</u>, XXII (Spring, 1974), pp. 67-111.

⁴¹Wallace H. Nolin, "Patterns of Teacher-Student Interaction in Selected Junior High School General Music Classes" (unpublished Ph.D. dissertation, The Ohio State University, 1969).

³⁹ Erwin H. Schneider and Henry L. Cady, <u>Evaluation and</u> <u>Synthesis of Research Studies Relating to Music Education</u> (Columbus, Ohio: The Ohio State University, Cooperative Research Project, No. E-016,1965.

behaviors of classroom music teachers. The study represented the second modification of Hough's system. This stydy consisted of an expansion to sixteen categories yet retained characteristics of Flanders' System.⁴² Nolin was not concerned with adding or creating categories related to music, but stated that this system was selected because it was the first Interaction Analysis Modification to include, in addition to verbal behaviors, the categorization of certain nonverbal behaviors.⁴³ The results of the Nolin Study indicated that all teachers in the study were more direct than indirect in many of their behaviors. These findings support studies in other subject areas.

In a 1970 study, Whitehill was interested in determining if the Flander's System adapted for use in general music classes could be used to discriminate teaching behavior of general classroom music teachers of different ability.⁴⁴ Categories for recording nonverbal praise or encouragement, nonverbal criticism, teacher performance, student performance under the direction of the teacher and studentinitiated performance were added to Flanders' System.⁴⁵ This modification also expanded Flanders' System to fifteen categories.

⁴³Nolin, <u>op</u>. <u>cit</u>., in <u>Dissertation Abstracts</u>, XXX (6), p. 3044-A.

⁴⁴Charles D. Whitehill, "Evaluation of the Application of Flanders' System of Interaction Analysis to General Music Classroom Teaching" (unpublished Ph.D. dissertation, West Virginia University, 1970), in <u>Diss</u>ertation Abstracts, XXXI (5), p. 2428-A.

⁴⁵Ibid., p. 2428-A.

⁴² John B. Hough and Edmund Amidon, "An Observation System for the Analysis of Classroom Instruction," Amidon and Hough, <u>op</u>. <u>cit</u>., pp. 151-153.

In another study of general music instruction, Pagano⁴⁶ observed the general music classes of ten music teachers using a modification of Flanders' System. The general music classes of ten music teachers were audio-taped. A minimum of five different class sessions in each grade were recorded for a total of 107 class sessions. Information from the tape was categorized and tabulated on matrices by means of a modification of Flanders' System of Interaction Analysis in which five existing categories were subscripted with aural and musical behaviors.⁴⁷ The results indicated the music teachers had flexible patterns in their use of the fifteen behaviors in the matrix, but tended to be direct in their influence patterns. Results also indicated that:

Musical behaviors were used extensively, but teacher talk dominated classroom behaviors in both grades. The musical behavior of student initiation occupied less than 1 percent of total classroom behaviors in both grades. The teachers approached the norm established by Flanders in their verbal interaction patterns when musical behaviors were deleted from the matrix. 48

The implications from Pagano's research suggests that music teachers are more direct in their teaching styles, and thus provide fewer chances for students to respond to in the teaching-learning process.

⁴⁷Ibid., p. 4185-A. ⁴⁸Ibid., p. 4185-A.

⁴⁶Alicia L. Pagano, "A Study of the Classroom-Interaction Patterns of Selected Music Teachers in First-Grade and Sixth-Grade General Music Classes" (unpublished Ed.D. dissertation, The American University, 1972), in <u>Dissertation Abstracts</u>, XXXIII (8), p. 4185-A.

In 1974, Kirkwood⁴⁹ used an interaction analysis system to study the general music teacher. This instrument was designated as the Classroom Music Analysis System (C.M.A.S.). This technique described the occurrences in the music classroom in terms of teacher behavior, pupil behavior, activities employed, and materials used.⁵⁰

Four dimensions of Kirkwood's System include: (1) Performance Categories (2) Verbal Interaction Categories, (3) Teacher Rating Scales and (4) checklist of materials. A more detailed description of the C.M.A.S. can be found in Table 2.3. This system described dimensions of teacher and pupil behavior in music classrooms and examined the degree of relationships between the various dimensions and specific student achievements in music. Among the conclusions of the study were:

- 1. High-inference variables which are significantly related to music achievement in the elementary school are clarity, enthusiasm, and focus.
- 2. Low-inference variables which are significantly and positively related to music achievement in the elementary school include teacher manage, student statement, music reading, teacher inform, and student question substantive.
- 3. Low-inference variables demonstrating significant negative relationships with music achievement in the elementary school are teacher reject, teacher question closed, and playing instruments.
- 4. Low-inference correlates of teacher clarity, the variable which was most strongly supported, are: conceptual performance, teacher praise, teacher use, teacher question open, creating, listening, total verbal, and informing, which are positively

⁵⁰ Ibid., p. 31.

⁴⁹ Gay Kirkwood, "Teacher Behavior and Pupil Achievement in Selected Elementary Music Classrooms" (unpublished Ph.D. dissertation, The University of Texas, 1974).

Musical Performance Activities Non-conceptual 1. Listening a. Conceptual b. NC 2. Singing a. b. С 3. Playing a. NC С Instruments **b**. NC This category includes creating 4. Creating a. musical compositions or dance. This conceptual sub-division of 5. NC Movement a. this category includes conducting. **b**. C 6. Reading or a. Vocal b. Instrumental Aural Drill Dictation с. 7. Non-Performance directed activities. This category includes test-taking, making reports, painting to music, etc. Teacher Verbal Verbal This category includes any 1. Informing a. substantive information the Performance b. Example teacher offers. Subdivision (b) includes any musical demonstration or example given, including playing introductions. This category includes any directions, whether 2. Managing substantive or non-substantive. "Turn to page 69." "Leave the room quietly." "Sing with more expression." Closed (any question to which there is 3. Questioning a. only one right answer or the teacher will accept only one answer). Open (any question to which there may be **b**. a number of possible answers, including value questions and opinion questions if they are substantive). Affective (any question dealing with the c. student's feelings, either personal comments or comments to the entire class). The teacher accepts the student's answer or 4. Accept his feelings.

TABLE 2.3.--Description of Categories for the Classroom Music AnalysisSystem.

TABLE 2.3.--Continued.

5.	Use student ideas	The teacher takes a student's response and re- states it, clarifies it, or asks another student to respond to the original student's idea.		
6.	Praise	The teacher praises the student or his response.		
7.	Rejects	The teacher rejects the student's response or behavior as incorrect.		
8.	Criticize	The teacher criticizes a student's response or his behavior in a punitive manner.		
Stude	nt Verbal			
1.	Answer	The student answers a question posed by the teacher.		
2.	Question	a. Substantive (question deals with the subject matter).		
		b. Non-substantive (includes such remarks as, "May I sharpen my pencil?" "Do we <u>have</u> to do this?"		
3.	Student statement	Student makes a statement about something on his own initiative.		
Confusion/Silence		This category is for behavior non-codable in other categories.		
High-	Inference Variab	es		
1.	Teacher enthusiasm	Rating 4: The teacher appears actively involved in the lesson. His physical movement, gestures, voice inflections, any facial expressions indicate vitality and interest.		
		Rating 1: The teacher appears apathetic and uninvolved. He seems to be merely "going through the motions" of teaching.		
2.	Task focus	Rating 4: The teacher keeps the pupils focused upon the task at hand. He appears businesslike and achievement oriented.		
		Rating 1: It is difficult to ascertain the focus of the lesson. The teacher seems unconcerned whether the children learn anything from the lesson.		
3.	Clarity	Rating 4: The lesson is logically organized. Points are presented and developed in a clear, easily understandable manner appropriate for the particular students involved. There is a minimum of confusion.		
	•	Rating 1: The lesson is presented in a disorganized and confusing manner. There appears to be little logical progression of ideas.		

related to clarity, and confusion/silence and non-conceptual performance, which are negatively related to clarity.

5. The high-inference variables of focus and enthusiasm demonstrated relationships to low-inference variables similar to those of clarity. ⁵¹

Among another group of music studies concerned with the general use of interaction analysis was a 1955 study by Van Sickle. Van Sickle focused upon the social psychological forces at work in group rehearsals. The design was based on group dynamic theories as set forth by the National Training Laboratory of Group Dynamics. These data came from audio tape recordings of fifteen public school and three community bands or orchestras. Through random selection small groups of players were chosen to take part in a group interview and paper-and-pencil tests. The results obtained from the forty-four players, the directors, and concepts derived from group dynamic research included:

The nature of the music performance group is such that people in interaction are a necessity for the production of music. With the increased importance of music instruction in the American Public Schools, the opportunity to increase the application of social psychological forces to the improvement of music assumes the proportions of a challenge. The responsibility of creating meaningful experiences in the process of achieving group-oriented goals becomes greater in a culture based on democratic principles. 52

Van Sickle found that public school instrumental music teachers (directors) were generally unaware of group dynamics in

⁵¹Ibid., pp. 70-71.

⁵²Howard M. Van Sickle, "An Exploratory and Descriptive Study of the Interpersonal Factors and Group Dynamics of Instrumental Music Groups" (unpublished master's thesis, Chicago Musical College, Roosevelt University, 1955), p. 3. their classrooms (rehearsals). The goals of the students (players) in most cases tended to be different from those of the teachers (directors). Van Sickle did not study interaction between teachers and students yet his study appears to be the first related to social-emotional climate in the instrumental music performance class.

In a 1967 study, Snapp⁵³ (1967) used a modified Flanders' System of Interaction Analysis to determine the accumulative verbal behaviors of teachers and students in fifth grade instrumental classes. The modification consisted of the addition of five musical behavior categories to Flanders' ten original categories. The complete Snapp system is presented in Table 2.4. The modification consisted of a category for teacher-musical activity (category 5) and four categories of student musical activities (categories 11a, 11b, 12a, 12b). The system was designed to measure a greater variety of teacher than student behaviors.

The subjects, nine public school music teachers, were recorded and observed in three class sessions producing a total of seventeen hours of observation. Findings from this investigation shown below:

1. The findings concerning <u>TEACHER PRAISE</u> indicated that the subjects tended to priase student musical activities more than student talk.

⁵³David Snapp, "A Study of the Accumulative Musical and Verbal Behaviors of Teachers and Students in Fifth Grade Instrumental Music Classes" (unpublished Masters Thesis, The Ohio State University, 1967).

Category Number		egory Imber Description of Behavior		
1. T E A C 2. H E R 3.	I N D I R E C T	ACCEPTS FEELINGS: accepts and clarifies the feeling tone of the student in a nonthreatening manner. Feelings may be positive or negative, <u>and expressed verbally or</u> <u>musically</u> . Predicting and recalling feelings are also included. <u>PRAISES OR ENCOURAGES</u> : praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying "uh-huh" or "go on" are included. <u>ACCEPTS OR USES IDEAS OF STUDENT</u> : clarifying, building, or developing ideas or suggestions of student <u>or implied</u> <u>musical ideas as expressed through student musical</u> <u>activities</u> .		
в 4. Е	I	ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.		
H 5. A V 6. O R 7. 8.	* D I R E C T	 <u>MUSICAL ACTIVITIES</u>: playing an instrument, clapping, singing, tapping of foot, or any other form of physical movement which demonstrate elements pertinent to the music process. <u>LECTURES</u>: giving facts or opinions about content or procedure; expressing his own ideas; asking rhetorical questions. <u>GIVES DIRECTIONS</u>: directions, commands, or orders with which students are expected to comply. <u>CRITICIZES OR JUSTIFIES AUTHORITY</u>: statements intended to change student behavior from a nonacceptable to an acceptable pattern; "bawling out" someone; stating why the teacher is doing what he is doing so as to achieve or maintain control; rejecting or criticizing a student's thought or deed 		

TABLE 2.4.--Description of Categories for the Modified System of Interaction Analysis for Music Classes (Snapp).

TABLE 2.4.--Continued.

Category Number		Description of Behavior
S T	^{9.} T A	STUDENT TALK-RESPONSE: talk by students, in response to teacher. Teacher initiates the contact or solicits student's statement.
U D E	10. L K	STUDENT TALK-INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
N T B		INDIVIDUAL MUSICAL ACTIVITIES: those activities under- taken by one student which involve some form of physical movement and are pertinent to the process of making music, such as playing an instrument, clapping, singing, tapping of foot, etc.
E H	11Ь.* I С	INDIVIDUAL MUSICAL ACTIVITIES-CONDUCTED: the same student activities as category lla except that they are performed while the teacher is conducting.
A . <u>V</u> . T	12a.* A L	GROUP MUSICAL ACTIVITIES: the same musical activities as category lla except that a group of students is involved.
0 R	12b.*	<u>GROUP MUSICAL ACTIVITIES-CONDUCTED</u> : the same musical activities as category lla except that a group of students performs while the teacher is conducting.
	13.	<u>SILENCE OR CONFUSION</u> : pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

- 2. The findings concerning the <u>TEACHER ACTIVITIES</u> indicated the teachers activities were direct nearly twice as often as they were indirect.
- 3. The findings concerning <u>DIRECTION GIVING</u> indicated that teacher lecturing, direction giving was the highest single form of teacher behavior.
- 4. The findings concerning <u>TEACHER CRITICISM</u> indicated that only five per cent of the interaction involved criticism.
- 5. The findings concerning the <u>STUDENT VERBAL RESPONSES</u> indicated that student verbal responses were generally restricted and controlled by the teacher.⁵⁴

This study clearly described the direct teaching style prevalent in instrumental class instruction. The behavior of the teacher made up approximately 58 per cent of the tallies, and student behavior accounted for approximately 40 per cent.⁵⁵

In a somewhat different approach, Daellenbach (1968) used video-tape recordings of music teachers to identify music teaching behaviors at several instructional levels, several levels of teaching experience and in various music teaching environments ranging from studio to large group instruction.⁵⁶ The groups included string, wind, vocal, and percussion teaching.

A similar study using video-tape recordings to study music student behaviors was conducted in 1970. Seventeen students were videotaped at two different lessons, and a ten-minute segment from

⁵⁴Ibid., p. 92.

⁵⁵Ibid., p. 93.

⁵⁶C. Charles Daellenbach, "An Investigation of the use of Videotape Recorder Technique in the Identification of Behavioral Characteristics of Music Teachers" (unpublished Masters Thesis, Eastman School of Music, The University of Rochester, 1968), p. 6.

each tape was selected at random to form a master tape that was 340 minutes in length. A wide range of ages were represented in the study (pre-school to college), performance medium (string, wind, voice, and percussion), and performance environment (private instruction to group instruction).

Seven viewings of each ten-minute segment on the master tape were required to code the behaviors. This process led to the formulation of the Observable Performance Learning Behavior Classification Index.⁵⁷ The index was structured to yield four main categories of behavior:

Type I Behaviors: <u>Verbal</u> (Elicited and Emitted)

Type IIA Behaviors: <u>Motor</u> (Performance and Nonperformance Related)

Type IIB Behaviors: <u>Motor</u> (Performance Related only) Type III Behaviors: <u>Attending</u> (Nonverbal)

Dallenbach's System was not intended to be used as an interaction analysis system, but did provide a dimension in the music classroom that is badly needed--"objective feedback." Through the use of videotapes, the teacher will have an exact duplication of what takes place in the classroom during the entire instructional process and is thereby better able to make decisions relative to the needs of students as well as the methods being used by the teacher.

A most recent study using the interaction analysis technique in small performance class situations was done by

⁵⁷C. Charles Daellenbach, "Identification and Classification of Music Learning Behaviors Utilizing Videotape Recording Techniques" (unpublished Ph.D. dissertation, Eastman School of Music, The University of Rochester, 1970), pp. 54-55.

Reynolds (1974).⁵⁸ The author developed a modified version of the Observational System for Instructional Analysis (Hough and Duncan, 1970).⁵⁹ The (OSIA) developed by Hough and Duncan consists of eleven basic categories, in which five are approasal categories. The eleven basic categories are:

Soliciting Clarification Responding Initiating Soliciting Judging Incorrectness Judging Correctness Acknowledging Personal Positive Judging Personal Negative Judging Reflecting--Manipulating Instructionally Nonfunctional

To the appraisal categories of judging correct and incorrect, acknowledging, and personal and positive and negative judgments, Reynolds added behavior categories common to instrumental music instruction and performance. Categories for musical direction and a method for coding teacher error were also included. Table 2.5 presents the complete modified (OSIA).

Reynolds chose the OSIA because it was not linked primarily to the one-value approach of the system begun by Flanders and

⁵⁸Kay Reynolds, "Modification of the Observational System for Instructional Analysis Focusing on Appraisal Behaviors of Music Teachers in Small Performance Classes" (unpublished Ph.D. dissertation, The Ohio State University, 1974).

⁵⁹Hough and Duncan, <u>op</u>. <u>cit</u>., p. 130.

TABLE 2.5.--Modified OSIA.

Categories

- 1. Soliciting Clarification
- 2. Responding
- 3. Initiating
- 4. Soliciting
- 5. Judging Incorrect
- 6. Judging Correct
- 7. Acknowledging
- 8. Personal Positive Judging
- 9. Personal Negative Judging
- 10. Musical Direction
- X Instructionally Nonfunctional
- 0 Silent Reflection

Interaction Separation Designation

Y Interaction Separation Designation

Prefixes		Used in Conjunction with Categories:		
T S	Teacher Student	1, 2, 3, 4, 5, 6, 7, 8, 9, 10 1, 2, 3, 4, 5, 6, 7, 8, 9, 10		
<u>Subscripts</u>		Used in Conjunction with Categories:		
M	Musical	2, 3, 4		
Р	Physical	2, 3, 4		
R	Gave a Reason	5, 6, 8, 9		
Н	Hyperbole	5, 6, 8, 9		
Ι	Irony	5, 6, 8, 9		
N	Sarcasm	5, 6, 8, 9		
Teacher Error				
Designation		<u>Used in Conjunction with Categories:</u>		
Teacher Error ^a		., 2, 3, 4, 5, 6, 7, 8, 9, 10		

^aCoding is circle around appropriate number.

Whithall. Her primary concerns were the concepts of indirect-direct or teacher-centered versus learner-centered classrooms.

From this research, Reynolds concluded that: (1) the modified OSIA was useful in measuring the full range of teacher and student behaviors common to small instrumental music performance classes, (2) the modified OSIA was a valid measure of the teacher-student behaviors in small instrumental music performance classes because it exhibited content validity, and (3) the modified OSIA was easily learned and used by those involved in instrumental music teacher education. 60 It was also recommended by the author that the modified OSIA might be useful in gathering information about the teaching-learning processes in instrumental music classes, music teacher education classes, the supervision of student teachers and inservice teacher education.

The final body of research directly related to the present study are studies by Verrastro $(1970)^{61}$ and Erbes $(1972)^{62}$ in which the technique of interaction is used as supervisory technique and is directed specifically toward the area of teacher education.

⁶¹ Ralph E. Verrastro, "An Experimental Investigation of Verbal Behavior Analysis as a Supervisory Technique with Student Teachers of Music" (unpublished Ed.D. dissertation, The Pennsylvania State University, 1970), in <u>Dissertation Abstracts</u>, XXXI (6), p. 2781-A.

⁶² Robert L. Erbes, "The Development of an Observational System for the Analysis of Interaction in The Rehearsal of Musical Organizations" (unpublished Ed.D. dissertation, University of Illinois, 1972), pp. 82-129.

⁶⁰ Ibid., p. 128.

The Social-Emotional Climate Index of Withall has been used as a basis for many studies. The Climate Index consists of seven categories of teacher verbal behavior. The complete Climate Index is shown on pp. 4-5. Verrastro (1970) used the Climate Index of Whithall to study thirty-nine music student teachers in different kinds of classes. These classes included vocal, instrumental, and general music at various levels (elementary through high school). Verrastro reported that:

The verbal patterns of student teachers in music appear to be rather stable and not observably influenced by the grade level of the learners or the nature of the instruction being provided. 63

Verrastro made no attempt to study student behaviors, nor did he study any musical behaviors of teachers. He was mostly concerned with the verbal behaviors of the student teachers as they related to the concept of Social-Emotional Classroom Climate. The purpose of the procedures were to familiarize the students with the Climate Index, and to help the students analyze and understand their verbal actions in regards to lesson development and learning outcomes. Relevant findings and conclusions included the following:

- Verbal behavior analysis has significant potential as a technique of supervision with student teachers of music. The Climate Index is simple to understand and utilize. It provides an effective focus for the supervisor-student teacher conference interaction, and can be employed in a process of nondirective supervision.
- 2. Student teachers of music appear not to be predisposed to the employment of indirect instructional behaviors

⁶³ Verrestro, <u>op</u>. <u>cit</u>., pp. 98-99.

as determined by the verbal behavior sampling procedure utilized in the study.

- 3. Student teachers of music can be sensitized to the employment of both learner-centered and teacher-centered verbal patterns in accordance with the purpose and nature of the instruction being provided.
- 4. Verbal behavior analysis supervision with student teachers of music tends to encourage objective self-assessment and seems to provide a functional and commonly defined basis for the systematic improvement of teaching performance.
- 5. Though the evidence supplied by the study is inconclusive, verbal behavior analysis supervision may hold important implications in cases where extremely custodial teacher-role ideology percepts are held by student teacher and some modification is desired or necessary.⁶⁴

A recent research article by Verrestro (1975) reported a study in which thirty-nine student teachers of music were studied over a twelve week period, using interaction analysis methods as a supervisory technique. The purpose of the study was to determine the differential influence of a supervisory process based on constructs derived from the Social-Emotional Climate Index on verbal behavior patterns exhibited by student teachers of music, their ability to engage in objective self-assessment and the effect of such activity on the student's percepts of teacher-role ideology.⁶⁵ The supervision of the student teachers was the joint responsibility of the college supervisors as assigned by the dean of the music school, and the supervising teachers who were professionally employed by the

> 64 Ibid., <u>Dissertation Abstracts</u>, XXXI (5), p. 2781-A.

⁶⁵Ralph E. Verrastro, "Verbal Behavior Analysis as a Supervisory Technique with Student Teachers of Music," <u>Journal</u> <u>of Research in Music Education</u>, XXIII (Fall, 1975), pp. 171-185. cooperating school districts.⁶⁶ The findings from this study also disclosed that student teachers in the experimental group tended to rate themselves below that of their supervising teachers, while the opposite was true of those student teachers on the control group. While there were no definite conclusions drawn from this study, the author suggested in his summary the following:

The investigation seemed to demonstrate the efficacy of approaching the supervision of student teachers in music with an orderly plan for systematic classroom observation including a behavioral focus for employment in the follow-up conference . . . the supervisory process, not unlike a number of related educational endeavours, seem to be more effective where conceived on the basis of a clear and unambiguous purpose identified by commonly defined behavioral standards.

The interaction analysis technique has been used widely to study the behaviors of teachers and students, the kinds of classroom climate teachers create in their teaching, and the affect of superior teachers as opposed to ineffective teachers. Little research using interaction analysis techniques in music education has been reported to this date.

In a 1972 study, Erbes developed a system for categorizing, analyzing, and reporting the verbal interaction of students and teachers during the rehearsal of large musical organizations. This system is known as The Rehearsal Interaction Observation System (RIOS). Table 6.2 presents the complete RIOS system. Erbes based his system upon the following assumptions:

⁶⁷Ibid., p. 184.

⁶⁶Ibid., p. 174.

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	(Category Number	Category Description
Conductor Behavior	ve	1.	<u>Uses</u> : Conductor uses, clarifies, or reprets ideas, performance, behavior, or feelings suggested by the students.
	porti	2.	<u>Encourages</u> : Conductor encourages, praises, or ac- cepts student ideas, performance, or behavior.
	Sup	3.	<u>Questions</u> : Conductor questions with the intent that the student respond. Questions may also occur in other teacher categories.
		4.	<u>Informs</u> : Conductor gives information, lectures, or states opinions based on his own ideas or those other than the students. Short responses to student questions and rhetorical questions are included in #4.
	rtive	5.	* <u>Demonstrates</u> : A conductor demonstrates the manner in which an act is or should be performed or accomplished (Generally non-verbal in nature.)
	loddng	6.	<u>Directs</u> : Conductor directs or commands student with intent that he comply.
	Non-	7.	<u>Criticizes</u> : Conductor criticizes, rejects, or challenges student ideas, performance, behavior, or feelings.
		8.	<u>Corrects</u> : Conductor checks or corrects student ideas, performance or behavior in an obvious manner.
	ior	9.	<u>Responds</u> : Student responds or questions in a manner structured by the conductor.
	Studer Behavi	10.	<u>Initiates</u> : Student initiates communication or questions in a manner unstructured by the conductor.
		11.	Silence or Confusion: Periods in which verbal com- munication cannot be understood. Constructive periods should be indicated by 11+ and nonconstructive periods by 11

TABLE 2.6.--The Rehearsal Interaction Observation System.

 * <u>A Nonverbal Demonstration</u> (x) - When demonstration by the conductor or student is nonverbal in nature, an "x" code should be added to Category #5. Demonstration of this type is an extension of verbal categories and would include singing, whistling or other oral sounds, clapping, tapping, or playing an instrument to illustrate an idea or opinion.

- 1. The verbal interaction between teachers and students during the rehearsal of large musical organizations is dominated by the teacher.
- 2. A teacher's verbal behavior in a rehearsal situation can be considered consistent with his total pattern of teaching behavior.
- 3. The verbal behavior's of a teacher are observable and can be distinguished and classified qualitatively and quantitatively. ⁶⁸

From this study the following conclusions were reported:

- 1. The conductor-student interaction in large group rehearsals is unique compared to academic classroom subjects. In a study of twelve rehearsals from the research for this dissertation, informing, demonstrating, direction giving, criticizing, and correcting constituted 89 percent of the conductor verbal behaviors. Encouragement of student behavior and performance constituted 7 percent of the conductor verbal behaviors. Student verbal behavior consisted primarily of responses to conductor questions.
- 2. An interaction analysis system can indicate the socioemotional climate of large-group rehearsal situations.
- 3. An acceptable proficiency of coding rehearsal interaction can be obtained with approximately fifteen hours of self instruction, discussion, and practice in the technique.
- 4. A minimum proficiency level of coding rehearsal interaction can be obtained with approximately four hours of selfinstruction and practice in the technique.
- 5. The independent nature of the RIOS categories did not cause serious problems in objectively categorizing rehearsal interaction by the investigator and other research personnel. Some confusion occasionally existed in discriminating between categories of Informing and Directing. It was often difficult to discriminate between rapid shifts in Criticizing, Correcting, and Informing.

The Rehearsal Interaction Observation System was chosen as

a basis for this study because it is the only system designed

⁶⁸Erbes, <u>op</u>. <u>cit</u>., pp. 6-7.
⁶⁹Ibid., pp. 136-138.

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specifically for the large group rehearsal class. The result of a short pilot study indicated that the system was easy to learn and could be used as a training tool for prospective public school music teachers.

The Pilot Study

The purpose of the pilot study was to determine whether students in a university conducting class could use an interaction analysis system for enhancing their understanding of, and sensitivity to the verbal interaction between teacher and students in a rehearsal setting.

The Rehearsal Interaction Observation System (RIOS) was first developed by Dr. Robert L. Erbes, assistant professor of music at Michigan State University. The RIOS system is similar to Flander's Interaction Analysis System (FICA) and was specifically designed for use in the field of music education and is based on prevalent forms of verbal and nonverbal interaction found in large performance group rehearsals. The system organizes all verbal interaction into various categories: 1-USES (student ideas), 2-ENCOURAGES, 3-QUESTIONS, 4-INFORMS, 5-DEMONSTRATES, 6-DIRECTS, 7-CRITICIZES, 8-CORRECTS, 9-STUDENT RESPONDS, 10-STUDENT INITIATES and 11-SILENCE OR CONFUSION. RIOS focuses on three aspects of the rehearsal: the director's communication, the director's is further divided into two classes: (1) categories 1, 2, and 3 represent the supportive behaviors and (2) categories 4, 5, 6, 7, and 8 represent the nonsupportive behaviors. Categories 9 and 10

represent student communication, and category 11 represents silence or confusion.⁷⁰

The following examples of rehearsal interaction illustrate how verbal behaviors are categorized.

Example of conductor's behavior demonstrating category 7--CRITICIZES: Be quiet percussion! Can't you play better in tune brass! Category 2--ENCOURAGES: Oboe, you played that solo as well as I have ever heard it performed.

Results of the pilot study were consistent with other research studies in interaction analysis findings indicated that teacher-student interaction can have a bearing on the attitudes and emotional tone of the classroom teachers who are receptive to, and encourage, student communication. This communication tend to produce more positive student attitudes toward classroom content and the teacher himself.⁷¹

Procedure for Pilot Study

Subjects for the study consisted of twelve (12) students selected at random from a population of seventy-one (71) enrolled in instrumental conducting, a required course for music education majors. The subjects were trained in classroom observation by studying the RIOS training manual for certain specified periods. The twelve subjects were placed in three groups of four each.

⁷⁰Robert L. Erbes, <u>The Rehearsal Interaction Observation</u> System Training Manual (Michigan State University, 1972), pp. 1-2.

⁷¹Ned A. Flanders, "Some Relationships Among Teacher Influence, Pupil Attitudes and Achievement," Amidon and Hough, <u>op</u>. <u>cit</u>., pp. 217-242.

Group one spent six hours of training using the RIOS technique, groups two and three spent eight and ten hours, respectively. All groups followed the same training procedures as stated in the RIOS training manual. The rehearsal was coded by marking down the number approximately every three seconds that corresponds to the approximate category of verbal statements obtained from the rehearsals of school groups around the State of Michigan. The audio tapes were coded, analyzed and feedback was presented to the subjects

Findings and Conclusions

Findings indicated that RIOS was found to be an easy, usable system in training students in the techniques if interaction analysis. A tabulation of the final codings from a thirtyfive minute rehearsal tape indicated the coefficient of student agreement with a criterion measure were 0.87, 0.86 and 0.91 for groups one, two and three respectively. Table 2.7 shows the reliability coefficient for the three groups.

Group	Number of Training Hours	Mean Total Agreement
Group I	6	.87
Group II	8	.86
Group III	10	.91

TABLE 2.7.--Coefficient of Student Agreement by Groups and Training Periods.

This study helped the students become more aware and sensitive to the total rehearsal climate and provided feedback that allowed each individual to study his/her own style of rehearsal teaching. The students gave their personal reactions to the RIOS technique and their responses were as follows: "The awareness it provides is especially helpful in looking at one's own teaching style," "Makes one conscious of the various behaviors displayed while conducting," You are aware of how every minute of your time is spent in rehearsals," "It provides a profile of the kind of teacher you are in an objective manner" and "It enables an individual to look at himself and modify his teaching behaviors to be more effective on the podium." Results also indicated the amount of training necessary to learn the RIOS system and use it in a live rehearsal situation takes approximately fifteen to twenty hours of training. Table 2.8 presents a comparison of individual student codings on the final observer agreement check.

To determine the extent to which each of the twenty-five subjects agreed with each other, the Hoyt method of estimating reliability was computed. The Hoyt analysis estimated a reliability coefficient of 0.86.

Overall, the twelve student taking part in the study as a result of RIOS training showed a greater sensitivity to judicious and efficient rehearsal teaching. Among some conclusions from the study were:

1. The RIOS system was found to be reliable in training student conductors in the techniques of interaction.

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TABLE 2.8.--Comparison of Individual Student Codings on Final Agreement Check for the Pilot Study.

						Stude	nts' %					
Category	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(01)	(11)	(12)
~	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0
5	4.5	3.2	4.4	3.8	4.1	3.3	2.8	3.7	3.4	3.8	3.7	4.1
m	1.1	0.8	1.0	1.0	2.1	1.8	1.3	0.5	1.0	0.5	0.8	2.2
4	19.8	24.6	26.5	25.6	25.6	20.0	26.0	22.4	25.6	27.2	24.1	20.0
£	13.2	13.2	12.5	11.6	12.8	10.3	12.5	14.8	11.6	11.5	10.0	12.6
9	35.7	36.2	31.0	34.4	34.6	35.0	32.1	32.0	31.8	31.7	35.0	34.1
7	13.2	10.8	14.0	12.4	12.1	15.8	12.2	14.8	13.2	13.1	13.6	14.0
8	۲.٦	6.1	5.9	6.3	5.1	8.8	8.7	7.9	8.0	7.2	7.0	8.7
6	0.2	0.8	0.5	0.5	0.0	0.3	0.3	0.2	0.0	0.7	0.2	0.0
01	0.2	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.2	0.7	0.2	0.2
11	4.8	4.2	3.9	4.3	3.3	5.0	3.8	3.4	0.2	3.6	4.3	4.1
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- 2. By observing a person's verbal behavior a profile of the individual's teaching style can be studied.
- 3. Feedback data from interaction analysis to the students resulted in a greater awareness to a larger variety of teaching behaviors and styles.

Summary

A total of ten studies have been reported that were concerned with interaction analysis and the music classroom. Two of these studies were directly related to the present investigation. Research outside of the field of music education that related to the problems of interaction analysis and teacher training was also reviewed.

⁷²Charles E. Hicks, "The Usability of the Rehearsal Interaction Observation System as a Training Instrument in Interaction Analysis for Prospective Instrumental Music Teachers," <u>Michigan</u> <u>Music Educator's Journal</u> (December, 1975), p. 25.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The purpose of this investigation was to gather and analyze data regarding the effects of instruction in the techniques of interaction analysis upon the verbal teaching behaviors of prospective public school music teachers studying conducting. The researcher hypothesized that conducting students who are trained in interaction analysis become more indirect in their teaching styles, more flexible in their attitudes toward experimental teaching methods and are consequently better able to use feedback from classroom observations in modifying their own teaching behaviors.

Sample

The students involved in the study were music education majors enrolled in music 335 (instrumental conducting), a required course for instrumental music educaton and music therapy majors at Michigan State University. Two sections of fifty-two students make up the experimental and control groups. Section A (N=27) was designated the control group and section B (N=25) was designated the experimental group. The total sample population was composed of students from two curricula areas with the department of music education. (Table 3.1 contains a distribution of the entire sample population.)

Curriculum	Section A (N=27)	Section B (N=25)
Music Education	18	17
Music Therapy	9	8
TOTAL	27	25

TABLE 3.1.--Composition of Sample Group by Curriculum.

The Data Gathering Instrument

The means for obtaining the data on the conducting student's verbal behaviors at the conclusion of the experimental period was the Rehearsal Interaction Observation System (RIOS), the same instrument used in the training of students in Section B. This eleven category system contains all forms of verbal behaviors present in rehearsal situations. The system is divided into three major divisions entitled the director's communication, student communication and any periods of silence and confusion. The director's communication is further subdivided into categories of supportive and non-supportive types of verbal behaviors. The individual categories within these major divisions were summed to provide three composite scores and student talk.

The Rehearsal Interaction Observation System consists of the following categories of verbal behaviors. The three major divisions are shown in Table 3.2.

As the conducting students and performance groups in both class sections were observed on videotape, the verbal interaction

.

Major	Division		Category	Description of Verbal Behavior
Teacher	Conductor Supportive Behavior	D I R E C T	1 2 3	Uses Encourages Questions
Talk	Conductor Nonsupportive Behavior	I N D I R E C T	4 5 6 7 8	Informs Demonstrates Directs Criticizes Corrects
Student Talk			9	Responds-Student Responds or questions structured by conductor
			10	Initiates-student initiates communication unstructured by conductor
			11	Silence or confusion-commu-
			(12)	Student performing

TABLE 3.2.--Three Major Divisions of the Rehearsal Interaction Observation System.

occurring was recorded each three seconds on a form designated as the RIOS sequence chart (see Appendix C). Because of the large amount of data collected and tedious process of tabulating, a revised RIOS sequence chart was constructed that could be scored electronically. This revised sequence chart expedited the process of data collection and provided weekly printouts for immediate feedback to each subject. The revised RIOS Sequence Chart is

.

presented in Appendix E. This information was entered in a matrix for tabulation and statistical treatment. The data was gathered from observations and codings performed by the researcher and an expert in the RIOS Technique. Each student's conducting performance of a junior high school group during the final week of the experimental period was analyzed.

Recording Data in a Matrix

This is a method of recording the sequence of events in the classroom in such a way that certain facts become readily apparent. The generalized sequence of the teacher-student interaction can be examined readily in this matrix. Table 3.3 shows the classification of the following sequence of numbers in a matrix form.

Tabulations are now made in the matrix to represent the pairs of numbers coded in the sequence chart. The first pair is 11-6; the second pair is 6-6; etc. The particular cell in which tabulation of the pair of numbers is made is determined by using the first number in the pair to indicate the row and the second

							C	olumn	1				
		1	2	3	4	5	6	7	8	9	10	11	Total
	1	1			1								2
	2			١									1
	3			1								۱	2
R	4									1			١
0	5												0
W	6	1					1	1					3
	7						1						1
	8												0
	9		١							1			2
	10												0
•	11						1						1
Тс	otal	12	1	2	1	0	3	۱	0	2	0	1	13

TABLE 3.3.--Sample Matrix Plot.

number in the pair for the column. Thus, 11-6 would be shown by a tally in the cell formed by row 11 and column 6. The second pair, 6-6 would be shown in the cell formed by row 6 and column 6. The third pair, 6-7, is entered into the cell, row 6 and column 7. Each pair of numbers overlaps with the previous pair, and each number except the first and the last, is used twice. This method permits the total of each column to equal the total of each corresponding row. Table 3.4 presents a completed sample RIOS Matrix and the procedure for computing the percentages of tallies in each

		Total	30 10 20 30 30 30 30 30 30	151		
action.	92nธตางจาก99 ค	Pref. 1				
n Intera	ro escence noisutnoj	11+ or 11-	~~~	e	2.0	1k 10 = 33 22%
lassroor	tnəbut? zətsitinI	10	~ ~	n	2.0	dent Ta umns 9- ÷ 151 =
cts of C	spuodsəX Student	6	2 1 26	30	30.0	<u>Stu</u> <u>Col</u> 33
ll Aspe	corrects	8	б г	10	6.5	
Genera	səzicitin)	7	r v	5	3.5	nfusior 3
ig Some	25091fD	9	53 2	55	36.5	<u>e or Co</u> 5 11 = 3 = 2%
Showir	2916712nom90	2	3 5	5	3.5	Silence Columns 151 ÷ 3
Analysis	2mrofnI	4	18	20	13.5	
Matrix	snoitseuQ	m	ω	10	6.5	= 135 76%
RIOS	saganoona	2	- s - s	7	4.5	er Talk 15 1-8 151 =
nulative	səsU	-	2 2 <u>ion</u> :	3	2.0	Teache Columr 115 ÷
TABLE 3.4Cun		,	Teacher Talk: 2 2 4 5 6 6 7 7 7 7 7 8 Student Talk: 9 11+ or 11- Perf. 1	TOTAL:	Percent	

2 ε u ¢ L 2 á DIDC ċ C

column. Procedure for compiling the percentages of tallies in each of the columns are as follows:

Divide each column total (1 through 11), by the total number of tallies in the matrix. This computation gives the proportion of the total number of tallies in the observed classroom situation found in each category. A similar procedure is used to determine the percentage of total teacher talk found in each category. This is done by dividing the total of each category, 1 through 8, by the sum of these eight categories. For example in Table 3.4, the teacher had 135 tallies in columns 1-8. If 10 tallies are in column 3, 10 is divided by 135, showing the amount of teacher talk in category 3 as being 13.5%. The pattern of interaction which the teacher has used with the class is now evident.

The total percentage of teacher talk is found by dividing the total number of tallies in columns 1 through 8 by the total number of tallies in the matrix. There are 151 tallies in the matrix, 115 of which are in columns 1-8. This teacher talked 76% of the total time of the observation. To find the percentage of student talk, the total number of tallies in columns 9 and 10 is divided by the total number of tallies in the matrix. Columns 9 and 10 contained 33 talies; the students talked 29% of the time. A total of 3 tallies in column 11, when divided by 151, shows that 2% of the time was spent in silence or confusion. Our next step will focus on the amount of indirect and direct (supportive

and nonsupportive) teacher statements. The total number of tallies in columns 1, 2, and 3 is divided by the total number of tallies in columns 4, 5, 6, 7, and 8 to find the ID Ratio or the ratio of indirect to direct teacher statements. According to Amidon and Flanders, an ID Ratio of 1.0 means that for every indirect statement there was one direct statement; an ID Ratio of 2.0 means for two indirect statements there was only one direct statement. etc. A close look at Table 3.4 reveals the pattern of interaction which the teacher has used with the class. The matrix provides the observer with a summary of the teacher-student interaction data. By studying the matrix the observer can now identify the cells which have heavy loadings of tallies as well as those that have no tallies at all. This awareness allows the individual to focus his attention to specific aspects of the teaching-learning process. A revised indirect/direct ratio can be computed also. The revised I/D ratio is concerned with motivation and control and less with actual subject matter. This ratio eliminates the effects of categories 3 and 4 (questioning and lecturing), and concentrates solely on categories 1, 2, 6, and 7. Using the information from Table 3.4 to compute the revised I/D ratio, the results are as follows:

Indirect (1-2) - Direct (6-7)

 $10 \div 60 = 0.17$

¹Edmund Amidon and Ned Flanders, "Interaction Analysis as a Feedback System," <u>Interaction Analysis: Theory, Research and Appli-</u> <u>cation</u>, ed. by Amidon and Hough (Reading, Mass.: Addison-Wesley Publishing Co., 1967), p. 132.

Attitudes Scales

Two attitude measurement scales were used in this study: one measuring attitudes toward traditional and progressive educational methods and one concerned with the relative openness or closedness of an individual's belief-disbelief system.

The Education Scale²

The Education scale was selected to measure attitude toward educational practices. This scale appears to measure attitude varying from very favorable toward progressive educational practices to very favorable toward traditional eductional practices. Corrected split-half reliabilities for the progressive scale ranged from .54 to .77. For the traditional scale, reliabilities ranged from .68 to .79. Total scale reliabilities ranged from .68 to .81.³ The Education scale has reasonably satisfactory estimates of reliability and validity, and the authors may be correct in stating that the scale can be used in both research and administrative situations.⁴

According to the authors, research indicates that:

²Marvin E. Shaw and Jack M. Wright, <u>Scales for the Measure-</u> <u>ment of Attitudes</u> (New York: McGraw-Hill Book Company, 1967), p. 83, citing <u>Educational</u> and <u>Psychological Measurement</u>, XIX, 1959, pp. 13-29.

> ³Ibid., p. 84. ⁴Ibid.

Attitudes of teachers toward children and schoolwork can be measured with a high reliability, and that they are significantly correlated with the teacher-pupil relations found in the teachers' classrooms. 5

The Dogmatism Scale⁶

This scale, developed by Milton Rokeach, is a device for measuring the relative openness or closedness of an individual's belief-disbelief system. A corrected split half reliability of .81 is claimed for form E of the D-scale. This reliability is considered to be quite satisfactory. The Dogmatism Scale contains a strange collection of items that cover a wide range and appear on the surface to be unrelated.⁷

The form E of the Dogmatism Scale underwent many stages of validation, both at Michigan State University and Ohio State University. At Ohio State reliability was obtained by a test-retest, with five to six months between tests. The reliability of .84 for the group was obtained in the same manner with at least a month between tests. ⁸ Dr. Rokeach was on the staff in the Department of Psychology at MSU during the norming of the data relative to forms A, B, and C of the Dogmatism Scale. At MSU, the normative data for form C-I and C-II showed the means and standard deviations to be almost identical.

⁷Ibid., p. 90. ⁸Ibid.

⁵Walter W. Cook, Carroll H. Leeds and Robert Callis, <u>Minne-sota Teacher Attitude Inventory</u> (New York: The Psychological Corporation, 1951).

⁶Milton Rokeach, <u>The Open and Closed Mind</u> (New York: Basic Books, 1960), pp. 71-89.

The reliabilities for those two tests showed .73 and .71, respectively. The final 40-item scale of form E was found to have a corrected reliability of .81 for the English College II sample and .78 for the English Eorkers sample. In other samples subsequently tested at MSU, Ohio State and VA Domiciliary showed the reliabilities ranged from .68 to .93.⁹

Procedures

The subjects were randomly assigned to one of two sections of the course. The control group (A) was taught by a professor in the department of Music Education at Michigan State University and the experimental group (B) was taught by the researcher. The control group studied the required conducting text and was subjected to the conventional method of teaching conducting. The emphasis of the instructional mode was on the technical and physical aspects of conducting. An additional ten hours of conducting experiences were added to the course requirements. The experimental group (B) used the required text, similar teaching methods and the course content of section A. Instead of the ten additional hours of conducting experience of section A, group B received ten additional hours in the theory, technique and application of interaction analysis.

Design

The basic research design of this study was the pretestpostest control group design. In this design, the equivalent groups are achieved by randomization. Stanley and Campbell suggested that

⁹Ibid., p. 89.

this design will control for all possible sources of internal and external invalidity.¹⁰ The paradigm for this design is:

R 01 X 02 R 03 04

A feature of the pretest-posttest control group design is that it provides for the control of all eight of the factors jeopardizing internal validity.¹¹

Analysis

The Univariate-Multivariate Analysis of Variance program by Jeremy D. Finn (1970)¹² was used for the statistical analysis in this experiment. The Finn program developed for use at the State University of New York at Buffalo, was modified for Michigan State CDC 3600 and 6500 computer systems by Dave Wright, Office of Research Consultation, Michigan State University.

Because of the small sample, some method of determining group equivalency was established. Two means widely used in interaction analysis research were employed. Form E of the Dogmatism Scale (D-scale) and the Education Scale were used as control measures. Both of these scales measure dimensions of attitude toward various educational practices and the relative openness/closedness of one's beliefdisbelief system.

¹⁰Donald T. Campbell and Julian C. Stanley, <u>Experimental and</u> <u>Quasi-Experimental Designs for Research</u> (Chicago: Rand McNally and Company, 1963), pp. 55-56.

¹²Jeremy D. Finn, "Multivariance," Version 4 (New York State University at Buffalo, Dept. of Educational Psychology, 1968). (Mimeographed.)

¹¹Ibid., p. 31.

The proposed statistical analysis required that the corresponding experimental and control groups both take a pre- and posttest attitude scale. The two treatment groups (interaction analysis and noninteraction analysis) will be termed RIOS and NON-RIOS.

Training Period

During the first week of the fall term, 1975, conducting students in the RIOS (experimental) group received instruction in the techniques of Interaction Analysis as outlined in the RIOS curriculum shown in Appendix G. An introduction to interaction analysis theory, background and the classroom interaction process was explained by the researcher. Selected reading materials were put on reserve for additional background reading in interaction analysis techniques. The second week of instruction consisted of study from the RIOS training manual. This process involved learning the categories and practice coding adhering to the three second time interval. A demonstration video tape was used to teach the recognition of behaviors in each of the eleven RIOS categories. As the subjects began to delinate the various categories, more in-depth study of coding procedures and matrix construction were included in each lesson. Video tapes were primarily used throughout the experimental period, but occasionally audio tapes were included.

To assist the group in perceiving the three second time span, an electronic signal to mark the three second time interval was used. This aid tended to enhance and facilitate the coding procedures.

Some secondary aspects of the training program for the RIOS group were included as part of the weekly discussion sessions. They were:

1. Experience in plotting a matrix.

Matrix construction began the fourth week of the training period. The subjects were required to code a five minute segment of a videotaped rehearsal and plot the results into the llxll RIOS matrix. This portion of the training continued into the nineth week culminiating in the subjects plotting a ten minute segment of a videotaped rehearsal. The results indicated that the student's knowledge of teaching styles, flow of verbal interaction and machanics of matrix construction was enhanced.

2. Experience in computing and interpreting the meaning of direct-indirect ratio and student-teacher ratio.

During the construction of matrices the subjects were made aware of the direct-indirect ratio and student-teacher ratio but because of time limitations, no specific exercises were devoted to finding these various ratios.

3. Experience in reading and interpreting the meaning of cell loadings in major areas of the matrix.

In the discussion phrase of the weekly training session the subjects were asked to identify the four selected areas of the matrix. They observed heavy loadings in the 4-6 cell of the matrix meaning that teacher talk was for a prolonged period. A large number of tallies in categories 4, 5, 6, 7 and 8 suggested a heavy focus on the teacher's use of authority.

The RIOS curriculum in (Appendix G) reflected some of the necessary information required in learning and using the RIOS technique effectively in a rehearsal teaching situation. The idea of feedback was necessary in helping young teacher become aware of their behavior and was stressed throughout the entire training program.

Week five through eight followed the same format as the preceeding four, except each coding session gradually increased from five minutes in length. During the nineth week, both the experimental and control groups participated in a live conducting experience in the public systems adjacent to the Michigan State University Community. Each student spent ten minutes rehearsing and teaching a junior high public school band. Students in both groups were coded by the researcher and an expert in the RIOS technique. The final week's activities consisted of an open discussion of the entire training period and practice coding of a thirty minute audio tape.

The posttest attitude scales were readministered and the final observer agreement test was given to the experimental group using a thirty-five minute video tape of a public school orchestra rehearsal.

Summary

At the end of the experimental period, the two attitude scales--Dogmatism Scale and the Education Scale--were administered to the total sample population. The Hoyt Analysis of Variance and the Finn Multivariate analysis were the statistical tests used in testing the null hypotheses.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this chapter is to present the analysis of the data obtained from the study. These data form the basis for testing the hypotheses set forth in Chapter I.

The total sample population consisted of fifty-two students (N = 52) studying instrumental conducting. These subjects came from two basic curricula areas within the department of music education. Thirty-five (35) of these subjects were majoring in instrumental music education and seventeen (17) were majoring in music education-therapy, a combined five year degree program.

Pretest Data

Descriptive data for the sample on the Dogmatism and Education scales are presented in Table 4.1. No appreciable differences are found in either central tendency or variability between the experimental and control groups on the Dogmatism scale. While some difference is noted in both the mean and variance of the Education scale it was not found to be significant. These data confirmed that no significant differences were found between groups before the application of the experimental treatment.

Table 4.2 shows the cumulative grade point average and amount of conducting experience for both the experimental and control groups.

Control	RIOS Grou	ıp (N=25)	NON-RIOS G	roup (N=27)
Variables	X	S.D.	X	S.D.
Dogmatism Scale	77.160	9.551	77.551	10.493
Education Scale	36.800	10.271	33.407	7.657

TABLE 4.1.--Pretest Means and Standard Deviations for the Experimental and Control Groups on the Two Attitude Scales.

TABLE 4.2.--A Comparison of the RIOS and NON-RIOS Group for Equivalency.

	RIOS Gro	oup (N=25)	NON RIOS	Group (N=27)
Cumulative Grade Point Average	2	2.05	:	3.10
	Yes	No	Yes	No
Previous Conducting Experience*	7	18	7	20

Conducting experience ranges from one term to one year.

Again, no statistically significant difference was found between the groups on either of these variables. These data confirmed the fact that the groups were essentially the same on two variables thought to be important to the study.

Table 4.3 presents descriptive data of the results (posttest) for the experimental and control groups on the Dogmatism and Education scales. A comparison with pretest scores indicates both shifts in central tendency and variance. Of particular note, perhaps, is the increase in variability on Dogmatism for both groups. The lower

Control	RIOS Grou	p (N=25)	NON RIOS G	roup (N=27)
Variables	X	S.D.	x	S.D.
Dogmatism Scale	69.593	11.081	72.960	11.319
Education Scale	33.960	8.965	31.593	7.094

TABLE 4.3.--Posttest Means and Standard Deviations for the Experimental and Control Group on the Two Attitude Scales.

mean scores on Dogmatism indicate a greater degree of openmindedness evident in both the experimental and control groups, but to a greater degree in the experimental group. More detailed analysis of these data will be presented in a later section of this chapter.

Posttest Data on Conducting Behavior

Table 4.4 presents the frequency data for the experimental and control groups of verbal conducting behavior. The table includes the category of behavior and the number of tallies for each group. The table also contains the calculation of the I/D (Indirect Ratio) and S/T (Student/Teacher Ratio) for the two groups. The ratios appear as percentages of total verbal behavior during the test period.

Observer Agreement

A test was administered to the RIOS group to obtain an estimate of observer agreement during the final week of the experimental

	RIOS Conductors (N=25)	NON-RIOS Condu (N=25)	ctors
Category	Tallies	Category	Tallies
ı	33	1	18
2	83 .	2	67
3	86	3	62
4	465	4	479
5	147	5	192
6	1096	6	1087
7	45	7	87
8	89	8	158
9	76	9	21
10	77	10	28
11	162	11	196
Totals	2299	Totals	2395
I/D matio_c	1,2,3	I/D matio_catogonio	1,2,3
1/D Tatto-c	4,5,6,7,8	ind ratio-categories	4,5,6,7,8
33+83+	86 202	18+67+62	147
465+147+109	6+45+89 1842	479+192+1087+87+158	2003
C/T vetic c	9,10	S/T matic catogon	9,10
5/1 ratio-c	1,2,3,4,5,6,7	,8	1,2,3,4,5,6,7
	76+77	21+28	
33+83+86+46	= 5+147+1096+45+89	18+67+62+479+192+	=
158	_	89	
<u> </u>	<u>7</u>	$\frac{1}{2150} = 0.041$	

TABLE 4.4.--Frequency and Percent of Use of Each Category of 11-Category System with Calculated I/D and S/T Ratios. period. The final agreement test consisted of viewing and coding a thirty-five (35) minute video tape of portions of school orchestra and band rehearsals. All subjects used the revised RIOS sequence chart for their codings. The data collected from the final observer agreement test were analyzed using a FORTRAN IV program.¹

Hoyt has shown that reliability estimates can be obtained from analysis of variance computations. While there seems to be no difference in this concept as applied to ratings, observations or to test scores, there is a difference in the data on which the computations must be based. The rationale for this formula will illustrate its application and why the results do not agree completely with those from other procedures intended to serve the same purpose. This procedure is explained in a recent article by Ebel.²

Results

Reliability computations were used with only the experimental groups; in computing the reliability estimate for the twenty-five (25) subjects in the group, the intraclass formula was used. This formula has the following advantages:

1. It uses the routine computational procedures of repeated measures analysis of variance.

¹Gali Edon, "ANOVA: A FORTRAN IV to Perform N-Way Analysis of Variance," <u>Occasional Paper 27</u> (Office of Research Consultation, College of Education, Michigan State University, May 20, 1976).

²Robert Ebel, "Estimation of the Reliability of Ratings," <u>Principles of Educational and Psychological Measurement</u>, ed. by William A. Mehrehs and Robert L. Ebel (Chicago, Illinois: Rand McNally Company, 1967), pp. 116-131.

- 2. It permits the investigator to choose whether to include or exclude the "between raters" variance as part of the error variance, in terms of the circumstances.
- 3. It is possible to estimate the precision of the reliability coefficient using Jackson and Ferguson's sensitivity coefficient.³

The Jackson and Jerguson sensitivity coefficient is useful in judging the adequacy of the sample and the confidence which can be placed in the obtained estimate.

Analysis of variance for the twenty-five (25) subjects of the experimental group shows a reliability coefficient of r = .943 (between individual observers), and a reliability coefficient of r = .812 (for the average observations). Using the .05 confidence limits for the reliability coefficient of the total population of observers the limits are from .873 to .968. Considering this, the obtained sample value, r = .94, falls well within tolerable limits, thus indicating the estimate to be reliable. Flanders states that a coefficient of .85 or higher is an acceptable level of performance in coding classroom interaction.⁴ Table 4.5 presents the analysis of variance for reliability for the twenty-five (25) student conductors of the experimental group.

The means for obtaining the data on the conducting student's verbal behaviors at the conclusion of the experimental period was Rehearsal Interaction Observation System (RIOS), the same instrument

³Robert W. B. Jackson and George A Ferguson, <u>Studies on the</u> <u>Reliability of Tests</u> (Tortonto, Canada: University of Toronto Press, 1941), pp. 40-51.

⁴Ned A. Flanders, "The Problems of Observer Training and Reliability," Maidon and Hough, <u>op</u>. <u>cit</u>., pp. 161-162.

Source of Variation	Reduced Sum of Squares	Degrees of Freedom	Mean Square
Grand Mean	20838.334	1	20838.333633
Total	50928.236	299	170.328550
v	48164.556	11	4378.595961
S	.031	24	.001272
S	2763.650	264	10.468372

TABLE 4.5.--An ANOVA Reliability Estimate for the RIOS Conductors on a 35 Minute Video Tape Test of Observer Agreement (N=25).

The Intraclass reliability formula = $\frac{MSV - MS \text{ error}}{MSV + df(A) = MS \text{ error}}$ $r = \frac{4378.595 - 10.468}{4379.595 + 24 \times 10.468} = \frac{4368.128}{4629.828} = 0.9435$ reliability of average = $\frac{4378.595 - 10.468}{5378.595} = 0.812$

.

used in the training of the experimental group. The eleven category system contains all forms of verbal behavior present in rehearsal situations. The sytem focuses on three aspects of the rehearsal: the director's communication, student communication and any periods of silence or confusion. The director's communication is further divided into two classes: (1) categories 1, 2 and 3 represent the indirect or supportive behaviors, and (2) categories 4, 5, 6, 7, and 8 represent the direct or nonsupportive behaviors. Categories 9 and 10 represent student behavior and category 11 represents periods of silence or confusion. For the purposes of this research only the above mentioned verbal behaviors were studied. The individual categories within the major divisions were summed to give four composite scores: (1) Direct Teacher Talk (Nonsupportive), (2) Indirect Teacher Talk (Supportive), (3) Student Talk, and (4) Silence or Confusion.

Table 4.6 presents the data for the four selected divisions of verbal behavior although only the first three were used in the data analysis.

Divisions of Verbal Behavior	Sec NON-RIOS (N	tion A Conductors = 24)	Sect RIOS Co (N	ion B nductors = 24)
	X	S.D.	T	S.D.
Teacher Talk				
Supportive Behavior (Categories 1, 2, 3)	8.4	2.9	6.1	2.4
Non-supportive Behavior (Categories 4, 5, 6, 7, 8)	73.2	8.5	73.8	8.6
<u>Student Talk</u> (Categories 9, 10)	6.4	2.5	3.7	8.6
Silence of Confusion (Category 11)	6.7	2.5 (not a part	8.2 of the stu	2.9 dy)

TABLE 4.6.--A Comparison of NON-RIOS Trained Conducting Students and RIOS Trained Conducting Students on the Frequency of Three Selected Divisions of Verbal Behaviors.

As the conducting students and performance groups in both sections were observed in a ten minute rehearsal segment, the verbal interaction occurring was recorded each three seconds on the revised sequence chart. These data were entered on a composite table for tabulation and statistical treatment.

To test the effect of the four selected divisions of verbal behavior and the data concerning the attitude scales, the raw data were summed for each of the eleven categories and the pre- and posttest scores on the two attitude scales and subjected to a multivariate analysis using a repeated measures design. For this analysis, both the experimental and control group had to contain an even number of subjects. The necessary number of subjects was eliminated from both groups by random selection.

Perhaps the most important forms of statistical analysis, especially at the present stage of development of the behavioral sciences and education, are multivariate analysis and factor analysis.⁵ Because of the many dimensions of analysis afforded by multivariate techniques, the researcher is able to observe many aspects of the same problem under study as well as other cause-and-effect relationships.

Hypotheses

This study tested seventeen hypotheses. Data were arranged according to the statistical design presented in Table 4.7.

The statistical data in Table 4.8 reveal significant differences for the main effect by groups and main effect of Dogmatism (to be expected because of dichotomization). The remaining side effects and interactions reported reveal no significant F ratios. In

⁵Fred N. Kerlinger, <u>Foundations of Behavioral Research</u>, 2nd ed. (New York: Holt, Rinehart and Winston, Inc., 1973), pp. 149-151.



TABLE 4.7.--Statistical Design.

Category B = Non-supportive Behavior (sum of RIOS categories 4,5,6,7,8). Category C = Student Behavior (sum of RIOS categories 9, 10)

Sources of Variance (over measures)	d.f.	Mean Square	Multivariate F	Ρ	
Groups	1	33574601.6719	36783.9642	.0001	
High and Low Dogmatism	1	75565.0052	82.7882	.0001	
High and Low Education	1	178.2552	.1953	.6610	
Groups by Dogmatism	1	344.0052	. 3769	.5428	
Groups by Education	1	178.2552	.1953	.6610	
Dogmatism by Education	1	159.5052	.1748	.6782	
Groups by Dogmatism and Education	1	115.6302	.1267	.7238	
Error term	40	912.751044			

TABLE 4.8.--ANOVA of Verbal Behavior by Categories, Groups and Attitude Variables.

accordance with standard research reporting procedure, the hypotheses tested by this computation follow with the appropriate decision to accept or reject.

> <u>Hypothesis I</u>: There is no significant difference between the verbal teaching behaviors of the experimental and control groups.

The hypothesis was rejected.
<u>Hypothesis II</u>: There is no significant difference between the Dogmatism levels of the RIOS and NON-RIOS conductors.

The hypothesis was rejected.

<u>Hypothesis III</u>: There is no significant difference between the attitudes of the RIOS and NON-RIOS conductors with respect to a preference for either progressive or traditional educational methods.

The hypothesis was accepted.

<u>Hypothesis IV</u>: There is no significant interaction between the RIOS and NON-RIOS conductors and Dogmatism.

The hypothesis was accepted.

<u>Hypothesis V:</u> There is no significant interaction between RIOS and NON-RIOS conductors and Education.

The hypothesis was accepted.

<u>Hypothesis VI</u>: There is no significant interaction between Dogmatism and Education of RIOS and NON-RIOS conductors.

The hypothesis was accepted.

<u>Hypothesis VII</u>: There is no significant interaction between the Groups by Dogmatism and Education of RIOS and NON-RIOS trained conductors.

The hypothesis was accepted.

Table 4.9 presents a multivariate analysis between experimental and control groups of specific levels of verbal conducting behavior. The category variables of Dogmatism and Education again are presented with this greater detailed analysis by category of supportive, nonsupportive and student behavior.

The statistical information in Table 4.9 reveals the same pattern of significances as the earlier analysis. Again, as would be expected, the groups differ in verbal behavior, but the

Source of Variance (over measures)	d.f.		Mean Square	Multivariate F	Р
Categories ^a (a, b, c)	1	a. b. c.	62897740.3403 220167625.3472 3239880.1667	43019.4431 7353.1641 33.2662	.0001 .0001 .0001
Categories by Groups	1	a. b. c.	31778623.7942 25684601.5513 10621126.3446	2173.5268 857.8150 1090.5449	.0001 .0001 .0001
Categories by Dogmatism	1	a. b. c.	12.1203 1049.9637 503329.5938	.0008 .0351 5.1680	.9772 .8525 .0285
Categories by Education	1	a. b. c.	10968.9777 35963.6501 76967.6754	.7502 1.2011 .7903	.3916 .2797 .3794
Categories by Groups and Dogmatism	1	a. b. c.	17825.1091 56486.5587 169444.6435	1.2192 1.8865 1.7398	.2762 .1773 .1947
Categories by Groups and Education	1	a. b. c.	29882.1530 37726.2790 69596.6761	2.0438 1.2600 .7146	.1606 .2684 .4030
Categories by Dogmatism and Education	1	a. b. c.	31000.0253 81750.4970 91567.7286	2.1203 2.7303 .9402	.1532 .1063 .3381
Categories by Groups by Dogmatism and Education	I	a. b. c.	23395.5730 31637.9103 121758.2149	1.6002 1.0566 1.2502	.2133 .3102 .2702
Error Term	40	a. b. c.	14620.764342 29941.889398 97392.623909		

TABLE	4.	9Multivariate	ANOVA	of \	/erbal	Behavior	by	Categories,
		Groups	s and l	Attit	tude Va	ariables.		

^aCategory A = Supportive Behavior (Sum of RIOS categories 1, 2, 3). Category B = Non-supportive Behavior (Sum of RIOS categories 4, 5, 6, 7, 8). Category C = Student Behavior (Sum of RIOS categories 9, 10). differences between and within groups decrease according to categories A (Supportive), B (Nonsupportive), and C (Student Behavior). The test for significant interactions between categories by groups also reveals significances of interest, indicating unique effects between behavior category and group membership. One other significant F ratio should be noted. Category C (Student Behavior) when tested with Dogmatism for unique interaction reveals a relationship between the amount of student behavior and the level of openmindedness as masured by the Rokeach Scale (F = 5.160, p < .02). Again, each hypothesis is reported with its decision on the basis of the multivate analysis in this table.

<u>Hypothesis VIII</u>: There is no significant difference between direct teacher talk of RIOS trained conductors and NON-RIOS trained conductors.

The hypothesis was rejected.

<u>Hypothisis IX</u>: There is no significant difference between the indirect teacher talk of the RIOS trained conductors and the NON-RIOS trained conductors.

The hypothesis was rejected.

<u>Hypothesis X</u>: There is no significant difference in the student talk in the rehearsals led by RIOS trained conductors and NON-RIOS trained conductors.

The hypothesis was rejected.

<u>Hypothesis XI</u>: There is no significant difference between the three selected divisions of verbal behavior and of the RIOS and NON-RIOS conductors.

The hypothesis was rejected.

<u>Hypothesis XII</u>: There is no significant interaction between the three selected divisions of verbal behavior and Dogmatism of the RIOS and NON-RIOS conductors.

The hypothesis was accepted.

<u>Hypothesis XIII</u>: There is no significant interaction between the three selected divisions of verbal behavior and Education of the RIOS and NON-RIOS conductors.

The hypothesis was accepted.

<u>Hypothesis XIV</u>: There is no significant interaction between the three selected divisions of verbal behavior and groups by Dogmatism of RIOS and NON-RIOS conductors.

The hypothesis was accepted.

<u>Hypothesis XV</u>: There is no significant interaction between the three selected divisions of verbal behavior and of groups by Education of RIOS and NON-RIOS conductors.

The hypothesis was accepted.

<u>Hypothesis XVI</u>: There is no significant interaction between the three selected divisions of verbal behavior by groups, Dogmatism and Education.

The hypothesis was accepted.

<u>Hypothesis XVII</u>: There is no significant interaction between the three selected divisions of verbal behavior by categories, by groups, by Dogmatism and Education.

The hypothesis was accepted.

The final statistical treatment of the variables in this study is contained in Table 4.10. While one statistically significant correlation appears between Grade Point and Dogmatism (-.36), there is no evidence of any other significant relationships among the variables.

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Post Education Score					0645	.1636	
Pre Education Score				.4156	1346	.1954	
Post Dogmatism Post Dogmatism			.1076	.1368	3564	.1533	
Pre Dogmatism Score		.2928	.0271	1368	3662 ^a	0270	
	Pre Dogmatism Scale	Post Dogmatism Score	Pre Education Score	Post Education Score	Grade Point Average	Verbal Behavior	

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study investigated the effects of interaction analysis training on the verbal teaching behaviors and attitudes of prospective instrumental music teachers. The purpose was to collect and analyze data regarding the use of interaction analysis instruction and its effects upon university conducting students' verbal teaching behaviors and attitudes.

A survey of literature related to Interaction Analysis have cited attempts by educators to focus attention upon objective measurement of classroom behavior. With the development of Withall's Climate Index, researchers in the field of education found that this instrument was capable of measuring the Social-Emotional Climate of a classroom. Nearly all of the research using interaction analysis techniques conclusions were consistent. Most of the studies concerning interaction analysis and music education were primarily concerned with the technique's effectiveness in providing objective measurements of the teaching-learning process and the application of this information to the training of prospective teachers.

From the studies reviewed, the following conclusions seemed to have emerged. They are:

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- 1. Teaching behaviors that are democratic, integrative, or indirect provide a better classroom atmosphere.
- 2. The direct or inflexible teacher's classroom is generally characterized by less positive student attitudes.
- 3. Interaction analysis training tends to produce more positive teacher attitudes.
- 4. Teachers rated "superior" or "above average" by supervisors or administrators have more flexible and indirect teaching behaviors.

The evidence indicates that the indirect style of teaching is the most desirable mode of instruction, but a flexible teaching style of instruction can be just as effective, as determined by the particular classroom situation.

Fifty-two instrumental music education majors of Michigan State University were randomly assigned to experimental and control groups. The independent variable was tested using the verbal behavior of the two groups on a ten-minute segment of in-school conducting of Junior High and High School groups. The independent variables were tested on both pre- and post-test by (1) Dogmatism Scale, (2) Education Scale, and (3) a test to measure the various sections of the RIOS System.

For a minimum of ten weeks, experimental and control groups received instruction in the same conducting experience, concepts and activities at approximately the same time. The presence or absence or interaction analysis was the only difference between the groups. The experimental group used interaction analysis in learning the fundamentals of conducting and rehearsal teaching, while the control group used the traditional materials and methods of teaching conducting.

The Hoyt Analysis of Variance and Finn Multivariate Analysis of Variance were the statistical tests used in testing the hypotheses.

Conclusions

The conclusions from this study apply only to the sample from which the data were collected. The data analysis techniques used in the study tested seventeen hypotheses relating to main effects and interactions among the several dependent and independent variables. A summary of the restuls of hypothesis testing is contained in Table 5.1.

Based on the results of this study, the following conclusions can be admitted. This presentation will follow the order presented in Table 5.1. Discussion will be limited to those hypotheses that were rejected. (F ratios for all hypotheses are contained in Tables 4.8 and 4.9.)

H₀1: There is no significant difference between conducting students trained in interaction analysis and those not trained in the amount of verbal talk.

The first hypothesis was rejected at the .0001 confidence level. This finding indicates that it is in fact true, that training in Verbal Conducting Behaviors by means of the RIOS technique does result in differences beyond the chance level. Therefore, it is possible to teach more appropriate conducting behavior within the regular conducting class.

TABLE 5.1.--Summary of Null Hypotheses Findings.

Hypoth	Hypothesis Decisio		
H ₀ 1:	No difference between experimental/control group in the amount of verbal teacher talk.	Rejected .0001	
H ₀ 2:	No difference between the Dogmatism levels of RIOS and NON-RIOS conductors.	Rejected .0001	
н ₀ з:	No difference in attitudes of the RIOS, NON-RIOS, conductors with respect to a preference for pro- gressive or traditional Educational methods.	Accepted	
H ₀ 4:	No interaction between the two groups and Dog- matism.	Accepted	
H ₀ 5:	No interaction between RIOS and NON-RIOS con- ductors and Education.	Accepted	
H ₀ 6:	No interaction between Dogmatism and Education of RIOS and NON-RIOS conductors.	Accepted	
H ₀ 7:	No interaction between the groups, Dogmatism and Education of RIOS and NON-RIOS conductors.	Accepted	
H ₀ 8:	No difference between the direct teacher talk of RIOS and NON-RIOS conductors.	Rejected .0001	
н ₀ 9:	No difference between the indirect teacher talk of RIOS and NON-RIOS conductors.	Rejected .0001	
H ₀ 10:	No difference between the student talk of RIOS and NON-RIOS conductors.	Rejected .0001	
н ₀ 11:	No interaction between the three selected divisions of verbal behavior of RIOS and NON- RIOS conductors.	Rejected .0001	
H ₀ 12:	No interaction between the three selected divisions of verbal behavior and Dogmatism of RIOS and NON-RIOS conductors.	Accepted	
H ₀ 13:	No interaction between three selected divisions of verbal behavior and Education of RIOS and NON-RIOS conductors.	Accepted	
H ₀ 14:	No interaction between three selected divisions of verbal behavior and groups by Dogmatism of RIOS and NON-RIOS conductors.	Accepted	

TABLE 5.1.--Continued.

Hypoth	Decision	
H ₀ 15:	No interaction between three selected divisions of verbal behavior and groups by Education of RIOS and NON-RIOS conductors.	Accepted
H ₀ 16:	No interaction between three selected divisions of verbal behavior by Dogmatism and Education of RIOS and NON-RIOS conductors.	Accepted
H ₀ 17:	No interaction between three selected divisions of verbal behavior by categories, groups, Dog- matism and Education of RIOS and NON-RIOS conductors.	Accepted

H₀2: There is no significant difference between the Dogmatism levels of the RIOS trained and NON-RIOS trained conductors.

The second hypothesis was rejected at the .0001 confidence level. This finding indicates a difference in openmindedness between the RIOS and NON-RIOS conductors. Since no statistical differences existed at the time of the pretest, it is safe to conclude that these differences are in part due to the RIOS training experience. RIOS training does, in fact, cause the student to be more introspective and sensitive to his effect on other people, therefore bringing about change in basic beliefs.

H₀3: There is no significant difference in attitudes of the RIOS and NON-RIOS conductors with respect to a preference for progressive or traditional educa-tional methods.

The third hypothesis was accepted.

H₀4: There is no significant interaction between the two groups and the Dogmatism level of the RIOS and NON-RIOS conductors.

Hypothesis number four was accepted.

H₀5: There is no significant interaction between the RIOS and NON-RIOS conductors and the Education Scale scores.

The fifth hypothesis was accepted.

H₀6: There is no significant interaction between the Dogmatism and Education of the RIOS and NON-RIOS conductors.

Hypothesis number six was accepted.

H₀7: There is no significant interaction between the groups, Dogmatism and Education of RIOS and NON-RIOS conductors.

Hypothesis number seven was accepted.

 H_0^{0} : There is no significant difference between the amount of direct verbal teacher talk of the RIOS and NON-RIOS conductors.

Hypothesis number eight was rejected at the .0001 confidence level. A multivariate F test was performed on three test variables and the interactions between the variables. These included the conductor's supportive behavior, the nonsupportive behavior and the student behavior. Table 4.9 contains the results of the multivariate analysis. Null hypothesis 8 was rejected at the .001 level of significance indicating that there was a difference in the amount of direct teacher talk of conducting students not trained in this technique.

 H_09 : There is no significant difference between the amount of indirect verbal teacher talk of the RIOS and NON-RIOS conductors.

Null hypothesis number 9 was rejected at the .0001 level of significance indicating that there was no difference in the amount of indirect teacher talk of conducting students trained in interaction analysis and those not recéiving the training.

H₀10: There is no significant difference between the student talk in rehearsals led by RIOS and NON-RIOS conductors.

Hypothesis number 10 was rejected at the .0001 level of significance indicating that a difference does exist in the amount of student talk in rehearsals led by conducting students trained in the technique of interaction analysis and those conducting students not so trained.

H₀11: There is no interaction between the three selected divisions of verbal behavior of RIOS and NON-RIOS conductors.

The eleventh hypothesis was rejected at the .0001 level of significance. This finding is in keeping with the last three rejections since it represents data that are summative from the last three hypotheses. It is clear that the RIOS training experience does significantly affect the verbal conducting/rehearsal behavior of these young conductors.

H₀12: There is no significant interaction between the three selected divisions of verbal behavior and Dogmatism of the RIOS and NON-RIOS conductors.

Hypothesis twelve was accepted.

H₀13: There is no significant interaction between the three selected divisions of verbal behavior and Education of the RIOS and NON-RIOS conductors.

Hypothesis number thirteen was accepted.

H₀14: There is no significant interaction between the three selected divisions of verbal behavior and groups by Dogmatism of the RIOS and NON-RIOS conductors.

Hypothesis fourteen was accepted.

H₀15: There is no significant interaction between the three selected divisions of verbal behavior and groups by Education of the RIOS and NON-RIOS conductors.

Hypothesis number fifteen was accepted.

H₀16: There is no significant interaction between the three selected divisions of verbal behavior by groups, Dogmatism and Education of the RIOS and NON-RIOS conductors.

Hypothesis sixteen was accepted.

H₀17: There is no significant interaction between the three selected divisions of verbal behavior by categories, groups, Dogmatism and Education of the RIOS and NON-RIOS conductors.

Hypothesis number seventeen was accepted.

Discussion

Consistent with the results of many studies in fields other than music education, data presented in the findings of this study indicate a clear trend with respect to differences in types of verbal teaching behaviors used by students trained in interaction analysis and those not so trained. With two groups of conducting students reasonably equal in receptiveness and empathic relationships with students, those trained in interaction analysis by the use of the Rehearsal Interaction Observation System used more indirect verbal behaviors and less direct or teacher-centered behaviors in their rehearsals. In addition, there was more student-initiated talk in rehearsals conducted by RIOS-trained conductors. From a statistical point of view this study added to the body of new information in the field of interaction analysis and teacher training. In addition to the statistical results there were many questions raised and answered.

Those NON-RIOS conductors spending a higher percentage of rehearsal time in category 11 (silence or confusion) tend to use a very low percentage of time in categories 1, 2 and 3 (conductor's supportive behaviors) and consequently more time in student initiated behaviors. Those conductors not trained by the RIOS technique spending less than 40% of the rehearsal in category 12 (performing) generally spent more than 30 to 40% in categories 4 and 6 combined. These same conductors also spend less than 1% in category 1. The data on both groups revealed that a larger amount of rehearsal time spent in category 11 (silence/confusion) tended to be counterproductive in that it reveals a lack of preparation and organization on the part of a teacher and raises many questions in the minds of his students about that teacher's ability to perform his/ her responsibility adequately. In examining the cumulative data from the RIOS conductors. it was observed that those student conductors spending a higher frequency of time in categories 1, 2 and 3 (supportive behaviors) were more aware of the teacher's indirect influence. The RIOS conductors as a whole were more consistent in their behaviors from category to category and displayed a greater balance between indirect and direct verbal statements. This suggests that interaction analysis had caused these conductors to be

more aware of the variety of behaviors involved in teaching. These outcomes were consistent with Bondi's findings.¹

The data involving the two attitude scales and factors concerned with dogmatism were not significant statistically, but with multivariate analysis capabilities we are able to gain insight into the complex problems of behavior. In a study by Ager² in which he attempted to test the validity of the Dogmatism scale, he supported some of the research with the D-Scale reported by Rokeach. These findings were as follows:

- 1. High dogmatism restricts synthetic thinking more than it restricts analytic thinking. Synthetic thinking is a type of creativity.
- 2. High dogmatism is related to anxiety.
- 3. High dogmatic subjects reveal a greater need for closure than low dogmatic subjects.

Research using interaction analysis seems to indicate that teachers rated as superior by administrators and teachers whose pupils possess more favorable attitudes toward school and achieve more tend to be more indirect and less direct verbally, have greater

¹Joseph C. Bondi, "Feedback from Interaction Analysis: Some Implications for the Improvement of Teaching," <u>Journal of Teacher</u> Education, XXI, No. 2 (Summer 1970), p. 189.

²Merlin Ager, "Dogmatism and the Verbal Behavior of Student Teachers," <u>Journal of Teacher Education</u>, XXI (Summer 1970), pp. 179-183.

³Milton Rokeach, <u>The Open and Closed Mind: Investigations</u> <u>into the Nature of Belief Systems and Personality Systems</u> (New York: Basic Books, 1960).

amounts of pupil participation and are more flexible in their use of verbal behavior.⁴

From a statistical viewpoint, the only measure of verbal behavior that related to dogmatism was the factors of low dogmatism and a higher percentage of verbal behavior in category 2 (Encourages). It could be concluded that there is a positive correlation between open mindedness and the use of indirect behaviors. These findings are also consistent with the findings of Ager's study. He states:

If the assumption is safe the superior teachers tend to use indirect verbal behavior more frequently than do inferior teachers, producing more learning, and if the further assumption is safe that open-minded persons tend to use indirect behaviors more than closed minded, the D-Scale may have at least as much predictive validity as college achievement. At any rate, the results were impressive enough to warrant further study of the Dogmatism Scale as a predictor of teaching behavior. The results might argue for the teaching of open-mindedness in teacher education programs.⁵

As with any research endeavor, there were problems encountered. A problem existed with the quality of the videotapes. Many of the tapes were recorded with only one microphone (conductor's) which made it difficult to hear the students' questions and responses. During the loud passages in the musical performance there was no chance of hearing the conductor's statements during these instances.

⁵Merlin Ager, <u>op</u>. <u>cit</u>., pp. 182-183.

⁴Edmund Amidon and Michael Giammetteo, "The Verbal Behavior of Superior Teachers," <u>Elementary School Journal</u>, LXV (February 1965), pp. 283-285.

The second problem was that of training procedures. The schedule did allow for review of the prior week's activities but there was not enough time for adequate discussion. There should have been one period set aside specifically for questions and problems.

After the multivariate analysis was completed a Pearson Product Correlation was performed to determine the relationship between any of the sixteen variables related to the verbal behavior discussed in the findings. An interesting aspect of the Correlational data not shown in Table 4.10 reveals a significant positive correlation between the three selected divisions of verbal behavior listed (conductor's supportive behavior, conductor's non-supportive behavior and student behavior) all maintain a relationship to each other, which supports the notion that a person's verbal behavior is indicative to his total behavior. On the basis of this finding a teacher's statements will reflect his/her style of teaching. In reality, teaching becomes a series of events or cycles, each occupying a small segment of time. The event of one moment tends to influence that which follows and, in turn, was influenced by the preceding event. These findings are consistent with those reported by Erbes and Hicks in which they found:

Many variations among the teachers' use of shifting behaviors were noted. Two common cycles of verbal behavior were consistent among many of the conductors studied. These cycles followed a directing, informing, performance mode and a criticizing, correcting, performance cycle.⁶

⁶Robert L. Erbes and Charles E. Hicks, "The Implementation of the Rehearsal Interaction Observation System in a Training Program," paper read before the Music Education Research Council, Atlantic City, New Mersey, March 1976.

Both of these cycles reflect primarily non-supportive behavior of the teacher/conductor while many other cycles consist of a combination of both supportive and non-supportive.

It is apparent that the conducting students trained in interaction analysis used verbal behaviors that have been found to be associated with higher pupil achievement and more positive attitudes toward school. As a result these findings are consistent with the belief that school instrumental music teachers should strive to create a climate for free student-teacher verbal interaction in the rehearsal setting.

To further enhance the training program, there should be some curriculum adjustments made to include the teaching of interaction analysis techniques as part of the regular conducting requirements for all students in conducting. The traditional teacher training process should be altered so that prospective teachers might be placed in contact with students in large group rehearsals before student teaching or during the term in which the methods course requirements are being fulfilled. It is also recommended that the use of videotapes in viewing experienced conductors become a part of the conducting course of study. Students may use these videotapes to work on special problems or as an aid in observation and coding their peers' rehearsal interaction.

Recommendations for Further Research

The findings from this study suggest the following recommendations:

1. A validity study of the Rehearsal Interaction Observation System be conducted by observing numerous experienced conductors (via videotape).

2. Further replication of this research be done both at Michigan State University and other teacher training institutions using the RIOS system and videotapes as a training technique for public school vocal music conductors.

3. A correlation study should be carried out involving various selected dimensions of verbal behavior, score reading (error detection) and interaction analysis training in order to find the possible relationship between each variable and teacher competency.

4. Student outcomes under conductors with varying interaction patterns should be studied.

5. Similar studies should be conducted in other areas of music, such as choral, small ensembles and possibly general music.

Finally, the conclusions of this study indicate that the observable aspects of large group music instruction can be altered through training. Therefore, prospective instrumental music teachers who become aware of their verbal teaching behaviors can benefit from Interaction Analysis and thus increase teaching efficiency and, hopefully, student achievement. BIBLIOGRAPHY

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APPENDICES

APPENDIX A

THE REHEARSAL INTERACTION

THE REHEARSAL INTERACTION OBSERVATION SYSTEM

Training Manual

Robert Erbes Michigan State University July, 1972

THE REHEARSAL INTERACTION OBSERVATION SYSTEM TRAINING MANUAL

I.

Rehearsal Interaction

The communication that exists between the director and students in the rehearsal of large musical organizations can take many forms. This vital aspect of the learning experience can be represented by the director's attempts to invoke a student response or it can be a result of communication received from the student. This communication, often referred to as teacher-student interaction, can be in the form of both verbal and nonverbal behaviors. Recent developments in educational research have produced a variety of interaction analysis systems for reporting and analyzing this aspect of teaching. The systems generally record the interaction by noting the frequency of the various teacher and student behaviors. The Rehearsal Interaction Observation System represents an instrument specifically designed for use in the field of music education. It is based on the prevalent forms of verbal and nonverbal interaction found in the rehearsals of large musical organizations.

Research has indicated that teacher-student interaction can have a bearing on the attitudes and emotional tone of the classroom. Teachers who are receptive to and encourage student communication tend to produce more positive student attitudes toward classroom content and the teacher himself.

Assumptions of Classroom Interaction

The development of the various interaction analysis systems has been based on the following assumptions:

- 1. A teacher's behavior can be considered consistent to a certain degree.
- 2. His verbal behavior is consistent with his total pattern of behavior.
- 3. The verbal behavior of teachers and student is the most important indicator of the emotional tone of the classroom.
- 4. The verbal behaviors of a teacher are observable, distinguishable, and classified qualitatively and quantitatively.

Objectives of the Manual

The system described in this manual will enable the teachertraining student or experienced teacher to objectively assess his teaching in terms of verbal and certain nonverbal forms of communication. The analysis can be made from audio or video tape recordings or from live rehearsal situations with the aid of a person trained in RIOS. The manual will list and describe the various categories into which all of the prevalent forms of verbal and nonverbal rehearsal communication can be placed.

Examples taken from actual rehearsal situations will illustrate these categories. The basic procedures and rules governing the use of the analysis system will also be explained. The methods for display and analysis of the data obtained from rehearsal observations will complete the manual.

II.

The RIOS Categories

RIOS focuses on three aspects of the rehearsal: the director's communication, student communication, and any periods of silence or confusion. The director's communication is further divided into two classes: that which supports or reinforces student ideas, performance, behavior, or feelings, and that which controls or is nonsupportive of these student responses. The complete categories are shown in Table I of this manual.

The categories within RIOS are described in the following manner:

Conductor Supportive Behavior

- <u>Uses</u>: The conductor responds to student ideas, performance, behavior, feelings, or emotions by (a) utilizing and/or expanding (b) summarizing (c) clarifying (3) repeating verbatim (e) accepting in a positive or negative nonthreatening manner these forms of student communi
 - cation. These forms of supportive behavior are often more subtle than Encourages (#2). This behavior will often shift to Informs (#4).
- 2. <u>Encourages</u>: The conductor responds to student ideas, performance, or behavior by direct encouragement, praise, or acceptance. By this behavior, the conductor indicates to the student that his form of communication is correct and should continue in the same manner. Short one or two word exclamations of encouragement that are a consistent part of a conductor's behavior can be coded by

	C	ategory Number	Category Description			
havior	ve	1.	<u>Uses</u> : Conductor uses, clarifies, or repeats ideas, performance, behavior, or feelings suggested by the students.			
	pporti	2.	Encourages: Conductor encourages, praises, or accepts student ideas, performance, or behavior.			
	Su	3.	<u>Questions</u> : Conductor questions with the intent that the student respond. Questions may also occur in other teacher categories.			
Conductor Be		4.	<u>Informs</u> : Conductor gives information, lectures, or states opinions based on his own ideas or those other than the students. Short responses to student questions and rhetorical questions are included in #4.			
	I-Supportive	5.	Demonstrates: A conductor demonstrates the manner in which an act is or should be performed or ac- complished. (Generally non-verbal in nature).*			
		6.	<u>Directs</u> : Conductor directs or commands student with intent that he comply.			
	Non	7.	<u>Criticizes</u> : Conductor criticizes, rejects, or challenges student ideas, performance, behavior, or feelings.			
		8.	<u>Corrects</u> : Conductor checks or corrects student ideas, performance or behavior in an obvious manner.			
-	ent /ior	9.	<u>Responds</u> : Student responds or questions in a manner structured by the conductor.			
	Stude Behav	10.	<u>Initiates</u> : Student initiates communication or questions in a manner unstructured by the conductor.			
		11.	Silence or Confusion: Periods in which verbal com- munication cannot be understood. Constructive periods should be indicated by 11+ and nonconstruc- tive periods by 11			
	$^{*}A$ Nonverbal Demonstration (x): When demonstration by the					

The Rehearsal Interaction Observation System

A Nonverbal Demonstration (x): When demonstration by the conductor or student is nonverbal in nature, an "x" code should be added to Category #5. Demonstration of this type is an extension of verbal categories and would include singing, whistling or other oral sounds, clapping, tapping, or playing an instrument to illustrate an idea or opinion.

•
a single #2 if the recorder can keep pace. If an extremely high amount of this behavior continues, it should not be coded.

3. <u>Questions</u>: The conductor questions or calls on students with the intent that they participate or respond. The nature of the questioning can be extensive or it may consist only of the name of the student he wishes to have respond. Conductor questions may also occur in any of the eight teacher categories. In these situations the question should be recorded in that particular category.

Conductor Nonsupportive Behavior

- 4. <u>Informs</u>: The conductor gives information, lectures, or states opinions based on his ideas or those other than the students. In rehearsal situations, this behavior generally takes the form of lecturing, indicating the manner in which the performance should be accomplished, administrative announcements, or statements of conductor feelings. Short responses, off-hand comments, and rhetorical questions should also be included in this category. Extended use of the other seven conductor categories often shift to this behavior.
- 5. <u>Demonstrates</u>: The conductor demonstrates the manner in which a performance should be or is accomplished. This demonstration is usually a nonverbal extension of verbal behavior and is done by singing, or other oral sounds, clapping, tapping, or playing an instrument. If the behavior is nonverbal, it should be coded 5x. The coding of this category often involves the shifting from 5x to one of the other seven teacher categories and back to 5x.
- 6. <u>Directs</u>: The conductor directs or commands the student with the intent that he comply. Directions may often consist of one or two words or verbal counting at the beginning of or during performance. This category is one of the most frequently used conductor behaviors.
- 7. <u>Criticizes</u>: The conductor criticizes, rejects, or challenges the student ideas, performance, behavior, or feelings. By this behavior, the conductor indicates to the student that this act should not be continued.
- 8. <u>Corrects</u>: The conductor checks and/or corrects in an extended or obvious manner the student's ideas, performance, or behavior. The conductor describes the incorrectness in a manner that indicates to the student why

it is incorrect and the manner in which it can be corrected. Less obvious forms of this behavior may require a shifting from category 8 to other categories of conductor behavior.

Student Behavior

- 9. <u>Responds</u>: The student responds or questions in a manner structured or controlled by the conductor. The response is usually of a predictable nature.
- 10. <u>Initiates</u>: The student initiates or questions in a manner unstructured by the conductor. The behavior is usually of an unpredictable nature. An interchange of communication between students would be included in this category.

Miscellaneous Categories

11. <u>Silence or Confusion</u>: Periods in which the verbal or nonverbal communication cannot be understood are included in this category. If the silence, confusion, or laughter is essential to the outcome or adds to the emotional tone of the rehearsal, it is considered constructive and coded 11+. If the silence, confusion, or laughter is unessential or irrelevant to the rehearsal, it is considered nonconstructive and coded 11-.

III.

Coding Procedures

The analysis of rehearsal interaction from live and audio or video taped recordings can be obtained by studying a few simple codint procedures. The rehearsal is coded by marking down the number approximately every three seconds that corresponds to the appropriate category of behavior described in RIOS. This number can be recorded on either a Sequence Chart or Frequency Chart depending on the extent of the data desired. If a change in behavior should occur during the three second period, the shift in category number should be noted. The coding of a rehearsal should always begin and end with a code of 11+.

The following example from the first thirty seconds of a rehearsal describes the method of recording on the two types of charts utilized in RIOS.

#3 11+1 [What key signature is that for the Conductor: Г #9
[E^b concert. Conductor: That's clarinets?] Student: Shift to #2 Shift to #2 #1 right, Allen.] [Now if that's E^b concert for the clarinets.] Ouestion within #1 [What is it for the cornets?] Student: [It will be E^b #2 concert also.] Conductor: [Fine! That's right. Let's Shift to #6 #5x (singing) start at letter E] [and play it . .1 . . . #6 [Ready, play.]

[represents each 3 second recording period]

Data obtained from the Sequence Chart will produce a variety of information when plotted on a Matrix. The Frequency Chart produces only the percentages of behaviors recorded. Table II represents the example above on both types of charts.

Sequence Chart		Frequency Chart
<u>11+ 5x</u>	Category	Frequency
3 6	1	11
9	2	11
2	3	1
1	4	
1	5	(×)
9	6	11
2	7	
	8	
	9	11
	10	
	11	1 (+) (-)

Table II

Further recommendations for obtaining accurate tabulation of rehearsal interaction include the following:

- 1. Keep a steady pace that will not vary too widely from the basic three-second recording period.
- If in doubt about how to code a behavior, place it in a category consistent with the prevailing behavior at that time.
- 3. Be prepared for subtle shifts from an extended use of one behavior to another behavior. Common shifts of this type are 1 to 4; 2 to 4; 4 to 6; 7 to 8; and 8 to 4, 5, or 7.
- 4. If a verbal and nonverbal behavior occur simultaneously, record the verbal category.
- Conductor indication of tuning and/or matching pitch constitutes directing behavior unless obvious correcting behavior is apparent.
- 6. Nonverbal behavior should be recorded as 5x.

Do not be overly concerned with miscategorizing the various behaviors that occur in rehearsals--as you become more experienced, certain common patterns will appear frequently. The more difficult and infrequent patterns can be better understood when considering the encoding and analysis process.

When coding a rehearsal, a single record of the complete rehearsal can be made on several sequence Charts. Each chart represents approximately thirty minutes of coding time. A separate record can also be made of different aspects within the rehearsal. These aspects, termed episodes, can include warmup, tuning procedures, sight-reading, administrative procedures, rehearsing, or periods of performance in which little rehearsing is required. The objectives of the coding and analysis procedures would determine which type of record is to be obtained.

Sample Behaviors

The following examples of rehearsal interaction illustrate the various categories of RIOS.

Conductor Behaviors

Category 1 - Uses

- C: You're right, clarinets, E^{b} is the correct key. Now that will put the alto saxophones in B^{b} .
- C: That's not quite right, but if you keep trying as hard as you have been, you will eventually get it.
- C: E^D, OK. (repeats student response)
- C: Why can't you all act like the percussion section?

Category 2 - Encourages

- C: That's an excellent answer, Allen.
- C: You played that passage as well as I have ever heard it performed.
- C: Now that's what I call a great attitude.

Category 3 - Questions

- C: Can you tell me what the correct note should be, altos?
- C: Is it above or below F? Questions may occur in other categories if they are an indication of that behavior. Question number 4 in Category 1 is an example.

Category 4 - Informs

- C: We will meet here in the band room at 7:00 A.M. Saturday morning to make the trip to contest.
- C: Now if the clarinets are playing in the key of F major, the alto saxes and alto clarinet will be in C major.
- C: The composer undoubtedly intended that this passage be performed at a much faster tempo.
- C: I feel that this passage should be played with a more legato style.
- C: What do you think, should we try that again? (A rhetorical question with no answer intended.)
- C: Right. (A short response.)

Category 5 - Demonstrates

C: That chord should be played with a "pow."

^{*&}quot;C" represents conductor verbal communication.

(Examples of verbal demonstration are quite unusual. Nonverbal examples are more prevalent and should be coded 5x.)

<u>Category 6 - Directs</u>

- C: Let's start again at letter E.
- C: All right: 1, 2, ready, sing.
- C: Play the first note softly.

Category 7 - Criticizes

- C: That passage is played all wrong, clarinets.
- C: Will you be quiet!
- C: Can't you play that any better in tune? (A question denoting criticism).
- C: I don't like the way you act, Bill.

Category 8 - Corrects

- C: That passage is too legato; be sure that you use very crisp staccato.
- C: Don't pinch that note too much, Steve. It has to be a bit flatter in pitch.
- C: Let's see if that note is correct. (Less obvious use of correcting will often involve Categories 4 - Informs, 6 - Directs, and occasionally 7 - Criticizes.)

Student Behaviors

Category 9 - Responds

- C: What is the key signature for the cornets?
- S: We're in B^b concert."
- C: That should be legato, flute.
- S: Do you want it that smooth or slightly separated?

Category 10 - Initiates

- S: Can we try singing that again?
- S: I'd like to suggest that we forget contests and take a trip or tour instead.

*"S" represents student verbal communication.

Confusion or Silence

<u>Category 11</u> - Any pause in which there is silence, or confusion. If this results from a conductor question, demonstration, correction, direction, or criticism, the period would be constructive. Irrelevant or misbehaving confusion would be considered nonconstructive.

Indication of Performance

When groups or individuals are performing, this should be indicated by a slash mark (/). Any verbal or nonverbal behaviors occurring during performance are to be marked on the top half of the slash mark by indicating the appropriate category number. The following short example illustrates this code:

#6

Not so #6 C: [All right, let's go. 1, 2, ready, play]. [./..] [./..] [...] #2 Fine [./..] [./..] [./..] [./..] [./..] [OK, that wasn't too bad, choir].

(Each [...] represents 3 seconds of performance.)

Coded on Sequence Chart:



The 6/ and 2/ indicate that the conductor exhibited some form of verbal behavior during the time that the group was performing.

IV.

Practicing with RIOS

The sample audio tape included with this manual is from an actual rehearsal situation. The following procedures should be followed to develop your skill in using RIOS to record and analyze rehearsal interaction:

- 1. Memorize the various categories, their descriptions, and code numbers. Test yourself on these before moving to the next step.
- 2. Listen to the first few minutes of the tape until the break. As you do this, begin to formulate in your mind whether or not the conductor behaviors are supportive or nonsupportive.
- 3. Follow this initial listening session with successive playbacks of the tape in which you begin to place the conductor communication into the various categories. Attention to the categorizing of nonverbal demonstration and the nature of student communication should be a part of further listening experiences.
- 4. To develop a feel for the three second coding period, use a watch with a sweep second hand to note the frequency of coding. The phrase, "Mark, two, three," will also illustrate the proper speed. (Remember that more than one coding per three second period may be necessary when the behaviors change rapidly.)
- 5. Practice coding short thirty second to one minute periods of the sample tape until you are satisfied that a reasonably normal pace can be maintained. Check your codings against a playback of the tape for accuracy.
- 6. After an extended period of at least a day, code the sample tape. Check this against the codings performed by the author in Appendix II. If the general tendency of your coding compares favorably with the tendencies of the author's record, you are beginning to develop your skills with RIOS.
- 7. For determining accuracy in using RIOS, observer reliability can be checked by following Flanders' recommendations for computing reliability coefficients.

¹Ned A. Flanders, "The Problems of Observer Training and Reliability," <u>Interaction Analysis: Theory, Research, and Appli-</u> <u>cation</u>, ed. by Edmund Amidon and John B. Hough (Reading, Mass.: Addison-Wesley Publishing Company, 1968), pp. 159-166.

APPENDIX B

DOGMATISM SCALE FORM E

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DOGMATISM SCALE FORM E

Instructions:

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your <u>PERSONAL</u> <u>OPINION</u>. We have tried to cover many different and opposing points of view; you may find yourself, agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others, whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +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. U.S. and Russia have nothing in common.
- 2. Best government is democracy run by most intelligent.
- 3. Belief in free speech, but not for all.
- 4. Better knowledge of beliefs than disbeliefs.
- ____5. Man on his own is helpless and miserable.
- 6. World we live in a lonesome place.
- 7. Most people don't give a "damn" for others.
- 8. I want to find someone to solve my problems.
- 9. It's natural to fear future.
- ____10. So much to do, so little time to do it in.
- 11. Once I get wound up, I can't stop.
- 12. I repeat myself to make sure I'm understood.
- 13. I don't listen.
- _____14. Better be dead hero than live coward.
- ____15. Secret ambition is to become a great man.
- 16. Main thing in life is to do something important.
- 17. If given chance I'd benefit world.
- 18. There are just a handful of great thinkers.

- ____19. I hate some peple because of what they stand for.
- 20. A man without a cause hasn't lived.
- _____21. Life meaningful when there is devotion to cause.
- ____22. There is only one correct philosophy.
- ____23. Person believing in too many causes is "wishy-washy."
- 24. To compromise is to betray own side.
- 25. In religion, we should not compromise.
- 26. To consider only one's own happiness is selfish.
- 27. Worse crime is to attack those of similar beliefs.
- 28. Guard against subversion from within.
- 29. Groups tolerating diverse opinions can't exist.
- 30. Two kinds of people: those for, those against truth.
- _____31. My blood boils when others won't admit they're wrong.
- _____32. One who thinks of own happiness beneath contempt.
- _____33. Most printed ideas aren't worth paper printed on.
- 34. To know what's going on, rely on leaders.
- 35. Reverse judgement until you hear leaders' opinion.
- 36. Pick friends who believe as you do.
- 37. Present unhappy. Future is what counts.
- 38. To accomplish mission, gamble all or nothing.
- 39. Most people don't understand what's going on.
- 40. Most people don't know what's good for them.

APPENDIX C

THE EDUCATION SCALE

THE EDUCATION SCALE

RIOS Research Project 1

<u>Instructions</u>: Given below are 20 statements on educational ideas and problems about which we all have beliefs, opinions, and attitudes. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

Agree Very Strongly:	+3	Disagree Very Strongly:	-3
Agree Strongly:	+2	Disagree Strongly:	-2
Agree:	+1	Disagree:	-1

For example, if you agree very strongly with a statement, you would write +3 on the short line preceding the statement, but if you should happen to disagree with it, you would put -1 in front of it. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

- ____l. The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society.*
- ____2. No subject is more important than the personalities of the pupils.*
- 3. Schools of today are neglecting the three R's.
- 4. The pupil-teacher relationship is the relationship between a child who needs direction, guidance, and control and a teacher who is an expert supplying direction, guidance, and control.
- ____5. Teachers, like university professors, should have academic freedom--freedom to teach what they think is right and best.*
- 6. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.
- ____7. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.*
- 8. The traditional moral standards of our children should not just be accepted; they should be examined and tested in solving the present problems of students.*
- ____9. Learning is experimental; the child should be taught to test alternative before accepting any of them.*
- __10. The curriculum consists of subject matter to be learned and skills to be acquired.

- 11. The true view of education is so arranging learning that the child gradually builds up a store house of knowledge that he can use in the future.
- ____12. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.
- ____13. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.
- 14. Discipline should be governed by long-range interests and well-established standards.
- 15. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.*
- ____16. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.*
- ____17. Children should be allowed more freedom than they usually get in the execution of learning activities.*
- ____18. Children need and should have more supervision and discipline than they usually get.
- ____19. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.
- ____20. In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems.*



APPENDIX D

RIOS SEQUENCE CHART

Rehear	sal		Date	
Conduc	tor		Episode	
		Category Desc	ription	
1 2 3	Uses Encourages Questions	4 Informs 5 Demonstra 5x Nonverbal 6 Directs 7 Criticize 8 Corrects	tes Dem. s	9 Student Responds 10 Student Initiates 11 <u>+</u> Silence-Confusion / Performs
		·		
(app.]				
min.)	••••		···	

RIOS SEQUENCE CHART

APPENDIX E

REVISED RIOS SEQUENCE CHART

Name

Major Instrument

APPENDIX E

Grade

Sex

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APPENDIX F

SAMPLE REHEARSAL MATRIX

SAMPLE REHEARSAL MATRIX

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APPENDIX G

RIOS CURRICULUM OUTLINE

RIOS CURRICULUM OUTLINE

Instrumental Conducting Fall Term, 1975

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- I. Pre-Test (October 1st)
 - a. Dogmatism scale
 - b. Teaching Situation Reaction Test
 - c. Introduction to Interaction Analysis:
 - Theory and Background
 - Classroom interaction process

Required Readings:

- 10/15 1. Amidon, E. J., and Ned A. Flanders, <u>The Role of the</u> <u>Teacher in the Classroom</u> (Minneapolis: Amidon and Associates, 1961), pp. 1-67.
- 10/8 2. Amidon, E. J., and Ned Flanders, "Interaction Analysis As a Feedback System," <u>Interaction Analysis: Theory</u>, <u>Research and Application</u> (Reading, Mass.: Addison-Wesley Publishing Co., 1967), pp. 121-140.
- 10/1 3. Withall, John, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," <u>Interaction Analysis: Theory, Research and Application</u>, pp. 47-64.
- 10/8 4. Flanders, Ned, "Intent, Action, and Feedback: A Preparation for Teaching," <u>Interaction Analysis: Theory, Research</u> and <u>Application</u>, pp. 283-294.
- 10/22 5. Hough, John, and Edmund Amidon, "Behavioral Change in Student Teachers," <u>Interaction Analysis: Theory, Research</u> and <u>Application</u>, pp. 307-314.
- 10/29 6. Flanders, Ned, "Interaction Analysis and Inservice Training," <u>Brouchures available in class</u>.
- 11/5 7. Flanders, Ned, "Teacher Behavior and Inservice Programs," <u>Interaction Analysis: Theory, Research and Application</u>, pp. 256-261.
- II. RIOS Technique Introduced (October 8th)
 - a. Training Manuals Distributed
 - b. Discuss and Learn Categories
 - c. Practice coding, adhearing to three second time interval.

- III. Review Video Tapes (October 15th) T.V.
 - a. 30 Seconds Tapes Code and Discuss
 - b. Two minute segments Code and Discuss
 - Supportive behaviors
 - Nonsupportive behaviors
 - Student behaviors
 - c. Code tape of mixed behaviors
 - d. Discussion of Findings
 - IV. Review Materials from Previous Week (October 22nd)
 - a. Code 30 second segments discuss
 - b. Code 2 minute segments discuss
 - c. Code 5 minute segments discuss
 - d. Construct Matrixs discuss
 - e. Repeat the above-check 3 secs. timing.

Note: Adhere to 3 second time interval!

- V. Review Feedback from 4th Weeks tapes (October 29th)
 - a. Code 2-ten minute segments from conducting class.
 - b. Build Matrixs discuss
 - c. Practice coding 5 minutes of audio tape discuss -Repeat (3 Sec. timing)
- VI. Review Feedback from Previous Week (November 5th)
 - a. Discussion: Compare percentages of interaction of each
 - student with the 1974 Michigan-Illinois profile study
 - b. Practice coding 10 minute audio tape
 - c. Build matrixs and discuss.
 - d. Review (b) above (check 3 Secs. timing)
- VII. Code Video Tape of a Rehearsal (November 12th)
 - a. Code 20 minute segment Video tape
 - b. Discuss and build Matrixs
 - c. Review (a) above (check 3 Secs. timing)
- VIII. Review Previous Week's Activities (November 19th) T.V.
 - a. Discuss Feedback
 - b. Practice coding 20 minutes Tapes segments
 - c. Discuss Repeat (b) above (check 3 Secs. timing)
 - IX. Code Live Conducting Session (November 26th)
 - a. Practice coding 3 students
 - b. Analyze Tape

c. Construct Matrix and turn in d. Practice audio tapes - discuss - repeat X. Review 9th Week's Activities (December 3rd) a. Discuss Feedback b. Practice coding 30-minute segments c. Repeat (b) above Final Posttest: Dec. 4th or _____? -D-Scale -TSRT

Final RIOS Analysis - Monday December 8, 5:45 - 7:45.