A STUDY OF THE RELATIONSHIP BETWEEN TEACHERS' PREDICTED AND OBSERVED VERBAL BEHAVIOR IN THE CLASSROOM

by

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ABSTRACT

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The purpose of this study was to determine the degree of congruence existing between teachers' predicted and observed styles of verbal interaction. Four hypotheses were posited: 1) There is no significant relationship between teachers' predicted and observed time spent using the categories of the Flanders System of Interaction Analysis. 2) There is no significant difference between the amount of time teachers predicted they would spend on each of the categories of the Flanders system and the observed time spent. 3) There is no significant difference between the amount of time teachers' spent using categories 1, 2, 3 and 4 and their predicted time. 4) There is no significant difference between the amount of time teachers' spent using categories 5, 6 and 7 and their predicted time.

The sample for this study was randomly selected from English and Social Studies teachers employed in junior secondary, junior-senior secondary and middle schools of the Greater Victoria School District. These teachers were required, on three separate occasions, to predict the amount of time they would spend using the categories of a

revised Flanders System of Interaction Analysis. These lessons were recorded and analyzed by an independent coder.

Analysis was performed using Spearman's rho to determine the relationship between teachers' predicted and observed use of all eight categories. The Wilcoxon matched-pairs signed-ranks test was used to test, first, whether a significant difference existed between the teachers' predictions and the time they spent using each of the categories and,second, to determine whether a significant difference existed between teachers' predicted use of indirect and direct verbal teaching style and their observed verbal behavior.

The findings constituted a rejection for hypothesis one. Teachers could, in fact, make an overall prediction regarding the relative proportion of time they would spend in the categories of the Flanders System of Interaction Analysis. Hypothesis two was rejected when data from six of the eight categories indicated a significant difference between the predicted and observed time spent in each category. Hypotheses three and four were also rejected for the same reason.

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CHAPTER I

INTRODUCTION

If a major concern of the educational system is to improve pupil learning by maximizing a teacher's effectiveness in the classroom, then the nature of the teaching act must be subject to continuous examination. Of all the complex factors involved in the teaching-learning process verbal communication is regarded as one of the most important components. In the field of educational research, some studies have stressed the significance of verbal interaction in the classroom and its role in teaching effectiveness and pupil achievement. Flanders[1] estimates that approximately two-thirds of all observable interactions between teachers and students are verbal in nature and that teacher talk accounts for two-thirds of this observable activity. Flanders[2] further claims that a teacher's use of language represents the single most important influence on the classroom climate. The study

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[1] Ned A. Flanders, Interaction Analysis in the Classroom: A Manual for Observers (Minnesota: College of Education, 1960).

[2] Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement, United States Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 397, (Minneapolis: University of Minnesota, 1960).

of verbal behavior in the classroom has gone beyond the creation of observational categories to describe the different types of teacher and student interaction and has attributed greater teaching effectiveness to certain patterns of verbal interaction. Apart from Flanders, Amidon[1] and Hough[2] have found that certain types of verbal behavior by teachers have some relationship to increased pupil achievement. Given the importance of teachers' verbal behavior on the climate of the classroom and its relationship to pupil learning, it would seem that teachers' effectiveness might be improved by teaching teachers how to use various language patterns. This presupposes that teachers are aware of and can control their verbal behavior.

The present study examined teachers' awareness of their use of language in a classroom setting in order to determine what degree of control teachers could demonstrate over their verbal behavior.

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[1] E. J. Amidon and Ned A. Flanders, "The Effects of Direct and Indirect Teacher Influence on Dependent-Prone Students Learning Geometry," Journal of Educational Psychology, February 1961, pp. 286-291.

[2] E. J. Amidon and J. B. Hough, Interaction Analysis: Research, Theory and Application (Boston: Addison-Wesley, 1967).

Purpose of the Study

The purpose of this study was to investigate teachers' ability to forecast the amount of time they would spend in a lesson using a particular style of verbal interaction. The major concern of the study was to establish whether a significant relationship exists between teachers' predicted verbal behavior and observed verbal behavior. To measure ability to use different patterns of verbal interaction, the subject teachers preselected verbal approaches from the seven categories of teacher talk described in the Flanders System of Interaction Analysis[1], and then predicted the amount of time they would spend in a particular lesson on each of these categories. The results of this test were used to determine the relationship between teachers' predicted and observed use of different verbal styles. More specifically, it examined the ratio of predicted versus observed behavior to ascertain whether teachers could accurately forecast the amount of time they would spend in a lesson using: (1) all seven categories of teacher talk, (2) each of the individual categories, (3) indirect verbal behavior, (4) direct verbal behavior.

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[1] Appendix A.

The Problem

The problem investigated in the present study is: Does a state of congruency exist between teachers' predicted use of a specific verbal style of interaction and the observed use of that verbal behavior in the classroom?

There appears to be substantial evidence to suggest that the Flanders System of Interaction Analysis is widely accepted as a useful observational method for studying the verbal behavior of teachers. In the following chapter, a number of different studies using this category system have been reviewed. Much of this research also supports the conclusion that teacher influence can be generally described according to two types, either direct or indirect, and that the verbal behavior of teachers can be modified through pre-service and in-service training programmes.[1] This evidence further indicates that, in regard to educational objectives, teaching effectiveness and pupil learning appear to depend on whether teachers are able to adjust their verbal behavior to situational variables. That is, working within the framework of a bipolar verbal model, the

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[1] E. J. Amidon and J. B. Hough, Behavioral Change in Pre-service Teacher Preparation: An Experimental Study, (Philadelphia: College of Education, Temple University, 1964).

teaching act requires an appropriate mixture of direct and indirect styles of interaction in order to be effective.

While much of the research on this subject confirms the importance of teachers' use of different types of interaction, what has not been determined is the degree of awareness teachers actually have over their verbal behavior. Flanders[1] has concluded that teachers are only partially aware of their use of language and even less aware of how and to what extent classroom language influenced pupil learning.

Justification for Study

The need for this study is twofold. First, it may provide teachers with a greater awareness of their ability or lack of ability to use different patterns of verbal interaction in order to improve student attitude and maximize achievement. Second, it may have some implications for educators involved in pre-service and in-service training for teachers. If it can be determined that teachers can predict their verbal behavior accurately and consistently, then in-service programmes could focus on the importance of increasing direct teacher verbal behavior. This could then form the basis for training

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[1] Ned A. Flanders, Analyzing Teacher Behavior (Reading, Massachusetts: Addison-Wesley, 1970).

programs to upgrade and refine verbal techniques or place greater emphasis on those types of verbal behavior that most effect specific learning outcomes.

Assumptions

In order for teachers to demonstrate their ability to predict their verbal behavior, one major assumption has been made in the present study. It is assumed that a teacher's language or styles of verbal interaction can be described accurately according to the observational method of the Flanders System of Interaction Analysis.

Limitations

Only junior-secondary, junior-senior and middle schools which are in British Columbia School District #61 were used in this study. Only teachers were selected from these schools who regularly taught English and Social Studies. The verbal behavior of the teachers in the study was limited to the categories of verbal interaction as defined by the Flanders System of Interaction Analysis.

CHAPTER II

A REVIEW OF THE LITERATURE, RATIONALE AND HYPOTHESES

This chapter presents an examination of the research on the subject of verbal interaction as it relates to teacher behavior in the classroom. An investigation is made into the importance of verbal behavior with reference to leadership styles, the nature of the classroom climate, the effects of teacher talk on pupil achievement and the differences between direct and indirect verbal interaction. The chapter closes with a statement of the rationale and hypotheses underlying this study.

Leadership Styles

A teacher's pattern of verbal interaction is probably the most important influence on the climate of the class. It defines the teacher's instructional role as well as his/her leadership role in the group. Different 'styles' of leadership have often been experimentally observed and described largely on the basis of verbal behavior, and the characteristics used to denote different types of leadership appear almost synonymous with the verbal 'styles' used to describe different approaches to teaching. If leadership characteristics are related to

verbal behavior, as research in this field suggests, then it is necessary to take into account the theoretical formulations and empirical evidence supporting this concept.

One of the most influential investigations into the nature of leadership was undertaken by Lewin, Lippitt and White in 1939, in a study analyzing the effects of adult leaders' influence on boys' groups. From this research emerged a profile of three types of leadership - "authoritarian" leadership, "democratic" leadership, and "laissez-faire" leadership.[1] Based primarily on differences in verbal behavior, the Lewin, Lippitt and White study had a considerable impact on many areas of social research, including the field of education. Within the classroom setting, the earliest important observations were undertaken by Anderson.[2] Anderson observed the verbal and gestural behavior of teachers and pupils and classified the interactions in terms of two kinds of

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[1] K. Lewin, R. Lippitt and R. White, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," Journal of Social Psychology, X May 1939, pp. 271-299.

[2] H. H. Anderson, "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts with Children," Child Development, X June 1939, pp. 73-89.

influence or "social contact"; simply defined, a "dominative" contact implied a direct command or any action that reduced the "free interplay of differences", while an "integrative" contact represented a flexible approach or response that increased the "interplay of differences".[1] As later research would affirm, there were fundamental similarities between these two separate studies.

In effect, the behaviors Lewin, Lippitt and White classified as authoritarian and democratic appear to overlap in definition with the dominative and integrative contacts discussed by Anderson. In comparing these seemingly parallel results, Mullarney[2] has stated that "most of the conclusions of the study by Lippitt and White confirm or extend the general conclusions of Anderson and his associates with few semantic modifications, but very little change, if any, in behavioral meaning."

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[1] H. H. Anderson, "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts with Children," Child Development, X June 1939, pp. 73-89.

[2] P. Mullarney, A Study of the Relationship Between Verbal Interaction of Teachers and Their Philosophical and Educational Beliefs in Experimentalism, Unpublished doctoral thesis, University of Michigan, 1972.

Moreover, this central theme was expanded with slight variation by later researchers. Withall[1] classified a teacher's verbal statements into seven categories which closely approximated Anderson's integrative and dominative characteristics. The same dichotomy was restated in slightly modified language by Flanders who classified teacher statements according to a similar bipolar construct. A comparison between Flanders' categories of direct and indirect verbal influence and Anderson's categories of dominative and integrative behaviors demonstrates the close relationship of these ideas (see Table 1). Both the observational descriptions of teachers' verbal behavior by Flanders and Anderson could also be compared to the leadership styles isolated by the Lewin, Lippitt and White studies. The major difference between the former and the latter is the omission of the laissez-faire type of leader. This term referred to a leader who lacked initiative and engaged in irregular or infrequent kinds of behavior which the researchers in education apparently did not frequently encounter in

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[1] J. Withall, "The Development of a Technique for the Measurement of Social-Emotional Climate in Classrooms," Journal of Experimental Education, XVIII 1949, pp. 347-361.

Table 1

A COMPARISON OF FLANDERS' DIRECT-INDIRECT BEHAVIORS WITH ANDERSON'S DOMINATIVE-INTEGRATIVE BEHAVIORS

Flanders Direct Influences	Anderson Dominative Influences
Gives facts or opinions about contact or procedure: using teachers own ideas and his own explanations.	Expresses or lectures about own ideas or knowledge.
Gives directions, commands or orders to which a pupil is expected to comply.	Gives direction or orders.
Uses criticism and the justification of authority intended to change pupil behavior.	Criticizes or deprecates pupil with intent to change behavior. Justifies position or authority.
Indirect Influences	**Integrative Influences**
Accepts and clarifies an attitude or feeling of a pupil.	Accepts, classifies and supports the ideas and feelings of pupils.
Praises or encourages pupil action or behavior.	Praises and encourages.
Accepts or uses ideas of pupil	Asks questions to stimulate pupil participation in decision-making.
	Asks questions to orient pupils to schoolwork.

a classroom setting.

In summary, it is apparent that although the studies of Anderson, Withall, Flanders and others did not investigate the role of the teacher as leader *per se*, their division of verbal behavior into two polar types certainly echoed the current profiles of leadership. The next move in this series of investigations was to study the influence of the two kinds of teacher behavior on the classroom climate and on pupil achievement.

Classroom Climate

Classroom climate refers to the attitudes developed through the social interactions which occur within the classroom. Amidon and Hough[1] have identified some of the factors influenced by classroom climate, including: the inner, private world of each individual; the *esprit de corps* of a group; the sense of meaningfulness of group and individual goals and activities; the objectivity with which a problem is approached, and the kind and extent of interpersonal interaction in a group.

Once established, the climate of the classroom

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[1] E. J. Amidon and J. B. Hough, "Interaction Analysis as a Feedback System," *Interaction Analysis: Research, Theory and Application*, Edited by E. J. Amidon and J. B. Hough, (Reading, Massachusetts: Addison-Wesley, 1967).

remains stable and produces expectations on the part of students about how the teacher will act and the type of person he is.[1] Flanders has defined the word 'climate' as "merely a shorthand reference to those qualities that consistently predominate in most teacher-pupil contacts and contacts between pupils in the presence or absence of the teacher."[2] In summarizing the results of studies by Anderson and his associates, Flanders indicated how certain kinds of teacher influence altered the climate of the classroom:

> First, the dominative and integrative contacts of the teacher set a pattern of behavior that spreads throughout the classroom: the behavior of the teacher, more than that of any other individual, sets the climate of the class. The rule is that, when either type of contact predominates, domination incites further domination and integration stimulates further integration. Second, when a teacher uses a high proportion of integrative contacts, pupils show more spontaneity and initiative, voluntary

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[1] P. Mullarney, A Study of the Relationship Between Verbal Interaction of Teachers and Their Philosophical and Educational Beliefs in Experimentalism, Unpublished doctoral thesis, University of Michigan, 1972.

[2] Ned A. Flanders, "Some Relationships Among Teacher Influence, Pupil Attitudes and Achievement," Interaction Analysis: Research, Theory and Application, Edited by E. J. Amidon and J. B. Hough, (Reading, Massachusetts: Addison-Wesley, 1967), pp. 103-104.

> social contributions, and acts of problem solving. Third, when a teacher has a high proportion of dominative contacts, the pupils are more easily distracted from school work and show more compliance to, as well as rejection of, teacher domination.[1]

Flanders' conclusions underscore the fact that, ultimately, the climate of the classroom is of particular significance only with respect to how it determines the educational product. The differing effects of different patterns of teacher influence on pupil learning represent the most substantial evidence for supporting ongoing research into the nature of verbal interaction in the classroom.

Effects of Teacher Talk

Cogan,[2] used Anderson's system of classification to test student perception of teachers according to dominative and integrative characteristics and reported that students claimed to do more assigned work when they viewed

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[1] Ned A. Flanders, "Some Relationships Among Teacher Influence, Pupil Attitudes and Achievement," Interaction Analysis: Research, Theory and Application, Edited by E. J. Amidon and J. B. Hough, (Reading, Massachusetts: Addison-Wesley, 1967), pp. 223.

[2] M. L. Cogan, "Theory and Design of a Study of Teacher-Pupil Interaction," Harvard Educational Review, XXVI, Fall 1956, pp. 315-342.

the teachers's behavior as being integrative rather than dominative. Under laboratory conditions, Flanders[1] examined students on the same basis and found that a dominative pattern was consistently disliked by pupils while integrative contact reduced anxiety and increased ability to recall material. Outside of the classroom setting, Perkins[2] found that discussion groups with an integrative leader learned more about a topic than groups with a dominative leader.

Flanders'[3] first investigation of the effects of indirect and direct teacher statements was conducted in Minnesota in 1959-60, and involved 16 eighth grade mathematics teachers and 16 seventh grade social studies teachers and 900 students. Under both laboratory and classroom conditions, Flanders examined the relationship

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[1] Ned A. Flanders, "Personal-Social Anxiety as a Factor in Experimental Learning Situations, "Journal of Educational Research, XLV 1951, pp. 100-110.

[2] H. V. Perkins, "Climate Influences Group Learning," Journal of Educational Research, XXXXV 1951, pp. 115-119.

[3] Ned A. Flanders, Teacher Influence, Pupil Attitudes and Achievement, United States Department of Health Education, and Welfare, Office of Education, Cooperative Research Project No. 397, (Minneapolis: University of Minnesota, 1960).

between a teacher's verbal style and pupil achievement. He recorded the following results:

> In both mathematics and social studies classes, the adjusted achievement of the top group (those whose teachers were more responsive) was significantly higher than the other group. The same significant differences also occurred when the average class scores on pupil attitude were compared. Put most simply, in those classrooms in which the teacher responded to pupil ideas more often, the pupils appeared to be learning more and liking the learning activities better.[1]

Using the same system of interaction analysis to test for differences between indirect and direct teacher influence, Flanders observed ten classes in elementary schools in New Zealand. This second study further supported the findings of the earlier project. As Flanders stated:

> The same results were found in Minnesota and New Zealand ... in spite of differences in teaching style and pupil expectations. The teachers of classes that scored high on liking the teacher, motivation, fair rewards, and punishments, lack of anxiety, and independence used more indirect influence. In New Zealand, but not in Minnesota, teachers in classrooms that scored low used more direct influence, yet in both countries teachers in classrooms that scored high used more indirect influence. The greater use of

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[1] Ned A. Flanders, Analyzing Teacher Behavior (Reading, Massachusetts: Addison-Wesley, 1970), p. 392.

> indirect influence meant asking more questions, clarifying and using pupil ideas, and giving praise.
>
> The interaction data showed that more than one-half of the statements were concerned with subject matter. It is clear that the main business in the classrooms studied was learning subject matter .... Yet, eight per cent more indirect influence and twelve per cent more direct influence (in New Zealand) distinguished the teachers of the high-and-low scoring classes. An analysis of interaction matrices showed that these relatively small differences in the influence patterns occurred at strategic moments of classroom communication.[1]

Subsequent research on the effects of indirect and direct teacher influence has taken into consideration different sets of variables, including: a wider range of subject areas, the effects of clear and ambiguous teaching goals, and the relationship of student grades to teachers' verbal behavior.

Soar[2] conducted a study of the development of vocabulary and reading skills of elementary students in relation to the climate and control existing in the classroom. The Iowa Tests of Basic Skills were

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[1] Ned A. Flanders, Analyzing Teacher Behavior (Reading, Massachusetts: Addison-Wesley, 1970), p. 392.

[2] R. S. Soar, "Pupil Needs and Teacher-Pupil Relationships: Experiences Needed for Comprehending Reading," Interaction Analysis: Research, Theory, and Application, Edited by E. J. Amidon and J. B. Hough (Reading, Massachusetts: Addison-Wesley, 1967).

administered in the fall and spring in 56 classrooms in grades three to six. Overall, the results showed that greater growth occurred when teachers used indirect verbal patterns. Amidon and Flanders[1] tested the effects of clear and unclear goals on four groupings of eighth grade geometry students in Minnesota. Two groups had indirect teachers, one of whom had clear goals while the other had unclear goals, and two groups had direct teachers, one of whom had clear goals while the other had unclear goals. This study did not show statistically significant differences between teachers with clear or ambiguous goals. Differences for all students were higher, however, for the indirect pattern of verbal interaction at the .05 level of significance. In comparing teacher verbal behavior to positive academic goals, Westbury and Bellack[2] reviewed much of the literature on the subject and reported that, although inconclusive, the majority of studies indicated a tendency in favour of an

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[1] E. J. Amidon and Ned A. Flanders, "The Effects of Direct and Indirect Teacher Influence on Dependent-Prone Students Learning Geometry," Journal of Educational Psychology, February 1961, pp. 286-291.

[2] I. Westbury and A. Bellack, Research in Classroom Processes: Recent Developments and Next Steps (New York: Teachers' College Press, 1971), p. 169.

indirect pattern of verbal behavior. Rosenshine[1] examined the relationship between student grades and indirect and direct teacher influence and found some evidence of a positive correlation between indirect verbal patterns and grade achievement.

While most of the research indicated that indirect teacher influence, however small, was significantly related to improved student attitudes and learning, it remains unclear to what extent this particular type of verbal interaction should be used in the classroom. Flanders[2] acknowledged that a point of saturation may exist, so that higher levels of indirect verbal styles by teachers may not only fail to yield higher productivity, but "could begin to erode the efficient learning of problem solving skills and principles. A different point may exist for other measures of pupil growth such as positive attitudes, creativity, memory tests, and other kinds of educational objectives." He postulated that an overabundance of indirect teaching would prohibit teachers from assuming their responsibility through excessive

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[1] B. Rosenshine, Teaching Behavior and Students Achievement (London, England: National Foundation for Educational Research, 1971).

[2] Ned A. Flanders, Analyzing Teacher Behavior (Reading, Massachusetts: Addison-Wesley, 1970, p. 403.

avoidance of instructing and using authority.

Soar[1] also reached the same conclusion. Analysing data from 54 elementary classrooms, he found that optimum levels did exist. He examined three forms of pupil outcomes: creativity, reading skills and vocabulary development. In this study, the curve which represented the growth in creativity was almost linear and no optimum level was found. For the other two subject areas, a point was reached after which no further gains were made and even losses occurred.

Flanders[2] cited Coats' unpublished disseration which suggested a curvilinear relationship between teacher influence and pupil attitudes. Coats found that teacher responsiveness, a characteristic of an indirect verbal style, was positively related to pupil attitude, but reached a saturation point.

What emerges from this review of the literature is a general profile of teachers' verbal behavior and the observational methods for describing this behavior, as

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[1] R. S. Soar, "Pupil Needs and Teacher-Pupil Relationships: Experiences Needed for Comprehending Reading," Interaction Analysis: Research, Theory and Application, Edited by E. J. Amidon and J. B. Hough (Reading, Massachusetts: Addison-Wesley, 1967).

[2] Ned A. Flanders, Analyzing Teacher Behavior (Reading, Massachusetts: Addison-Wesley, 1970).

well as an indication of the types of verbal interaction which effect pupil attitudes and learning outcomes. None of these studies, however, specifically examine the question of how aware teachers are of their own verbal behavior or to what degree teachers can control their patterns of verbal interaction. If it is desirable for teachers to be able to tailor their use of language to achieve or maximize particular learning goals, then it would be valuable to determine whether teachers in the field are aware of the patterns of verbal interaction which they use in a normal classroom setting.

Rationale and Hypotheses

The present study examined the relationship between teachers' predicted and observed verbal behavior. The major question addressed was: Does a state of congruency exist between teachers' predicted use of a specific pattern of verbal interaction and the observed use of the behavior in the classroom? This question was redefined using the following hypotheses which were put forth and tested in the null form. Rejection was at the .05 level of significance. The first hypothesis explored the overall ability of teachers to forecast their verbal behavior:

H_0 There is no significant relationship between teachers' prediction of the time spent in

the categories of the Flanders System of Interaction Analysis and the observed time spent in those categories.

The second hypothesis examined teachers' ability to predict their behavior with respect to specific types of verbal interaction:

H_0 There is no significant difference between the amount of time teachers predicted they would spend in each of the eight categories of the Flanders System of Interaction Analysis.

The third hypothesis addressed the question whether teachers could predict their use of indirect verbal behavior (categories 1-4):

H_0 There is no significant difference between the amount of time teachers predicted they would spend in categories 1, 2, 3, 4, and the observed time spent in these categories.

The final hypothesis examined teachers' use of direct verbal behavior:

H_0 There is no significant difference between the amount of time teachers predicted they would spend in categories 5, 6, 7, and the observed time spent in these categories.

CHAPTER III

METHODOLOGY AND PROCEDURE

This chapter will describe the sample employed in the study and the instruments used to measure the variables of teachers' verbal behavior in the classroom. The procedures employed to gather the research data and the methods of coding and handling the data will conclude the chapter.

The Sample

The subjects were drawn from one middle school, six junior-secondary and two junior-senior secondary schools, all in School District #61 in British Columbia. Teachers who taught in specially designated alternate programmes were not included in the population of the sample as the school in which they taught enroled borderline retarted pupils and was considered atypical. From a population of 137 Social Studies and English teachers, 20 were randomly selected. Of those drawn, 15 volunteered to participate in this study and their educational and professional experience was recorded in Table 2. The composition of the sample included nine teachers who spent 50% of their time teaching English or Social Studies, and six teachers who spent less than 50% of their time teaching these subjects. With respect to the age of the sample, five teachers were under thirty years of age, five were

Table 2

SAMPLE CHARACTERISTICS

Teacher Number	Sex	Age	Years of Teacher Education	Years of Teaching Experience	Percentage of time Teaching English or Social Studies	Previous Training in Interaction Analysis
1	M	31-35	4	11	100	No
2	M	46-50	6	12	30	No
3	F	36-40	6	14	100	No
4	F	Under 30	5	4	100	No
5	F	36-40	6	8	100	No
6	M	31-35	6	6	80	No
7	M	Under 30	5	8	33	No
8	F	Under 30	5	4	25	No
9	M	Under 30	5	4	57	No
10	M	Over 50	4	22	10	No
11	M	Over 50	5	27	100	No
12	F	Over 50	6	22	20	No
13	F	Under 30	5	4	20	No
14	M	Over 50	6	27	87	No
15	M	Over 50	5	21	100	No

between 30 and 50 years of age, and five were over 50 years of age. All of the teachers had a minimum of four years teaching experience. The sample represented approximately 9% of the English and Social Studies teachers in School District #61 in 1977. (See Appendix F)

Instrumentation

The major question under study was whether teachers could predict their verbal behavior in the classroom. To measure teachers' use of different types of verbal interaction the Flanders System of Interaction Analysis was selected as the observational instrument.

The Flanders system is a method for observing and coding the verbal interchange between teachers and students. All verbal behavior in the classroom is described according to ten observational categories. The first seven of these categories describe teacher statements, two are for pupil statements, and one is for "silence or confusion." A major feature of this system is its division of teacher statements into two types: indirect and direct verbal behavior. Categories 1-4 refer to indirect verbal interaction; that is, the kinds of verbal behavior which maximizes the pupils' freedom to participate actively in the learning process. Categories 5-7 refer to direct verbal interaction; that is, a teacher lectures or gives

direction which limits the pupils' ability to participate.

The above instrument was modified slightly for use within this study. In the Flanders system, category 8 refers to pupil response while category 9 refers to talk initiated by students. Since the primary interest herein was the amount of pupil talk rather than the type, these categories were combined into a single category for all pupil talk. The final category in Flanders' system which described silence or confusion was omitted for two reasons. First, the connotation of the term "confusion" might have caused teachers to react adversely to predicting this type of verbal activity. Secondly, eliminating silence from the measuring scale prevented teachers from scheduling lessons or large parts of lessons for a silent activity such as reading. Moreover, there seemed to be no reason to expect that the structure and validity of the measure would be affected by these changes. It was reasoned that the revision of the Flanders System of Interaction Analysis (See Appendix B) would not affect its validity as no new categories were added and all pupil talk was still recorded, albeit in one instead of two categories. The only significant deviation from the original instrument was the exclusion of category 10. As this category refers to neither teacher nor pupil talk, it was reasoned

that its omission would not adversely change the validity of the other measurements.

As the review of the literature in the previous chapter suggested, the Flanders system for recording and observing verbal behavior in the classroom is the most widely used of a number of observational instruments. Campbell and Barnes[1] have found that a proficient coder using this system can consistently record reliable data. Amidon and Hunter[2] have also used the Flanders system as a data-gathering device and modified the instrument in order to employ it for a specific research task.

Procedure

The teachers in the sample were initially contacted through an introductory letter (see Appendix E). Subsequently, they met with the researcher individually and were given a detailed explanation of the purpose of the study. All eight categories of the revised Flanders

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[1] J. R. Campbell, and C. W. Barnes, "Interaction Analysis-A Breakthrough?" Phi Delta Kappan, 1969, L, pp. 587-590.

[2] E. H. Amidon, and E. Hunter, Improving Teaching: The Analysis of Classroom Verbal Interaction. Toronto: Holt, Rinehart and Winston, Inc., 1966.

System of Interaction Analysis were explained and discussed fully, as was the difference between indirect and direct teacher statements, to ensure that the sample interpreted the categories in the same way. At this time the teachers were informed of the following procedure.

Using the timetable of classes supplied by each teacher at this first meeting, the researcher randomly selected a lesson from each teacher's timetable. Forty-eight hours before the selected time and date of the lesson to be observed the teachers were notified by telephone. This time-period allowed the teachers to prepare their lesson plan, and, then, using the copy of the revised Flanders system provided, they predicted the percentage of time they would spend in each of the eight categories of verbal interaction in this particular lesson. On the day of the lesson, the researcher provided each teacher with recording equipment to tape the approximately one-hour lesson. The sheet recording the teacher's predictions was completed without the researcher present and was picked up before the taping of the lesson. The tape was picked up later the same day. This procedure was repeated for the fifteen teachers on three randomly selected occasions for a total number of predictions and observations of forty-five.

When filling out the prediction sheet for a lesson, the teachers were requested to eliminate the first and

last five minutes of the lesson in order to reduce the portion of time spent settling students down, distributing worksheets, and other classroom management routines. The inclusion of these five-minutes segments could have skewed the results toward a greater amount of direct verbal interaction as teachers would be using commands or giving directions. Furthermore, when teachers predicted the same percentage of time for two or more categories they were requested to break any ties by indicating a category of preference by rank ordering them.

To minimize the intrusion of the recording equipment on the verbal interactions of teachers and students, a mini-cassette recorder was used. The built-in microphone avoided the problems of cumbersome and conspicuous cords. On two occasions a wireless microphone and separate recorder had to be substituted when the recorder with the built-in microphone was unavailable.

Data-Coding

The analysis of the teachers' verbal behavior was done from the tape recording of the lesson. The data were analyzed by using the Flanders Interaction Analysis System coding matrix. Listening to the tapes, an individual trained in the techniques of this system records the category number of the interaction he has just heard at intervals of approximately three seconds.

Although the entire lesson was recorded, only parts of the tape were used for coding purposes. After eliminating the first and last five minutes of the tape, three five-minute segments were selected randomly by the researcher for analysis by a trained coder. Each five-minute period was registered according to the meter on the tape recorder.

In order to ensure accuracy and objectivity, the coder was chosen by requesting a volunteer from the instructors in Education 297, a course at the University of Victoria which teaches interaction analysis techniques. As a course instructor, the coder was deemed to possess the expertise necessary to use the Flanders coding matrix. Flanders'[1] coders worked at a 85% level of inter-coder reliability. The reliability level established for Education 297 instructors was 77%. Discussions with the co-ordinator of that program supported the expertise of the coder used for this study. The use of one coder ensured a consistent treatment throughout. A sample of the tally sheet completed by the coder is provided. (See Appendix D)

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[1]N. E. Flanders, "The Problems of Observer Training and Reliability," Interaction Analysis: Theory, Research, and Application. Edited by E. H. Amidon and J. B. Hough. Reading, Massachusetts: Addison Wesley Publishing Company, 1967.

Data-Handling

The main question addressed by this research was whether a state of congruency exists between teachers' predicted and observed verbal behavior in the classroom. To determine the answer, the data collected on the teachers' predictions and the observational analysis of the tapes were changed into percentages of forecast or observed talk in each of eight categories. These data were treated using a Wilcoxon matched-pairs signed-ranks test to determine whether a significant difference existed between predicted and observed verbal behavior. This statistical measure was selected over the t-test because of the small sample size. In addition, a Spearman rho test was used to calculate the correlation between teachers' predicted and observed use of verbal interaction styles over the three sessions. All of the figures expressing percentages of time (predicted and observed) were reported to two decimal points; otherwise, the small amounts of time observed in some of the categories would have been reduced to zero.

CHAPTER IV

ANALYSIS AND FINDINGS

In the present chapter the major questions of the study will be restated, the statistical techniques employed in analyzing the data will be discussed, and the test results of the four null hypotheses will be presented.

The major concern of this experiement was to establish whether a significant relationship exists between teachers' predicted verbal behavior and observed verbal behavior. This relationship was tested by examining the ratio of predicted versus observed behavior to determine if teachers could accurately forecast the amount of time they would spend in a lesson using certain patterns of verbal interaction. Therefore, the analysis included examining: (1) all seven categories of teacher talk and one category of pupil talk taken together, and as described in the Flanders System of Interaction Analysis; (2) each of the individual categories; (3) indirect verbal behavior; and (4) direct verbal behavior.

The relationship between the distribution of time estimated beforehand by teachers to each of the eight categories of the Flanders System of Interaction Analysis and the observed time they spent using these categories

was analyzed. The estimated and observed times were expressed as percentages and were ranked. When making their forecasts, the teachers were required to break any ties between two or more categories by answering the question: "Given a choice in this present situation, which of these categories do you favour?" No other condition restricted the teachers' predictions. The observed time teachers spent in the different categories was recorded using the Flanders System of Interaction Analysis. Means for the predicted and observed times were calculated from the means for each teacher based on the three observation sessions. (See Appendix C).

Hypothesis #1

One of the major questions addressed was whether teachers were able to accurately predict their verbal behavior. The null hypothesis was:

H_0 There is no significant relationship between teachers' prediction of time spent in the categories of the Flanders System of Interaction Analysis and the observed time spent in these categories.

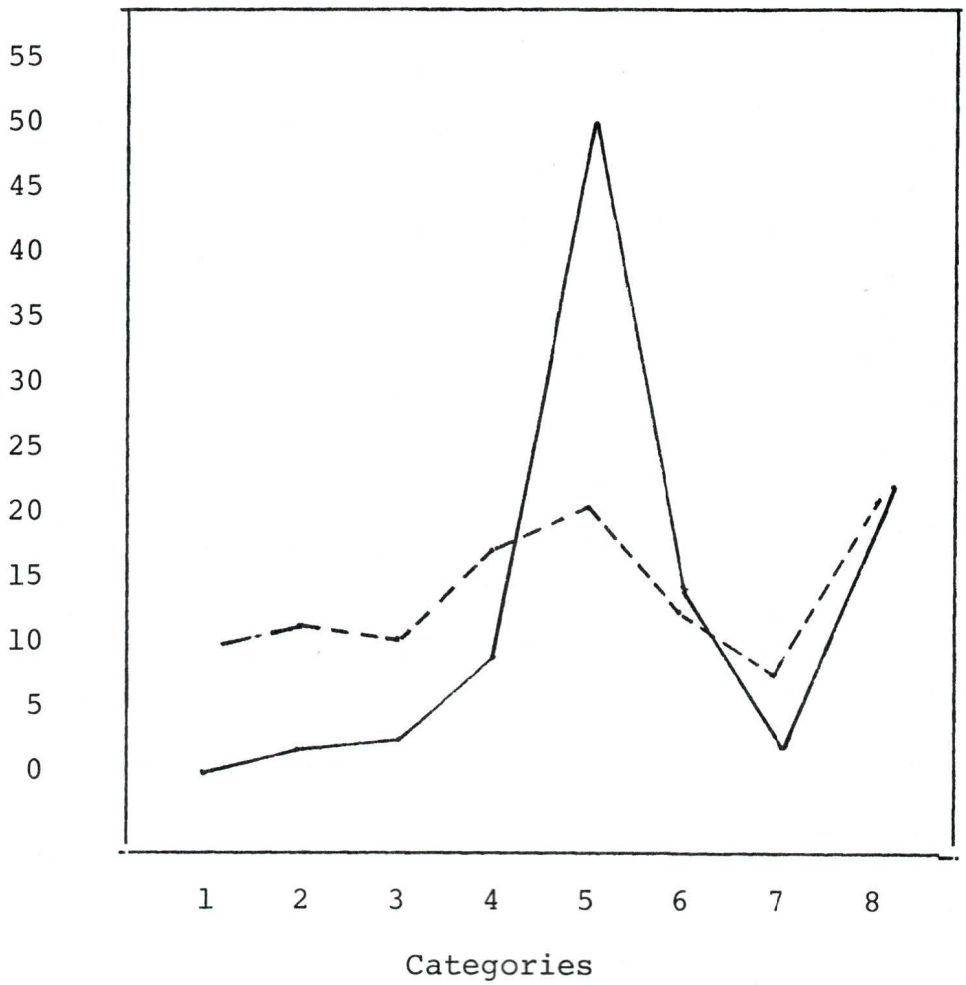
A Spearman rho correlation was performed to test this hypothesis. The means for the predicted and observed percentages of time spent in each category provided two

profiles for each teacher. The correlation between the profile for the observed time and the profile for the predicted time was computed. The Spearman rho obtained was 0.81 ($p < .05$). Therefore, the null hypothesis was rejected. That is, there was a highly positive and statistically significant correlation between the predicted and observed profiles.

In order to examine the pattern of relationship, the means of each category were graphed. (See Figure 1) Figure 1 shows the similarity of profiles between teachers' predicted and observed verbal behavior. In categories 1-4 (indirect verbal behavior), the sample predicted more category 2 statements than category 1, followed by a decrease of category 3 statements, and a marked increase in category 4 statements. Thus, the increase and decrease of time in each category of indirect verbal interaction which teachers said would occur was found, on observation, to be accurate. In general, the lines representing categories 1-4 are almost parallel. As well, the sample predicted an increased use of category 5 statements over category 4, followed by a decrease in both category 6 and 7 statements. Teachers' forecasts about these three categories of direct verbal interaction were supported by the observations. Similar results were obtained in category 8 which described pupil talk. Overall,

Figure 1

PLOT OF TEACHERS' MEAN PERCENTAGE OF PREDICTED AND OBSERVED TIME SPENT IN EACH CATEGORY OF THE FLANDERS SYSTEM OF INTERACTION ANALYSIS



the two profiles of categories 1-8 were quite similar though there were differences in level.

The results obtained from testing the first hypothesis suggest that the sample was able to predict its emphasis on different categories fairly accurately. In other words, the teachers were able to successfully forecast that they would spend a greater percentage of time in some categories rather than in others.

Hypothesis #2

The second major question addressed was whether teachers could accurately predict their use of the individual categories of the Flanders System of Interaction Analysis. The second null hypothesis tested was:

H_0 There is no significant difference at ($p < .05$) between the amount of time teachers predicted they would spend in each of the eight categories of the Flanders System of Interaction Analysis and the observed amount of time spent in these categories.

The Wilcoxon matched-pairs signed-ranks test was used to determine the difference between teachers' predicted and observed use of time spent in the different categories taken one at a time. The null hypothesis was rejected in six of the eight categories at ($p < .05$) and the results appear in Table 3. Each category was examined and the

Table 3

WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST INDICATING THE MEAN DIFFERENCE BETWEEN TEACHERS' PREDICTED AND OBSERVED USE OF VERBAL INTERACTION STYLES

Category	Mean Predicted Time in %	Mean Observed Time in %	T	Level of Significance
1	8.19	.10	0	$P < .05$
2	10.03	1.08	0	$P < .05$
3	9.99	1.88	0	$P < .05$
4	15.75	8.93	6	$P < .05$
5	19.27	49.58	1	$P < .05$
6	11.22	13.83	50	$P > .05$
7	6.40	2.44	11	$P < .05$
8	19.14	21.83	43	$P > .05$
Sum of Categories 1, 2, 3, 4	43.96	11.99	0	$P < .05$
Sum of Categories 5, 6, 7	36.89	65.85	1	$P < .05$

Note: Categories 1-4 refers to indirect teacher verbal influence. Categories 5-7 refers to direct teacher verbal influence.

following points emerged.

Category 1 In predicting the percentage of time spent accepting students' feelings, the teachers estimated that they would spend from 0% to 24% of their time using category 1 statements. The mean range for the sample over the three prediction sessions was from 3.8% to 18%. The observed percentage of time ranged from 1% to 11.20% and the mean range for the three sessions was from 0% to 0.40%. There was a significant difference between the mean percentage of time (8.19%) predicted, and the mean percentage of time (0.10%) observed.

Category 2 The sample predicted they would spend from 0% to 24% of their time praising and encouraging students. The mean range for this prediction was from 4.45% to 20% and the mean of the three sessions was 10.13%. The observed percentage of time ranged from 0% to 6.83% with the mean range from 0% to 4.23%. The mean for the three sessions was 1.08%. Teachers used only 10.77% of the category 2 statements they predicted they would. Again the Vilcoxon T score of the difference between predicted and observed use of this category was significant.

Category 3 As with categories 1 and 2, the teachers overestimated the amount of time they would spend accepting or clarifying students' ideas. Teachers forecasted

they would use category 3 statements from 0% to 30% of the time with a mean range of 1.96% to 26.66%. The observed range of time spent in category 3 was from 0% to 7.50% with a mean range of 0% to 4.17%. The mean of the predictions was 9.99% and the mean of the observed was 1.88%. The Wilcoxon T score indicated a significant difference between predicted and observed verbal behavior.

Category 4 Teachers predicted they would use category 4 statements from 3.03% to 42.86% of the time with a mean range of 6.07% to 25.30%. The mean predicted time for the three sessions was 15.75%. The observed range was from 0% to 33.33% with a mean range of 2.81% to 19.35%. The observed mean for teachers asking questions was 8.93%. The Wilcoxon matched-pairs signed-ranks test with the T value of 6 and a level of significance beyond .05 suggests that the teachers were unable to successfully forecast the amount of time they would spend asking questions.

Category 5 In the category for lecturing, the teachers predicted they would spend from 0% to 46.51% of their time giving facts or opinions about content or procedures or expressing their own ideas. The mean range was from 7.33% to 38.38% for these predictions over the three sessions. The observed range of time spent in category 5 was from 2.52% to 87.78% with a mean range of 19.17% to 67.02%. The mean of the predictions was 19.27% and the

mean of the observations was 49.58%. The Wilcoxon T score indicated a significant difference between predicted and observed behavior.

This category was an instance where the teachers predicted they would spend less time than they observably did. Of the 15 mean predictions made, only one was found to be larger than the observed outcome; all of the observation scores suggested that teachers used category 5 more than they anticipated.

Category 6 The Wilcoxon T value for statements in this category was not significant. That is, teachers were able to predict the amount of time they observably spent in category 6. Teachers forecasted they would spend from 2.00% to 75.76% of their time giving directions, commands or orders to pupils. The mean range of these forecasts was from 4.84% to 32.11% and the mean time was 11.22%. The observed range was from 0.32% to 55.47% with a mean observed range from 3.37% to 26.04%. The mean observed was 13.83% and did not differ significantly from the mean predicted of 11.22%.

Category 7 Teachers overestimated their use of category 7 statements. The Wilcoxon T value of the difference between what teachers had intended to do and what they did on observation was significant. Teachers predicted they would spend from 0% to 12% of their time

changing pupils' behavior from nonacceptable to acceptable forms. The mean range was from 1.30% to 10.41%. The mean prediction derived was 6.40%. The small size of the spread between the lowest and the highest prediction indicates that the teachers were in closer agreement as to the amount of time which was to be spent in this category. The mean amount of predicted time was smaller than the predictions made for all the other statements.

Observations over the three sessions revealed that teachers spent from 0% to 22.16% of their time using these statements. The mean range was from 0% to 10.52% and the mean amount of time spent in this category was 2.44%.

Category 8 In the category for student talk, the Wilcoxon T calculated yielded a value of 43 which was not significant beyond the .05 level. The teachers predicted that they would encourage or permit student talking from 0% to 73.17% of the time with a mean range of from 11.54% to 39.95%. The mean prediction was 19.14%. The observed amount of student talk was from 4.30% to 63.38% with a mean range of 12.96% to 46.72%. The observed mean for the three sessions was 21.83% and did not significantly differ from the predicted amount of 19.14%. That is, the teachers were able to forecast accurately the amount of time spent in category 8.

Hypothesis #3

The third major question addressed was whether teachers were able to accurately predict their use of indirect verbal behavior (categories 1-4). The third null hypothesis tested was:

H_0 There is no significant difference between the amount of time teachers predicted they would spend in categories 1, 2, 3, 4, and the observed time spent in these categories.

The Wilcoxon T obtained was significant. Thus the third hypothesis was rejected. Teachers predicted they would use the four categories of indirect verbal behavior as defined by Flanders from 19.09% to 64.32% of their time. The mean of these predictions was 43.96%. The mean range of observed time was from 2.81% to 24.13% with an observed mean of 11.99%. In effect, teachers overestimated their use of indirect verbal behavior by a considerable amount.

Hypothesis #4

The final question addressed by this study was whether teachers were able to accurately predict their use of direct verbal behavior (categories 5-7). The null hypothesis generated was:

H_0 There is no significant difference between the amount of time teachers predicted they

would spend in categories 5, 6, 7, and the observed time spent in these categories.

The Wilcoxon T value was calculated, producing a score of 1 and a level of significance beyond .05. The fourth hypothesis was therefore rejected. The mean range of teachers predictions for category 5, 6, 7, statements was from 18.76% to 57.35% of their time. The mean prediction was 36.89%. The mean range of the observations for direct verbal behavior was between 45.86% and 84.22% and the mean for the observations was 65.85%.

These results suggest that teachers underestimated their use of direct verbal interaction to nearly the same extent as they overestimated their use of indirect verbal interaction. In effect, teachers indicated a verbal preference for indirect verbal behavior yet used the opposite.

CHAPTER V

SUMMARY, DISCUSSIONS AND IMPLICATIONS

The present study used the Flanders System of Interaction Analysis as a measurement method for examining the relationship between teachers' predicted and observed verbal behavior. Predictions and observations made in each of the eight categories of verbal interaction were compared to determine the ability of teachers to successfully forecast their verbal behavior in the classroom. To this point, the purpose and problem of the study have been stated, the literature pertaining to this subject reviewed, the research methodology outlined, and the findings analyzed. This final chapter will present a summary of the results, a discussion of the findings and the implications arising out of them, and some recommendations for further research.

Summary of the Study

The purpose of the study was to investigate teachers' ability to forecast the amount of time they would spend in a particular lesson using the different patterns of verbal interaction. More specifically, the major concern was to determine if a significant relationship exists between teachers' predicted and observed verbal behavior.

The sample tested in the present study consisted of fifteen English and Social Studies teachers who taught in junior-secondary, junior-senior or middle schools in the British Columbia School District #61. For three separate lessons over a two month period, the teachers were required to predict beforehand their use of different patterns of verbal interaction and then to tape record each particular lesson. The tapes were analyzed and coded by a person trained in the techniques of the Flanders System of Interaction Analysis. The teachers' predictions were recorded in a similar manner. These data were changed into percentages. A Spearman rho correlation was used to test the first hypothesis while the remaining three hypotheses were examined by using the Wilcoxon matched-pairs signed-ranks test.

To measure the differences between predicted and observed verbal behavior, four null hypotheses were posed and tested.

The first hypothesis explored the relationship between teachers' predicted and observed verbal behavior in terms of whether the teachers placed the same amount of emphasis on all the categories when forecasting or using them in the observed lesson. Hypothesis one was rejected when it was shown that the profiles for predicted and observed

behaviors were essentially parallel despite the difference in levels. That is, the teachers were able to successfully predict that they would spend a greater percentage of time in some categories rather than others. Hence a significant relationship existed.

In examining the difference between predicted and observed behavior in each of the eight categories of verbal interaction, it was found that the teachers had considerable difficulty forecasting their use of individual categories. With the exception of categories 6 and 8, teachers did not accurately predict the percentage of time they would spend in the six other categories. There was a significant difference between predicted and observed behavior in most of the categories. Therefore, the second hypothesis was rejected.

Grouped together, categories 1-4 represent indirect verbal interaction. The teachers in the sample population predicted they would spend an average of 43.96% of their time using indirect verbal behavior, yet on observation spent only 11.99% of their time on this type of interaction. The third hypothesis was therefore rejected. Categories 5-7 describe direct verbal interaction, which teachers predicted they would use 36.89% of the time and were observed to use it 65.85% of the time. This con-

stituted a significant difference and as a result hypothesis four was rejected.

Discussion and Implications

The findings of this study suggest that teachers were generally unable to accurately predict their verbal behavior. Although the test for the first hypothesis indicated that a positive relationship existed between the profiles for predicted and observed verbal interaction, it only showed the teachers' ability to successfully forecast that they would spend more time on category 2 than on category 1, and more time on category 3 than on category 2 and so forth. This significant relationship may be explained on the basis that logic would dictate a certain emphasis on some of the categories. For example, most of the teachers would probably have a "ceiling" on the number of category 1 statements (accepts pupils feelings) they would use in a given lesson. Likewise, it would seem obvious that category 5 (lectures) would be a frequently used type of interaction. Nevertheless, the teachers' success in predicting that they would use one category more often than others cannot be interpreted as a measure of control over verbal behavior. As results from the tests of the other hypotheses indicated, the observed time spent in individual categories varied considerably from the predicted time except in two instances.

Overall this evidence suggests that a significant difference exists between teachers' predicted and observed verbal behavior. The reasons for this disparity, however, are not immediately apparent. It is possible that teachers have the ability to accurately forecast the types of verbal interaction they would use in a lesson, but due to unexpected classroom conditions are forced to use more of one type of interaction than anticipated. Since verbal interaction is a two-way process, teachers can only predict their own verbal behavior and have only partial control over that of the students. It is quite possible that in the classroom setting the students respond to the teacher in unforeseen ways which force the teachers to deviate from any preconceived plans. It may be that complete control over verbal interaction patterns in the classroom is not possible. It is also conceivable that teachers may well, like other human beings, be reporting on predicting their own behavior on the basis of a "social desirability" mental set. However, this would not justify ignoring attempts or efforts to improve teachers' ability to control their patterns of verbal behavior.

As the review of the literature on this subject in chapter two suggested, there are benefits to be gained by emphasizing certain types of verbal interaction on the part of teachers. The teacher who places greater emphasis

on indirect verbal behavior has the potential to achieve more positive educational outcomes than the teacher who stresses a direct type of verbal influence. Nevertheless, effective teaching demands an appropriate mixture of both direct and indirect verbal influence. That is, teachers must be able to manipulate their verbal behavior to maximize both student participation in the learning process and the need for the teacher to communicate information in a forthright manner. The implications of this study, however, suggest that teachers do not have the ability to use the different styles of interaction to the extent that they can predict their behavior accurately and, therefore, cannot utilize the patterns of verbal interaction for maximum effectiveness. These findings may be of interest to both teachers and teacher educators. On the one hand, it may stimulate teachers to become more aware of their use of language in the classroom, and, on the other, it may stimulate educators involved in pre-service and in-service training programmes for teachers to develop and use methods to maximize teacher use of appropriate verbal behavior.

Recommendations for Further Research

To substantiate the findings of the present study, the following recommendations for further research are

suggested:

1. Further study is needed which would examine the same questions using elementary and senior-secondary school teachers to determine whether the same results would be obtained for them.

2. This research needs to be replicated for teachers in subjects other than English and Social Studies.

3. Further study is needed to determine if teachers' inability to predict verbal behavior is related to other considerations in the classroom, such as the influence of students or the type of lesson being taught.

4. It would seem important to determine whether teachers who have been taught verbal interaction skills predict their own verbal behavior better than teachers with no knowledge of interaction analysis.

BIBLIOGRAPHY

Amidon, E. H. and Flanders, N. A. "The Effects of Direct and Indirect Teacher Influence on Dependent-Prone Students Learning Geometry, "Interaction Analysis: Theory, Research and Application. Edited by E. H. Amidon and John B. Hough. Reading, Massachusetts: Addison-Wesley Publishing Company, 1967.

Amidon, E. H. and Hough, J. B. Interaction Analysis: Theory, Research and Application. Don Mills, Ontario: Addison-Wesley Publishing Company, 1967.

Amidon, E. H. and Hunter, E. Improving Teaching: The Analysis of Classroom Verbal Interaction. Toronto: Holt, Rinehart and Winston, Inc., 1966.

Anderson, H. H. "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts and Children," Child Development, X June, 1939, pp. 73-89.

Anderson, H. H. and Brewer, J. E. "Studies of Teachers' Classroom Personalities, II, Effects of Teachers' Dominative and Integrative Contacts on Children's Classroom Behavior. Stanford, California: Stanford University Press 1946.

Bondi, J. "Verbal Patterns of Teachers in the Classroom," National Elementary Principal, 1971, L, pp. 60-61.

Campbell, J. R. "A Longitudinal Study in the Stability of Teachers' Verbal Behavior," Science Education, 1972, LVI, pp 89-96.

Campbell, J. R. and Barnes, C. W. "Interaction Analysis-A Breakthrough?" Phi Delta Kappan, 1969, L, pp. 587-590.

Cogan, M. L. "Theory and Design of a Study Teacher-Pupil Interaction," Harvard Educational Review, XXVI, Fall 1956, pp. 315-342.

Flanders, N. A. "Personal-Social Anxiety as a Factor in Experimental Learning Situations," Journal of Educational Research, XLV 1951, pp. 100-110.

Flanders, N. A. Interaction Analysis in the Classroom: A Manual for Observers. Minnesota: College of Education 1960.

_____. Teacher Influence, Pupil Attitudes, and Achievement. Washington, D. C. : U. S. Government Printing Office, 1960.

_____. "Some Relationships Among Teacher Influence, Pupil Attitudes, and Achievement, "Interaction Analysis: Theory, Research, and Application. Edited by E. H. Amidon and J. B. Hough. Reading, Massachusetts: Addison Wesley Publishing Company, 1967.

_____. Analyzing Teaching Behavior. London, Ontario: Wesley Publishing Company, 1970.

Lewin, K., Lippitt, R., and White, R., "Patterns of Aggressive Behavior in Experimentally Created Social Climates," Journal of Social Psychology, X, May 1939, pp. 271-299.

Medley, D. M. "Early History of Research on Teacher Behavior," International Review of Education, 1972, XVIII, pp. 430-439.

Mullarney, P., A Study of the Relationship Between Verbal Interaction of Teachers and Their Philosophical and Educational Beliefs in Experimentalism, Unpublished doctoral thesis, University of Michigan, 1972.

Oliver, W. A., "Teachers' Educational Beliefs Versus Their Classroom Practices," Journal of Educational Research, 1953, XLVII, pp. 47-55.

Perkins, H. V., "Climate Influences Group Learning," Journal of Educational Research, XLV, 1951, pp. 115-119.

Popham, W. J. and Sirotnik, K. A. Educational Statistics: Use and Interpretation. New York: Harper and Row, 1967.

Rosenshine, B. Teaching Behavior and Student Achievement. London, England: National Foundation for Educational Research, 1971.

Ryans, D. G. Characteristics of Teachers: Menasha, Wisconsin: George Banta Company, 1970.

Soar, R. S. "Teacher Behavior Related to Pupil Growth," International Review of Education. 1972, XVIII, pp. 508-526.

Westbury, I. and Bellack, A. Research in Classroom Processes: Recent Developments and Next Steps. New York: Teachers' College Press, 1971.

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

Zahorik, J. A. "Classroom Feedback Behavior of Teachers," Journal of Educational Research, 1968, LXII, pp. 147-150.

APPENDICES

APPENDIX A

FLANDERS' SYSTEM OF INTERACTION ANALYSIS

A. FLANDERS' INTERACTION ANALYSIS CATEGORIES

Response

1. Accepts feeling. Accepts and clarifies an attitude or the feeling tone of a pupil in a nonheartening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.

2. Praises or encourages. Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.

3. Accepts or uses ideas of pupils. Clarifying building, or developing ideas suggested by a pupil. Teacher extension of pupil ideas are included.

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 or other than a pupil.

6. Giving directions. Directions, commands, or orders to which a pupil is expected to comply.

7. Criticizing or justifying authority. Statements 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.

Response

8. Pupil-talk-response. 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.

Initiation

9. Pupil-talk-initiation. Talk by pupils which they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.

Silence

10. Silence or confusion. Pauses, short periods of silence and periods of confusion in which communications cannot be understood by the observer.

APPENDIX B

REVISED FLANDERS' SYSTEM OF INTERACTION ANALYSIS

REVISED FLANDERS' SYSTEM OF INTERACTION ANALYSIS

Teacher Talk-Indirect Influence	No. of Minutes
1. Accepts Feelings: accepts and clarifies the feelings of pupils in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.	_____
2. Praises or Encourages: praises or encourages pupil action or behavior. Jokes that release tension, but are not at the expense of another individual, as well as nodding head or saying "um - um" or "go on" are included.	_____
3. Accepts or Uses Ideas of Pupils: clarifies or develops ideas suggested by a pupil. As the teacher brings more of his own ideas into play, shift to Category 5.	_____
4. Asks Questions: asks a question about content or procedure with the intent that a pupil answer.	_____
Teacher Talk - Direct Influence	
5. Lecturing: gives facts or opinions about content or procedure; expresses his own ideas; asks rhetorical questions.	_____

6. Giving Directions: directs, commands, or orders with intent that pupils comply. _____

7. Critizing or Justifying Authority: makes statements intended to change pupil behavior from nonacceptable to acceptable pattern. _____

8. Student Talk: initiation or response. _____

APPENDIX C

TABLES 4-11 SUMMARY RESULTS OF EIGHT CATEGORIES OF VERBAL INTERACTION

Table 4

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 1

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	11.43	0.88	0.00	0.00	0.00	0.00	3.81	0.29
2	0.00	0.00	12.20	0.00	5.00	0.00	5.73	0.00
3	12.00	0.00	12.50	0.39	5.66	0.00	10.05	0.32
4	14.00	0.00	4.35	0.00	5.40	0.57	7.91	0.00
5	0.00	0.00	13.95	0.00	5.88	0.00	6.61	0.00
6	10.00	0.00	16.00	0.00	4.00	0.00	12.00	0.00
7	4.00	0.00	10.00	0.00	6.66	0.00	6.44	0.00
8	6.00	0.00	6.66	0.00	0.00	0.00	4.22	0.00
9	0.00	0.00	0.00	0.00	24.00	0.00	8.00	0.00
10	14.00	0.00	16.00	0.00	24.00	0.00	18.00	0.00
11	10.64	0.31	14.00	0.00	16.00	0.33	13.54	0.22
12	6.00	1.20	6.00	0.00	10.00	0.00	7.33	0.40
13	4.00	0.00	5.00	0.00	3.33	0.00	4.11	0.00
14	10.00	0.32	20.00	0.00	10.00	0.00	13.33	0.11
15	10.00	0.31	6.00	0.00	6.00	0.00	7.33	0.10

Table 5

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 2

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	14.29	1.18	0.00	0.91	8.00	0.36	7.43	0.82
2	2.86	0.37	4.88	0.00	15.00	0.00	7.58	0.12
3	8.00	0.00	10.00	1.17	2.55	0.00	6.85	0.39
4	12.00	1.29	6.53	0.54	13.51	0.00	10.68	0.61
5	5.13	0.49	2.33	0.00	5.88	0.00	4.45	0.16
6	10.00	2.04	4.00	2.23	10.00	0.00	8.00	1.42
7	8.00	0.91	10.00	0.00	6.00	0.68	8.00	0.53
8	6.00	3.36	8.33	4.15	13.33	5.19	9.22	4.23
9	10.00	0.68	10.00	0.67	10.77	0.36	10.25	0.57
10	14.00	0.00	24.00	0.00	16.00	0.00	18.00	0.00
11	6.38	3.44	6.00	1.54	10.00	1.99	7.46	2.32
12	20.00	6.83	20.00	0.93	20.00	1.77	20.00	3.18
13	6.00	1.24	8.33	0.00	8.33	0.00	7.55	0.40
14	10.00	0.63	10.00	0.60	10.00	0.50	10.00	0.57
15	10.00	0.31	20.00	1.11	20.00	3.41	16.66	1.61

Table 6

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 3

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	20.00	4.13	0.00	1.83	4.00	0.00	8.00	1.99
2	4.29	0.00	0.00	0.00	12.50	0.00	5.60	0.00
3	18.00	0.00	22.50	2.34	18.87	1.13	19.79	1.16
4	16.00	4.84	13.51	2.83	13.51	2.83	13.46	4.17
5	0.00	1.46	0.00	0.00	5.88	1.27	1.96	0.91
6	10.10	3.40	10.00	3.18	20.00	5.94	13.33	4.17
7	8.00	2.74	20.00	0.77	8.00	4.79	12.00	2.77
8	6.00	0.00	6.66	0.00	3.33	0.00	5.33	0.00
9	5.00	1.69	8.00	1.68	7.69	0.36	6.89	1.24
10	12.00	0.00	14.00	0.00	10.00	0.00	12.00	0.00
11	4.26	7.50	6.00	2.32	12.00	0.99	7.42	3.60
12	2.00	2.41	6.00	0.00	4.00	1.06	4.00	1.15
13	10.00	4.56	3.33	2.88	5.00	0.00	6.11	2.48
14	10.00	1.27	4.00	1.80	10.00	3.27	8.00	2.11
15	20.00	1.85	30.00	1.95	30.00	1.05	26.66	1.61

Table 7

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 4

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	14.29	10.91	3.03	9.17	28.00	12.55	15.10	10.88
2	42.86	15.07	4.88	11.81	25.00	8.16	24.24	11.68
3	22.00	8.54	27.50	13.67	26.42	2.27	25.30	8.16
4	28.00	15.81	13.04	33.33	10.81	8.91	17.28	19.35
5	7.69	17.47	4.65	0.66	5.88	7.01	6.07	8.39
6	20.00	11.90	20.00	7.01	20.00	11.55	20.00	10.15
7	16.00	2.74	10.00	2.31	10.00	8.56	12.00	4.53
8	12.00	4.20	16.66	2.90	13.33	2.42	14.00	3.17
9	8.00	10.14	10.00	6.06	13.85	4.29	10.61	6.83
10	20.00	2.04	12.00	0.00	10.00	6.40	14.00	2.81
11	21.28	14.38	16.00	7.72	18.00	7.28	18.42	9.79
12	20.00	7.23	16.00	8.41	16.00	8.87	17.33	8.17
13	10.00	15.77	25.00	9.58	16.75	7.69	17.22	11.01
14	10.00	4.43	10.00	10.18	10.00	8.82	10.00	7.81
15	10.00	14.81	10.00	10.86	10.00	9.45	10.00	11.79

Table 8

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 5

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	14.24	52.51	9.04	70.95	20.00	31.39	14.46	51.61
2	7.14	27.52	0.00	30.38	25.00	34.99	10.71	30.98
3	2.00	58.23	15.00	52.73	28.30	74.50	15.10	61.85
4	12.00	38.71	21.74	48.39	40.54	72.06	24.76	53.05
5	12.82	53.40	46.51	87.78	14.71	23.57	24.68	54.92
6	10.00	49.32	20.00	62.74	10.00	51.82	13.33	54.63
7	30.00	65.96	20.00	61.54	20.00	45.21	23.33	57.57
8	30.00	2.52	25.00	24.90	28.33	30.10	27.77	19.17
9	37.00	49.66	32.00	51.85	46.15	68.93	38.38	56.81
10	8.00	66.33	8.00	43.22	10.00	38.37	8.66	49.30
11	10.64	30.63	16.00	57.92	26.00	58.94	17.55	49.16
12	16.00	43.37	20.00	65.11	14.00	48.94	16.62	52.47
13	30.00	47.72	8.33	25.24	16.67	34.07	18.33	35.67
14	20.00	57.91	20.00	76.65	30.00	66.50	23.30	67.02
15	10.00	66.05	6.00	68.80	6.00	54.86	07.33	63.28

Table 9

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 6

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	8.57	8.55	75.76	0.92	12.00	55.47	32.11	21.65
2	7.14	24.26	4.88	20.66	2.50	9.62	4.84	18.18
3	6.00	7.28	7.50	7.03	5.66	10.76	6.39	8.30
4	4.00	9.03	26.07	6.60	8.82	4.78	12.96	6.86
5	5.13	9.22	13.95	6.60	8.82	4.78	9.30	6.86
6	10.00	3.40	10.00	0.32	10.00	8.58	10.00	4.00
7	10.00	6.08	10.00	16.92	16.00	7.53	12.00	10.18
8	10.00	36.13	16.66	23.65	13.33	18.34	13.73	26.04
9	8.00	18.24	10.00	12.79	7.69	9.29	8.56	13.44
10	8.00	22.45	2.00	24.58	10.00	26.16	6.66	24.40
11	10.64	8.13	16.00	11.58	14.00	10.60	13.55	10.00
12	10.00	20.88	18.00	14.95	12.00	22.70	16.66	19.51
13	10.00	4.98	8.33	36.74	8.33	26.74	8.89	22.82
14	10.00	5.70	10.00	2.40	10.00	2.02	10.00	3.37
15	10.00	4.94	6.00	4.18	6.00	5.25	7.33	4.78

Table 10

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 7

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	2.86	1.47	6.06	0.00	6.00	2.92	4.63	1.46
2	7.14	1.84	0.00	1.69	2.50	22.16	3.21	8.56
3	2.00	0.00	0.00	0.39	1.86	3.40	1.30	1.26
4	0.00	0.00	2.18	0.00	2.70	0.40	1.62	0.13
5	5.13	3.88	6.98	0.66	8.82	0.00	6.98	1.51
6	10.00	4.08	10.00	0.32	10.00	3.96	10.00	2.79
7	4.00	0.00	10.00	0.00	2.00	0.00	5.30	0.00
8	10.00	0.84	8.33	0.41	5.00	0.69	7.77	0.65
9	12.00	0.68	10.00	3.70	9.23	3.21	10.41	2.53
10	12.00	1.02	4.00	19.49	12.00	11.05	9.33	10.52
11	4.26	0.00	10.00	5.41	4.00	0.66	6.08	2.02
12	6.00	1.20	4.00	0.62	10.00	0.35	8.66	0.72
13	10.00	1.66	8.33	4.79	8.33	5.49	8.89	3.90
14	10.00	0.32	6.00	0.00	10.00	1.01	8.66	0.44
15	10.00	0.62	2.00	0.00	2.00	0.00	4.67	0.20

Table 11

A PERCENTAGE SUMMARY OF TEACHER PREDICTED AND OBSERVED TIME SPENT IN CATEGORY 8

Teacher Number	Session 1		Session 2		Session 3		Mean of 3 Sessions	Mean of 3 Sessions
	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed
1	14.29	20.35	6.06	16.21	22.00	7.23	14.11	14.60
2	28.57	30.88	73.17	35.44	12.50	25.07	38.08	30.46
3	30.00	25.95	5.00	22.27	5.66	7.37	12.89	18.53
4	14.00	30.32	15.23	9.68	5.40	11.34	11.54	17.11
5	64.10	14.08	11.63	4.30	44.12	63.38	39.95	27.25
6	20.00	25.85	10.00	24.20	10.00	18.15	13.33	22.73
7	20.00	21.58	10.00	18.46	34.00	33.22	21.33	24.42
8	20.00	52.94	11.66	43.98	16.66	43.25	16.10	46.72
9	20.00	18.92	20.00	23.23	4.62	13.57	14.87	18.57
10	12.00	8.16	20.00	12.71	8.00	18.02	13.33	12.96
11	31.91	35.63	16.00	13.51	0.00	19.21	15.97	22.78
12	20.00	16.87	10.00	9.97	14.00	16.31	14.66	14.38
13	20.00	24.07	33.33	20.77	33.33	26.01	28.88	23.61
14	20.00	29.43	20.00	8.38	10.00	17.88	16.66	18.56
15	20.00	11.11	20.00	13.09	60.00	25.98	33.33	16.73

APPENDIX D

SAMPLE TALLY SHEETS FOR PREDICTIONS AND OBSERVATIONS

SAMPLE TALLY SHEET

Episode Teacher Number 19 Subject English

Grade Level 9 Session Number 1

Category		Total # Statements	Per Cent
1		1	.31
2		1	.31
3		6	1.85
4		48	14.81
5		214	66.05
6		16	4.94
7		2	.62
8		36	11.11
Sum of Total Number of Statements		324	100.00

BLANK TALLY SHEET

Episode A Teacher Number _____ Subject _____

Grade Level _____ Session Number___

Category		Total # Statements	Per Cent
1			
2			
3			
4			
5			
6			
7			
8			
Sum of Total Number of Statements			

APPENDIX E

INTRODUCTORY LETTER

Dear Colleague:

I would like you to help me collect some data for my Master of Arts thesis.

I am attempting to study different types of verbal communication patterns which are used by teachers in the classrooms. I would like to emphasize that I am interested in the type, not quality of language patterns used. In no way will I evaluate them as good or bad, effective or ineffective. I simply wish to determine whether in-service sessions should be recommended in order to utilize specific forms of teacher talk.

My data will be collected by using a small cassette tape-recorder about the size of an envelope. The mike is built-in so there will be no need to worry about cords or other encumbrances, and may be carried on a shoulder strap or placed in your pocket. After each recording session, the tape will be numbered so that your name will never be used but only coded and then erased immediately. I don't want you to say or do anything special; in fact, only randomly selected parts of the tape will even be examined. If it will make you feel more comfortable, I could lend you the recorder ahead of time so that you may try it out to see how you feel.

The following is a revised Flanders' Interaction Analysis Scale. I would like you to examine each verbal category and its description carefully.

This recording session will involve division_____. Would you please estimate the number of minutes that you feel you will spend in each category on _____, _____ 1978, in a 50 minute lesson? Please remember that the first and last five minutes of your lesson are to be omitted since much of that time is spent on house-keeping chores such as settling the class down, assigning homework for the following period, etc. Furthermore, if you find that some of your estimates for certain categories are the same as others, would you please indicate which one of them predominates your verbal style by placing a number in the margin to priorize them.

APPENDIX F

INFORMATION ON TEACHERS' BACKGROUND

The following information is necessary in order to determine whether differences in language usage in the classroom exist between teachers in the following categories:

Would you please complete this form?

Teacher number _____ Sex M_____ F_____

Age: Under 30 _____ 31-35 _____ 36-40_____

41-45 _____ 46-50 _____ Over 50 _____

Years of experiences in teaching:

0-5 _____ 6-10 _____ 11-15 _____ 16-20 _____

21-25 _____ 26-30 _____ Over 30 _____

Years of University training:

_____ 1-3 _____ 4 _____ 5 _____ 6 or more

Years taught in present school _____.

Years taught in School District No. 61 _____.

Subjects taught besides English or Social Studies.

_____ approximately _____ per cent of time.

_____ approximately _____ per cent of time.

_____ approximately _____ per cent of time.

Have you had any training in interaction analysis?

_____ yes _____ no

VITA

Surname: SITWELL Given Names: JOHN ALEXANDER

Place of Birth: ZAMOC̈, POLAND

Date of Birth: May 25, 1944

Educational Institutions Attended,
with Dates of Entering and Leaving:

UNIVERSITY OF SASKATCHEWAN, REGINA	1963 to 1967
	____ to ____

Degrees, Diplomas, Ect., Awarded,
with Dates and Names of Institutions:

B.A.	1967	Univ. of Saskatchewan, Regina
Diploma in Education	1967	Univ. of Saskatchewan, Regina

Honours and Awards:

Publications:

A Guide to Teaching Skills, edited by David R. Stronck. Contributors: Wendy Bender, John Clarkson, Caroline Mahlman, Gail Robb, John Sitwell, David Stronck, and Wendy Swonnell.

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Title of Thesis/Disseration

A STUDY OF THE RELATIONSHIP BETWEEN TEACHERS' PREDICTED AND OBSERVED VERBAL BEHAVIOR IN THE CLASSROOM.

Author [redacted]

Signature

John A. Sitwell

Name

April 22, 1980

Date