1972

Student-teacher perception and elementary school classroom verbal interaction

Wendell Clarence Williams

Iowa State University

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Student-teacher perception and elementary school classroom verbal interaction

by

Wendell Clarence Williams

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of DOCTOR OF PHILOSOPHY

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INTRODUCTION

It is generally believed that the main concern of schools is instruction. But schooling is a much broader experience than being taught what is contained in textbooks. Students learn not only facts, skills, and concepts but also rules of membership in a social institution. For well over a thousand hours a year, students are urged to follow routines and procedures, to get along with each other, and to respect adult authority. Every day, students' actions are praised and criticized, their movements are directed, and their values and beliefs are shaped. Often these experiences in institutional living may have greater impact on students' ultimate well-being than do those we commonly identify with the academic curriculum (Silberman, 1971, p. 1).

The quality of classroom social conditions not only facilitates or retards constructive interaction of learner and the behaviors selected for his accommodation, but also accumulates to effect either a positive or negative self-assessment. "A student's concept of himself is built up primarily through the accumulated bits of feedback that he receives from those with whom he comes in contact in the school (Schmuck and Schmuck, 1971, p. 2)." Certainly, the behavior of teachers and/or of peers has a differential influence on students. The extent of influence will depend upon the student's personal individuality which reflects the inherent and the environmentally imposed. The impact may be monumental and the effect life-long. Academic achievement is partially a function of student self-assessment (Schmuck and Schmuck, 1971, p. 12).

Teaching style, curricular inclusion, the student's self-concept and the interpersonal relationships in the classroom combine to enhance or impede learning. These are the variables
with which the powerful adults engaged in formalized education must be concerned.

Many elementary school teachers are indeed aware of the importance of, and may attempt to make provision for, a favorable classroom climate. Yet, confronted with the task of selecting and preparing lessons from vast stores of newly available knowledge, complicated by the challenge of tailoring didactic approaches to pupil diversity, the teacher seldom has the time nor the specialized training to ponder the significance of a myriad fleeting events which, in concert, constitute classroom climate.

Jackson (1968) categorizes most classroom activity as being either "seatwork", "group discussion", "teacher demonstration" or "question-and-answer period (p. 8)." Attempted individualization of assignment, the task of limiting discusssional content, the challenge of selecting appropriate instructional paraphernalia, and the problems associated with serving as gatekeeper in the management of verbal interaction and controller of an immeasurable number of rewards and punishments, accumulate to tax the teacher's personal resources until little remains for analysis of the subtlety of teacher reaction to individual student and student reaction to teacher. Concern for a more extensive realization of the human potential has led to focus upon and attempted improvement of the situation. It was within the fertility of such concern that the introduction of consultative services offered by elementary
school counselors was conceived.

The consultative responsibilities of the elementary school counselor are intended to be collaborative. Dinkmeyer (1968) emphasized that the guidance specialist would not provide ready answers. Rather, "the teacher and the consultant work together to understand and resolve problems (p. 109)."

The consultant must be trained to listen to, and concentrate upon, the teacher's perception of various situations which reflect the dynamics of behavioral expression. It is then with such an approach that the elementary counselor-consultant can, as a member of a team, assist the classroom teacher. Munson (1970) emphasized that skill in interpersonal relations must be an essential competency of the elementary school guidance specialist if his knowledge and insights are to benefit child and teacher.

Observation in the classroom may be prerequisite to meaningful consultation. "Classroom observation by the consultant focuses on understanding the interaction between the child, his peers, and the teacher (Dinkmeyer, p. 110)." The consequences and social meaning of interaction can be analyzed and discussed with the teacher. Of course, recommendations are developed on the basis of the teacher's personality and implementive capacity.

In short, the central function of elementary school guidance is to enhance and improve the learning environment of the school so that each pupil in the elementary school has an opportunity to learn to the best of his capacity (Munson, p. 38).
In summary, the following outline has been compiled to assist the reader in assimilating that which the author has included for consideration:

1. It has been noted that classroom learning conditions vitally affect the learning process.

2. Allusion has been made to the magnitude of teacher responsibility.

3. The impossibility of a comprehensive teacher assessment of her own classroom learning climate and her part in it was mentioned.

4. The consultative responsibilities of elementary school guidance personnel have been discussed.

5. Consideration of the necessity for observation prelatory to counselor-teacher consultation was included.

Attention will now be given to the possible significance of teacher perception of student role and classroom verbal interaction as these relate to the present study.

Rationale

Aside from sleeping, and possibly playing, the child spends most of his time from September through May at school. A vast amount of learning, planned or unplanned, will occur within such an expanse of time. Although confining, the school experience can be quite rewarding for some children if the challenge is reasonable and subsequent success is achieved. Other children may accept school activities only sporadically and less than enthusiastically.
Jackson (1968) contended that the school child must face the inevitability of his confining school experiences. "He must develop strategies for dealing with the conflict that frequently arises between his natural desires and interests on the one hand and institutional expectations on the other (Jackson, 1968, p. 9)." The classroom teacher is the significant adult who stands in the center of this conflict.

The development of teacher expectation may be founded upon valid assessment or it may be a function of the superficial. Biehler (1971) noted a tendency for prior information, one impression, or one characteristic to influence all other impressions. He cited examples wherein a positive halo was induced by a student's appearance and background while a negative halo was attached to a student because of a remark by another teacher or some disagreeable behavior the child had habituated.

Silberman (1969) found that teacher attitudes are generally revealed in their actions in spite of the forces operating to limit their expression. Equality of educational opportunity has been stressed to such an extent that members of the teaching profession, their administrators, their patrons, indeed, their students are sensitive to any hint of favoritism or special regard in the form of extended praise, excessive citation of a particular child's behavior or ideas, or inconsistent disciplining. Silberman (1969) noted that classroom events occur rapidly in spite of the teacher's
concerted efforts to contain them. Thus, teachers make many decisions based almost entirely upon their feelings toward the students involved rather than upon a deliberate consideration of the contingencies of the situation. Student role assignment and/or assumption of the past may be reflected in the interaction of the present. Whether a student's role has been assigned to him, assumed by him, or is a function of an interaction between the two, expectations of given behaviors develop. To his advantage or disadvantage, "one person's expectation for another's behavior could come to serve as a self-fulfilling prophecy (Silberman, 1971, p. 107)."

Silberman (1969) presented as most important the finding that students, who receive them, are aware of most behavioral expressions of their teacher's attitudes. Behaviors directed toward individual students may also be obvious to other students in the class. "Thus, it is likely that the daily classroom experience of recipient students is significantly altered by teacher actions which express their attitudes (Silberman, 1969, p. 407)." Such behavioral manifestations of teacher perception not only convey the feelings of a significant adult but also "guide the perceptions of and behavior toward these students by their peers (Silberman, 1969, p. 407)."

The influence of teacher behavior and classroom social interaction comprises then a system vitally important to the complexion of the learning environment. "In viewing instruction, teaching, and learning, it is important to consider the
effect of the system on individual and on group role and function and the net effect of these on the atmosphere of the school and the classroom (Munson, 1970, p. 38)."

Feshbach (1969) emphasized that her study lent striking support to the hypotheses that student-teachers prefer pupils whose behavior reflects rigidity, conformity, and orderliness or dependency, passivity, and acquiescence rather than pupils whose behavior is indicative of flexibility, nonconformity, and untidiness or independence, activity and assertiveness. Feshbach stated that, in general, student-teachers perceived most positively the rigid, conforming girl and secondly the rigid, conforming boy.

In Feshbach's discussion of her research of student-teacher preferences, she stated:

In view of the considerable amount of social-psychological evidence that attitudes and expectations exert a significant effect upon behavior, it seems reasonable to assume that the preferences of the student-teachers would be manifested in their classroom behavior. Teachers reward the behaviors they prefer and their expectancies and attitudes, which are communicated to the children in direct and indirect ways, will influence the values and expectancies of the children they teach (p. 131).

Differential student perception and disposition determine the manner in which and the extent to which such teacher influence will affect student behavior. The child's history of reinforcement (as well as the extent to which the teacher serves as a potent reinforcer) also contributes to the differentiation of student response. Consequently, classroom praise and criticism, although intended to help the learner, may in some instances
instead threaten some types of student (Silberman, 1971, p. 3).

Nearly seventy percent of classroom instructional time is spent in talk by either the teacher or students (Amidon and Hough, 1967, p. 118). The teacher may give directions, criticize, praise, question, and accept and clarify student ideas and feelings. Silberman (1971) noted that elementary school teachers engage in as many as a thousand interpersonal interchanges each day. Involved in these interchanges are students who often respond to directed questions or verbalize their own ideas or questions.

Classroom contacts of teacher and pupil have been classified and analyzed through the use of several approaches. One such approach through which a volume of research has been conducted is the Flanders Interaction Analysis. Ten categories of behavior are included for analysis in the Flanders System. Teacher statements are first classified as either direct or indirect. Student talk is categorized under student-response or student-initiated talk.

Norma Furst and Edmond Amidon (Amidon and Hough, 1967) researched and analyzed interaction, using Flanders' Interaction Analysis, in twenty-five classrooms at each grade level from one through six. They found at the third-grade level that the amount of teacher talk begins to increase, the amount of praise
is lowest, the amount of time spent giving directions increases, indirect influences are lowest, extended direct influence is highest, teachers begin responding to student talk in ways other than praise and questioning and the amount of student-initiated response is lowest. This seems tragic. For the child at this point in his development is becoming reversible, according to Piaget, and should be given opportunities to, and reinforcement for, verbally testing his newly developing capacity for idea production (Maier, 1969).

Many teacher education programs focus upon the imparting of knowledge and the affording of experiences designed to change pre-service attitudes and to encourage behavioral flexibility. Rabinowitz and Rosenbaum (1960) stress the fact that teacher-education institutions recognize that a teacher's attitudes are basic to effective performance. A point of view is encouraged that will ensure appropriate classroom behavior (p. 313). All such efforts seem founded upon the assumption that such training will eventually transfer to and affect the behavior of the individual in his or her career as a teacher. Carryover, in varying degrees and in sundry ways, seems an obvious conclusion.

While Feshbach warns that student-teachers may be sufficiently preoccupied with the problems of classroom management and content to limit prediction of career behavior, she does suggest that student-teacher preferences for particular role-playing students appear consistent with attributes which
characterize career teachers as a group. Further, she notes that career teachers reward the behaviors they prefer, and their expectancies and attitudes are communicated to the children in direct and indirect ways (p. 131). Davidson and Lang (1960) conclude, from their study of children's perceptions of their teachers' feelings toward them, that it may be assumed that teachers reflect a variety of feelings toward children. Cited among manifestations of these feelings is the way teachers use punishment or praise (Davidson and Lang, p. 114).

Amidon and Flanders (1967, p. 74) observe that the pattern a teacher develops in one year is likely to be continued the following year with different pupils. The findings of Rabinowitz and Rosenbaum (p. 319) can be used to document the Amidon and Flanders observation. Rabinowitz and Rosenbaum studied teaching experience as it relates to teacher attitude. They found that cynicism, hostility, or punitiveness as well as the polar behavior of a generally accepting point of view toward pupils showed little change from a sampling taken when 1,323 individuals were student-teachers to a second measurement three years later when they had become career teachers.

The Problem

Feshbach has shown that student-teachers identify and apparently prefer particular types of role-playing students. The Furst-Amidon study revealed gross changes occurring at
the third-grade level. The importance of teacher behavior in the establishment of a healthy learning climate has increasingly been emphasized.

Therefore, the question arose: Are student-teachers' perceptions of student role of significance in their third-grade classroom verbal interactions? A search of Dissertation Abstracts, scrutiny of periodical literature, and examination of Educational Research Information Center records revealed that a void tended to exist in the study of the possible significance of elementary school student-teacher perception of student role, as sampled using an instrument such as Feshbach's Situation Test, in classroom verbal interaction, as analyzed using Flanders' Interaction Analysis.

The Null Hypothesis

For purposes of this study, the following null hypothesis was derived:

Elementary school student-teachers' perceptions of student role, as sampled using Feshbach's Situation Test, are not of significance in a thirty minute observation of their third-grade classroom pattern of verbal interaction, as analyzed using Flanders' Interaction Analysis.

From this general null hypothesis, four specific null hypotheses were generated on the basis of previous research using the Flanders system.
1. There is no difference among male or female role groups in the mean number of selected indirect student-teacher behaviors preceding and following student talk.

2. There is no difference among male or female role groups in the mean number of student-teacher questions preceding and following student talk.

3. There is no difference among male or female role groups in the mean number of selected direct student-teacher behaviors following student talk.

4. There is no difference among male or female role groups in the mean number of student behaviors recorded as student talk.
REVIEW OF THE LITERATURE

Introduction

In keeping with the purpose of this study, the literature relevant to student role behavior, student and teacher role conflict, preferences of identified role groups, role expectations, role identification, and systems of analysis of the role behavior of teachers was thoroughly searched. The literature is not replete with accounts of research focused upon examination of role theory constructs within an educational context. Conversely, a magnitude of experimentation and observation has been conducted in attempting to predict and improve the teaching act and the ramifications thereof.

Therefore, an effort was made to present on the following pages the rudiments of role theory, an account of the development and application of protocols for analysis of classroom interaction, and a variety of reports of research conducted in attempted examination of each.

The literature is reviewed under the following major headings:

1. Role Theory and Research
2. Classroom Verbal Interaction and Research

Role Theory and Research

Men must organize. In order to obtain food and shelter, to guard against periods of shortage or misfortune, and to propagate their own kind, men are obliged to cooperate with their fellows. Every society, in fact, can be viewed as a division of labor suited
to its environment, particular members are given their tasks to perform on behalf of the group; norms as to proper behavior in given circumstances are established, and sanctions are developed to reward people for worthy conduct and punish them for deviations (Benton, 1965, p. 1).

Analysis and study of role theory often includes description of the behaviors of individuals, the interaction of individuals, and the kinds of relationships produced by these behaviors and interactions. A rather specific vocabulary has been developed since Ralph Linton (1936), an anthropologist, first used the term "role" within a social science context. Definitions often used in basic role terminology are:

1. Actor, position incumbent or focal person - an individual who occupies a position.

2. Position - the location of an actor or class of actors in a system of social relationships.

3. Expectation - an evaluation standard applied to an incumbent of a position.

4. Role - a set of expectations applied to an incumbent of a particular position.

5. Role sector - a set of expectations applied to the relationship of a focal position to a single counter position.

6. Role pressures - influence attempts, directed toward the focal person and intended to bring about conformity with the expectations of the senders.

7. Role behavior - an actual performance of an incumbent of a position which can be referred to as expectation for an incumbent of that position. (Munson, 1970, p. 68 and 69).

Essential to the enactment of a role are self identification, identification of behavior compatible with this identified self and appropriate to a given situation, the emission
of cues from counter-role players, and evaluation of the role enactment by the individual and by others (Lindsmith and Strauss, 1956, p. 385). A myriad of influences accumulate to impinge upon the individual as he selects appropriate responses. In a sense, his selection is not unlike a screening. For, he admits only certain cues to his perceptual field. It would be impossible for him to attend to all influences. His set of responses are eventually then a function of external reality, his capacity for a role behavior, and his history of conditioning. Each can change; thus behavioral patterns change as time passes. In a manner relevant to the present study, Moment and Zaleznik (1963) summarized external influences as these relate and provide alternatives to particular role behaviors.

1. The cultural setting of problem-solving groups and the requisites of group problem-solving demand individual performances addressed to task and social problems. Task problems tend to demand aggressive and disruptive behaviors while social maintenance problems tend to demand more passive, nurturant, and integrative behaviors.

2. The life experiences of an individual determine his predisposition to take on situationally demanded roles in characteristic manners. These experiences may be analyzed from three points of view:
   a. as culture-transferring episodes;
   b. as events which determine the emotional meanings of persons-as-objects;
   c. as events which determine the forms in which the mechanism of defense will be manifested in behavior.

3. The interaction between the external role requisites and the internal predispositions for role-taking within the individual determine the actual behavior he will produce in a specific group activity.
4. The outcomes of the interaction between the external demands of the group activity and the individual's predispositions for role-taking may be viewed within the limits of four extreme possibilities:
   a. Both task-relevant and socially-relevant behaviors will be produced.
   b. Task-relevant behaviors will be produced, socially-relevant behaviors avoided.
   c. Socially-relevant behaviors will be produced, task-relevant behaviors avoided.
   d. Self-oriented behaviors will be produced which have no task or social relevance (Momot and Zaleznik, 1963, p. 19 and 20).

The afore-listed are evidenced in the school setting in the form of membership, which is based upon what each individual brings with him to a group and what happens to him and to others as a result of his presence; classroom climate; communication; and "acceptable", "expected" behavior (Gorman, 1969, p. 43). Classroom climate is seen as a social dimension reflecting the amount of freedom allowed and/or encouraged, restrictions imposed, didactic approaches used, the balance of cooperation and competition; in general, the negative or positive orientation of the aggregate of that which is utilized in attempting to promote student academic achievement.

Allusion to what "the individual brings with him" and "acceptable", "expected" behavior suggests possible conflict. Munson (1970) defined role conflict as that which occurs when a role incumbent is required to conform simultaneously to a number of expectations which are mutually exclusive, contradictory, or inconsistent, so that adjustment to one set of requirements makes adjustment to another difficult or impossible. In consequence to conflicts with significant adults,
children internalize expectations and develop a fairly clear notion of what their role as student should be. Each child brings this notion with him to new academic situations in the form of self expectation. Self expectation, interaction with the present teacher and observation of and interaction with other children contribute to determination of the role he will take. Daily life involves "perceiving and interpreting the actions of others, acting upon the interpretation, getting feedback as to the appropriateness of the behavior and making further behavioral corrections (Chesler and Fox, 1966, p. 8)."

Examination of research devoted to a study of student role yields evidence of conflict, disparity between the ideal role characteristics for children as perceived by parents and the ideal role characteristics for children as perceived by children, and variable social and academic preferences among identified role takers. Jackson and Wolfson (1968) researched the extent to which nursery school children experienced conflict in their early school experiences. Observations were made at the University of Chicago Laboratory Nursery School. One hundred children ages three, four and five were observed individually for a series of two-minute periods. All events that could be interpreted as interfering with the natural pursuit of the child's desire were recorded. Each child was observed three times each morning for one week. In total,
fifteen two-minute observations were made. The protocols were coded as: child desire vs. child desire, child desire vs. teacher expectation, child desire vs. child inability, child desire vs. teacher overlook, child desire vs. crowd desire, child desire vs. environmental limitation, and child desire vs. institutional restriction.

In total, 587 episodes involving constraint were recorded. This amounts to 20 constraints per minute had all children been observed simultaneously all day; or, approximately one constraint per child every five minutes. Obviously, constraining episodes of one sort or another were a common occurrence in the lives of these nursery school children. The average number was 6.4 for the boys and 5.6 for the girls. This difference was not statistically significant, and yet, a pattern was evident which is often observed throughout the school experience of boys. Silberman concluded from his study of teacher-emitted messages of control that boys "have eight or ten times more trouble than do their female classmates (Silberman, 1971, p. 134)."

Slightly over half of the conflicts recorded in the Jackson-Wolfson study involved some kind of confrontation between child and child or child and teacher. Child desire vs. child desire and child desire vs. teacher expectation occurred frequently enough to be experienced by each child once every ten minutes throughout the school day. Jackson and Wolfson (1968) conceded that it is not fully known what these thousands of fleeting events do to children who experience them except
that they comprise a salient feature of a child's experience in school.

Disparities in preferred role characteristics occur not only between child and child, and child and teacher, but also between child and parents. Two studies, one by Gold (1958) and one by Rosen and D'Andrale (1959 as cited in DiVesta and Thompson (1970)), focused upon areas of import to parents and to children. Rosen and D'Andrale (1959 as cited in DiVesta and Thompson (1970)), listed among characteristics rated as most desirable by parents: happiness, honesty, consideration of others, dependability, self control, obedience, well-manneredness, popularity, a good student, neatness and cleanliness, and ambition.

Gold (1958) conducted lengthy interviews with 21 children representing all grade levels to explore their perceptions of their peers. He used an open ended question technique. Seventeen characteristics or properties which were of importance to the children sampled seemed to emerge. These items were categorized into four areas; expertness characteristics, e.g., smart, has good ideas, good at making things; physical characteristics, e.g., fighting ability, strength; socio-emotional characteristics, e.g., friendliness, fun to be with, doesn't tease; and associational characteristics, e.g., likes to do same things I do. In citing the results of other studies, Lippitt and Gold (1959-60) concluded that "it seems clear children do perceive each other in terms of these characteristics, that these characteristics are evaluated in such a way that they become resources relevant to the acquiring of high or low position in the social structure of the group (p. 42)." Indeed, children's self evaluations tend to
correspond to the feelings expressed by peers (p. 45). It is well to note that a gross disparity exists between the Rosen and D'Andrale list of parent preferences and the Gold list of children preferences.

Research conducted by Peterson (1963) focused upon role taking behaviors and preferences. Peterson arranged for five observations of 750 students in grades eight through eleven. "Work" and "work-avoidance" behaviors were recorded. Further, teachers as well as fellow students revealed their perceptions of the students and their roles. From these data, adaptive-academic, adaptive-social, maladaptive-passive, and maladaptive-active students were identified. Among items studied was the preference of particular role-taking students for other individuals in the classroom. Students rated each other on a five point scale in reply to the questions: whom would you prefer to work with, and whom would you prefer to chat with? The five ratings ranged from "really would be very pleased" to "would rather not".

An interesting finding concerned the passive girls. Although teachers expressed considerable liking for these girls, the passive girls did not reciprocate. In that passivity, docility and conformity are often rewarded in the school setting, these findings seem incongruous. It is possible that the shyness and self doubt of these girls prevented their wishing to risk personal encounters with the teacher. Passive girls especially disliked interaction with imposing individuals.
as evidenced by their expression of aversion to aggressive boys.

It was also found that maladaptive-passive students recognized their dependency needs, perceiving themselves as shy and helpless. They tended to be work-oriented, but as followers rather than as leaders. They expressed a liking for well-structured, routine, work activities.

The maladaptive-active students preferred to work and chat within their own role group. They expressed dislike for classroom demands and resentment for teacher wielded authority. Further, they vented feelings of inadequacy in coping with the cognitive, ideational demands of the classroom.

Peterson (1963) concluded that the attitude characteristics distinguishing each of the four behavioral types were remarkably consistent with the overt behaviors observed. He noted that each type perceived itself accurately.

Not only do children differ in their preferences of those with whom they would like most to interact and in their attraction to or aversion for the academic, they also differ in their performance under certain conditions.

Sears and Hilgard (p. 565 in Clarizio, Craig and Mehrens, 1970) concluded from their study of one hundred forty eighth-grade students that: compulsive children do better than less compulsive children under structured conditions; compulsive
children are neither favored nor disfavored when teaching is unstructured; anxious children do as well as nonanxious children under structured conditions; and, anxious children have their achievement impeded in unstructured settings.

In a study designed to examine prospective teacher contemplation of their eventual teaching role, Walberg (1967) found that beginning teachers approached their role defensively. They expressed a preference for neatness and control in presenting ideas in the classroom which would be evidenced by a preference for children who, in the classroom, would give predictable responses to problems rather than answers that characterized creative responses. Solution of social maintenance problems would be prerequisite to consideration of and solution for task problems.

Among influences which accumulate to encourage conformity is communication. Socialization is dependent upon language. It is, therefore, not only deemed important that the child's perception of the language he uses be similar to that of others, but it must also reflect basic rules for "good" communication in the classroom. "Every individual who learns how to talk thus achieves a certain amount of socialization and gives up a certain amount of individual uniqueness (Baller and Charles, 1968, p. 325)."
Given that varying degrees of conformity are necessary in a variety of settings, such succumbing can not always be accepted as evidence of healthy adjustment. Philip Costanza (1970) drew four hundred ninety subjects from four age levels ranging from seven to twenty-one years of age for administration of a self-blame scale. From the initial population, an N of one hundred forty-four subjects was selected on the basis of the responses to the self-blame stimuli. Twelve high-blame, twelve middle-blame, and twelve low-blame subjects were selected from each age group. A conformity score was computed as the frequency with which the selected subjects conformed to the erroneous line judgments of a simulated peer majority. The findings suggested that self-blame and conformity are highly interrelated processes. These findings concur with those of Berkowitz and Lundy (1957) and Janis (1954) who found that low self esteem subjects tended to display greater conformity than subjects of moderate or high esteem.

Costanza (1970) emphasized that the greater the individual's tendency to self-blame, the greater his tendency to conform. If self-blame, a compulsion to conform, and an identification with those powerful adults who demand the forfeiture of "disruptive" kinds of individual expression in the classroom converge to interact within the same child, a most negative evaluation of any deviation from or transgression against the expected will ensue. Flight from the independent, the unexpected, even the creative, may well be the price paid.
To quite an extent, teachers interact with their pupils on the basis of what they believe is expected of them as they assume their various teaching role behaviors. Teachers are often convinced that maintenance of classroom order is a prerequisite to renewal of the teaching contract. For this reason, teachers have expressed more concern for the solution of disciplinary and authority relationship problems than for the solution of problems of social withdrawal and emotional conflict (Tolor and Lane, 1967). Again, "the teacher knows that if he cannot maintain order within the classroom, he is likely to lose his position (DiVesta and Thompson, 1970, p. 78)."

Attempts to change the situation, to minimize unnecessary conformity, to maximize individualization, to solve the problem, may involve the risk of "unsatisfactory" solution. Procedures in practice may be comfortable although no longer necessary. Classroom teachers may place an even greater emphasis on selected requirements than was initially intended, indeed, even greater than the principal may expect. "For instance, in addition to dismissing students by rows, teachers might choose the quietest row first. Thus obedience to rules of dismissal becomes a virtue in itself, quite apart from its functional necessity. When this happens, students learn to view conformity as morally right and nonconformity as morally wrong (Silberman, 1971, p. 58)."

The lesson is well learned. Miel and Kiester (1969) noted from their studies that children come to take a dim
view of anyone—adults, children, even themselves—who deviate from the norm, and that they place a premium on being exactly what adults want them to be. Of 258 fifth and sixth grade children questioned by Miel and Kiester, more than half agreed with the statement that teachers should be more strict. More than one third agreed that teachers should tell children what to do and not attempt to determine what a child may want (p. 110).

Teachers' perceptions of the freedom they allow and the opportunities they provide for pupil decision making do not coincide with pupils' perceptions. A child's awareness of decision making opportunities may reflect his feeling of independence and contribution to the control of his environment. Development of a responsible self determination is an often repeated goal in education. Yet, children see their opportunities for an experience in such as being grossly limited.

Wolfson and Nash (1968) researched teachers' and children's perceptions of their roles in classroom decision making. Two hundred primary and intermediate grade children and their teachers were administered a fifty item questionnaire. Questions such as the following were asked: Who decides what desk or seat you sit in? Who decides who cleans the blackboards? Who decides the plans or work for the day? Who decides when it's reading time? Answers varied among the following: The teacher, the class, the child, someone else.

The major finding of the Wolfson-Nash study was the wide
discrepancy between each teacher and her pupils in their per­ceptions of the number of decisions allowed children. The teachers saw considerably more decision making being allowed their children than the children did.

Thus, we see children consenting to direction beyond ex­pectation and yet perceiving the situation as being even more restrictive than the adults who deem such confinement as being necessary.

Children often know who and what is preferred. Many know that the type of child preferred is the "one whose behavior will facilitate classroom management perhaps at the cost of other edu­cational objectives such as spontaneity and creative problem solving (Feshbach, 1969, p. 131)." They face choices each day which will elicit teacher reaction in the form of "contact", "positive evaluation", "negative evaluation", or "acquiescence" (Silberman, 1969). Many children must surely be aware of the differential manner in which they are treated.

Lippitt and Gold (1959-60) noted from their findings that teachers pay attention to the social behavior, rather than the performance behavior, of low-status pupils more often than of high-status pupils. Further, the teacher's response depended on whether she was interacting with a low-status boy or girl. "Differences in children's behavior probably evoke these dif­ferent responses from teachers (Lippitt and Gold, 1959-60, p. 48)". It was noted that low-status boys were more aggres­sive and troublesome than their higher status classmates.
Lippitt and Gold (1959-60) summarized the situation by suggesting that an individual child may contribute to his dilemma through his negative self evaluation and his own response to it, his possible hostility toward others, his unskilled and unrealistic behavior, and his lack of sensitivity to and his defensiveness toward feedback from others (p. 48).

In the main, however, children are generally responsive to the external rewards which pervade the classroom. Silberman's (1971, p. 191-195) study of classroom rewards and intellectual courage revealed than an increase in student sensitivity to classroom economies also caused a commensurate increase in unwillingness to reveal personal deficiencies to teachers. Silberman concluded,

The most plausible explanation for these findings is that students do not feel safe enough in the classroom to grow intellectually. They believe that exposing weakness and understanding intellectual challenge will penalize them in their quest for classroom rewards. As a result they fail both to consolidate current knowledge and to seek out new experiences (Silberman, 1971, p. 194).

Choosing role behaviors judged by others to be detrimental to one's well being seems unfortunate; however, as with the low-status child, there are those children who have been deprived in such a manner as to grossly limit their choice of behaviors. Consider the child who hasn't the history of conditioning to perceive a lack of correspondence between the norms of the actor and those of the judge. Consider the child who believes his behavior to be appropriate in terms of his inaccurate
perception of prevailing norms. Consider the child who would like to conform and receive classroom rewards but finds the array of tolerable behaviors too narrow for his accommodation. Consider the child who is confused by the ambiguity of norm expression. Consider the child who finds gratification from adherence to other counter-norms exceeding the rewards meted out from adherence to classroom norms (Biddle and Thomas, 1966).

Thompson (1968) examined the role playing ability of ninety boys, ages seven through twelve. Matching for intelligence, socio economic status, and age was included in assignment to three groups for study. It was found that older children were better role players than younger children and that the role playing ability of well-adjusted children exceeded that of the poorly-adjusted.

Jackson and Lahaderne (1967) focused upon the flow of communication between teacher and individual students. Their findings supported the commonly held and often researched belief that a child's sex may affect the extent to which teacher favor and acceptance of student role taking is achieved. "The boy is more likely than the girl to be recipient of the teacher's disapproval and blame (DiVesta and Thompson, 1970, p. 204)."

Thus, we see a disparity existing not only among children in their capacity to anticipate and accommodate classroom norms, but we also find teachers responding
differentially to their efforts.

Needless to say, the perceptual acuity among teachers also varies. Disregarding their influence and responsibility, their perception may yet deviate from the norms for other adults. Foskett (1967) researched and thus drew attention to the fact that teacher perception of teacher role norms as well as teacher perception of the views of others differed markedly from that of citizens, parents, leaders, the school board, principals and the superintendent.

An even greater disparity may prevail within the ranks of student-teachers. Hough (1965) described a vicious cycle wherein the bewildering complex of stimuli challenging the student-teacher may call for responses which are lacking in her repertoire. Interaction between such bewilderment and such limitation may foster student behaviors which further violate the student-teacher's capacity for accurate assessment and effective handling. And yet, the student-teacher has no other perception to which she may respond except her own.

In attempted examination of student perception of teacher feelings, Davidson and Lang (1970) tested three hypotheses:

1. There exists a positive correlation between children's perception of their teacher's feelings toward them and children's perception of themselves.

2. There exists a positive relationship between favorable perception of teachers' feelings and good academic achievement.

3. There exists a positive relationship between favorable
perception of teachers' feelings and desirable classroom behavior (Davidson and Lang, 1960, p. 107).

An adjective check list was used to sample the perceptions of 213 fourth, fifth and sixth grade children in ten New York City elementary schools.

Failure to reject any of the hypotheses led to the following generalizations: a child's assessment of himself is related to the assessment evidenced by significant adults; a child's academic achievement is significantly related to a favorable perception of the teacher's feeling toward him; and, children who are rated as being disorderly, defiant, unfriendly, and troublesome, perceive their teacher's feelings toward them as being less favorable than do children who are rated as eager, cooperative, and the like.

The importance of teacher perception and the child's assessment of it is emphasized in the statement,

The teacher's feelings of acceptance and approval (of the child) are communicated to the child and perceived by him as positive appraisals. It is likely that these appraisals encourage the child to seek further teacher approval by achieving well and behaving in a manner acceptable to his teacher. We may also begin this cycle with the child's behavior. The child who achieves well and behaves satisfactorily is bound to please his teacher. She, in turn, communicates positive feelings toward the child, thus reinforcing his desire to be a good pupil. ... It should be emphasized that these findings do not imply causality but rather suggest that certain pupil characteristics, such as self-perception, perceived teacher feelings, achievement and behavior in school are interrelated (Davidson and Lang, 1960, p. 112).

Metznor (1971) further substantiated rejection of the hypothesized relationship between perception of teacher feeling and student academic achievement through his focus upon the student
variables of school attitudes, interest shown in studies, conscientious effort and general citizenship as these influence grades which presumably reflect school achievement only.

Pointing up the complexity of the issue of influence, Jenkins and Deno (1969) attempted to determine whether or not student behavior affected teacher perception of personal effectiveness. Twenty teachers were randomly assigned to one of two conditions. Students, who were confederates of those doing the research, acted either interested and excited or uninterested and unexcited to produce either positive or negative feedback for the teacher. Questionnaires were administered to the teachers after they had completed teaching their lessons.

According to the ratings made by the teachers themselves, those in the positive feedback condition found teaching more enjoyable, predicted more extensive personal effectiveness and expressed the belief that their students had learned more than did the negative feedback teachers in their responses to the same sampling instrument. As evidence of their superior performance, the positive feedback teachers had noted student smiling, hand-raising, sitting straight and behaving excitedly. Such student behaviors have not been established as necessary and sufficient for student academic achievement, in spite of evidence suggesting a relationship between the two (Lahaderne 1968).

Appropriate or not, such student behaviors impinge upon
teacher perception and subsequent self-evaluation. It follows that these student behaviors must surely reinforce selected teaching activities and contribute to the extinguishment of others.

The results of the Jenkins-Deno (1969) study in concert with the afore-cited Davidson-Lang (1960) study draw attention to the difficulty encountered by those who have attempted to dichotomize the complex array of role-taking behaviors found in the classroom and who have then proceeded to present a clear case for either role assignment or role assumption.

Consider the following statements. "Clearly, student classroom behavior is a powerful influence on teachers' self evaluation (Jenkins and Deno, 1969, p. 441)." "The present study for the first time has shown that a child's self-appraisal is significantly related to his perception of his teacher's feelings as well (Davidson and Lang, 1960, p. 109)." Sufficient evidence does not exist for a full subscription to either the notion that the role behaviors of children are assigned to them or are simply assumed by them.

Flanders' (1970) statement regarding teacher influence cannot, however, be disregarded. "Teaching behavior is the most potent, single, controllable factor that can alter learning opportunities in the classroom (Flanders, 1970, p. 13)." Educators should be interested in the extent to which and the manner through which teachers alter learning opportunities.

Jackson, Silberman, and Wolfson (1969) taped interviews with thirty-two third-grade teachers in which teachers were
asked to describe two boys or two girls from their present classes. Students described were those whom a teacher recalled first and those whom she recalled last when asked to name her class from memory. The content of the one hundred twenty-eight descriptions was analyzed for signs of personal involvement. Boys received more signs of personal involvement than did girls, and their descriptions included more negative statements than did those of girls. Students who seemed to occupy outstanding positions in the teacher's thinking also received more indications of involvement than those less outstanding. Jackson, Silberman and Wolfson (1969) emphasized less the importance of whether or not the descriptions contained subjective elements, but more, whether these elements were present in such strength as to be revealed in the common activities of conversation with other teachers or in written contributions to student permanent folders.

DiVesta and Thompson (1970) submitted for consideration the variability of teacher motivation for entering the profession and the subsequent manner in which her classroom climate will reflect these influences as possible reasons for entry. They listed the prospects of a continuing intellectual stimulation, the seeking of a modest economic security, or the desire for a routinized series of social interactions. "It is easy to see that an individual's values toward the teaching profession will color her interactions with pupils (DiVesta and Thompson, 1970, p. 80)."
DiVesta and Thompson (1970) define classroom climate as the outcome of all social and verbal interaction with peers and teachers. They include for consideration the polar dimensions of cold-warm, personal-impersonal, authoritarian-democratic, group-individual, competitive-cooperative, acceptant-rejectant, and permissive-restrictive (p. 663). "It may be assumed that teachers reflect a variety of feelings toward children, either because of their own personality needs, or because of the way they use punishment or praise or for any other reason (Davidson and Lang, 1960, p. 114)." Indeed, "The idiosyncratic atmosphere of a given class, with its unique combination of teacher and pupils, becomes quickly established and thereafter continues to influence the degree of satisfaction with schooling and learning, and to affect the learning product (DiVesta and Thompson, 1970, p. 663)."

Classroom Verbal Interaction and Research

Teachers vary in their orientation toward, and possibly their capacity for, the expression of positive feelings. And yet, "it seems urgent that teachers be helped to recognize the significance of the feelings which they express toward children, consciously or unconsciously (Davidson and Lang, 1960, p. 114)."

Researchers have, since 1900, attempted to assess the classroom variables of teacher personality, teacher approach, and teacher verbalization as these may relate to student productivity. Morsch and Wilder (1954) concluded their study in 1954 with the statement:
No single, specific teacher act has yet been found whose frequency or percent of occurrence is invariably (and) significantly correlated with student achievement. There seems to be some suggestion, however, that (a) questions based on student interest and experience rather than assigned subject matter, (b) the extent to which the instructor challenges the students to support ideas, and (c) the amount of spontaneous student discussion, may be related to student gains (Morsch and Wilder, 1954, p. 4).

One of the earliest and possibly most significant efforts to observe and control the climate variable in a group-type situation was that of Ronald Lippitt (1940). Lippitt organized four clubs of five boys each and gave each club successive experiences with an "autocratic" and "democratic" leader over an eighteen week period. Leaders were required to employ various leadership styles. Records of social interaction between group members and leader, records of conversation, analysis of activities, and an account of interesting interaction were among the data collected.

Lippitt's (1940) conclusions were essentially:

1. Various leadership styles produced different social climates and resulted in different group and individual behaviors.

2. Leader-behavior techniques differentiated conversation categories more adequately than did categories of social behavior.

3. Aggressive rebelliousness toward the leader or apathetic submission to him was elicited by autocratic leaders.

4. Climate differences were more attributed to differences in leadership than club membership.

Harold H. Anderson and Helen Brewer (1945) investigated the influence of teacher personality on student behavior.
They analyzed integrative as opposed to dominative teacher behavior. It was demonstrated that children's behaviors were consistent with teacher personality.

The efforts of John Withal (1949) to assess social-emotional climate in the classroom constitute a progressive step toward analysis of teaching behaviors. Withal developed a technique based upon the assumptions that social-emotional climate was a group phenomenon, that the teacher's behavior was vital to the creation of a healthy classroom climate, and that teacher verbalization represented well the teacher's total orientation. Withal categorized a total of 200 teacher statements into groups: those identified as teacher-centered, learner-centered, and neutral. Teacher statements were classified as: (1) acceptant and/or clarifying statements having an intent to convey to the pupil the feeling that the teacher understood and to help the pupil express his ideas or feelings with clarity, (2) learner-supportive statements intended to reassure or commend the pupil, (3) problem-structuring statements designed to elicit questions about the problem with the intention of facilitating learner problem solving, (4) neutral statements which were simply administrative comments, repetitions, or expected formalities, (5) direct statements intended to alter pupil course of action, and (6) statements of reproof intended to restrict continued pupil involvement in behavior deemed unacceptable (Withal, 1949, p. 347).

An early study of the teacher variable was conducted by
M. L. Cogan (1956). Cogan investigated certain classroom behaviors of teachers as these related to and affected the behavior of students. He was successful in isolating several teacher behaviors which significantly affected the academic productivity of their charges.

The work of Bellack, Davitz, Kliehard and Hyman (1963) contributed to the analysis of classroom verbal interaction. They isolated four types of pedagogical moves: (1) structuring moves which served to focus upon subject matter and initiate verbal interaction, (2) soliciting moves intended to elicit student response, (3) responding moves were in reciprocation to soliciting moves, (4) reacting moves were occasioned by but not directly elicited from one of the afore-listed. Different types of meaning were conceptualized as being communicated through each of the four types of pedagogical move: (1) substantive-logical meaning, (2) substantive meaning, (3) unstructured meaning, and (4) instructional-logical meanings.

As teaching behaviors directly involving the teacher with pupils were identified, it was also recognized that teaching existed as part of a chain of events. Among teacher behaviors which came into focus were motivation, planning, informing, leading discussion, disciplining, counseling, and evaluating (Amidon and Hunter, 1967).

During the summer of 1957 Ned Flanders developed a ten category system of interaction and an interaction analysis matrix, the application of which has drawn considerable attention
to teaching behavior. It has become probably the widest known and most extensively used of observational systems. Flanders' system was conceived as a means by which classroom verbalizations could be quantified. The focus was confined to the verbal dimension only. It was assumed that the verbalization of an individual served as an adequate sample of his totality of behavior. Further, verbal behaviors were seen as lending themselves more reliably to observation than nonverbal behaviors.

Flanders' system included ten categories for use in classifying classroom talk, seven of the categories were designated as teacher talk, two as student talk and one as silence or confusion. A complete enumeration is given in Appendix A. The teacher talk categories were subdivided into two types of influence -- indirect and direct. Flanders saw indirect teacher influences as tending to maximize student freedom to respond, while direct influences restricted it. Student talk was subdivided for assignment either to a student response category or to a category for student initiated talk.

Flanders' ten categories were as follows: (1) accepting student feeling, (2) giving praise or encouragement, (3) accepting, clarifying, or making use of student ideas, (4) teacher emitted questions, (5) lecturing, (6) giving directions, (7) criticizing or justifying authority, (8) student response, (9) student initiated talk, and (10) silence or confusion. Categories one through four were listed as indirect teacher influences and numbers five through seven as direct.
There was no scale provided for continuum assessments.

Data, using Flanders' approach, were collected either in the classroom or from an audio or video tape recording of the activity. The observer attended only to the verbal aspects of classroom activity. The category best describing the situation during each three second period was recorded unless more than one category could be identified as having transpired during such a time. Raw data from the observer's sheets were plotted on a matrix which could then be analyzed. A variety of approaches could be used in analyzing the data depending on the original purpose of the lesson or activity presented.

Several approaches to assessment of classroom behavior have been designed in elaboration of the Flanders system. One of these, presented by Amidon and Hunter (1967), is known as the Verbal Interaction Category System. This system contains twelve categories for analyzing classroom verbal behavior rather than the ten included in the Flanders approach. Included in the Verbal Interaction Category System are:

Teacher-initiated talk
1. Gives information or opinion
2. Gives direction
3. Asks narrow question
4. Asks broad question

Teacher response
5. Accepts (5a) Ideas, reflects, clarifies, encourages or praises ideas of pupils. Summarizes or comments without rejection.
   (5b) Behavior: responds in ways which commend or encourage pupil behavior.
   (5c) Feeling: responds in ways which reflect or encourage expression of pupil feeling.
6. Rejects (6a) Ideas: criticizes, ignores or discourages pupil ideas.
   (6b) Behavior: discourages or criticizes pupil behavior.
   (6c) Feeling: ignores, discourages or rejects pupil expression of feeling.

Pupil response
7. Responds (7a) Predictably
   (7b) Unpredictably

8. Responds to another pupil

Pupil-initiated talk
9. Initiates talk to teacher
10. Initiates talk to another student

Other
11. Silence
12. Confusion

Amidon and Hough (1967) described a system of sixteen categories developed to test instructional hypotheses generated from learning theory. Grouped into four major subdivisions, but implemented in a manner comparable to Flanders' system, this approach was called the Observational System for Instructional Analysis. Subdivisions were as follows:

1. Teacher indirect verbal behavior containing the categories:
   (a) Affective clarification and acceptance
   (b) Praise and reward
   (c) Cognitive and skill clarification and acceptance
   (d) Teacher questions
   (e) Response to questions

2. Teacher direct behavior containing the categories:
   (a) Initiates information or opinion
   (b) Corrective feedback
   (c) Requests and commands
   (d) Criticism and rejection

3. Student verbal behavior containing the categories:
   (a) Elicited responses
   (b) Emitted responses
   (c) Student questions
(4) Silence or nonfunctional verbal behavior containing the categories:
(a) Directed practice or activity
(b) Silence and contemplation
(c) Demonstration
(d) Confusion and irrelevant behavior

While alternative but closely related approaches provide the advantage of a more complete record of classroom interaction, it seems obvious that training in one could lead to confusion in the use of another. Although less complex, Flanders (1970) noted that use of his system made possible the reaching of conclusions about the reinforcement teachers provide during classroom instruction, ascertainment of whether teacher or pupils suggest the ideas discussed, estimation of the balance of teacher initiation and response as opposed to student initiation and response, and recognition of a number of other teacher-pupil relationships.

Flanders (1970) predicted that teacher education will one day focus more sharply on the classroom performance of the teacher-in-training.

By assuming that classroom interaction is a series of events and that teaching behavior consists of acts, or patterns of acts, embedded in the chain of classroom events, then a first step is to break down the patterns of teaching behavior into teachable skills. These patterns could be arranged into a series of learning experiences which start with the simple and move on to the more complex. The purpose would be to link knowledge about teaching to the student's overt behavior at each step along the way so that regular reinforcement or criticism can come from personal sequential experiences in skill development (Flanders, 1970, p. 8).

Flanders emphasized that "attention to teaching behavior, practice in analyzing it, and performing it with feedback,"
tends to incorporate such behavior in the teacher's repertoire (Flanders, 1970, p. 352)."

Flanders personally designed two projects to compare interaction analysis variables with an educational outcome such as pupil attitude and adjustment. An inventory assessing positive attitudes was administered to a sample of classrooms. The sample was selected in such a way as to represent as large a population of similar classrooms as possible. Average scores were calculated for each class. Classes with extreme results were selected for observation. The purpose of such selection was to increase the range of interaction patterns in the research. The classes were then observed and the interaction coded by trained observers. The general hypothesis being tested was that teacher indirectness and flexibility would be positively related to positive pupil attitude. One sample was taken in Minnesota; the second was taken in New Zealand. Nine seventh-grade classes were observed in the former and ten standard four in the latter. The results were the same in each study. "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, while the teachers of classes that scored low used less indirect influence (Flanders, 1970, p. 392)."

R. S. Soar (1968) used Flanders' Interaction Analysis to study fifty-four elementary school classes. He measured creativity through the use of Torrance's Toy Dog Unusual Uses Test,
a second sampling instrument to measure reading skill, and a third test to examine abstract reasoning skill. The magnitude of teacher indirectness was compared with growth of student creativity, growth of student reasoning ability, and student growth in tasks lacking abstract requirements. The curve for growth in creativity approximated a positive linear relationship with no optimum point found. This means that an increase in teacher indirectness was accompanied by a commensurately greater growth in measured student creativity. Optimum points in teacher indirectness were found beyond which reasoning task performance as well as less abstract tasks began to decline.

The results further suggested that a task requiring a lower level of thinking reached a point of diminishing return with less teacher indirectness than did those requiring higher level thinking.

Studies by Johns (1966), Emmer (1968), Measel (1967), Powell (1968), and Samph (1967), using Flanders' Interaction Analysis resulted in the following respective conclusions:

1. A preponderance of thought-provoking questions were posed in high school English classes where indirect teacher approaches prevailed.

2. Teachers of second-grade children were trained to use more of category (3), use of student ideas, and this resulted in more pupil initiated talk (category 9).

3. No significant difference seemed to appear when testing to see whether or not indirect teacher verbalizations were associated with high levels of cognitive pupil statements at the second-grade level.

4. Pupils exposed to indirect teachers for three years in grades 1, 2, and 3 scored significantly higher in arithmetic, but not in reading.
5. Slow learners in grade six demonstrated higher learning ability in language skills classes where indirect teacher behaviors prevailed.

Schantz (1963) conducted an experiment using the Flanders approach at the fourth-grade level. She trained a role-playing teacher to utilize a direct and an indirect influence in teaching three one-lesson units on electricity. Sixty-one students were drawn from the uppermost and lowest quintile in ability as inferred from an intelligence and an achievement sampling. The experiment had then four treatments: (1) high ability-indirect teaching, (2) high ability-direct teaching, (3) low ability-indirect teaching and (4) low ability-direct teaching. The results were moderately significant. Post-test results for the high ability-indirect teaching treatment were higher than those of the high ability-direct teaching treatment. The differences for low ability pupils were not significant but seemed to favor the direct teaching method.

Powell (1968) conducted a study based on interaction analysis data. Third and fourth-grade classrooms of 180 pupils in six schools of a suburban school district were observed. Third grade youngsters were completing their third year with the same teacher. Pupils in the fourth-grade had a different teacher for the first time in four years. Teachers of the third grades who were above average on a composite score of indirectness were considered to be indirect; those scoring low were considered direct. Nine third-grade teachers and seventeen fourth-grade teachers were included in the study. Powell measured educational
growth with a separate arithmetic, a separate reading, and a composite total score.

After three years, Powell (1968) found, among children of indirect teachers, significant growth in arithmetic and in the composite score but not in reading. It was possible, after the fourth year, to identify pupils who were exposed to one type of teacher for three years but who were exposed to a different kind of teacher the fourth year. Pupils were grouped as having had an indirect to indirect sequence, indirect to direct sequence, direct to indirect sequence, and direct to direct sequence. Analysis of the fourth year produced no significant differences.

Flanders, Morrison, and Brode (1968) included 820 sixth-grade pupils from thirty classrooms in a study of erosion of positive student attitude toward teachers and school work. It was shown that loss of positive attitude was not related to pupil IQ, socio economic status or percentage of A and B letter grades received. However, such loss was found to be related to the "externality" or "internality" of the children and to the teacher's classroom verbal behavior. Externality was defined as a tendency to believe success or failure was caused by forces beyond the control of the child. Internality was defined as a tendency to believe success or failure was the product of one's own behavior. It was concluded that there was a greater loss of positive attitude in the classrooms of teachers emitting less praise and encouragement than those who provided more. An inference suggested for consideration was that youngsters who
depend on external influences seemed to be more likely to suffer a loss of positive expectation than the children who are more dependent on internal influences. Further, pupil attitudes toward the teacher and the learning activity seemed to be related to teacher verbal behavior.

Finally, Sommer (1967) studied the relationships between seating arrangements and classroom verbal contribution. The primary seating arrangements were either in a semicircle or in rows. In the seminar style arrangement it was found that students directly facing the instructor participated more than did the students on the periphery. In the classrooms where desks were arranged in straight rows, students in the front participated more than students in the rear; students in the center of each row participated more than did those at the sides. Sommer contended that direct eye contact facilitated verbal interaction.

Many of the variables found in elementary school classrooms have been examined as they may relate to verbal interaction. However, and again, a void tends to exist in the study of possible significance of elementary school student-teacher perception of student role and classroom verbal interaction.
OBSERVATIONAL METHODS AND PROCEDURES

Design of Observation

This study was designed to investigate the possible significance of student-teacher perception of student role in third-grade classroom verbal interaction. Therefore, in subsequence to a survey of the literature, identification and delineation of the problem, and formulation of the hypotheses, a method by which the data could be gathered was formulated. Focus upon the possible significance of student-teacher perception of student role and classroom verbal interaction required the use of a sampling instrument for the former and observation of the latter. The sampling of student-teacher perception of student role was to be achieved through the use of The Feshbach Situation Test. Observation and recording of verbal interaction was to be simultaneously recorded with the seat numbers of students who verbally participated. Diagrammatically, the data were accumulated as shown on the following page:
Observation and instantaneous recording of classroom verbal interaction → Sample student-teacher perception of student role through the administration of Feshbach's Situation Test.

Plus

Coordinated, simultaneous observation and recording of students who verbally participated.

Meticulously replay each audiotape to maximize the data. → Enter record of verbal interaction and teacher perception of student role on matrices prior to statistical analysis.

Diagram I.

Diagram of Method of Data Collection
Setting and Participants

The research was conducted in eight elementary schools within the Des Moines school system in which all of the ten Drake University student-teachers of third-grade classes were student-teaching. All classes were heterogeneously grouped. The number of students enrolled in each class was as follows: 26, 21, 25, 31, 20, 24, 21, 32, 30, 20. One child in each of five classrooms was absent on the day of observation. Collection of the data began on November 29, 1971 and was completed on December 3, 1971. Two classes were observed each day. Two hundred forty-five of the two hundred fifty children enrolled in the third-grades observed were in attendance on the day of observation. Observations were made at the Cattel Elementary School, Jefferson Elementary School, Kirkwood Elementary School, Visitation School, Stowe Elementary School, Park Avenue Elementary School, Hillis Elementary School and Nash Elementary School. See Appendix B for a map which indicates the locations of the schools. Two observations were made of the same group of children but with different student-teachers at Nash Elementary School.

The schools listed were located throughout the city and seemed to represent a cross section of cultural and socio-economic background such as would be expected by observing the traditional neighborhood schools in a city of two hundred nine thousand inhabitants. Possibly the only exception might have been a group of eight students who had been bussed from
the inner city to attend one of the two third-grade classes observed at Hillis School.

Observation was conducted in the classrooms of nine female and one male student-teachers. The variable of student-teacher sex was not focused upon in this investigation. Student-teacher perception is student-teacher perception regardless of sex. Therefore, inclusion of the one male student-teacher was seen as a means by which the amount of data gathered for analysis could be increased without adding a particularly unique dimension.

All ten of the student-teachers had completed at least their last two years of college study at Drake University. All had been enrolled in the same block of education course experiences prior to the beginning of their student-teaching experience October 11, 1971.

It has been shown through research that the most third-grade student talk occurred in social studies classes. After having observed twenty-five elementary school classrooms five times each in arithmetic, social studies, and reading, at each grade level, Amidon and Hough (1967) stated that student talk was highest in social studies (p. 171). For this reason, observations for the present study were conducted in social studies classes.

Variables

The purpose of this study was not to determine whether student-teacher perception reflected student role or whether
student role was a function of student-teacher perception, but was to examine the possible significance of student-teacher perception of student role in classroom verbal interaction. Causal explanation was not sought. Therefore, classroom verbal interaction and student-teacher perception of student role were considered independent variables and differences among student-teacher verbal behaviors with role groups served as the dependent variable to be observed. Other variables requiring control necessary for internal validity were: reliability of the raters recording verbal interaction, reliability of the observers of students who verbally participated, validation and reliability of the Feshbach Situation Test, and reliability of audiotape replay assessment. These are discussed under the following headings appropriate to each:

Instruments

Feshbach Situation Test

The measure used to sample student-teacher perception of student role immediately after observation of his or her classroom discussion was the Feshbach Situation Test (1969). See Appendix C. This instrument consists of sixteen story situations in which elementary school children are engaged in relevant classroom activities. The child in each of the story situations is depicted as behaving in one of four triadic clusters. They are as follows:
Male role number 1 - active, independent, assertive    Female role number 1 - active, independent, assertive
Male role number 2 - passive, dependent, acquiescent    Female role number 2 - passive, dependent, acquiescent
Male role number 3 - flexible, nonconforming, untidy    Female role number 3 - flexible, nonconforming, untidy
Male role number 4 - rigid, conforming, orderly    Female role number 4 - rigid, conforming, orderly

The descriptive stories for both sexes are closely matched. See Appendix C for a copy of the instrument. Further, all the situations were matched for student activity as well as number of words, e.g., a story of an assertive boy submitting an arithmetic paper before the teacher called for it was matched by a comparable story involving an assertive girl. Each story has between eighty-five and ninety-five words.

In regard to the validity of the instrument, Feshbach (1969) stated:

To ensure that the situations be representative of the personality-trait clusters they were intended to reflect, five psychologists, unfamiliar with the purpose of the study, were given a list of 20 adjectives, 12 of which were descriptive of the various personality-trait clusters depicted in the situations. The psychologists were asked to indicate which traits characterized the child in a story, for each of 50 stories, comprising the initial pool of situations constructed for this study. The situations which constitute the Situation Test were selected from among those in which all five raters selected at least two of the three adjectives constituting the trait cluster the situation is intended to depict (Feshbach, p. 128).

To date, Feshbach has not published the results of any efforts to measure the reliability of the Situation Test.
However, Beigel (1969) used the instrument in such a manner as to complement its stability. Student-teachers were directed to assess as either negative or positive each student role included in the instrument. Beigel (1969) found it necessary to add a considerable volume of conflicting material to the original test stimuli before student-teachers were willing to revise their negative or positive assessments. Such stability suggested consistency sufficient to support use of the test in the present study.

**Flanders Interaction Analysis**

The Flanders system of interaction analysis requires categorization of all statements that occur in the classroom as: (a) teacher talk, (b) student talk, or (c) silence or confusion. The categories designated as teacher talk and student talk are subdivided to make the total pattern of classroom verbal interaction meaningful. Subdivisions of teacher verbal behavior are labeled as either direct or indirect. Indirect influence consists of four observation categories: (1) accepting student feeling, (2) praising or encouraging, (3) accepting or using ideas of students, (4) asking questions. Direct influence includes: (5) lecturing, (6) giving directions, and (7) criticizing or justifying authority.

Student talk is subdivided into: (8) responding to the teacher, (9) student initiated talk and (10) silence or confusion. Amidon and Hough (1967) offered their opinion of the validity
of the Flanders system by stating, "All categories are mutually exclusive, yet totally inclusive of all verbal interaction occurring in the classroom (Amidon and Hough, 1967, p. 122)."

A specially trained observer records the category number of the interaction he has observed each three seconds. These numbers are entered in column sequence. Approximately twenty such entries are made each minute. The tempo of recording every three seconds is important as it preserves the sequence of teacher-student verbalization.

Subsequent to compilation of a predetermined number of columns, the sequence of numbers is entered upon a ten-row by ten-column matrix. In tabulating numbers on the matrix, each is paired with the preceding and the succeeding number.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>silence or confusion</td>
</tr>
<tr>
<td>6</td>
<td>directions</td>
</tr>
<tr>
<td>10</td>
<td>silence or confusion</td>
</tr>
<tr>
<td>7</td>
<td>criticism</td>
</tr>
<tr>
<td>6</td>
<td>directions</td>
</tr>
<tr>
<td>2</td>
<td>praise</td>
</tr>
<tr>
<td>2</td>
<td>praise</td>
</tr>
<tr>
<td>4</td>
<td>question</td>
</tr>
<tr>
<td>8</td>
<td>student response</td>
</tr>
<tr>
<td>3</td>
<td>accepts or uses idea of student</td>
</tr>
</tbody>
</table>

The first number in the pair determines the row and the second determines the column in which the entry will be recorded on the matrix. Teacher-pupil interaction can then be readily examined and comparisons easily made using the matrix.

In order to record categories of verbalization which preceded and followed student talk by student-teacher perceived role playing students, the student response (8) and
student initiated talk (9) cells were subdivided into four parts. Entries were color keyed by sex. Tallies were then entered in appropriate columns prior to analysis. See Appendix D for sample tally sheet.

Amidon and Hough (1967) and Amidon and Flanders (1967) list several well-established ground rules to aid in maintaining consistency of categorization in the use of the Flanders system. These rules have been found useful for all subject areas and at all grade levels. Attempted adherence to these rules was maintained throughout the present study. See Appendix E for a listing of the twelve rules.

Among criticisms of the Flanders system which should be considered are the following:

1. All verbal behaviors must be fitted into a predetermined system of only nine categories.

2. Definition of conditions contiguous to the emission of particular verbalizations cannot be recorded (Allon, 1969).

3. Praise and encouragement cannot be separated. If the teacher in a noncommittal manner simply states, "OK", following student talk, this is recorded using the same category as that used for a three-second expression of praise for the student.

4. There is no way to indicate whether or not a teacher question preceding or following student-initiated talk was addressed to the student who spoke.

5. Criticism is not identified as being addressed to the group or to an individual, much less whether or not it was directed to the child who spoke immediately prior to or after the recording of the (7) category.

6. Use of a particular student's idea (3) may not immediately follow his verbal contribution.
7. Only verbal interaction is recorded. The more subtle communications of posture, eye contact, delay in calling on a child, etc. are not included.

Previously mentioned systems which attempt to alleviate some of the above-listed by increasing the number of categories may also increase the possibility of error and/or of omission when the interaction assumes a rapid pace.

Raters: Re-Training and Reliability

to observation, it was decided to enlist the assistance of student-teacher supervisors whose presence in the classroom was a common occurrence. Three of these four who collected the data had prior experience in recording classroom verbal interaction using the Flanders system. Two were re-trained in the recording of the verbal categories. Two were trained in the recording of student seat numbers. They then worked in pairs; one individual recorded the verbal interaction, the other recorded the seat numbers of the verbally participating children simultaneously and on the same lined-paper with each three-second entry of verbal interaction. A numbered chart of the classroom seating arrangement was prepared prior to each classroom observation. See Appendix F. The individual recording student numbers used simply a dash to denote teacher talk.

Three re-training sessions were scheduled in which all four raters analyzed commercially prepared training tapes.
It was agreed that the recorders of student seat numbers could better synchronize their entries with the interaction record if they had become oriented to the three-second interval of activity.

Two thirty-minute practice sessions in the fourth-grade classrooms of Drake University student-teachers were scheduled following the training sessions and prior to the collection of the present research data. Audiotape of these half-hour sessions was submitted to an Iowa State University staff member expert in the field of interaction analysis for a critique.

To maximize the date of each recorded session included in the research effort, a meticulous critique of each audiotape was planned. Therefore, the aforementioned expert concurred in deeming sufficient a .70 coefficient of agreement between live observation and repeated replay of the tape by the expert.

Reliability was computed using the Scott (1955) method.

\[ \gamma = \frac{Po - Pe}{100 - Pe} \]

Po is defined as the proportion of agreement between the rater and the expert. Pe is defined as the proportion of agreement expected by chance which may be found by squaring the proportion of tallies in each category and summing these over all categories. The steps followed in computing the reliabilities of the raters were as follows:
1. Compute the percent of the tallies for each category.

2. Construct a 3 x 10 table:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Enter into the table the percentage of each category for the observer and the expert.

4. Compute the difference between the two observer's percentage for each category. Disregard the sign of the differences.

5. Compute the sum of the difference of percentage.

6. Using the expert's entries, find the highest and the second highest percentage.

7. Using a table of curves such as presented in Amidon and Hough (1967) page 162, obtain the factor Pe by determining the curve which corresponds to the highest percentage, noting where this curve intersects with the vertical line that represents the second highest percentage. Pe may also be obtained by squaring the percentage of tallies in each category, dividing each product by 100 and adding the sum of the quotients.

8. Compute Po by subtracting from 100 the sum of the differences of the percentages obtained in Step 4. The magnitude of \( \pi \) is an index of the agreement of the observer and the expert:

\[
.60 - .75 \text{ moderate agreement} \\
.76 - .90 \text{ good agreement} \\
.91 - .99 \text{ high agreement}
\]

Utilizing the afore-listed procedure, the interaction recorded by the observers during the thirty-minute trial session
conducted in the aforementioned fourth-grade compared with expert analysis at the .79 level for one observer and at the .71 level for the other just prior to the beginning of the study. Coefficients of agreements of .71 and .70 with the expert's analysis of the final thirty-minute session were computed. This constituted moderate agreement with the analysis of the expert who had the advantage of repeated replay of the audiotape when necessary.

Reliability of the team members recording student seat numbers was accomplished through analysis of the previously mentioned tapes of the trial and final sessions. The expert examined observer recordings as these correlated with students identified by name on the audiotape.

The thirty-minute trial session in the fourth-grade classroom of a Drake University student-teacher yielded eighty-four audiotape-recorded episodes in which the student-teacher identified the student by calling his name prior to or immediately after his verbalization. An episode is defined as being an uninterrupted interval of student talk. There were eighteen episodes in which a student talked but the student was not identified by name on the tape. Of these eighteen nonidentified episodes, the two recorders of student numbers agreed as to the number of the student nine times. They did not disagree on a single occasion. On four occasions of extremely brief student-initiated talk, neither recorder listed the number of the student, and on five occasions, only one recorder listed
a student number. In review:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of episodes where the student-teacher called a student by name and this identification was clearly recorded on the audiotape.</td>
<td>84</td>
</tr>
<tr>
<td>Number of episodes where a student talked but neither the teacher nor a fellow student identified him by name.</td>
<td>18</td>
</tr>
<tr>
<td>Number of episodes included in the above-listed 18 wherein recorders agreed as to whom the child was.</td>
<td>9</td>
</tr>
<tr>
<td>Number of episodes on which the recorders disagreed.</td>
<td>0</td>
</tr>
<tr>
<td>Number of occasions on which only one recorder listed the child's number.</td>
<td>5</td>
</tr>
<tr>
<td>Number of occasions on which neither recorder listed the child's number.</td>
<td>4</td>
</tr>
</tbody>
</table>

Thus, agreement between recorders of student number and/or audiotape records provided the student number of the child speaking ninety-one percent of the time. Therefore, before the research began, each student-teacher included in the effort was asked, prior to observation, to call students by name as much as possible. This improved the adequacy of recording. However, limitation to generalization of the results of this study should reflect the nine percent inadequacy with which it began.

There were one hundred fifty episodes of student talk included in the final thirty-minute observation of the research. The name of the child was recorded on the audiotape one hundred thirty-two times. Of the eighteen not named, the two recorders of student number agreed on fifteen. Both missed the same one
once, they disagreed once, and one recorder missed one that the other recorded. Thus, in review of the final observation:

| Number of episodes where a student-teacher called a student by name and this identification was clearly recorded | 132 |
| Number of episodes where a student talked but neither the teacher nor a fellow student identified him by name. | 18 |
| Number of episodes included in the above-listed 18 wherein recorders agreed as to whom the child was. | 15 |
| Number of occasions on which the recorders disagreed. | 1 |
| Number of occasions on which only one recorder listed the child's number. | 1 |
| Number of occasions on which neither recorder listed the child's number. | 1 |
| Number of occasions on which one recorder had a student number recorded and the other did not. | 1 |

Thus, agreement between recorders of student number and/or audiotape records provided the student number of the child speaking ninety-eight percent of the time.

Mention was made of the author's meticulous re-play of each audiotape to maximize the data. Again, the Iowa State faculty member expert in the field of interaction analysis critiqued the author's analysis at the beginning and at the close of the effort. A Scott coefficient of .97 was computed at the beginning and a .99 at the close of the research. Such a coefficient is not difficult to achieve when portions of the audiotape may be replayed many times during the analysis.
Data Collection

Answers to four questions seemed prerequisite to collection of the data. Should a pre-set number of intervals of student talk determine the amount of observation in each classroom, or should the amount of observation time be pre-set? If a pre-set number of intervals of student talk were to be used, at what point should the sampling of student-teacher perception of student role be taken? Could contamination by contemporary history, possible student absenteeism, and interim-testing be controlled if a pre-set number of intervals of student talk were set? How could the possible affects of observers in the classroom be minimized?

A study conducted by Furst and Amidon and reported in Amidon and Hough (1967, p. 167) was considered in seeking an answer to the first of the above-stated questions. Furst and Amidon made one hundred sixty separate classroom observations in a minimum of twenty-five classrooms at each grade level. A minimum of five observations was made in each subject area at each grade level. It was found that student talk comprised from thirty-three to thirty-six percent of classroom interaction at the third and fourth-grade levels. Seventy percent of classroom instructional time is spent in talk (Amidon and Hough, 1967, p. 118).

The principals of the eight schools at which third-grades were to be observed were contacted to determine the amount of time normally devoted to social studies class. In all cases,
social studies classes were scheduled for either a twenty-five or thirty-minute period of time.

Using the aforementioned seventy percent figure, one could expect twenty-one minutes of teacher and/or student talk during a thirty-minute social studies class period. Thirty-three to thirty-six percent of this should be student talk. The Flanders system of interaction analysis yields twenty or more recordings per minute. On the average, it would seem that one hundred forty instances of student talk could then be expected in thirty minutes. However, a wide range in the ratio of student talk to teacher talk might be expected. A "direct", lecturing teacher might allow very little student talk. Although such an individual would contribute little data for analysis, it should be of special interest to note the type of role-playing student who is allowed this limited privilege. Such a teacher's verbal behavior following student talk should also be of interest. Without inservice efforts, post-testing influence, or the pressure from repeated observation, the "direct" teacher is not likely to change her didactic approach. Repeated observation might well provide replication only.

The question of sampling student-teacher perception of student role was also to be considered. If an inflexible preset number of 8's and 9's were established, and a possible second or third visit to some classrooms required, at what point should the Situation Test be administered?

If the instrument were administered in the interim of the
observations, student-teacher exposure to the stimuli of the instrument could alter subsequent student-teacher verbal behavior. Conversely, if administration were delayed until the pre-set number of 8's and 9's had been recorded, contemporary history could contaminate the results. Silberman (1971) noted in his research which focused upon classroom manifestations of sampled teacher attitude that classroom observation "took place soon after the interview to reduce the possibility of change in the teacher's attitudes (p. 89)."

Reference was made in the introduction to this dissertation of Biehler's (1971) noting a tendency on the part of some teachers to allow prior information, one impression, or one characteristic to influence all other impressions of the child. Citation was made wherein a positive halo could be induced by a student's appearance while a negative halo could be attached to the student because of a remark by another teacher.

In discussing the findings of her study, Feshbach noted that the behaviors depicted in the Situation Test evoked varying degrees of approval from the student-teachers and that these attitudes formed a basis for teacher expectation. Silberman (1971) alludes to the rapidity with which teacher impression can be formed. Wellington and Wellington in Clarizio (1970) noted that exposure to records often seems to cause teachers to expect the worst in student behavior.

It is conceivable then that a child who would have been perceived as playing a particular role on one day, might be
perceived differently the following day subsequent to his hav-ing included in his repertory one of the outstanding behaviors characteristic to another role.

Again, the focus of this study was upon the possible sig-nificance of student-teacher perception of student role in elementary classroom verbal interaction. Therefore, consist-ency of student-teacher perception and immediacy in sampling the student-teacher's perception of student roles after class-room observation seemed imperative to a sensitive testing of the null hypothesis.

In consequence to the aforementioned considerations, it was decided to conduct two thirty-minute observations in the classrooms of two fourth grade student-teachers who were not to be included in the study and who had been identified by student-teacher supervisors as being directive in their teach-ing approaches. The total number of intervals of student talk was to be of special interest.

The first observation yielded one hundred twenty-two in-tervals of student talk, the second, one hundred two. Upon entering these data on matrices, it was found that they were sufficient to easily recognize patterns of behavior. Therefore, research observations were scheduled and the study proceeded.

The problem of observer affect on student-teacher and student behavior was mentioned. It has been contended that a teacher and her charges under observation, especially by supervisors, will behave in a manner inconsistent with that
when not being observed. Kerlinger (1965, p. 505) invalidates such a contention by stating, "A teacher cannot do what she cannot do. She cannot act in a way she has not learned to act." Heynes and Lippitt (1954, p. 399) stated that observers seem to have little effect on the situations they observe. "Individuals and groups seem to adapt rather quickly to an observer's presence and to act as they would usually act (Kerlinger, p. 506)."

It would seem that the effects of observers in the classroom were minimized as a result of having chosen raters who were well-known to each student-teacher. In that three of the four raters were serving as supervisors of student-teachers, one member of each team had thus been regularly observing the student-teacher as he or she worked with students. The presence of a supervising-teacher in the classroom was a regular occurrence. An advantage to the inclusion of student-teachers rather than career teachers in this study can be found in the fact that student-teachers have known no other formal didactic experience than one which was observed.

Student-teachers were contacted one day prior to observation. Each was told that an analysis of interaction was scheduled, and that calling children by name as much as possible would facilitate the data gathering. A diagram of the student seating arrangements was prepared a week prior to the study. A wide variety of seating arrangement in the nine classrooms was noted. See Appendix F.

Each rating team arrived at the site of observation at
least ten minutes in advance to orient themselves to the situation. The audiotape recorder was started simultaneously with the beginning of observer recording.

Arrangements were made for a homeroom teacher to assume responsibility for the class immediately following the thirty-minute observation. The Feshbach instrument was administered by asking the student-teacher to follow the directions on the cover page. He or she then entered the identifying letter and number of the role chosen to describe each child on the seating chart which listed the children's names. These role identifications were then entered adjacent to the appropriate 8's and 9's on the records of verbal interaction. Thus, if the student in seat 15 was perceived as an M2, this was entered beside all 8's and/or 9's recorded as being emitted by the student in seat 15.

Treatment of the Data

Statistical analysis

As previously mentioned, the data gathered from each thirty-minute observation were recorded on specially prepared ten by ten matrices with each cell in the rows and columns of category eight and nine subdivided. See Appendix D. The verbal activity preceding and following verbalization by a student, perceived as playing one of the four possible roles, could then be recorded in the cell appropriate to the perceived role of the child. A color key was used to differentiate male from female roles.
Totals of student response and student initiated talk intervals were copied from the matrices of verbal interaction and entered on a specially prepared sheet with appropriate columns beneath each of the four male and four female role groups.

Columns numbered one through nine, to represent the categories of verbal interaction, represented the treatments for study.

Assuming that the measures within each category represented random samples, that the variances within each category were not significantly different among themselves, and that the population data from which the samples were drawn were normally distributed (or at least did not depart radically from a normal shape), a single classification analysis of variance was chosen to study the means of the data. Each score is seen in such an approach as representing the overall mean of the population, plus the effect upon that score for having been included in a given treatment, plus the random error or deviation corresponding to a particular observation.

The single-classification analysis of variance focuses upon the integral relationship between the mean and the variance so that, through analysis of group variances, conclusions can be drawn regarding the similarity of the means under study (Popham, 1967). When a null hypothesis is tenable, the average dispersion within a treatment being analyzed will be approximately the same as the dispersion existing in the group pooled to represent all entries in all treatments. "When the null hypothesis
is untenable, the dispersion in the pooled group will markedly exceed the average dispersion of the subgroups (Popham, p. 176)."

Calculation of the single-classification analysis of variance was achieved through the use of the following formulae:

Total sum of squares \[ \frac{\sum x^2 - \left( \frac{\sum x}{n_t} \right)^2}{n_t} \]

Treatment sum of squares \[ \frac{\sum x^2 - \left( \frac{\sum x}{n_g} \right)^2}{n_t} \]

Within group sum of squares \[ \left( \frac{\sum x^2 - \left( \frac{\sum x}{n_g} \right)^2}{n_t} \right) \]

Where:
- \( \sum \) symbolized a summing of sums
- \( \sum \) symbolized a summing of scores or of squared scores
- \( x \) symbolized an individual score
- \( n_t \) symbolized the total number of entries
- \( n_g \) symbolized the number of entries in a treatment

Computational procedures were as follows:

Total sum of squares \[ \frac{\sum x^2 - \left( \frac{\sum x}{n_t} \right)^2}{n_t} \]

The first step in computing a single-classification analysis of variance was to divide the squared sum of all observations, in all the treatments under study, by the total number of observations. This correction factor was subtracted from the sum of all the squared individual scores in the treatments being considered.

Treatment sum of squares \[ \frac{\sum x^2 - \left( \frac{\sum x}{n_g} \right)^2}{n_t} \]
Where \( \frac{(\sum X^2)}{n_g} \) represented the total of each group's sum of raw scores squared and divided by the number of entries in the group \( (n_g) \) and \( \frac{(\sum X)^2}{n_t} \) represented the sum of all raw scores squared and divided by the total number of entries \( (n_t) \) (Popham, p. 183).

The sum of squares within groups was found by subtracting the treatment sum of squares from the total sum of squares or by use of: \( \frac{\sum X^2 - (\sum X)^2}{n_g} \).

Knowledge of the degrees of freedom for each of the aforementioned three was necessary. The degrees of freedom accompanying the total sum of squares was found by subtracting one from the total number of scores in the treatments. The treatment degrees of freedom were found by subtracting one from the number of treatments. The within group degrees of freedom were determined by subtracting the number of treatments from the total number of scores.

Division of the treatment sum of squares and the within sum of squares by their respective number of degrees of freedom yielded a mean square for each.

Division of the treatment mean square by the within mean square provided an F ratio which, when compared with ratios of a given magnitude, indicated the existence or nonexistence of a difference sufficiently large to occur by chance only five times in each one hundred. Such a table of ratios for given degrees of freedom at the .05 level of significance, as used
in this study, is presented in Freund's Modern Elementary Statistics, (1967, p. 387).

Differences indicating a significant dimension were subjected to further scrutiny through the application of the New Multiple Range Test (Duncan, 1955, p. 1-42). Winer (1962) noted that Duncan's procedure was the same as the Newman-Keuls where the number of steps two means or totals are apart are examined in ordered sequence. Duncan claimed a power advantage to his approach. Such an advantage would provide for an increased sensitivity to possible mean differences.

Knowledge of the means of the treatments, the standard error of each mean, and the degrees of freedom on which this standard error was based were necessary for computation of the New Multiple Range Test. A table of special significant studentized ranges for a 5% level test was entered and significant studentized ranges were extracted for sample sizes $p = 2, 3, 4, 5$, etc., depending upon the number of means (Harter, 1960, p. 671-685). The significant studentized ranges were then multiplied by the standard error to form shortest significant ranges. Means of treatments were depicted in ranked order from left to right, and spaced so the distances between them were approximately proportional to their numerical differences.

Differences were then tested in the following order: the largest minus the smallest, the largest minus the second smallest, up through the largest minus the second largest.
Next, the smallest was subtracted from the second largest, then the second smallest was subtracted and so on, finally finishing with the second smallest minus the smallest. Each difference was significant if it exceeded the corresponding shortest significant range.

**Hypotheses specified**

The aforementioned formulae were used in testing subdivisions of the following hypotheses essential to this study:

1. There is no difference among male or female role groups in the mean number of selected indirect student-teacher behaviors preceding and following student talk.

2. There is no difference among male or female role groups in the mean number of student-teacher questions preceding and following student talk.

3. There is no difference among male or female role groups in the mean number of selected direct student-teacher behaviors following student talk.

4. There is no difference among male or female role groups in the mean number of student behaviors recorded as student talk.

For purposes of analysis, the following specific hypotheses were expressed by subdividing the four hypotheses listed above:

1. a. There is no difference among female role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) preceding student talk.

   b. There is no difference among male role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) preceding student talk.

   c. There is no difference among female role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) preceding student talk.
of praise or encouragement (category 2) following student talk.

d. There is no difference among male role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) following student talk.

e. There is no difference among female role groups in the mean number of instances which student-teachers accepted or used student ideas (category 3) following student talk.

f. There is no difference among male role groups in the mean number of instances which student-teachers accepted or used student ideas (category 3) following student talk.

2. a. There is no difference among female role groups in the mean number of student-teacher questions (category 4) preceding student talk.

b. There is no difference among male role groups in the mean number of student-teacher questions (category 4) preceding student talk.

c. There is no difference among female role groups in the mean number of student-teacher questions (category 4) following student talk.

d. There is no difference among male role groups in the mean number of student-teacher questions (category 4) following student talk.

3. a. There is no difference among female role groups in the mean number of student-teacher expressions of criticism or authority (category 7) following student talk.

b. There is no difference among male role groups in the mean number of student-teacher expressions of criticism or authority (category 7) following student talk.

4. a. There is no difference among female role groups in the mean number of student behaviors recorded as student response (category 8).

b. There is no difference among male role groups in the mean number of student behaviors recorded as student response (category 8).
c. There is no difference among female role groups in the mean number of student behaviors recorded as student initiated talk (category 9).

d. There is no difference among male role groups in the mean number of student behaviors recorded as student initiated talk (category 9).
FINDINGS OF THE STUDY

This investigation was designed to examine the significance of student-teacher perception of student role in elementary classroom verbal interaction. Four hypotheses, developing from the stated problem, were formulated. These four hypotheses were then subdivided into sixteen specific hypotheses for purpose of analysis.

In the material that follows, each of the sixteen specific hypotheses will be stated prior to the findings related to them. Sequential statement of each of the sixteen specific hypotheses will be followed by written and tabular presentation of the analysis of variance results relevant to it. A significance level at or beyond the .05 level was necessary for rejection of a specific null hypothesis. If mean differences were significant and a New Multiple Range Test was applied, a written and tabular presentation of such results follow. A discussion of these findings will be presented in the next chapter.

In sequential order then, the null hypotheses were tested as follows:

Null hypothesis 1. a. There is no difference among female role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) preceding student talk.

Analysis of the data gathered resulted in failure to reject the above-stated null hypothesis. An F-ratio of
4.07 would have been required for such rejection at the .05 level. Results of the analysis of variance used to test null hypothesis 1. a. are presented in Table 1.

Table 1. Analysis of variance of student-teacher expressions of praise or encouragement preceding female student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>1.18</td>
<td>.39</td>
<td>.79</td>
</tr>
<tr>
<td>Error</td>
<td>8</td>
<td>3.90</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>5.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 1. b. There is no difference among male role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) preceding student talk.

Analysis of the data relevant to null hypothesis 1. b. resulted in failure to reject it. An F-ratio of 3.29 would have been required for such rejection at the .05 level. Table 2 presents the results of the analysis of variance.
Table 2. Analysis of variance of student-teacher expressions of praise or encouragement preceding male student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>3.87</td>
<td>1.29</td>
<td>.88</td>
</tr>
<tr>
<td>Error</td>
<td>15</td>
<td>21.93</td>
<td>1.46</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>25.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 1. c. There is no difference among female role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) following student talk.

Analysis of the data gathered to test null hypothesis 1. c. resulted in rejection of the null hypothesis. An F-ratio of 2.92 was required for rejection at the .05 level. Table 3 depicts these results.

Table 3. Analysis of variance of student-teacher expressions of praise or encouragement following female student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>63.6</td>
<td>21.2</td>
<td>3.10*</td>
</tr>
<tr>
<td>Error</td>
<td>33</td>
<td>225.4</td>
<td>6.83</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>289.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at α = .05.
Computation of a New Multiple Range Test isolated two significant differences. Girls perceived by their student-teachers as being rigid, conforming and orderly had significantly more praise and encouragement following their talk than did those perceived as being independent, active and assertive. Those perceived as being rigid, conforming and orderly also had significantly more praise and encouragement following their talk than did the girls perceived as being flexible, nonconforming and untidy. Table 4 presents the results of the New Multiple Range Test conducted.

Table 4. Results of New Multiple Range Test of praise and encouragement following female student talk

<table>
<thead>
<tr>
<th>a) Shortest significant ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>P: (2) (3) (4)</td>
</tr>
<tr>
<td>Rp: 2.49 2.61 2.69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b) Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles</td>
</tr>
<tr>
<td>Means</td>
</tr>
</tbody>
</table>

*Means not underlined by the same line are significantly different.

Null hypothesis 1. d. There is no difference among male role groups in the mean number of student-teacher expressions of praise or encouragement (category 2) following student talk.
Analysis of the data relevant to null hypothesis 1. d. resulted in failure to reject it. An F-ratio of 2.92 would have been required for such rejection at the .05 level. Table 5 depicts the results of the test.

Table 5. Analysis of variance of student-teacher expressions of praise or encouragement following male student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>183.5</td>
<td>61.17</td>
<td>1.06</td>
</tr>
<tr>
<td>Error</td>
<td>31</td>
<td>1787.3</td>
<td>57.65</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>1970.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 1. e. There is no difference among female role groups in the mean number of instances which student-teachers accepted or used student ideas (category 3) following student talk.

An analysis of the data relevant to null hypothesis 1. e. did not result in rejection of the null hypothesis. An F-ratio of 3.05 would have been required for such rejection at the .05 level. Table 6 presents the results of the analysis of variance.
Table 6. Analysis of variance of student-teacher use or acceptance of female students' ideas

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>16.9</td>
<td>5.63</td>
<td>.88</td>
</tr>
<tr>
<td>Error</td>
<td>22</td>
<td>140.6</td>
<td>6.39</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>157.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 1. f. There is no difference among male role groups in the mean number of instances which student-teachers accepted or used student ideas (category 3) following student talk.

Analysis of the data collected to study null hypothesis 1. f. did not result in rejection of the null hypothesis. An F-ratio of 3.16 would have been required for such rejection at the .05 level. Table 7 presents the results of the analysis of variance.

Table 7. Analysis of variance of student-teacher use or acceptance of male students' ideas

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>15.05</td>
<td>5.02</td>
<td>1.02</td>
</tr>
<tr>
<td>Error</td>
<td>18</td>
<td>88.40</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>103.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Null hypothesis 2. a. There is no difference among female role groups in the mean number of student-teacher questions (category 4) preceding student talk.

The analysis of variance computed to evaluate possible mean differences related to null hypothesis 2. a. did not result in rejection of the null. An F-ratio of 2.88 would have been required for such rejection at the .05 level. Table 8 depicts the statistical results.

Table 8. Analysis of variance of student-teacher questions preceding female student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>72.5</td>
<td>24.16</td>
<td>.22</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>3852.7</td>
<td>110.08</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>3925.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 2. b. There is no difference among male role groups in the mean number of student-teacher questions (category 4) preceding student talk.

The analysis of variance resulted in rejection of null hypothesis 2. b. An F-ratio of 2.92 required for rejection of the null hypothesis at the .05 level was reached. Table 9 depicts these results.
Table 9. Analysis of variance of student-teacher questions preceding male student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>1228.10</td>
<td>409.40</td>
<td>3.00*</td>
</tr>
<tr>
<td>Error</td>
<td>32</td>
<td>4366.20</td>
<td>136.40</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>5594.30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $\alpha = .05$.

Computation of a New Multiple Range Test isolated two significant differences. Significantly more student-teacher questions preceded the talk of boys perceived as being independent, active, and assertive than for boys perceived as being rigid, conforming and orderly. Further, the former group was also significantly different from the flexible, nonconforming, untidy group. Table 10 presents the results of the New Multiple Range Test conducted.
Table 10. Results of New Multiple Range Test of student-teacher questions preceding male student talk

α = .05

a) Shortest significant range:

<table>
<thead>
<tr>
<th>P:</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rp:</td>
<td>11.88</td>
<td>12.49</td>
<td>12.89</td>
</tr>
</tbody>
</table>

b) Results

<table>
<thead>
<tr>
<th>Roles</th>
<th>Rigid, conforming, orderly</th>
<th>Flexible, nonconforming, forming</th>
<th>Dependent, passive, acquiescent</th>
<th>Independent, active, assertive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>12.13</td>
<td>13.40</td>
<td>17.0</td>
<td>28.63a</td>
</tr>
</tbody>
</table>

*aMeans not underlined by the same line are significantly different at the .05 level.*

Null hypothesis 2. c. There is no difference among female role groups in the mean number of student-teacher questions (category 4) following student talk.

Analysis of the data relevant to null hypothesis 2. c. resulted in failure to reject the null hypothesis. An F-ratio of 2.92 would have been required for such rejection at the .05 level. Table 11 presents the findings.
Table 11. Analysis of variance of student-teacher questions following female student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>47.1</td>
<td>15.70</td>
<td>.45</td>
</tr>
<tr>
<td>Error</td>
<td>31</td>
<td>1086.4</td>
<td>35.05</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>1133.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 2. d. There is no difference among male role groups in the mean number of student-teacher questions (category 4) following student talk.

Analysis of the data collected to test null hypothesis 2. d. resulted in rejection of the null hypothesis. An F-ratio of 2.92 was required for rejection at the .05 level. Table 12 presents the results of the analysis conducted to test null hypothesis 2. d.

Table 12. Analysis of variance of student-teacher questions following male student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>739.3</td>
<td>246.43</td>
<td>5.19*</td>
</tr>
<tr>
<td>Error</td>
<td>31</td>
<td>1471.4</td>
<td>47.46</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>2210.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $\alpha = .05$. 
Computation of a New Multiple Range Test isolated one significant difference. A significant difference was found to exist between the independent, active, assertive role group and the three remaining groups. Table 13 presents the results of the New Multiple Range Test conducted.

Table 13. Results of New Multiple Range Test of student-teacher questions following male student talk

<table>
<thead>
<tr>
<th>Roles</th>
<th>Means</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rigid, con-</td>
<td>Dependent,</td>
<td>Flexible,</td>
<td>Independent-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>forming,</td>
<td>passive,</td>
<td>noncon-</td>
<td>ent, active,</td>
<td>assertive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>orderly</td>
<td>acquies-</td>
<td>forming,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
<td>cent</td>
<td>untidy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Shortest significant ranges

\[ P: (2) (3) (4) \]

\[ R_p: 6.73 \quad 7.08 \quad 7.29 \]

b) Results

Null hypothesis 3. a. There is no difference among female role groups in the mean number of student-teacher expressions of criticism or authority (category 7) following student talk.

Analysis of the data relevant to null hypothesis 3. a. did not reach the F-ratio of 3.10 necessary for rejection.
Therefore, null hypothesis 3. a. was not rejected. Table 14 presents the results of the analysis of variance.

Table 14. Analysis of variance of student-teacher criticism following female student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>1.4</td>
<td>.47</td>
<td>3.03</td>
</tr>
<tr>
<td>Error</td>
<td>20</td>
<td>3.1</td>
<td>.155</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 3. b. There is no difference among male role groups in the mean number of student-teacher expressions of criticism or authority (category 7) following student talk.

The data relevant to null hypothesis 3. b., upon analysis, lacked sufficient mean differences to reject the null hypothesis. An F-ratio of 3.3 would have been required for rejection at the .05 level. Table 15 presents the findings.

Table 15. Analysis of variance of student-teacher criticism following male student talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>9.6</td>
<td>3.20</td>
<td>.59</td>
</tr>
<tr>
<td>Error</td>
<td>14</td>
<td>75.4</td>
<td>5.39</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>85.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Null hypothesis 4. a. There is no difference among female role groups in the mean number of student behaviors recorded as student response (category B).

Analysis of the data relevant to null hypothesis 4. a. resulted in failure to reject the null hypothesis. An F-ratio of 2.88 would have been required for such rejection. Table 16 presents the results of the analysis of variance.

Table 16. Analysis of variance of female student verbal response

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>77.7</td>
<td>25.9</td>
<td>.23</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>3971.5</td>
<td>110.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>4049.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 4. b. There is no difference among male role groups in the mean number of student behaviors recorded as student response (category B).

The data relevant to null hypothesis 4. b. did not support rejection of the null hypothesis. An F-ratio of 2.92 would have been required for such rejection. Table 17 depicts computed results of the analysis of variance.
Table 17. **Analysis of variance of male student verbal response**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>735.1</td>
<td>245.03</td>
<td>.93</td>
</tr>
<tr>
<td>Error</td>
<td>32</td>
<td>8389.9</td>
<td>262.20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>9125.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Null hypothesis 4. c. There is no difference among female role groups in the mean number of student behaviors recorded as student initiated talk (category 9).

The data gathered did not support rejection of null hypothesis 4. c. An F-ratio of 2.99 would have been required for such rejection. Table 18 presents the results of the analysis of variance.

Table 18. **Analysis of variance of female student initiated talk**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>1030.5</td>
<td>343.50</td>
<td>.62</td>
</tr>
<tr>
<td>Error</td>
<td>25</td>
<td>13671.7</td>
<td>546.87</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>14702.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Null hypothesis 4. d. There is no difference among male role groups in the mean number of student behaviors recorded as student initiated talk (category 9).

Analysis of the data relevant to null hypothesis 4. d. revealed a significant difference among the means. An F-ratio of 2.94 was required for rejection of the null hypothesis at the .05 level. The difference between student initiated talk on the part of the independent, active, assertive group was significantly different from that of the boys perceived to be included in the flexible, nonconforming, untidy role group, from that of boys perceived to be included in the dependent, passive, acquiescent role group, and from that of boys perceived to be included in the rigid, conforming, orderly role group. Table 19 presents the results of the analysis of variance.

Table 19. Analysis of variance of male student initiated talk

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>3667.0</td>
<td>1222.30</td>
<td>6.00*</td>
</tr>
<tr>
<td>Error</td>
<td>27</td>
<td>5496.7</td>
<td>203.60</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>9163.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $\alpha = .05$. 
Table 20 presents the results of the New Multiple Range Test.

Table 20. Results of New Multiple Range Test of amount of male student initiated talk $\alpha = .05$

a) Shortest significant ranges

<table>
<thead>
<tr>
<th>P</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rp</td>
<td>14.826</td>
<td>15.595</td>
<td>16.057</td>
</tr>
</tbody>
</table>

b) Results

Roles | Rigid, conforming, orderly | Dependent, passive, acquiescent | Flexible, nonconforming, assertive | Independent, active, assertive

Means | 4.1 | 12.1 | 15.3 | 35.1a |

a) Means not underlined by the same line are significantly different at the .05 level.

This chapter has been limited to a factual account of the results of each of the sixteen specific null hypotheses tested. Discussion and implication have been reserved for presentation in the chapter which follows. In listed, abbreviated form, the findings reported in the present chapter were as follows:

Null hypothesis

1. a. Student-teacher praise and encouragement preceding female student talk Failed to reject

1. b. Student-teacher praise and encouragement preceding male student talk Failed to reject

1. c. Student-teacher praise and encouragement following female student talk Rejected
1. d. Student-teacher praise and encouragement following male student talk Failed to reject

1. e. Student-teacher acceptance and use of female student ideas Failed to reject

1. f. Student-teacher acceptance and use of male student ideas Failed to reject

2. a. Student-teacher questions preceding female student talk Failed to reject

2. b. Student-teacher questions preceding male student talk Rejected

2. c. Student-teacher questions following female student talk Failed to reject

2. d. Student-teacher questions following male student talk Rejected

3. a. Student-teacher criticism following female student talk Failed to reject

3. b. Student teacher criticism following male student talk Failed to reject

4. a. Amount of female student verbal response Failed to reject

4. b. Amount of male student verbal response Failed to reject

4. c. Amount of female student initiated talk Failed to reject

4. d. Amount of male student initiated talk Rejected
DISCUSSION

The purpose of this study was to investigate the significance of student-teacher perception of student role in elementary classroom verbal interaction. The findings presented in the previous chapter indicated partial rejection of the null hypothesis which was as follows:

Elementary school student-teachers' perceptions of student role, as sampled using Feshbach's Situation Test, are not of significance in a thirty minute observation of their third-grade classroom pattern of verbal interaction, as analyzed using Flanders' Interaction Analysis.

The afore-stated null hypothesis was subdivided into the following four null hypotheses:

1. There is no difference among male or female role groups in the mean number of selected indirect student-teacher behaviors preceding and following student talk.

2. There is no difference among male or female role groups in the mean number of student-teacher questions preceding and following student talk.

3. There is no difference among male or female role groups in the mean number of selected direct student-teacher behaviors following student talk.

4. There is no difference among male or female role groups in the mean number of student behaviors recorded as student talk.

These four null hypotheses were subdivided into sixteen specific null hypotheses prior to collection of the data. Four of these sixteen specific null hypotheses were rejected. These
rejected specific null hypotheses had been generated from null hypotheses numbered 1, 2 and 4 above. None of the specific null hypotheses generated from null hypothesis number 3 were rejected. Therefore, the focus of this chapter will be upon the specific null hypotheses which were generated from the null hypotheses number 1, 2 and 4.

It would seem well to cite and discuss possible limitations to the generalizability of this study prior to discussion of the findings. Thus the format of this chapter will be as follows:

1. Citation and discussion of limitations will precede discussion of the findings.

2. Subsequent to citation and discussion of limitations, the chapter will be subdivided into four areas of discussion. They will be as follows:

   a. Statement of null hypothesis number 1 will be followed by contextual inclusion of the specific null hypothesis generated from it which was rejected. Discussion will follow.

   b. Statement of null hypothesis number 2 will be followed by contextual inclusion of the two specific null hypotheses generated from it which were rejected. A brief discussion will follow.

   c. Statement of null hypothesis number 4 will be followed by contextual inclusion of the specific null hypothesis generated from it which was rejected. A brief discussion of this finding will be followed by consideration of the possible relationship of it to the findings from hypothesis number 2.

   d. Statement of null hypothesis number 3 will be included. In that the null hypotheses generated from it were not rejected, discussion will be limited. Suggestions for further study will be offered.
3. Implications of this research effort will be discussed.

4. Suggestions for future investigation will be made.

Initially then, the reader is cautioned to keep the following limitations in mind.

1. This study focused upon verbal interaction in the classrooms of ten student-teachers of third-grade children. Generalization to career teachers of grade levels below third grade would seem especially inappropriate. Although the findings of the previously cited Rabinowitz-Rosenbaum (1960) investigation suggested extensive carryover of student-teacher behavior to eventual career behavior, the results of the Furst-Amidon (1967) study must also be borne in mind. Furst and Amidon (Amidon and Hough, 1967) found a significant shift from indirect teacher verbalization to direct teacher verbalization appearing at the third grade level and persisting in part through grade six. Acceptance and use of student ideas increased again after the low recorded in the third grade, and direct teacher influence gradually decreased after third grade. The change from indirect to direct behavior of the third grade teachers, when compared with that of second grade teachers, was in total considerably more abrupt than that which persisted into fourth grade and beyond. Therefore, generalization to the less direct teachers of the primary grades preceding third grade should be limited.

2. Attempted generalization from the findings of this investigation should reflect an awareness of the following in regard to the use of the Feshbach Situation Test: Although the author has no reason to question the validity of the Feshbach Situation Test, provision of four male roles and four female roles for student-teacher use in description of their third-grade students might sample student-teacher perception of the universe of student roles less well than would an instrument with a greater number of role descriptions. Further, to date, the results of any efforts to measure the reliability of the Feshbach Situation Test have not been published. However, as previously cited, Beigel (1969) used the instrument in such a manner as to complement its stability. Beigel (1969) used the role descriptions included in the test to measure student-teacher assessment of student attributes. Initially, student-teachers were asked to
record either positive or negative reactions to each set of test stimuli. Subsequently, additional data of a conflicting nature were given to the student-teachers to promote revision of their initial assessments. Results of a retest, using the same form of the Feshbach Situation Test ten days after the first administration, revealed that a considerable volume of supplementation to the instrument was necessary to negotiate rescission of the student-teachers' positive or negative assessment recorded initially.

3. Generalization from the findings of this study should be preceded by a review of the specific hypothesis appropriate to the area of attempted application. The reader should note in the preceding chapter that statement of each specific hypothesis was followed by the findings related to it as stated. Selected indirect and direct student-teacher verbalizations preceding and following the talk of variously perceived role playing students were examined. While many student-teacher verbalizations were directed to the child whose talk was contiguous to that of the teacher, there was no assurance that this was the case in all instances. For example, a student-teacher may not have chosen to directly comment to a particular student who had most recently spoken. Thus, student verbalization could be immediately followed by a student-teacher question or expression of encouragement directed to another student, or to the class, rather than to the student who had most recently spoken. Had videotape equipment been available in each of these normal settings, a portion of the aforementioned inadequacy could have been avoided. However, regardless of the equipment available, it is often difficult to ascertain who the recipients of teacher comments are intended to be. Therefore, in the discussion which follows, the most plausible explanation relative to each finding will be presented.

Null hypothesis 1. There is no difference among male or female role groups in the mean number of selected indirect student-teacher behaviors preceding and following student talk.

Analysis of the data gathered in search of possible differences among male or female role groups in the mean number of selected indirect student-teacher behaviors preceding and
following student talk resulted in rejection of one of six specific subdivisions of this null hypothesis. A difference was found among female role groups in the mean number of student-teacher expressions of praise or encouragement following student talk. A significant preponderance of praise or encouragement was recorded as following the talk of girls perceived as being rigid, conforming and orderly. See Tables Three and Four on pages 77 and 78 for tabular presentation of the analysis of variance and The New Multiple Range Test results.

No significant differences were found among female role groups in the amount of student response or student initiated talk. Therefore, it should not be argued that the recorded preponderance of praise or encouragement following the talk of rigid, conforming, orderly girls was simply a function of their talking more than other female role groups.

It would be well to note that the rigid, conforming, orderly group did not stand entirely alone in having a significantly greater amount of student-teacher praise or encouragement recorded as following their verbal contributions. The mean number of student-teacher expressions of praise or encouragement following the verbalizations of these rigid, conforming, orderly girls and the verbalizations of dependent, passive, acquiescent girls was not significantly different.

As previously mentioned, the data did not indicate the student to whom praise or encouragement was addressed.
Therefore, conclusion can not be made without first admitting that these student-teacher expressions could have been directed toward the rigid, conforming, orderly girls; toward the entire class; and/or toward the child who may have verbally responded following the student-teachers' expressions of praise or encouragement. However, there was not a significant difference found among student role groups in the mean number of student-teacher expressions of praise or encouragement preceding student talk. Further, it is possible, but seems unlikely, that student-teachers responded to the verbal contribution of one role group by praising or encouraging the entire class to such an extent that significant proportions were reached. Therefore, it would seem that support and elaboration of previously cited studies could be offered.

Consider the following statement from Feshbach's (1969) discussion.

The results provide striking support for the hypothesis that student-teachers prefer pupils whose behavior reflects rigidity, conformity and orderliness or dependency, passivity, and acquiescence than pupils whose behavior is indicative of flexibility, nonconformity, and untidiness or independence, activity, and assertiveness (p. 130).

Feshbach (1969) noted further that her study did not assess the student-teachers' behaviors in the classroom. "Nevertheless, ... it seems reasonable to assume that the preferences of the student-teachers would be manifested in their classroom behavior (Feshbach, 1969, p. 131)."

If the present author's aforepresented reasoning is
valid, then student-teacher expressions of praise or encouragement as recorded in this study could suggest that the verbalizations of the girls perceived as being rigid, conforming, and orderly, and the verbalizations by the dependent, passive, and acquiescent girls were better received by the student-teachers than were the contributions from the other female role groups.

Should replication of the present study be conducted, the possible element of conjecture in the statement above could be removed by indicating in some way whether or not the praise or encouragement following verbalization of a student was addressed to that particular student, to the class as a whole, or to another student.

The Feshbach instrument included cues which described student conformity as one of three characteristics to be used by student-teachers in identifying rigid, conforming, orderly children. Conformity was but one of three such dimensions. With this in mind, the reader might again consider several previous inclusions.

Silberman (1971) noted that obedience to rules may become a virtue in itself, quite apart from its functional necessity (p. 58). Further, in consequence to this, Silberman (1971) suggested that students learn to view conformity as morally right and nonconformity as morally wrong (p. 58). Again, daily life involves "perceiving and interpreting the actions of others, acting upon the interpretation, getting feedback as to
the appropriateness of the behavior and making further behav­
ioral corrections (Chesler and Fox, 1966, p. 8)."

If the feedback is emitted by the powerful adult in the
classroom, and if the feedback is positive when offered in as­
assessment of conforming student behaviors, it seems less than
difficult to concur with Silberman (1971) and to agree that
conformity could well come to be seen by students as being
morally right with nonconformity then being seen as morally
wrong.

Lahaderne (1968) suggested that teachers tended to view,
among student behaviors, the conformity of handraising and
sitting straight as indications of teacher effectiveness and
success. If so, it follows that they would probably reinforce
such conformity through praise or encouragement and thus per­
petuate the conforming pattern of behavior.

It would be well to reconsider the findings of Costanza
(1970) wherein self blame and conformity were found to be in­
terrelated. An imbalanced reinforcement in favor of conform­
ing behaviors may limit the range of behavior deemed accept­
able by students and perpetuate some characteristics which may
be less than desirable. Granted, some behaviors characteris­
tic of some role groups may not always facilitate classroom
management. However, focus upon a more extensive realization
of the human potential should, and surely does, lead to rein­
forcement of a variety of student role behaviors.
Null hypothesis 2. There is no difference among male or female role groups in the mean number of student-teacher questions preceding and following student talk.

Analysis of the data gathered in search of possible differences among male or female role groups in the mean number of student-teacher questions preceding and following student talk resulted in rejection of two of four specific subdivisions of this null hypothesis. A difference was found among male role groups in the mean number of student-teacher questions preceding as well as following student talk. See Tables 9 and 10 on pages 82 and 83 for tabular presentation of the former and Tables 12 and 13 on pages 84 and 85 for tabular presentation of the latter.

A significant preponderance of student-teacher questions was recorded as preceding and following the talk of boys perceived by their student-teachers as being independent, active, and assertive. Verbalization by the aforementioned group was preceded by a record of significantly more student-teacher questions than those which preceded the talk of boys perceived as being flexible, nonconforming, and untidy and by boys perceived as being rigid, conforming and orderly. A significant difference in the mean numbers of student-teacher questions preceding the talk of boys perceived as dependent, passive, and acquiescent was not evident in this study. Further discussion of this finding will occur in conjunction with consideration of the following null hypothesis.
Null hypothesis 4. There is no difference among male or female role groups in the mean number of student behaviors recorded as student talk.

Analysis of the data gathered in search of possible differences among male or among female role groups in the mean number of student behaviors recorded as student talk resulted in rejection of one of the four specific null hypotheses into which this general null hypothesis had been subdivided. A significant difference among male role groups in the mean number of student behaviors recorded as student initiated talk was computed from the data. Boys perceived as being independent, active, and assertive compiled significantly more student initiated responses than were compiled by the dependent, passive, acquiescent group; the flexible, nonconforming, untidy group; or the rigid, conforming, orderly group. See Tables 19 and 20 on pages 89 and 90 for tabular presentation of the analysis of variance and The New Multiple Range Test results.

Thus, in sum, we have the following:

1. Boys perceived by their student-teachers as being independent, active, and assertive compiled a significantly greater amount of talk recorded as being student initiated.

2. The talk of boys perceived by their student-teachers as being independent, active, and assertive was preceded by significantly more student-teacher questions than was the talk of the flexible, nonconforming, untidy group, or the talk of the rigid, conforming, orderly group. The talk of the independent, active, assertive group was not preceded by significantly more questions than was the talk of the dependent, passive, acquiescent group.

3. Significantly more student-teacher questions were
recorded as following the talk of the independent, active, assertive group than were recorded as following the dependent, passive, acquiescent group; the flexible, nonconforming, untidy group, or the rigid, conforming, orderly group.

The findings could also be presented in the following abbreviated form:

<table>
<thead>
<tr>
<th>Preceding Student Talk</th>
<th>Following Student Talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>A significant number of student-teacher questions.</td>
<td>An amount of student talk by independent, active, assertive boys which was significant as initiated talk but which was not significant as response.</td>
</tr>
<tr>
<td>A significant number of student-teacher questions.</td>
<td>An amount of student talk by dependent, passive, acquiescent boys which was not significant as either initiated talk or as response.</td>
</tr>
<tr>
<td>No significant difference in student-teacher talk.</td>
<td>An amount of student talk by flexible, nonconforming, untidy boys which was not significant as either initiated talk or as response.</td>
</tr>
<tr>
<td>No significant difference in student-teacher talk.</td>
<td>An amount of student talk by rigid, conforming, orderly boys which was not significant as either initiated talk or as response.</td>
</tr>
</tbody>
</table>

In that the method used did not specifically identify the student, or students, to whom questions were addressed, the following possibilities are posed to facilitate conclusion.
1. Independent, active, assertive boys were prone to respond to open questions, or questions directed to other students, and then quizzed further by the student-teacher subsequent to verbalization.

2. Independent, active, assertive boys were prone to respond to open questions, or questions directed to other students, and then ignored by the student-teacher who addressed further questions to the class or to another individual.

3. Independent, active, assertive boys responded to questions directed to them and were subsequently quizzed by the student-teacher for further contribution.

4. Independent, active, assertive boys responded to questions directed to them and were then ignored by the student-teacher who addressed further questions to the class or to another individual.

5. Student-teachers were inclined to follow male student talk with additional questions. Thus, the role group with the most talk would have their greater amount of talk followed by the greatest number of student-teacher questions.

6. Dependent, passive, acquiescent boys were prone to respond to open questions, or to questions directed to other students. The student-teacher followed such talk with a variety of verbal behaviors, none of which was of an amount statistically significant.

7. Dependent, passive, acquiescent boys responded to student-teacher questions directed to them. The student-teacher then followed such response with a variety of verbal behaviors, none of which was of an amount statistically significant.

Possibility number five seems credible in attempted explanation of the number of student-teacher questions following male student talk. However, it neither identifies the student to whom the questions were addressed, nor does it explain the difference in the number of student-teacher questions preceding male student talk. The contention that the number of student-
teacher questions preceding male student talk was entirely a function of the assertiveness of the boys involved also seems less than adequate as an explanation. For, we should note again that there was no significant difference in the mean number of student-teacher questions preceding the talk of dependent, passive, acquiescent boys when compared to the independent, active, assertive group. The former group is characterized, by the Feshbach instrument, as behaving in a manner which is definitely not assertive. This will be discussed at a later point.

Incidentally, the question of seating arrangement in the classrooms may arise. Were either the independent, active, assertive boys, or the dependent, passive, acquiescent boys seated in such a manner as to facilitate interaction with the student-teachers? Examination of Appendix F yields no new data to which mean differences in student-teacher questions of student initiated talk could be attributed. The wide variety of seating arrangements should be noted. No particular role group appeared to consistently occupy seating positions which either facilitated or retarded interaction with the student-teacher.

Let us consider the significant difference in the amount of student initiated talk emitted by the independent, active, assertive group as compared to the remaining three groups. The reader is referred to Appendices A and C. Student initiated talk was defined in Appendix A as talk by students which they initiate. Further, it was suggested that the observer, when attempting to differentiate between student response and
student initiated talk, decide whether or not the student wanted to talk. The reader is then referred to the descriptions of the independent, active, assertive boy as given in Appendix C. A part of the second story describing this role group stated that although the teacher did not call on a particular independent, active, assertive boy, he jumped up and said, "That is not true, because...". Thus we see that the independent, active, assertive boy did indeed want to talk; even without direct teacher elicitation. In the present study, the independent, active, assertive boys initiated enough talk to reach significant proportions.

Now, note in the first of the two descriptions of the independent, active, assertive boy that a question was directed to such a boy after he had initiated an interaction with the teacher. There is no record of teacher verbalization subsequent to the assertive boy's response to the teacher's question. Also note in the second description that no teacher verbalization was directed to the assertive boy following his initiated talk; it would seem that he was ignored.

The reader is reminded that student-teachers in the present study used the aforecited descriptive events involving teacher and student to identify independent, active, assertive boys. Surely the verbal exchanges included in the two situations reminded student-teachers of their own interaction with assertive boys. Therefore, consideration of the descriptions in Appendix C coupled with the definitions and instructions of Appendix A
lend considerable credence to the aforelisted possibilities numbered 1, 2, and 5. Student-teachers in this study seemed inclined to follow male student initiated talk with questions; an increase in male student initiated talk was followed by a commensurate increase in student-teacher questions. It would also seem, even as in the Feshbach situations, that some of these questions that followed the talk of assertive boys were directed to them; at other times verbalization by the assertive boys was ignored as questions were directed to other students.

Thus, in sum, it seems reasonable to conclude the following: Independent, active, assertive boys compiled a significant amount of initiated talk. While a portion of the significant preponderance of student-teacher questions which preceded this talk initiated by the independent, active, assertive boys was addressed specifically to these boys, we may assume that many were not. Independent, active, assertive boys were inclined to answer student-teacher questions regardless of whether or not the student-teacher intended for them to respond. Verbalization initiated by the independent, active, assertive boys was then followed by a preponderance of student-teacher questions. The student-teachers intended that the independent, active, assertive boys be recipient of some of these questions while others were addressed to other students as the student-teacher apparently ignored the contribution of the assertive boy.

It would be well to note that neither of the student-teacher
reactions necessarily indicated a preference for interaction with the independent, active, assertive boy. His assertion did not seem to be reinforced by any manifestation of student-teacher affection; most children would not perceive a question following their verbal contribution as offering much in the way of student-teacher personal commitment to them. And yet, the independent, active, assertive boy, as well as his student-teacher persisted in a significant manner; the former with initiated talk, the latter with questions.

If the student-teacher's withholding of "love" from the assertive boy and the student-teacher's feigned or real obliviousness to the assertive boy's verbalizations were intended to extinguish his aggressiveness, it obviously failed in the classrooms studied. Indeed, we have little to prevent the belief that such student-teacher behaviors did not have an effect opposite that intended. The independent, active, assertive boy may have responded to such student-teacher behavior by making an even greater effort to gain acceptance of himself and his behavior.

Returning now to a consideration of the preponderance of questions preceding the talk of dependent, passive, acquiescent boys, the reader is referred to the role description of these boys in Appendix C. Notice that the teacher called on a dependent, passive, acquiescent boy without any record given of his indicating a desire to talk. Note further that two questions and one direction were addressed to him before conclusion of the
interaction. Dependent, passive, acquiescent boys did not compile significantly more student responses or initiated talk in this study. Therefore, the role description seems to concur with the findings of this study. A considerable number of student-teacher questions seem to have been addressed to the dependent, passive, acquiescent boys in order to draw verbalization from them. If this is true, and the student-teacher's attention was reinforcing for the dependent youth, then his condition might well be perpetuated. It could become rewarding to be passive and dependent. Conversely, it has been shown that independence, activity, and assertion were not necessarily rewarded in his study.

Null hypothesis 3. There is no difference among male or female role groups in the mean number of selected direct student-teacher behaviors following student talk.

Examination of the data relevant to the two specific null hypotheses generated from null hypothesis number 3, wherein possible differences among the mean number of selected direct student-teacher behaviors following student talk were studied, failed to yield any significant differences. No difference was found among male nor among female role groups in the mean number of student-teacher expressions of criticism or authority following student response. Two possibilities are offered for further study.

1. Student-teachers did not verbalize such feelings but rather may have used more subtle methods in the presence of observers.
2. Student-teachers verbalized such feelings but at a time other than immediately after the verbalization of the student to whom criticism would have been directed.

The reader is referred to Table 14 on page 86. It should be noted that mean differences in the number of expressions of student-teacher criticism or authority following the talk of various female role groups approached significant proportions. The reader may find examination of the raw data relevant to this area of study in Appendix G also of interest. Replication should focus upon possible determination of a significant difference between the mean number of student-teacher criticism following the talk of flexible, nonconforming, untidy girls when compared with rigid, conforming orderly girls.

Implications

Feshbach (1969) concluded from her study that student-teachers perceived rigid, conforming, orderly girls most positively among the eight role groups represented in the Feshbach Situation Test. It was also determined that independent, active, assertive boys vied for one of the lowest positions in student-teacher preference. Feshbach (1969) emphasized that her study did not assess the student-teachers' behaviors in the classroom. She stated that "there is undoubtedly a gap between the preferences they expressed and how they actually behave (Feshbach, 1969, p. 131)."

A preponderance of recorded student-teacher praise and encouragement was found following the talk of rigid, conforming,
orderly girls in the present study. These findings seem to indicate a significant student-teacher receptivity to the verbalization of these girls; thus, support is lent to Feshbach's conclusions. If the author is correct in reasoning that student-teacher questions following the talk of independent, active assertive boys were evidence of an intended withholding of commitment, then further support is given the Feshbach findings. However, such concurrence does not offer total substantiation to the Feshbach statement that a gap between student-teacher preference and behavior probably exists. Student-teachers may be effective in concealing attraction to or aversion for some role groups, but not entirely. Rather, the findings of the present study offer limited subscription to Silberman's conclusions that

...teacher's attitudes are generally revealed in their actions, in spite of many forces operating to contain their expression...and that different attitudes are translated into action in different ways, such that teachers give some of their attitudes clearer expression than they give others (Silberman, 1969, p. 406).

Such expression seems quite clearly implied in student-teacher reception of rigid, conforming, orderly female student talk.

The author has no quarrel with orderly group process and goal directed classroom discussion. Indeed, reward is usually in store for the student-teacher who facilitates such. It would seem incongruous then for the student-teacher not to reinforce, and thus perpetuate, rigidity, conformity, and orderliness in the classroom. Yet, we have no data to support a clear case for the superiority of verbal contribution by rigid,
conforming, orderly individuals in the classroom or beyond. While the conduct of other role playing children may occasionally constitute an impediment to the achievement of immediate didactic purposes, potential is also vested in these children and the classroom teacher can be a key person in release and constructive direction of it.

The following statements by Flanders (1970) and Feshbach (1969) in concert with previous statements by the author seem appropriate: "Teaching behavior is the most potent, single, controllable factor that can alter learning opportunities in the classroom (Flanders, 1970, p. 13)." Educators should be interested in the extent to which and the manner through which teachers alter learning opportunities. Further,

...educators responsible for teacher training should attempt to increase student-teachers' awareness of their particular preferences upon their evaluation of, and behavior toward, varying kinds of pupils (Feshbach, 1969, p. 131).

The purpose of this study was to examine the possible significance of student-teacher perception of student role in elementary school classroom verbal interaction. It was intended that increased student-teacher cognizance of their "behavior toward varying kinds of pupils" would lead to an awareness of the manner in which they may consequently "alter learning opportunities". Thus, the findings of the present study should be brought to the attention of teachers-in-training. Student-teachers should ponder the manner in which preferences and/or nonpreferences were apparently expressed. It should be
emphasized that differential student-teacher communication may well go beyond a simple expression of attitude; it may indeed assume expectancy proportions on the part of the student-teacher as well as the students. Such expectancy can significantly alter the learning climate as eligibility for student-teacher verbal reward or the lack of it becomes evident to the various role playing children.

Personal involvement on the part of teachers-in-training may be a problem in the afore-suggested effort. Thus, the effect of college lectures focused upon, and class discussion evolving from, the findings of studies such as the present one may be short lived. Therefore, it is further suggested that the verbose could become personally meaningful for the student-teacher who had in hand the results of an observation of his or her own classroom such as was conducted for this study. Vague generality could well become meaningful specificity. Finally, when student-teachers have assumed careers in teaching, additional improvement could well be wrought through the efforts of counselor-consultants who could utilize the same data collecting method employed in the present research effort and thus provide career teachers with the same kinds of data for use in attempted improvement of learning climates.

Suggestions for Future Research

Several limitations of the present study should be considered prior to attempted replication or extension. The reader is referred to the statement of limitations listed
previously in this chapter. Two problems should be considered. One was the absence of provision for indicating whether or not student-teacher verbalization preceding and/or following student talk was addressed to the student who spoke. A second difficulty was the problem of identifying all children who verbally contributed. Although the accuracy of such observation improved as the present study progressed, it would probably constitute a threat to the collection of adequate data in any natural setting where a wide variety of seating arrangements were found. It is difficult to determine which child has spoken if a portion of the class is seated in such a manner as to be facing in a direction opposite the recorders.

The former of these two problems could be partially solved by simply entering a subscript with the various categories of student-teacher talk. An attempt could thus be made to indicate whether or not the verbalization was addressed to the child who subsequently spoke, who had just spoken, or to some other child in the class. The use of videotape could further reduce this area of inadequacy.

If videotape equipment were to be used, and if the variable of seating arrangement were to be controlled, a setting other than the natural one might possibly be best. It would seem that a controlled setting would also allow for observation of the behavior of a considerably greater number of student-teachers.

If a controlled setting were chosen, students could be
trained to play selected roles. Observers could become well acquainted with the voices of the role-playing children. Such an arrangement would contribute to the solution of the identifying problem. Further, allowance could be made for examining the consistency of student-teacher perception of student role.

Finally, the use of an instrument offering a wider array of student roles might yield more data. While the Feshbach instrument was easily administered, several student-teachers suggested that the provision of a wider range of student behaviors would have more adequately sampled their perception.
SUMMARY

Classroom contacts and verbal interaction have been classified and analyzed. One such approach through which a volume of research has been conducted is the Flanders Interaction Analysis.

It has been found, through extensive research using the Flanders system, that teacher talk begins to increase at the third-grade level, that teacher praise is lowest at that time, that the amount of time spent giving directions increases, that indirect teacher influences are lowest, that extended influence is highest, that teachers begin responding to their third-grader's talk in ways other than praise, and that student initiated talk is at a low ebb (Amidon and Hough, 1967). Further, research has shown that student-teachers of third-grade children prefer children perceived as being rigid, conforming, and orderly (Feshbach, 1969).

A void tended to exist in the study of the possible significance of elementary school student-teacher perception of student role in classroom verbal interaction. Therefore, the purpose of this study was to investigate the significance of student-teacher perception of third-grade student role in classroom verbal interaction. The Feshbach Situation Test was chosen to sample the former; the Flanders system was used in observation of the latter.

The present research effort was conducted in eight
elementary schools within the Des Moines school system in which all of the ten Drake University student-teachers of third-grade classes were student-teaching. Observations were made in social studies classes because research has shown the most verbal interaction occurring in this subject. (Amidon and Hough, 1967).

Four Drake University staff members, three of whom had prior experience in recording classroom verbal interaction using the Flanders system, collected the data. Two were re-trained in the recording of verbal categories. Two were trained in the recording of student seat numbers. They worked in pairs; one individual recorded the verbal interaction, the other recorded the seat numbers of the verbally participating children.

Reliability of raters who recorded the classroom verbal interaction was computed using the Scott (1955) method. Reliability of the team members recording seat numbers was accomplished through analysis of audio tapes.

The ten student-teachers to be included in the study were separately contacted one day prior to observation, were told that an analysis of interaction was scheduled, and were asked to call children by name as much as possible during the observation. A diagram of the seating arrangement in each classroom was prepared a week prior to the study.

Arrangements were made for a homeroom teacher to assume responsibility for the class immediately following observation.
Using the Feshbach instrument, each student-teacher entered the identifying letter and number of the role chosen to describe the child on the seating chart which listed the children's names. Audio tapes were meticulously replayed to maximize the data.

The data gathered from each thirty-minute observation were recorded on specially prepared ten by ten matrices which had each cell in the rows and columns prepared for a record of student response and student initiated talk. The verbal activity preceding and following verbalization by various role playing students could then be recorded in the appropriate cells.

A single classification analysis of variance was chosen to study the means of the data. Differences indicating a significant dimension at the .05 level were then subjected to further scrutiny through the application of the New Multiple Range Test (Duncan, 1955).

Four general null hypotheses were formulated to test the tenability of the overall null hypothesis which stated: Elementary school student-teachers' perceptions of student role, as sampled using Feshbach's Situation Test, are not of significance in a thirty-minute observation of their third-grade classroom pattern of verbal interaction, as analyzed using Flanders' Interaction Analysis.

The aforementioned general hypotheses were further dichotomized into sixteen specific hypotheses for purposes of
investigation. Of these sixteen specifically stated hypotheses, four were rejected at the .05 level. In abbreviated form the findings were as follows:

Null hypothesis:

1. a. No difference among female role groups in mean number of student-teacher expressions of praise or encouragement preceding student talk. Failed to reject

1. b. No difference among male role groups in mean number of student-teacher expressions of praise or encouragement preceding student talk. Failed to reject

1. c. No difference among female role groups in mean number of student-teacher expressions of praise or encouragement following student talk. Rejected

1. d. No difference among male role groups in mean number of student-teacher expressions of praise or encouragement following student talk. Failed to reject

1. e. No difference among female role groups in mean number of instances which student-teachers accepted or used student ideas following student talk. Failed to reject

1. f. No difference among male role groups in mean number of instances which student-teachers accepted or used student ideas following student talk. Failed to reject

Null hypothesis:

2. a. No difference among female role groups in mean number of student-teacher questions preceding student talk. Failed to reject

2. b. No difference among male role groups in mean number of student-teacher questions preceding student talk. Rejected

2. c. No difference among female role groups
in mean number of student-teacher questions following student talk. Failed to reject

2. d. No difference among male role groups in mean number of student-teacher questions Rejected following student talk.

Null hypothesis:

3. a. No difference among female role groups in mean number of student-teacher criticisms following student talk. Failed to reject

3. b. No difference among male role groups in mean number of student-teacher criticisms following student talk. Failed to reject

Null hypothesis:

4. a. No difference among female role groups in mean amount of student response. Failed to reject

4. b. No difference among male role groups in mean amount of student response. Failed to reject

4. c. No difference among female role groups in mean amount of student initiated talk. reject

4. d. No difference among male role groups in mean amount of student initiated talk. Rejected

In sum, the talk of boys perceived by their student-teachers as being independent, active, and assertive was preceded and followed by more questions than the other male role groups. These same independent, active, assertive boys also compiled a significant amount of student initiated talk. Significantly more praise and/or encouragement followed verbalization by girls perceived by their student-teachers as rigid, conforming, and orderly. The girls perceived as being dependent, passive, and acquiescent received a slightly lesser amount of praise and encouragement.
Reasoning was presented which led to the conclusion that verbal contributions made by rigid, conforming, orderly girls as well as dependent, passive, acquiescent girls were better received by the student-teachers than were the contributions of other female role groups.

The Feshbach Situation Test described four male roles. The Flanders system defined two categories of student verbalization. In concert, these sources were used to conclude the following: While a portion of the significant preponderance of student-teacher questions which preceded talk initiated by the independent, active, assertive boys were addressed specifically to these boys, many were not. Independent, active, assertive boys were inclined to answer student-teacher questions regardless of whether the student-teacher intended for them to respond or not. Verbalization initiated by these assertive boys was then followed by a preponderance of student-teacher questions, some of which were directed to these boys while some were not. The latter behavior was viewed by the author as a student-teacher effort to ignore the assertive boys, although this was not specifically tested in the present study.

Conversely, student-teacher questions preceding the talk of dependent, passive, acquiescent boys were assumed to be an effort to draw these youths into the verbal interaction. No significant student-teacher verbalization followed talk by these role-playing boys.

The results of this study offer support to the contention
that student-teacher perception of student role is of significance in classroom verbal interaction; and that student-teacher attitudes are at least partially revealed in this verbalization.

Finally, it was noted that a method was devised by which data could be collected prior to efforts intended to improve classroom learning conditions. Teacher inservice programs could thus be made more personally meaningful.
REFERENCES


Feshbach, Norman D. Student teacher preferences for elementary school pupils varying in personality characteristics. *Journal of Educational Psychology* 60:126-132. 1969.


Gorman, Alfred H. *Teachers and learners, the interactive process of education*. Boston: Allyn and Bacon, Inc. 1969.


Lippitt, Ronald. An analysis of group reaction to three types of experimentally created social climates. Unpublished doctoral dissertation. Iowa City, Iowa, University of Iowa. 1940.


ACKNOWLEDGMENTS

The investigator is especially indebted to Dr. Dominick Pellegreno for his interest, support, and guidance throughout the study. Appreciation is also extended to Dr. Ellen Betz, Dr. Ray Bryan, Dr. Gordon Hopper, Dr. Anton Netusil, and Dr. Edwin C. Lewis for their assistance in the planning and conducting of the study.

Special thanks go to Dr. Ronald Redick for his critique of the audiotapes.

Special thanks are also extended to Dr. Norma Feshbach for her provision of the perception sampling instrument and for her interest in and suggestions for conduct of the study.

Finally, special thanks are extended to Des Moines school officials who granted permission to conduct the study in Des Moines schools, to the home room teachers who contributed to the ease with which the data were collected, and to the student-teachers who consented to observation of their teaching efforts.

The patience, understanding, and encouragement of my wife Gretchen, and our son Steven, have been deeply appreciated.
APPENDIX A. SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS
### SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS

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

On the following pages, you will find four sets of paragraphs describing girls, and four sets of paragraphs describing boys who have been observed in 3rd and 4th grade classrooms. You are asked to do the following:

1. Read each set of paragraphs carefully.
2. Select the set which best describes each child in your class.
3. Record on the seating charting the number of the set which best describes the child who occupied each position.

Work quickly and in each case give your first impression. Some judgments may be difficult to make, but do the best you can.
FESHBACH SITUATION TEST

STUDENT ROLE DESCRIPTIONS (GIRLS)

The class has been assigned a composition to be written at home. Anne runs to the front of the room and states, "Here is my composition; I did it this morning before school. Now I don't have anything to do tonight, right?" When the teacher asks her if she is sure that the spelling and punctuation are correct, Anne says positively that they are. She gives the teacher her paper and goes back to her desk quite pleased with herself.

Set F1

The teacher has told the children that crunchy fresh vegetables such as carrots and cucumbers should be washed and peeled before serving. Sue shakes her head, saying no. She raises her hand, but since the teacher does not call on her she says loudly, "That isn't right, my mother gives us carrots and cucumbers with peels and they are good that way. I bet the recipe book tells you that too." She takes the cookbook, turns to the section on fresh vegetables, and shows it to the teacher.

While the children are studying their history lesson, the teacher is writing some questions on the blackboard. Betty does not understand a passage in the book she is reading. She quietly goes toward where the teacher is standing and looks at her for a few minutes. When the teacher asks Betty whether she has a question, Betty says she is sorry to disturb her, but she is not sure about something in the book. After the teacher explains the passage to her, Betty completes the reading.

Set F2

The children are studying Indians. The teacher asks for the names of some Indian tribes. Nancy is sitting quietly at her desk. The teacher calls on her. Nancy says hesitantly, "Are the Sioux and Mojaves tribes?" The teacher asks her in what section of the country they lived. "I think in the North," she says, checking to see whether the others agree. The teacher tells her to get a book on Indians from the shelf and look it up. Nancy goes to the book shelf and gets the book.
Judy is absorbed in her painting project. Her hair ribbon is untied, and there is paint on her face and hands. Several crumpled pieces of paper are on the floor, and some of the paint has been spilled. Although the teacher admires Judy's painting, she is surprised that it is a landscape rather than the family picture which was assigned. Judy says the she didn't think the subject mattered. When the bell rings, she starts to leave the room, and has to be reminded to come back to clean up.

Set F3

The teacher asks the children to write sentences using the new words which they have been studying. Laura is thinking of ideas for her sentences. She decides that it would be more fun to write a paragraph on one topic than to put each word into a separate sentence. When she can't think of a way to fit in one of the words, she leaves it out. She makes several changes in her paper before turning it in, crossing out words and writing the corrections above them.

When it is time for the arithmetic test, Jean gets out her scratch paper, two sharpened pencils, and an eraser. When the class is told to begin, she starts to work the problems, taking them in order from the first to the last. Jean then checks the problems carefully. When she finds an answer which she wants to change, she erases it neatly. Although she has not finished checking when the teacher calls "time", she stops at once and hands in her paper.

Set F4

The teacher asks the class how many remembered to bring a bar of soap for carving animals. Ruth is one of the pupils who remembered. Before beginning to carve, Ruth covers her desk with paper and lays out her materials. She spends fifteen minutes sketching a rabbit, half an hour carving it, and fifteen minutes cleaning up and putting away the materials. While carving, she carefully follows the teacher's instructions for using the tools. When she has finished her work, she helps the teacher pick up newspapers and soap chips.
FESHBACH SITUATION TEST

STUDENT ROLE DESCRIPTIONS (BOYS)

The teacher assigns a set of arithmetic problems which the children are to do at home and turn in the next day. Jim raises his hand, waving a paper, and announces, "I've already finished these problems. I did all of them yesterday. I guess that means that I don't have any homework for tomorrow." When the teacher asks him if he is sure that his work is correct, he insists that it is. Jim hands in his paper and sits back, smiling proudly.

Set M1

The class is beginning a project on farming. The teacher has explained that the harvest season is always in the fall. Jack waves his hand wildly. Although the teacher does not call on him, Jack jumps up and says, "That is not true, because in California where I live, fruits and vegetables are ripe many times a year." Jack runs to the side of the room to get a book on California. He gives it to the teacher and goes back to his seat.

During a discussion on how the pioneers crossed the country in the winter, the teacher asks in what parts of the country the winters are cold. When she calls on Bill, he says quietly, "I think it is cold in Washington D.C. where my grandmother lives. Is that right?" The teacher asks where Washington D.C. is located. "I think it's in the East," he says, looking around to see whether everyone agrees. The teacher tells him to check it on the map. He gets up and points out Washington D.C.

Set M2

While the teacher is working with one group at the front of the room, the other children are doing arithmetic problems at their desks. Paul has a question. He looks around at what the other children are doing. He then goes up to the teacher and stands beside her until she turns to him. He apologizes for interrupting and asks how many problems they are supposed to do. After she tells him what is required, he goes back to his seat and finishes his work.
Steve is working on a model for the space project. He decides to make a space capsule and works out a design for it. While he works he scatters glue, wood, and nails on the floor. When he can't find a piece of wood the right shape, he redesigns part of his model. When he catches his shirt on a nail, he pulls it loose carelessly. Although there is always a ten-minute cleanup period after a work project, Steve continues working on his model until the final bell rings.

Set M3

After recess Bob dashes into the classroom. He makes a half-hearted attempt to tidy up by brushing his tousled hair out of his eyes and partially tucking in his shirt. The teacher distributes paper and instructs the class to write a composition about a pet. Bob talks to his neighbor until the teacher reminds him to get to work. He looks around for his paper, which has fallen on the floor. Bob brushes it off and uses it. He quickly dashes off a humorous story about a pet otter.

The children are learning how to handle and feed hamsters. The teacher asks David to help take them out of the cages for their food. Although David thinks it will be messy, he agrees to help. After putting on a lab coat, he gets some newspaper and covers the floor with it. He lines up the food dishes in front of the cages and carefully pours the food. He closes the food container tightly and returns it to the shelf. David follows the teacher's directions precisely in feeding each hamster.

Set M4

Joe is assigned to collect the Valentine cards. He follows the teacher's instructions carefully and starts looking for a box. He wants to use the red box but is urged to pick a larger one, which he then uses. He puts all of the boys' cards on one side and all of the girls' on the other side. When he has collected all the cards, he calls up the children row by row, seat by seat, one at a time, until all the cards have been distributed.
APPENDIX D. INTERACTION MATRIX
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APPENDIX E. RULES OF OBSERVATION USING FLANDERS INTERACTION ANALYSIS
Rule 1: When not certain in which of two or more categories a statement belongs, choose the category that is numerically farthest from category 5. Because these categories farthest from the center (5) occur less frequently, the data is maximized by choosing the less frequently occurring category when there is a choice.

Rule 2: If the primary tone of the teacher's behavior has been consistently indirect or consistently direct, do not shift into the opposite classification unless a clear indication of shift is given by the teacher.

Rule 3: The observer must not be overly concerned with his own biases or with the teacher's intent. Rather, an answer to the following question should be considered: "What does this behavior mean to the pupils in the way of restriction or expansion of their freedom?"

Rule 4: If more than one category occurs during the three-second interval then all categories used in that interval are recorded; therefore, record each change in category. If no change occurs within three seconds, repeat that category number.

Rule 5: If a silence is longer than three seconds, it is recorded as a 10. A 10 is also recorded when two or more people are talking at once and when there is slight confusion in the classroom so that identification of a single speaker is impossible.

Rule 6: Directions are statements that result (or are expected to result) in observable behavior on the part of children. Examples of directions are "Go to the board, read question 3, go to your seat etc." Some teacher statements sound like directions but cannot be followed by observed student compliance. These statements often precede the actual direction, for example, "Let's get ready now to go to recess" (Orientation, Category 5), "Now Row Five get their coats" (Category 6).

Rule 7: When the teacher calls on a child by name, the observer ordinarily records a 4.

Rule 8: When the teacher repeats a student answer, and the answer is a correct answer, this is recorded as a 2. This tells the student he has the right answer and, therefore, functions as praise.
Rule 9: When the teacher repeats a student idea and communicates only that the idea will be considered or accepted as something to be discussed, a 3 is used.

Rule 10: If a student begins talking after another student (without the teacher's talking), a line is inserted between the 9's or 8's to indicate the change of student.

Rule 11: Statements such as "uh huh, yes, yeah, all right, okay," which occur between two 9's are recorded as 2 (encouragement). These statements function as encouragement (the student continues talking after the 2) and are therefore classified as 2.

Rule 12: A narrow question is a signal to expect an 8. If the student gives a specific predictable answer, this is an 8. If the child expands, documents, or justifies his answer, the observer should begin tallying 9's.
APPENDIX F. CLASSROOM SEATING ARRANGEMENTS
Teacher
APPENDIX G. CATEGORIES OF VERBAL INTERACTION
### TEACHER TALK - PRECEDING STUDENT TALK

<table>
<thead>
<tr>
<th>Student Role</th>
<th>Category</th>
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<th>F2</th>
<th>F3</th>
<th>F4</th>
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Note: F1, F2, F3, F4 refer to different categories or dimensions in the study.
<table>
<thead>
<tr>
<th>Student Role</th>
<th>F1</th>
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## TEACHER TALK - PRECEDING STUDENT TALK

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*Note: The values are likely counts or scores related to the teacher's talk following student talk.*
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