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I am submitting herewith a dissertation written by Harriet Barnes Crump entitled "An Analysis of the Verbal and Nonverbal Behaviors of Teachers Toward Adjudicated Delinquents." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration and Supervision.

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AN ANALYSIS OF THE VERBAL AND NONVERBAL BEHAVIORS OF TEACHERS TOWARD ADJUDICATED DELINQUENTS

A Dissertation

Presented for the

Doctor of Education

Degree

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ABSTRACT

Problem and Procedures

The study dealt with the general problem of teacher verbal and nonverbal behaviors toward adjudicated delinquents. Conducted in two North Carolina training schools for adjudicated delinquents, the study included 254 students and 25 teachers. A total of 17,551 teacher behaviors were recorded on videotape and categorized according to the IDER System of Behavioral Analysis to answer the following questions:

1. Are there differences between the verbal and nonverbal cues transmitted by teachers to adjudicated delinquents?

2. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the race of the teacher?

3. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the sex of the teacher?

4. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the teacher's age, certification, and experience?

5. Are there differences in the general verbal and nonverbal behavior patterns of teachers of adjudicated delinquents in correctional institutional settings and selected teachers of students in public school settings?

Findings

Communication cues transmitted by teachers in the study were inconsistent; their nonverbal cues encouraged interaction while their verbal cues limited interaction. Black teachers were less encouraging but more consistent in their communication cues than were white teachers. White teachers were more encouraging toward white students. Male teachers were more encouraging toward all students than were female teachers, but

both male and female teachers were more encouraging toward female than male students. Teacher verbal and nonverbal behaviors varied significantly based on student race and sex when compared with teacher experience in public schools; however, teacher behaviors did not vary significantly when compared with teacher experience in correctional institutions. Teachers of "atypical" (delinquent and gifted) students were more encouraging nonverbally than teachers of "typical" public school students.

Conclusions

1. Adjudicated delinquents in this study "believed" the teachers' encouraging nonverbal communication cues rather than their direct verbal cues.

2. The lack of interactions, especially restricting interactions, with black females appears to have racial rather than sexual implications.

3. There are several limitations in the IDER System related to coding the data when used for studies such as the present one.

4. Similarities in E/R ratios and differences in I/D ratios for delinquent and gifted students may be affected by the socioeconomic status and verbal ability of the students.

5. Teachers' experience in different organizational settings influences the consistency of their behaviors toward pupils.

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CHAPTER I

INTRODUCTION

The word "communication" is derived from the Latin word *communis* meaning "to share" or "to make common." To communicate is to try to establish a commonness with someone. Communication is regarded as an essential social process. It is the means by which man achieves his individuality and maintains social relationships. Thus, education is communication in the broadest sense. Communication is a major goal of the curriculum for students. It is also an important process used by teachers to achieve that goal. The teaching-learning process is based on communication between teacher and student.

Basically, human communication has two major dimensions--verbal and nonverbal. Although traditionally the verbal dimension has been emphasized, recent research in education, sociology, psychology, and anthropology has focused on the importance of nonverbal elements in the communication process. People often assume that they have communicated when they transmit a verbal message, but they fail to realize that their nonverbal behavior may contradict the verbal message and that the receiver interprets the message through personal perceptual screens. Communication research suggests that the message received is largely dependent on the variables of perception and interpretation. If Mehrabian's estimate that 93 percent of communication is nonverbal is correct (1968, pp. 53-55), student learning is directly affected by nonverbal communication and a teacher's effectiveness to a large degree is dependent upon his nonverbal

communication. The interrelationships between students' perceptions of teachers' behavior, school adjustment, and teachers' patterns of nonverbal communication are particularly significant in the area of juvenile delinquency.

The relationship between delinquency and school maladjustment has been consistently obvious. Truancy from school is the first and most frequent manifestation of the delinquency syndrome. Other school-related traits that are characteristic of delinquents include failing grades, dislike of school and teachers, intent to leave school early, feelings of not "belonging" in the classroom, and misbehavior (Kvaraceus, 1967, p. 367). Thus, there has long been an awareness that school adjustment and delinquency are correlated.

Traditionally, the public schools have been able to exclude adjudicated delinquents because these students were placed in correctional institutions and received their education through those institutions rather than the public school. Current literature indicates a strong trend away from committing juvenile delinquents to correctional institutions and a move toward community-based programs, such as foster homes, half-way houses, or community cottages. Under these programs adjudicated delinquents attend public schools in the community. Another current emphasis in juvenile delinquency programs is on prevention rather than rehabilitation--focusing on the predelinquent who is now attending public school to prevent the school-related delinquency syndrome from occurring. These trends in programs for delinquents suggest that professional educators will become more involved in working with juvenile delinquents in public school settings.

This study was undertaken as part of a larger and more comprehensive study which aimed to analyze variables influencing the teaching-learning process in schools for adjudicated delinquents. The population for the comprehensive study consisted of teachers and pupils in two North Carolina schools for adjudicated delinquents.

General purposes of the comprehensive study were: (1) to identify variables which influence the teaching behavior of teachers of adjudicated delinquents; (2) to discover if there were differences in teacher nonverbal behaviors exhibited toward adjudicated delinquents when such factors as sex, age, race, preparation, and experience were considered; (3) to identify variables which suggest strategies for improved preservice and inservice education for teachers of adjudicated delinquents; (4) to determine ways that nonverbal cues influence the general climate of the teaching-learning environment; (5) to determine if there were differences in teacher nonverbal communication toward delinquent and nondelinquent youngsters as a prelude to projecting strategies for nonverbal interaction which might be helpful to teachers of predelinquent youth; and (6) to compare nonverbal observational data with values inventories to measure attitudes of adjudicated delinquents about the teaching-learning situation.

A major goal of the comprehensive project was to provide baseline data which would be helpful in improving the schooling processes for adjudicated delinquents and to improve the structure and quality of the teaching-learning process.

I. STATEMENT OF THE PROBLEM

This study dealt with the general problem of teacher behavior toward adjudicated delinquents in terms of the kinds of verbal and nonverbal cues teachers are transmitting to adjudicated delinquents. Specifically, the study attempted to determine: (1) if there were differences in teacher verbal and nonverbal communication based on race and sex; and (2) whether there were differences in the general behavior patterns between teachers of adjudicated delinquents in correctional institutions and teachers of students in public schools.

II. QUESTIONS

The study attempted to answer the following questions:

1. Are there differences between the verbal and nonverbal cues transmitted by teachers to adjudicated delinquents?

2. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the race of the teacher?

    a. Do black teachers transmit different cues to black students than they do to white students?

    b. Do white teachers transmit different cues to black students than they do to white students?

3. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the sex of the teacher?

    a. Do male teachers transmit different cues to male students than they do to female students?

    b. Do female teachers transmit different cues to male students than they do to female students?

4. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the teacher's age, certification, and experience?

5. Are there differences in the general verbal and nonverbal behavior patterns of teachers of adjudicated dlinquents in correctional institutional settings and selected teachers of students in public school settings?

III. IMPORTANCE OF THE STUDY

Educators have little understanding of the verbal and nonverbal cues they transmit to students. Few, if any, have had formal preservice or inservice training in communication. There has been relatively little research on teacher behavior and its effect on learning. Before the significant connections between communication and learning can be studied, it is important to develop a significant pool of descriptive data about teacher verbal and nonverbal behavior. This study adds to the limited amount of information concerning teacher behavior presently available and collects baseline data which could be used as a basis for future studies.

A study of teachers' behaviors toward adjudicated delinquents offers the opportunity to examine teachers' behaviors toward a group of students whose deviant behavior has resulted in their being excluded from public school. There are approximately 100,000 students in correctional institutions in the United States. The results of this study are generalizable to this population and may indicate ways of improving the educational program for students in these institutions.

The study may identify differences in teacher nonverbal behavior that would help educators develop more effective inservice training programs for teachers of adjudicated delinquents as well as teachers of predelinquent students in public schools. If educators are going to develop inservice training programs focusing on verbal and nonverbal

behaviors, they must first identify the kinds of nonverbal cues teachers are transmitting before they can plan effective programs to change these behaviors.

Although research in anthropology and sociology suggests there are cultural differences in the transmission and reception of verbal and nonverbal cues, a limited review of the literature shows that no studies have been conducted focusing on race in relation to teacher verbal and nonverbal behavior. Since the teacher and student population in this study is racially mixed, initial descriptive data were collected concerning race and teacher nonverbal behavior. Also, no studies were identified which dealt with the general problem of teacher behavior in relation to juvenile delinquency.

IV. ASSUMPTIONS

1. Teacher nonverbal behavior can be recorded and identified by videotape.

2. The IDER System is valid for categorizing teacher verbal and nonverbal behaviors to answer the questions of this study.

3. Raters can be trained to use the IDER System to categorize teaching behaviors.

4. The number of teaching behaviors identified will be adequate for the purposes of this study.

5. Indirect and encouraging teacher behavior provides a better learning situation than direct and restricting teacher behavior.

V. LIMITATIONS

1. The study was undertaken as a component of a more comprehensive study and conducted within a framework designed to accommodate other studies as well as this one; therefore:

   a. The study was limited to teachers in two North Carolina training schools for adjudicated delinquents.

   b. The student population was limited to adjudicated delinquents assigned to the teacher population in the study.

2. All of the raters who coded the tapes were white.

3. In some of the tapes student race and sex could not be identified because of technical problems with videotaping.

VI. DELIMITATIONS

1. Data were collected in two 20-minute periods of time for each teacher.

2. Three studies of teacher nonverbal behavior in public school settings conducted by Fowler, Cosper, and Shepard were used as baseline data to answer Question Five.

3. The baseline data were secured from a limited number of studies.

VII. DEFINITION OF TERMS

Adjudicated delinquents. Children who have been classified as delinquent through judicial procedure and are institutionalized.

Communication climate. The degree to which teacher communications are verbally direct or indirect and nonverbally encouraging or restricting.

Direct verbal statements. Teacher statements that reduce or restrict the freedom of the students to respond; categories 5-7 of the Flanders system.

Encouraging behavior. The positive dimension of observable nonverbal behavior exhibited by the teacher toward students as measured by French and Galloway's IDER system of verbal and nonverbal behavior categorization.

E/R ratio. A ratio of encouraging teacher behaviors to restricting teacher behaviors.

Ex post facto. Research design in which independent variables that have already occurred are studied for their possible relations to and effects on dependent variables (Kerlinger, 1964, pp. 360-361).

Flanders system of interaction analysis. A process whereby the verbal behavior of teachers and students can be objectively recorded and classified in a timed, sequential manner.

I/D ratio. A ratio of indirect teacher statements to direct teacher statements.

IDER system. The system developed by French and Galloway for analyzing teacher verbal and nonverbal behavior. The acronym "IDER" is from the Flanders conceptualization of teacher verbal behavior as Indirect or Direct and from the French-Galloway conceptualization of nonverbal cues as Encouraging or Restricting.

Indirect verbal statements. Teacher statements that increase the freedom of the students to respond; categories 1-4 of the Flanders system.

Interactive teacher behavior. Behavior involving student-teacher

interaction which precludes activities such as showing a film or giving a test.

Nonverbal behaviors. Overt actions, gestures, postures, vocal nuances, distances, and expressions by the teacher that are observable.

Restricting behavior. The negative dimension of observable nonverbal behavior exhibited by the teacher toward students as measured by French and Galloway's IDER system of verbal and nonverbal behavior categorization.

VIII. METHOD AND PROCEDURES

This section provides a description of the method and procedures used to conduct the research. The investigation was conducted as a field study utilizing an *ex post facto* design.

The population for the study consisted of 25 teachers in two North Carolina schools for adjudicated delinquents. These two schools were selected by the North Carolina Department of Youth Development as the sites for the comprehensive project described earlier.

Two 20-minute videotape samples of interactive teaching behavior were made for each teacher. The tapes were made during the middle of the class period after the students had settled down and routine matters such as taking roll had been completed. Two videotapes of each teacher were made in the same week with different groups of students. However, since the program was departmentalized, each teacher was teaching the same subject for each tape.

The primary instruments used to gather the data were the videotapes of each teacher, teacher personnel files, the IDER system of teacher

verbal and nonverbal behavior analysis, and a modified IDER matrix. The IDER system developed by Galloway and French utilizes a conceptual model of teacher nonverbal behavior on a continuum from encouraging to restricting interaction. The 10x20 matrix designed by French and Galloway (from Flanders) for use with their IDER system, and modified by Cosper by including a diagonal line to facilitate tallying the data to make interpretation easier, was used to record observations related to the independent variables of race and sex.

Data from the videotapes were coded on the IDER matrix by three raters trained in the use of the IDER system. Raters were presumed to be trained in the use of the IDER classification system when an interrater reliability correlation of .80 was achieved.

Through comparison with previous studies which used the same data collection instrument (IDER), an attempt was made to compare verbal and nonverbal behaviors of teachers of adjudicated delinquents with nonverbal behaviors of teachers of public school students.

The Chi-square nonparametric statistic was used to analyze data which were ordinal. Some data were reported as ratios and percentages.

IX. ORGANIZATION OF THE STUDY

Chapter I of the study contains an introductory statement, statement of the problem, significance of the study, purpose of the study, questions to be answered, assumptions, limitations, delimitations, definition of terms, methods and procedures, and organization of the study.

Chapter II consists of a review of selected literature which the investigator felt was relevant to the study.

Chapter III provides a description of the theoretical and implementational procedures of the study and a description of the instruments used.

Chapter IV presents an analysis of the data described in Chapter III. A report of the findings and results are also presented.

Chapter V includes the conclusions, discussion, and implications of the investigation.

CHAPTER II

REVIEW OF RELATED LITERATURE

Modern trends in the rehabilitation and treatment of juvenile delinquents increasingly support community-based programs. Thus, educators need information about juvenile delinquency and the educational factors that may be related to delinquency. This study focuses on the verbal and nonverbal communication of teachers toward delinquents.

The literature reviewed in this chapter has been selected to provide a theoretical basis for (1) developing a general understanding of the problem of juvenile delinquency, (2) identifying relationships between delinquency and the educational process, and (3) describing the current status of research and literature on teachers' nonverbal communication in the classroon.

I. JUVENILE DELINQUENCY

It has always been difficult to assess the extent and trend of delinquency. This is because of the many factors that influence delinquency statistics, but cannot be precisely controlled. One of these factors is definition.

Various definitions of juvenile delinquency are used by different groups of people. One group defines a delinquent as a child who has violated the law and has been adjudged delinquent by a court. The U. S. Children's Bureau defines a juvenile delinquent as a child or youth of juvenile court age referred to the courts for an act defined in the

statutes of the state as a violation of law or municipal ordinance, or for conduct so seriously antisocial as to interfere with the rights of others or to menace the welfare of the delinquent himself or of the community (Amemiya, 1969, p. 32). Statistics based on these two definitions are more readily available than those founded on less legal definitions.

Another group defines a delinquent as any child committing a delinquent act, whether or not he comes to the attention of legal authorities. Under this definition, delinquency refers to any juvenile misconduct that could be dealt with under the law. It is practically impossible to obtain delinquency statistics on this basis. However, recent studies indicate that "hidden delinquency" or delinquent behavior that is not known to the police or courts is extremely widespread (*Juvenile Delinquency in Illinois*, 1973, p. 33). Different definitions have been used to point out that on the one hand delinquency is a problem for a relatively small minority of youngsters, while on the other hand it involves a sizeable proportion of the juvenile population.

All 50 states, the District of Columbia, Puerto Rico, and the federal government have laws defining the types of behavior that will bring a child or youth before a special court. These laws have the same underlying principle of protecting the child and the community, but they vary greatly in detail. The problem is not only that the criminal laws which juveniles violate are disparate in form ranging from petty thievery to murder, but also that juvenile delinquency statutes in the U.S. include an omnibus clause which gives the juvenile court control over youngsters who are identified as "immoral," "ungovernable," "wayward," or "incorrigible." The statutes declare, in effect, that all misbehavior of juveniles,

however slight, is juvenile delinquency if it falls within the purview of the courts. Thus, delinquency is defined as that behavior prohibited by the delinquency laws.

The omnibus provisions differ somewhat from state to state, but Sussmann (1959) and Rubin (1966) have both indicated that the various state delinquency statutes collectively specify several dozen vaguely defined conditions for which a juvenile may be adjudicated a delinquent. The Tennessee statute is typical of those for most other states at the present time:

> The term "delinquent child," "delinquent juvenile," or a "juvenile delinquent" in Tennessee applies to the following offenses committed by a child under the age of 18: (a) violating any state law or ordinance of a municipality of the state; (b) having beyond the control of parents or guardians or habitually deserting one's home or place of abode; (c) engaging in any occupation which is in violation of the law, or associating with immoral or vicious persons; (d) frequenting any place, the existence of which is in violation of the law; (e) willfully failing to attend school pursuant to the compulsory school attendance law; (f) willfully deporting one's self in such a manner as to endanger oneself or the person or property of others. (Turner, 1969, p. 7)

The North Carolina statute of juvenile jurisdiction distinguishes between a delinquent child and an undisciplined child as follows:

> Delinquent child includes any child who has committed any criminal offense under State law or under an ordinance of local government, including violations of the motor vehicle laws or a child who has violated the conditions of his probation under this article . . .
>
> Undisciplined child includes any child who is unlawfully absent from school or who is regularly disobedient to his parents or guardian or custodian and beyond their disciplinary control, or who is regularly found in places where it is unlawful for a child to be, or who has run away from home. (Thomas, 1972, p. 32)

Although the North Carolina statute is one of the more progressive delinquency statutes, the same disposition alternatives are available

for both undisciplined and delinquent children. For example, a child may be sent to a correctional institution as an "undisciplined child" for truancy and another child sent as a "delinquent" child for murder. Although the labels are different, the effect on the two children is the same.

Generally, children coming under the jurisdiction of juvenile courts for delinquent conduct may be classified into two categories. First, there are those children who have committed acts that would be crimes if committed by adults; and second, there are children who have violated specific ordinances only applicable to children such as curfew, truancy, or alcohol ordinances, or those who are designated "beyond control," "ungovernable," or "in need of supervision." With few exceptions, the same dispositions are permitted in the case of these children that are authorized for youngsters who have committed acts that would be crimes if committed by an adult. In other words, children who have not indulged in criminal conduct often find themselves thrown into the correctional system.

The number of children in the second group coming before the courts is considerable. For example, a review of 20 correctional institutions showed that 30 percent of their inmates were in the noncriminal category. A review of 10 studies by the Children's Bureau on state and local detention programs showed that 48 percent of the 9,500 children studied had not committed adult criminal acts. In 1965 one state reported that 39 percent of the children in its correctional institutions were there for noncriminal conduct. (Sheridan, 1970, pp. 70-71)

Care must be exercised in interpreting the figures on juvenile

court cases. Ages of children and types of cases over which courts have jurisdiction are established by state law; they often differ for courts in different states and sometimes for courts within the same state. This affects the numbers of cases reported and, consequently, the comparability of reports. Also, there is no adequate central act or common procedure for reporting juvenile delinquency statistics in the United States. Even for those who have been adjudged as delinquent by the juvenile courts, the facts are incomplete. At least five federal agencies collect delinquency statistics from local and state authorities. These agencies are:

1. Administrative Office of the United States Courts: Dispositions of cases before federal courts for violation of federal laws, such as rifling mail, selling narcotics, and counterfeiting.

2. Census Bureau: Population movements in institutions for juvenile delinquents and juvenile age prisoners in adult prisons and reformatories.

3. Bureau of Prisons: Personal and social backgrounds of delinquents committed to federal institutions.

4. Federal Bureau of Investigation: Police reports of arrested juveniles by age, sex, and race.

5. Department of Health, Education, and Welfare, National Center for Social Statistics: Reports on juvenile court statistics and public institutions for delinquent children.

Overall statistical indices show agreement that there has been an increase in juvenile delinquency in the past few years. There is an upward trend in rate as well as in absolute numbers. Over one million (1,125,000) juvenile delinquency cases, excluding traffic offenses, were estimated as being handled by all juvenile courts in the United States

in 1971. These children represent approximately three percent of all children aged 10 to 17 in the country. The upward trend in the number of delinquency cases continues and the increase exceeds the increase in the child population. Between 1960 and 1971, the number of juvenile delinquency cases more than doubled (121 percent increase) as compared to the 30 percent increase in the number of children aged 10 to 17 (*Juvenile Court Statistics*, 1971, p. 2). In the United States, persons under age 19 commit almost 50 percent of all crimes and 20 percent of the male adolescents get into trouble with the law. An American boy has one chance in five of ending up in juvenile court. (Turner, 1969, p. 14)

The disparity between the number of male and female delinquency court cases is narrowing. For many years, boys were referred to court for delinquency about five times as often as girls. Because of the recent rapid increase in girls' cases, however, the ratio was reduced to three to one in 1971. The rise in girls' delinquency has generally been attributed to their changing attitude toward society and society's changing attitude toward them. Girls are becoming more aggressive and more independent in their day-to-day activities. (*Juvenile Court Statistics*, 1971, p. 4)

In describing the typical juvenile delinquent who comes to the attention of the juvenile courts, Perlman (1960, p. 38) enumerated the following characteristics: (1) the juvenile delinquent is more likely to be a boy than a girl; (2) he is generally about 14 or 15 years old when referred, although he has exhibited behavior problems considerably earlier; (3) his attitude is defiant, hostile, and suspicious; (4) he is usually retarded in school work and in reading ability, and he shows

a chronic history of truancy; and (5) delinquents, more frequently than nondelinquents, come from homes broken by death, divorce, or desertion, or from homes lacking understanding, self-respect, stability, affection, and moral standards. Winslow (1968, p. 5) identified a similar delinquency profile: (1) predominantly male; (2) concentrated in larger cities, especially areas adjacent to the central business district; (3) rates higher among children from broken homes and among children who have numerous siblings; (4) unsuccessful in school with grades below average, tending to be dropouts; and (5) from backgrounds of social and economic deprivation.

The best known source of the idea of the juvenile court is the Latin phrase, *parens patriae*. Since feudal days the English chancery court has exercised protective jurisdiction over all the children of the realm on behalf of the *pater patriae*, the King. When the English legal system was transplanted to the United States, it was through the chancery court's protective powers that the juvenile court in this country was most often justified against constitutional attack.

A somewhat different view of the court's origin is that the *parens patriae* theory is the *ex post facto* justification offered for practices that in fact originated with modern juvenile court procedures. This view characterizes juvenile courts as special statutory creations rather than direct descendents of the chancery court. (Winslow, 1968, p. 115)

Whatever its historical basis, the scene was set for the juvenile court's beginning by the variety of social reforms during the nineteenth century. The first statewide court especially for children was

created in April, 1899, when the Illinois legislature passed the Juvenile Court Act. Today there is a juvenile court in all states and the District of Columbia, with approximately 2,700 courts hearing children's cases. (Winslow, 1968, p. 188)

Although the structure of the juvenile court and its position of status in a state's organizational pattern vary among and even within states, jurisdiction generally includes delinquency, neglect, and dependency. The statutes establishing juvenile courts contain few, if any, procedural requirements. However, the Supreme Court on May 15, 1967, decided *in re* Gault [387 U.S. 1 (1967)] dealing with procedural protection in juvenile proceedings. *In re* Gault held that, in compliance with the Due Process Clause of the Fourteenth Amendment, a juvenile confronted with proceedings which may result in commitment to an institution in which the juvenile's freedom is curtailed, has certain rights; specifically, advance notice of the charges against him, representation by counsel, and confrontation and sworn testimony by witnesses available for cross-examination. This decision has resulted in more specific procedural requirements for juvenile courts.

Most juveniles who appear in juvenile court are sent there by the police, although parents, schools, social agencies, and others may also have direct recourse to the court. Most juvenile court judges have broad discretion in disposing of cases, being empowered to dismiss the case, warn the juvenile, fine him, place him on probation, arrange for restitution, refer him to an agency or treatment facility, or commit him to an institution. The length of institutional commitment is usually

indefinite and in most states cannot extend beyond the juvenile's twenty-first birthday.

The juvenile training school originated as a state institution early in American history. The first public training institution exclusively for juveniles was the Lyman School for Boys opened in Westborough, Massachusetts, in 1846 (Winslow, 1968, p. 189). Training institutions now appear in every state. Consistent with their historical development, training programs usually are administered by the state through the Department of Corrections or similar departments at the state level responsible for adult criminals. Almost 50,000 children were living in 343 public institutions for delinquents in the United States on June 30, 1970 (*Statistics on Public Institutions for Delinquent Children*, 1970, p. 3). However, the total number of children institutionalized is much higher because of the constant turnover in the population. The average length of stay for children committed to training facilities is 9.9 months (*Statistics on Public Institutions for Delinquent Children*, 1970, p. 6). These institutions employed a total of 26,245 employees of whom 17,610 were classified as treatment and educational (*Statistics on Public Institutions for Delinquent Children*, 1970, p. 16).

Problems involving the organization and operation of the juvenile justice system were highlighted by the U. S. Supreme Court in Kent v. United States [383 U.S. 541 (1966)]. In the opinion delivered by Justice Fortes, the court stated:

> There is much evidence that some juvenile courts, including that of the District of Columbia, lack the personnel, facilities, and techniques to perform adequately as representative

> of the State in a *parens patriae* capacity, at least with respect to children charged of law violations. There is evidence, in fact, that there may be grounds for concern that the child receives the worst of both worlds: that he gets neither the protections accorded to the adult, nor the solicitous care and regenerative treatment postulated for children.

Winslow summarized the discrepancies between theory and practice for both juvenile courts and training schools:

> In theory, the juvenile court was to be helpful and rehabilitative rather than punitive. In fact, the distinction often disappears because of the absence of facilities and personnel. In theory, the court's action was to affix no stigmatizing label. In fact, a delinquent is generally received by employers, schools, and society in general as a criminal. In theory, the court was to treat children guilty of criminal acts in noncriminal ways. In fact, it labels truants and runaways as junior criminals. (Winslow, 1968, p. 130)

> In theory, training schools are specialized facilities for changing children relatively hardened in delinquency. In fact, they house a nonselective population comprised of youngsters who need a foster home, mentally retarded youngsters, truants, and runaways, youngsters with severe psychological problems, and pregnant girls in addition to "hard-core" delinquents who have committed serious criminal acts. (Winslow, 1968, p. 202)

The search for clues to delinquency causation has gone in many directions in the past 100 years, making it difficult to sum up the varied hypotheses that have been pursued at one time or another. The first scientific viewpoints seriously advanced to account for crime, delinquency, and other forms of social deviancy were related to biological and genetic causes. Later psychogenic approaches suggested that the delinquent has some individual psychological pathology of some kind. However, the many years of biogenic and psychogenic exploration of delinquency have not yielded any valid generalizations about biological or psychological factors concerning delinquency. (Gibbons, 1970, p. 90)

The bulk of current theory and research is based on the sociological concept that the juvenile delinquent is the product of his social environment. The delinquent is seen as one who has learned precepts that are quite normal in his particular environmental setting, even though they may be deemed criminal by the larger society. The delinquent is a product of his society, and the way in which he adjusts to his society is different only in substance from the conventional or nondelinquent method of adjustment. The sociological approach rejects all individualistic explanations of causation. A juvenile delinquent's behavior is understandable once the specific social context within which he operates is known. Wtihin this social context, he learns to become delinquent, just as a young recruit learns to become a soldier within the social context of the military. (Scarpitti, 1969, pp. 59-60) Although social scientists have failed to develop or agree upon any general, all-embracing theory of delinquency or social deviancy, many theories have been advanced to explain the idea that certain social structures are conducive to delinquent behavior.

The pioneer work of Shaw and McKay (1937) advanced the theory of social disorganization, which stressed the role of social factors in explaining juvenile delinquency. They suggested that factors such as poverty, insufficient acculturation, and marginal neighborhood residence cause whatever social organization that was originally present in a neighborhood to break down and cease to function effectively. Group norms collapse and are no longer adequate to control the behavior of the group member. Delinquent behavior becomes traditional behavior, accepted by the law violator and nonviolator as natural and expected.

However, this theoretical prospective did not explain why structural disorganization or breakdown results in individual norm violation. As a result of this deficiency, several theories have focused on the process by which delinquent behavior is derived from general environmental conditions. Since the great bulk of delinquents are of lower socioeconomic class origin, the most important recent explanations of juvenile misconduct have emphasized the delinquent's deprived status, his participation in delinquent subcultures, and the role of values in determining his behavior.

Sutherland's (1947) theory of differential association conceived of criminality as participation in a cultural tradition and a result of association with representatives of that tradition. He believed that criminal behavior is learned, just as any other type of behavior is learned, and that it is learned through association and interaction with others who were already delinquent. The person becomes delinquent once he has internalized the skills, attitudes, and values to which he has been exposed in intimate, primary associations with delinquents. Sutherland used his theory of differential association to account for all types of crime, regardless of the offender's social class. Of course, there is much more opportunity for criminal associations in socially disorganized areas that have high crime and delinquency rates than in areas which are socially integrated and stable. This helps to explain the preponderance of lower class or working class boys among adjudicated delinquents. But by seeing delinquency as merely imitated behavior, the theory of differential association does not suggest what may provoke this norm-violating behavior in a specific individual.

It was the contention of Cohen (1955) that delinquency is primarily a lower class phenomenon and certain working class boys are carriers of a delinquent subculture resulting from their socialization in lower class families and failure to function successfully in middle class institutions. Even though the working class boy learns very early to value middle class status, he does not find these values exemplified in his family and in his lower class neighborhood. Cohen recognized three alternative ways in which the working class boy may adjust to his status. One response is acceptance of lower class life. He withdraws into a community of peers and manages to avoid delinquency. Another response may be to achieve middle class status through education, the working class boy's major vehicle of upward mobility. Following the lead of Whyte (1955), Cohen referred to those who respond by accepting their life style as "corner boys," and to those who respond by striving for middle class as "college boys." The delinquency response, which is best exemplified in lower class gang behavior, rejects middle class norms and values. Cohen believed that lower class boys gravitate toward delinquency because they feel they cannot gain status in a middle class society. They reject middle class values and accept the values of the delinquent subculture which predominate in a lower class neighborhood.

Another theory has been provided by Cloward and Ohlin (1960) who explained delinquency as a function of a limited opportunities system. A basis for this view can be found in Durkheim, who contended that it was necessary to keep goals in modern society within the bounds of possible achievement. Later, Merton (1957), restating Durkheim, claimed that many groups in American society have similar aspirations, but for various

reasons there is a great inequality in their ability to achieve their goals. When there is a breakdown in the relationship of goals and legitimate attitudes of access to them, a condition of anomie will result and regulative norms, values, and controls will become ineffective. Thus, lower class youth, aware of limited opportunities to realize their aspirations, engage in delinquency more than youth in middle class society, who have greater success opportunities.

However, the theories of differential association, delinquent subculture, lack of legitimate opportunity, and others that are prominent, do not account for individuals who experience these pressures but do not become delinquent or criminal. Even in the worst slum of the highest delinquency area, many, perhaps most, individuals do not violate the law and conform reasonably well to the social norm. Theories that link the social structure to delinquent subcultures have not explained this phenomenon. In order to explain why some lower class boys do not participate in norm violating behavior, as well as why some do, the social psychological factor of self-concept permits linkage between social structure and individual behavior.

Self-concept theory implies that the primary determinants of behavior are self, and the other concepts that the individual has internalized. This interpretation of how others see him and the resulting self-concept determine the person's reaction to life situations. Reckless' (1961) theory utilized self-concept to explain individual delinquent and nondelinquent behavior in the same social environment. His "containment theory" specified an inner-control system and an outer-control system which are either able or unable to work alone or together

to handle the forces conducive to delinquency. The outer-control system refers to the individual's social world, the value system predominant in his culture, and the external social structure designed to guide his behavior in a socially approved manner. Inner-control, on the other hand, consists mainly of self-components that provide an internal buffer against deviation. According to Reckless, in areas characterized by great social disorganization, the outer controls of youth's behavior are weak, if they have not broken down completely, and the direction of his actions will be dependent upon his self-image. The two containing systems (or lack of them) are not seen as causes of juvenile delinquency. The "causes" or contributing factors may be delinquent companions, status frustration, differential opportunity, exposure to a delinquent subculture, or a deviant value system. The containing system can serve as the individual's insulation or protection against those forces that might influence him toward delinquency. When they are strong, he is likely to be law abiding, despite the environmental pressures.

Thus, current sociological theories of delinquency suggest that delinquency and deviant behavior are social products and are socially defined. Empey suggested that society, not individuals, defines rules, labels those who break rules, and prescribes ways for reacting to the labeled person.

> The labeling process is often a means of isolating offenders from, rather than integrating them in, effective participation in such major societal institutions as schools, businesses, unions, churches, and political organizations. These institutions are the major access to the successful nondelinquent career, and if offenders and correctional programs are isolated from them, then the personal wishes and characteristics of offenders will have only marginal bearing on whether correctional programs succeed or fail. Successful adjustment on the part of

> the offender will require some kind of personal reformation, but it will also require some conditions within the community which will encourage his reintegration into nondelinquent activities and institutions. Fundamentally, this is a community function. Reintegration may succeed or fail, depending on the community's labeling and reacting processes. (Empey, 1970, pp. 270-271)

The concept of reciprocity between the individual and society was extended by Rhodes (1969) who said that the child judged to be the most disturbed is the one who uniformly arouses disturbed reactions in those around him.

> In this bilateral statement of the problem, the child becomes an exciter whose behavior or life style elicits reciprocating emotive reactions from a community of responders. The child judged most disturbed is the one who violates a wide number of behavioral codes. The intensity of the observer reaction may be related to the observer's degree of difficulty in controlling and accepting comparable tendencies in himself.
>
> Society's unspoken and unrecognized purpose is more to lower its own stress level than to solve the problem facing it. By a peculiar twist of logic, however, it reserves its subsequent operations for the subject, and only the subject. Therefore, it fails to apply itself to study and solution of all terms of the problem. It concentrates upon the activator, temporarily relieving the attention of the reciprocator, and never quite comes to grips with the whole problem. (Rhodes, 1969, pp. 19-20)

Also, Havighurst reminded us that deviancy must always be viewed with respect to something considered normal or typical.

> Since social norms differ from one society, and from one social group to another within society, a judgement concerning the desirability of a particular form of deviancy is not generally accepted unless the deviancy is one which is almost universally designed as desirable or undesirable. Most American children, as they become successful adults, will have the experience of giving up some of the habits and attitudes they learned as "normal," and taking on new ones that suit the new and wider social environment in which they will move. They will have to become nonconformers. The important thing for such people is that they should learn to make intelligent decisions of where and when to conform and where and when to deviate. Thus, education for deviancy is as important as

> education for conformity. The analysis of juvenile delinquency and other forms of social deviancy make it clear that there is no central kind of deviancy. Every type of social deviancy has a number of causes. Therefore, any attempt to reduce deviancy is likely to be only partially successful if it attacks only one cause. (Havighurst, 1966, p. 63)

Gibbons indicated that perhaps the search for causes of juvenile conduct should be directed as elements of the social order, such as social client patterns, the educational system, urban social organization, or elements of middle class life style. This perspective places accent upon sociological views, which suppose that behavior as widespread as delinquency probably developed out of conditions of social structure. (Gibbons, 1970, p. 100) His view was supported by the President's Crime Commission which noted that:

> . . . all of the past phases in the evolution of corrections accounted for criminal and delinquent behavior primarily on the basis of some form of defect within the individual offender. The idea of being possessed with devils was replaced with the idea of psychological disability. Until recently, reformers have tended to ignore the evidence that crime and delinquency are symptoms of the disorganization of the community as well as of individual personalities, and that community institutions--through extending or denying their resources--have a critical influence in determing the success or failure of an individual offender. (President's Commission on Law Enforcement and Administration of Justice, 1967, p. 164)

The emphasis upon sociological theories of delinquency has resulted in a nationwide search for alternatives to the traditional methods of dealing with juvenile delinquency. The problem was highlighted by Erickson's argument that although there are elaborate rites-of-passage by which society inducts the offender into a deviant status, there are no concomitant rites-of-passage back out of that status. Reflecting an awareness of this problem, the field of juvenile corrections has recently

shown increasing concern with finding alternatives to older methods such as residential centers having no physical restraints, work-furlough programs, daily nonresidential programs, and halfway houses. (Erickson, 1964, p. 16)

In 1972 Massachusetts began the process of closing down its correctional institutions for youth. Florida began to phase out its correctional institutions two years ago. Illinois has just closed down two of its largest institutions. For the past five years California has been paying local jurisdictions large sums of money for keeping youths out of the state correctional system. What is going on is a steady change in the concept of juvenile delinquency, and a consequent revolution in the concept of youth services. The Youth Development and Delinquency Prevention Administration of the Department of Health, Education, and Welfare is now moving toward the development of youth services systems that will provide community-based facilities. (Fitzpatrick, 1973, p. 74) Selected prevention and treatment programs utilizing community-based programs include: Mobilization for Youth in New York City; the Cambridge-Summerville Study in Massachusetts; the Boston Delinquency Project; the Silverlake Project in Los Angeles; and a Kansas City classroom improvement study. (Kvaraceus, 1967, pp. 210-220)

II. DELINQUENCY AND EDUCATION

Sociological theories of delinquency emphasizing the relation between delinquency and societal structure and institutions, as well as the trend toward community-based treatment and prevention programs, raise the question of the relation of the school and education to delinquency.

The precise nature of the relationship between formal education and juvenile delinquency remains a subject of controversy among specialists in the field, but there appears to be a concensus that some causal influences are involved. Clearly, the school is neither "the cause" nor "the cure" for norm-violating behavior among young people; its influence is merged with those of other socializing agencies. Behavioral scientists generally agree, however, that the school may function either to help initiate and develop delinquent behavior or to help prevent and curb such development. (Wilkerson, 1969, p. 107)

One of the most crucial forces affecting delinquency, if only because of the number of years during which it exerts influence over the child, is the school. The school cannot solve the problem of delinquency alone, or even attempt to prevent it single-handed. However, its role should always be considered crucial in a well-planned community program. Together with the home, the school provides basic learning experiences for all children. The school can do much to make the child aware of his own basic values and teach him how to develop them. Through his attendance at a good school, it is hoped that a youngster will develop into a more capable and resourceful person. This is precisely what does not happen in the case of a juvenile delinquent. The records of many schools show, to the point of monotony, that these youngsters establish habits of failure and inferiority in their school years. (Kvaraceus, 1967, p. 46)

For low income youth, the public school is often an alien, hostile environment, representing rejection and defeat. Any program of intervention aimed at reducing the rate of delinquency and upgrading deprived youth must consider the major role played by the school in the

lives of all youngsters. Some may not consider delinquency prevention to be a direct responsibility of the schools, but the American public school system must take direct responsibility for lessening the impact of many factors that directly or indirectly contribute to delinquency. In many ways, the school may actually contribute to a youth selecting a deviant solution to his problems. (Scarpitti, 1969, p. 73)

Despite the fact that the schools are meant to be the major agency for promoting progress along legitimate avenues to adulthood, prevailing conditions in education deter much progress for some youth and make the delinquent alternative more attractive. Evidence also suggests that because of its central and strategic place in the lives of youth, the school has the potential to at least partially offset or neutralize pressures toward delinquency set in motion by noneducational forces in the family and community, but that this potential is not now being realized. (Scarpitti, 1969, p. 75)

Hirschi presented a causal chain which runs from poor school performance, to disliking school, to rejection of the school's authority, to the commission of delinquent acts.

> Since the school is a manifestly middle class institution and delinquency has long been considered a predominantly lower class phenomenon, the major lever for prying open the secrets of the school and the production of delinquency has been to assess its impact on the lower class child. On the one hand, the lower class boys' day-to-day experience in the school is shown to be unpleasant, degrading, and demoralizing. Although she might wish to do otherwise, the middle class teacher tends to punish the fidgety, unambitious, and dirty lower class boys. Furthermore, children from classes above him dominate extra-curricular activities, refuse to date him, and refuse to admit him into their clique. To the degree that all this matters to him, the lower class boy is held to face a problem of adjustment. On the other hand, the lower class boy's everyday experience in the school is deemphasized and his relation to education

> as it bears on social mobility becomes the major focus of attention. The lower class boy's inability to pursue an education, either because of lack of money or appropriate values, is seen as the major reason for his turning to delinquency. (Hirschi, 1969, pp. 110-111)

The Gluecks (1950) made the following observations as the result of a study they conducted. The educational achievement of delinquents in their study was much more retarded than that of the non-delinquents. The delinquents had a stronger distaste for subjects requiring strict logical reasoning, good memory, and persistent effort. A higher proportion of delinquents indicated a desire to leave school at once. Various indications of maladjustment showed up at a much earlier age among the delinquents, and truancy was the first and most frequent manifestation of this maladaption.

Selected studies summarized by Wilkerson showed that:

> Most delinquents have a history of failing grades in school. A large proportion of them--close to one-half--repeat two or more grades and thus become two or more years "overage" for the grades in which they are enrolled. Second, almost all delinquents--around 95 percent--have records of serious or persistent misconduct in school. The most frequent manifestation is truancy. More than nine-tenths are occasional or persistent truants. Third, a very large proportion of delinquent young people--80 to 95 percent--are school dropouts. Most of them withdraw from the junior high school grades as soon as they reach the "leaving age" of 16; a few of them enter senior high school. Fourth, a substantial majority of delinquents express violent dislike of school and at least one-fourth more express indifference toward school. (Wilkerson, 1969, pp. 108-109)

Certainly there is no basis for inferring a simple causal relationship between unsatisfactory school experiences and delinquency. Nevertheless, there is substantial empirical evidence showing that the school is important in the development of delinquent behavior.

A study by Walberg (1972) recommending in-school prevention

programs showed that delinquent tendencies are positively associated with truancy, school apathy, resenting adult authority, feeling of learning failure, and low trust in others. A book of readings edited by Polk and Schafer (1972) contains numerous studies supporting their thesis that school experience may function as an important determinant in the generation and maintenance of delinquency. A review of the literature related to school schievement and delinquency by the Silberberg's (1971) showed that the relationship between juvenile delinquency and school maladaptation has been consistently obvious since 1925.

Empey and Lubeck summarized the theoretical relationship between education and delinquency:

> Lower class children, and especially delinquents, are measurably inferior when it comes to their ability to satisfy middle-class teachers and to compete with middle-class peers--in sum, to achieve, first, in middle-class schools and, later, in middle-class society. The most significant thing about this state of affairs is that this group of young people are failures when it comes to effective participation in the one major institution in society that is charged with bridging the gap between childhood, the one institution that is devoted exclusively to the socialization of the young. The school in turn, either through its failure to recognize these kinds of deficiencies or through a lack of resources, has been unable to compensate for them. In fact, the reverse seems to be true. Rather than become a place where deficiencies diminish, the school becomes a place in which they accumulate. Low expectations are established, failure is anticipated, and, true to the Mertonian self-fulfilling prophecy, failure occurs. (Empey and Lubeck, 1971, p. 30)

III. TEACHERS' NONVERBAL COMMUNICATION

Although sociologists and psychologists have been researching the concept of the self-fulfilling prophecy for some time, the work of Rosenthal and Jacobsen (1968) was one of the first attempts to relate

this concept of pupils' success in school. Their study and studies by others have found that teacher expectations for the student are communicated to the student through teacher behavior in interpersonal communication. A study by St. John (1971) found that for black students the teacher's competence in interpersonal communication contributes significantly to reading improvement and seems to lead to improved conduct, attendance, and belief in the teacher's approval. (St. John, 1971, p. 646)

Unfortunately, there have been relatively few studies focusing on the effects of teacher behavior and teacher-pupil interaction. Traditionally, programs aimed at improving school achievement for "disadvantaged" students (usually black, lower socioeconomic background, delinquent, etc.) have focused on changing the child or the curriculum, but not the teacher. Just as early theories of delinquency assumed some defect in the child, educators have assumed some deficiency in the student or the program that could be overcome by a "remedial" approach. Ryan (1971) called this syndrome "blaming the victim." A review of selected programs for and delinquent children showed emphasis on counseling, reading, recreation, vocational training, and contingency management, all of which are cognitively-oriented programs aimed at correcting deficiencies within the child. Studies such as the one by St. John described above and one by Scheuer (1971) on the relationship between personal attributes and effectiveness in teachers of the emotionally disturbed are rare and have emerged only in the last two or three years.

However, as early as 1964 Gage suggested that teachers must know more than learning theory. They must know how to "manipulate the

independent variables, especially their own behaviors, that determine learning (Gage, 1964, p. 273)." A report by Phillips and others (1973) emphasized the importance of teacher behavior in the success of innovative educational programs. Six years ago, in Lawrence, Kansas, a program called Achievement Place was begun. It was a community-based, family-style treatment home for delinquent youths which used a token-economy system of reinforcement. Although the initial program was replicated in Kansas, it was a complete failure; researchers found that the token economy system was less important than the social interaction between students and teachers.

Teacher behaviors that determine learning are communicated to students through the teacher's verbal and nonverbal patterns of communication. Although traditionally the verbal dimension of communication has been emphasized, recent research has focused on the importance of nonverbal elements in the communication process. Mehrabian (1968) suggested that nonverbal components may account for as much as 93 percent of the total communication message (.07 verbal, .38 vocal, and .55 facial). However, verbal and nonverbal communications may be contradictory. People often assume that they have communicated when they transmit a verbal message, but they fail to realize that their nonverbal behavior contradicts the verbal message and that the receiver interprets the message through personal perceptual screens. Communication research suggests that the message received is largely dependent on the variables of perception and interpretation. If Mehrabian's estimate that 93 percent of communication is nonverbal was correct, it seems that student learning is directly affected by nonverbal communication and the effectiveness of

a teacher to a large degree is dependent upon nonverbal communication.

Although the exact relationships between student achievement and teacher nonverbal behavior have yet to be defined and documented by research, there appears to be an emerging theoretical base for the importance of nonverbal communication in the learning process. Recently there has been an increased concern for the affective domain of learning. The attitudes, beliefs, feelings, and values of students are recognized to be as important as the mastery of content in academic disciplines. Studies on the self-fulfilling prophecy and student self-concept reflect this concern for affective education. French and Achilles (1972) suggested that cognitive variables, such as subject matter, are learned primarily through verbal communication, but affective variables, such as attitude toward school, are learned primarily through nonverbal communication. A study by Reynolds (1971) showed that people do recognize nonverbal communication and identify specific behaviors as positive or negative.

The studies of Hall (1959) in anthropology provided information about cultural differences in nonverbal communication and a few studies on this topic related to education are now appearing in the literature. In a paper summarizing research on children's language and socioeconomic class conducted by Bernstein (1961), Deutsch (1964), and others, Achilles made the following statement:

> Recent research on nonverbal dimensions of communication, and the tendency of lower socioeconomic pupils to be perceptive to nonverbal cues suggest that educators must study and understand the conscious and unconscious nonverbal behaviors they transmit. There is some evidence to suggest that the lower socioeconomic pupil believes the nonverbal cues whenever verbal and nonverbal cues seem to be contradictory. (Achilles, 1970, p. 3)

French (1968) documented this lack of congruence between teacher's verbal and nonverbal behavior. A study by Shepard (1971) found that teachers' nonverbal behaviors are more encouraging toward upper class students than toward lower class students.

Cosper (1970), identifying sex differences in the patterns of teacher-student interaction in a study conducted with gifted students, found that teachers tended to exhibit restricting behavior more often toward same sex students than toward opposite sex students. Davis (1972) reported on a film made by anthropologist Paul Byers involving a racially mixed group of students with a white teacher:

> In a 10-minute segment of the film one of the black students tries to make eye contact with the teacher 35 times but succeeds only four times. However, a white student made eye contact with the teacher eight times out of only 14 tries. (Davis, 1972, p. 196)

The entire film demonstrated cultural problems related to differences in nonverbal communication, specifically patterns of eye movements.

The writer was unable to locate any studies dealing with teachers' nonverbal communication patterns toward predelinquents in public schools or delinquents in training schools. Up to the present time, there have not been enough studies on nonverbal communication and education to clearly identify patterns of teacher nonverbal communication and their relation to the teaching learning process.

A related problem is the need for instruments to measure the nonverbal behavior which teachers exhibit. French and Galloway (1968) developed the Indirect/Direct--Encouraging/Restricting (IDER) system for categorizing teacher verval and nonverbal behaviors simultaneously. The IDER system, which was used in this study, was developed from two major

antecedents. One of these was Flanders' (1967) Interaction Analysis System which categorized teacher behaviors as either direct or indirect. The 10 categories are:

1. Accepts feeling
2. Praises or encourages
3. Accepts or uses student ideas
4. Asks questions
5. Lectures
6. Gives directions
7. Criticizes or justifies authority
8. Student talk, teacher initiated
9. Student talk, student initiated
10. Slience or confusion

The first seven categories were designed to measure teacher behaviors along a continuum from indirect (teacher statements that increase student freedom to respond) to direct (teacher statements that restrict student freedom to respond). The first four of these seven categories represent indirect influence and the last three represent direct influence. Categories 8 and 9 represent student talk. Category 10 provides for the remainder of classroom behaviors which cannot be classified in the other nine categories.

A second antecedent of the IDER system was Galloway's (1962) system for categorizing nonverbal behavior into the following seven observational categories:

1. Enthusiastic support
2. Helping
3. Receptivity
4. *Pro forma*
5. Inattentive
6. Unresponsive
7. Disapproval

From these seven categories, Galloway (1968) derived a model of teacher nonverbal communication representing six dimensions of nonverbal activity:

Teacher Initiated	Teacher Response
1. Congruity - Incongruity	4. Attentive - Inattentive
2. Responsive - Unresponsive	5. Facilitating - Unreceptive
3. Positive - Negative Affectivity	6. Supporting - Disapproval

The IDER system of behavioral analysis was an attempt to match the 10 verbal categories of Flander's Interaction Analysis with appropriate nonverbal dimensions. Flanders' concept of direct to indirect teacher influence was incorporated into a larger conceptual framework ranging from encouraging to restricting interaction.

Schematically, the system appears as follows:

Indirect-Direct (Verbal)	Encouraging-Restricting (Nonverbal)
1. Accepts student feeling	---
2. Praises or encourages	Congruent-Incongruent
3. Uses student idea	Implement-Perfunctory
4. Asks questions	Personal-Impersonal
5. Lectures; gives information	Responsive-Unresponsive
6. Gives directions	Involve-Dismiss
7. Criticizes or justifies authority	Firm-Harsh
8. Student talk (response)	Receptive-Inattentive
9. Student talk (initiated)	Receptive-Inattentive
10. Silence or confusion	Comfort-Distress

IV. SUMMARY

This review of related literature has described the complexity of the problem of juvenile delinquency in society. Modern trends in delinquency prevention suggest that these youngsters increasingly will be returned to public schools for their formal education. Studies concerning delinquency and education indicate that delinquents are not successful in school and that this lack of success is related to the affective domain of learning, including dislike of school, distrust in teachers,

feelings of isolation, and hostility. Similarly, there is an emerging theoretical base connecting nonverbal behavior to the affective domain. Thus, the writer concludes that there is a need for baseline information concerning the verbal and nonverbal communication of teachers toward delinquent students.

CHAPTER III

METHODS AND PROCEDURES

The primary purposes of this study were: (1) to determine if teachers' verbal and nonverbal behaviors toward adjudicated delinquents were generally encouraging or restricting; (2) to analyze race and sex differences in teacher-student interaction; (3) to analyze teacher variables of age, training, and experience in teacher-student interaction; and (4) to identify differences in teacher verbal and nonverbal behavior between teachers in public schools and correctional institutions.

This chapter provides a description of and rationale for the methods and procedures used to conduct the research.

I. SUBJECTS

Students

The study was conducted in two North Carolina training schools for adjudicated delinquents. The C. A. Dillon School, located in Butner, North Carolina, was a maximum security institution for children who have been referred to it from the other seven training schools operated by the North Carolina Department of Youth Development. The Juvenile Evaluation Center School, located in Swannanoa, North Carolina, was more typical of the other seven training schools in that there was less security and more freedom of movement. The educational program in both schools consisted of traditional subject area divisions organized on a departmentalized basis with multi-age grouping. Most classes were small by public school

standards (eight to 20 pupils per class) and many teachers attempted to individualize instruction.

At the time visits were made to the schools to collect data for this study, there were 254 students in the following categories: white males, 110; black males, 71; black females, 30; and white females, 43. (See Table I.) All students were from lower socioeconomic backgrounds and ranged in age from 10 to 16, with the average age around 14.

TABLE I

DEMOGRAPHIC DATA FOR PUPIL POPULATION OF THE STUDY

Race	Male	Female	Total
Nonwhite	71	30	101
White	110	43	153
Total	181	73	254

Teachers

The staff in both schools consisted of administrators, teachers, and teacher aides. This study investigated only the behavior of the professional teaching staff in a classroom setting. All teachers were certified in their subject areas by the North Carolina State Department of Education. Teachers were paid according to the State salary schedule for public school teachers but received two months additional salary because they taught 12 months. There was the usual range of young, inexperienced teachers and mature teachers with many years of experience. There were 25 teachers included in this study in the following categories: white

males, eight; black males, four; white females, seven; and black females, six. (See Table II.)

II. INSTRUMENTS

IDER System

The French and Galloway (1968) IDER system of simultaneously categorizing verbal and nonverbal behaviors was used to code the data in this study. Validity of the IDER system was established by Galloway (1962) who used a panel of experts to verify categories. Validity of the system was further documented by French (1968) based on the construct validity of the Flanders system. Verbal behaviors are identified as indirect or direct in relation to specific categories of the Flanders System of Interactional Analysis. Indirect verbal behaviors occur in categories 1 (accepting feelings), 2 (praising or encouraging), 3 (accepting ideas), and 4 (questioning). Direct verbal behaviors occur in categories 5 (lecturing), 6 (giving directions), and 7 (criticizing or justifying authority). An I/D ratio is the ratio of indirect behaviors (categories 1-4) to direct behaviors (categories 5-7). A revised I/D ratio identified as i/d is the ratio of indirect behaviors in categories 1-3 to direct behaviors in categories 6-7. By eliminating category 4 (asking questions) and category 5 (lecturing), the i/d ratio further delineates the I/D ratio to show extremes in indirect/direct verbal behaviors.

Nonverbal behaviors are identified in the IDER system by dividing each of the 10 categories in the Flanders system into encouraging or restricting nonverbal dimensions. Encouraging nonverbal

TABLE II

DEMOGRAPHIC DATA FOR TEACHER POPULATION OF THE STUDY

Area	Male	Female	Total Number
Race			
Nonwhite	4	6	10
White	8	7	15
Total	12	13	25
Age			
20-29			11
30-39			5
40-49			4
50+			5
Total			25
Certificate			
A (B.S.)			19
G (M.S.)			3
P (Provisional)			3
Total			25
Number of Years Experience as a Teacher			
Corrections: 0-1 years			6
2-4 years			10
5+ years			9
			25
Public School: 0 years			11
1-4 years			8
5+ years			6
			25

nonverbal behaviors are climate-setting behaviors that encourage further nonverbal interaction. Restricting nonverbal behaviors are climate-setting nonverbal behaviors that limit further nonverbal interaction. An E/R ratio is the ratio of encouraging behaviors to restricting behaviors. A complete description of the IDER model with the rationale for each category is included in Appendix A.

Teacher behaviors were recorded at three-second intervals on a modified IDER matrix (Figure 1). Categories 1-10 are the categories for recording verbal behavior as described by Flanders (see Appendix A). To describe the nonverbal behaviors exhibited by a teacher, the following numbers were placed under the appropriate column--E for encouraging or R for restricting: 1--black male; 2--white male; 3--black female; and 4--white female. If a behavior was directed toward the entire class, or if a student's race and/or sex could not be identified from the videotape, a plus (+) symbol was used. The diagonal line across the matrix is a modification of the original French and Galloway matrix which facilitates tallying the data and makes it easier to interpret because it permits a smooth transition from one behavior to another and eliminates the need for pairing the behaviors and transferring them to the matrix.

The following is a description of how behaviors were recorded on the matrix. Figure 2 shows the pattern of behaviors. The teacher begins with lecture to the entire class (category 5E-+) and follows with a question to a black male (category 4E-1). The student answers (category 8E-1), the teacher accepts his answer (category 3E-1), and continues to lecture (category 5E-+).

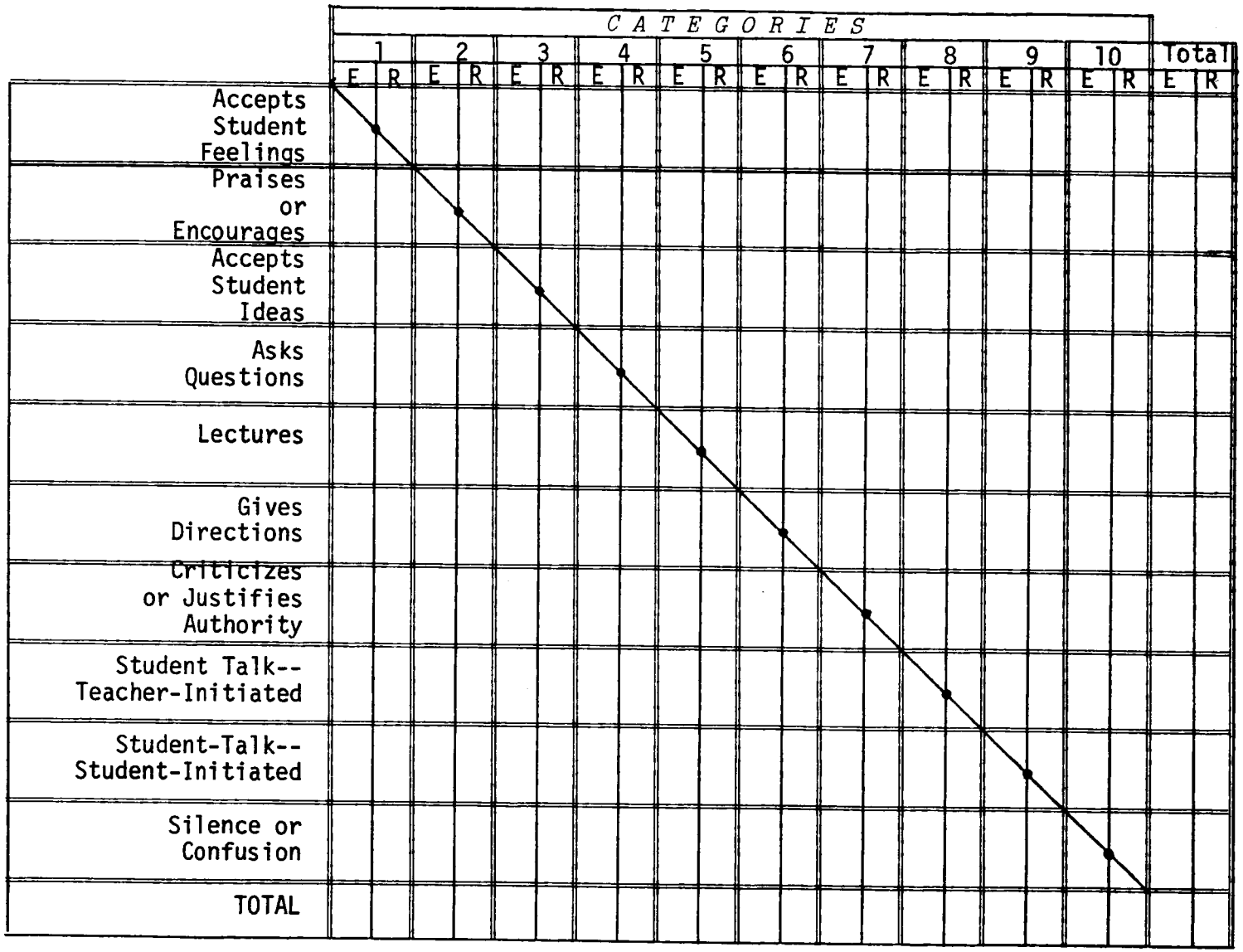


Figure 1. Revised IDER Matrix for Original Tally.

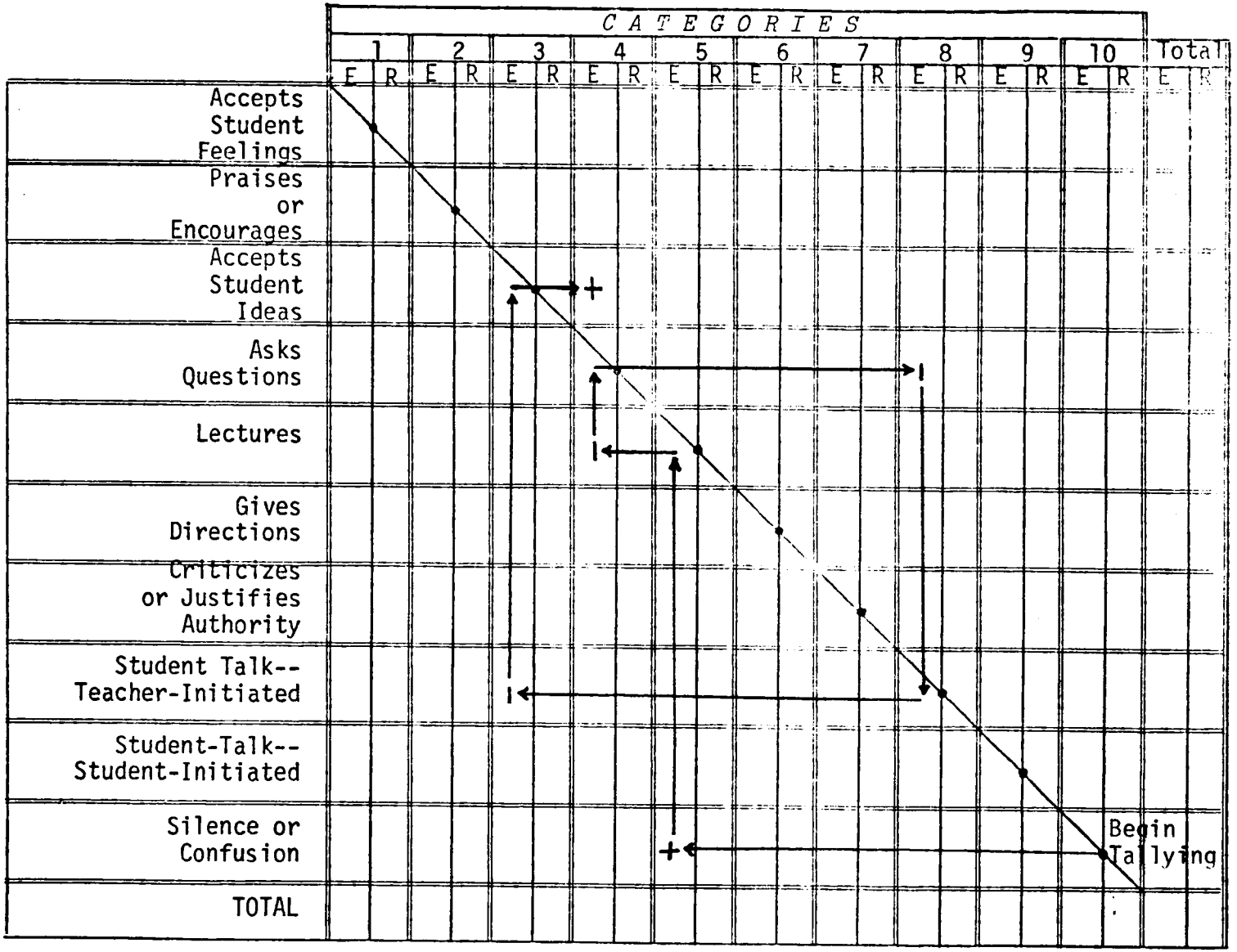


Figure 2. Sample Pattern of Behaviors.

Videotape

The verbal and nonverbal behaviors exhibited by the teachers were recorded on one-half inch videotape. By using the videotape medium, the tapes could be replayed, used for establishing inter- and intrarater reliability, reanalyzed for specific patterns of behavior, and stored for further study.

III. PROCEDURES FOR COLLECTING AND CODING DATA

Collection Procedures

A faculty meeting was held at one school on January 15, 1973, and at the other school on February 13, 1973, to describe the study and taping procedures to the teachers. It was explained that the purpose of the study was to investigate teacher-pupil interaction in the classroom. A sample tape was shown and the teachers were assured that they and students would not be identified by name or school.

On the first visit to each classroom, the videotape recording team recorded a short segment of classroom behaviors and then played the tape for the teachers and students. This technique was used to familiarize the teachers and students with the taping procedure to obtain more "normal" behavior during the actual taping sessions.

Two additional visits were made to each classroom to make two 20-minute videotapes of each teacher. During the actual tapings, the teachers and students did not know when the videotape recorder was on and when it was not. Tapes were made during the middle of class periods so that students were settled down and routine matters, such as taking roll, had been completed. Tapes were not made during study periods,

testing, or the use of audiovisuals. The two videotapes of each teacher were made in the same week with different groups of students. Since most programs were departmentalized, each teacher was usually teaching the same subject for both tapes.

Rater Reliability

Three raters, including the investigator, were used for recording the data from the videotapes onto the matrices. Thus, it was necessary to determine interrater reliability among the three raters. An estimation of interrater reliability of .80 was determined as adequate for the study. One of the raters with extensive experience in use of the IDER system was designated as the "expert" and served as the trainer for the other two raters. Three tapes were randomly selected from the total pool of 50 tapes and were used to compute two kinds of reliability coefficients. The Scott Pi Coefficient (Scott, 1955) was used as one measure of interrater reliability according to the following formula:

$$\pi = \frac{P_o - P_e}{1 - P_e}$$

P_o (observed percent agreement) represents the percent of judgements on which two raters agree when coding the same data independently. P_e is the acceptable percent agreement (.80 in this study). The Scott Coefficient (π) is the ratio of actual difference between obtained and chance agreement. (Scott, 1955, pp. 321-325)

A second computation of interrater reliability consisted of the percentage of rater agreement on independent ratings regarding the total

number of tallies when comparing ratings of the rater designated as "expert" with the ratings of each rater designated as neophyte. Internal category checks could be computed using this same formula and data from any combination of internal category checks could be computed, where,

$$P = \frac{N \text{ (Neophyte)}}{N \text{ (Expert)}} \qquad \text{or} \qquad P = \frac{N \text{ (Expert)}}{N \text{ (Neophyte)}}$$

so as to produce a percent less than 100. An average interrater reliability of .89 was achieved. Intrarater reliability was established at .91 using the Scott Coefficient and at .98 according to the P method. (See Table III.)

Coding Procedures

After interrater and intrarater reliability was established, the teaching behaviors were coded on modified matrices of French and Galloway's (1968) IDER system as described earlier and shown in Figure 2 (page 47). Ratios for each teacher were then arithmetically computed. An E/R ratio was computed by dividing the total encouraging nonverbal behaviors by the total restricting nonverbal behaviors. An I/D ratio was computed by dividing indirect verbal behaviors (columns 1-4 on the matrix) by direct verbal behaviors (columns 5-7). A revised I/D ratio (i/d) was computed by dividing extreme indirect verbal behaviors (columns 1-3) by extreme direct verbal behaviors (columns 6-7). The data coded on the matrices were then transferred to data charts from which computer cards were punched. The data charts showed each teacher's encouraging and restricting nonverbal behaviors in the 10 categories

TABLE III

RELIABILITY COMPUTATION RESULTS*

Raters	Tapes 1	2	3	Mean
Scott Coefficient				
A/B	.964	.950	.834	.916
A/C	.946	.806	.774**	.842
B/C	.982	.855	.939	.925
Mean	.964	.870	.849	---
Expert-Neophyte and Neophyte-Neophyte Percentages of Total Ratings				
EN_1	.992	.990	.966	.982
EN_2	.989	.961	.954	.968
N_1N_2	.999	.971	.986	.976
Mean	.993	.974	.968	.976

E = Expert; N_1 = Neophyte; N_2 = Neophyte

*All computations and details appear in Appendix C.

**This reliability, although below .80, was accepted for two reasons: (1) the final tape ratings were all done by Rater B, who established .80 or better with both of the other raters; and (2) the mean over three tapes exceeded .80.

by student race and sex (see Figure 3). The behaviors of six teachers were eliminated from the study because their classroom activities (shop, small engines, music, etc.) were so noisy that verbal interaction could not be recorded.

Data were then transferred to punched cards for computer processing. The following card format was used:

Card 1: Teacher personal data
Card 2: Teacher interactions with black males
Card 3: Teacher interactions with white males
Card 4: Teacher interactions with black females
Card 5: Teacher interactions with white females
Card 6: Teacher interactions with students (race/sex not identifiable)
Card 7: Teacher interactions with all students (totals)

Thus, there were seven cards for each teacher--one card for teacher data and six cards for behavioral data. Table IV shows the column format for each of these seven cards.

IV. STUDY DESIGN

This field study was based on an *ex post facto* design.* The effort was to collect, categorize, and analyze teacher nonverbal communication cues exhibited toward adjudicated delinquents during a formal teaching-learning situation.

The Chi-square statistic (with the Yates correction for continuity) was selected in order to determine whether observations differed from what is expected by chance when chance is defined according to a specific set of rules. The Chi-square requires that "no assumptions need to be made concerning the underlying distributions of the variables,

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*An extensive discussion of the strengths, weaknesses, and limitations of field studies can be found in Kerlinger, 1964, pp. 387-391.

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black											4						2				
(2) Boy, white	2		22		26		76		44		142		6		202		20				
(3) Girl, black																					
(4) Girl, white																					
(5) Race/Sex not Identifiable			4				4		2		6	2			2		2		68		
TOTALS	2	0	26	0	26	0	80	0	46	0	152	2	6	0	204	0	24	0	68	0	

Figure 3. Individual Teacher Data Worksheet Showing Interactions by Major Classifications of Student Variables.

TABLE IV

COMPUTER CARD FORMAT

Card Number	Data	Column Number
One	Teacher Number	1-2
	Sex	3
	Race	4
	Age	5-6
	Experience in Corrections	7
	Experience in Public School	8-9
	Certification	10-13
Two - Seven (each card)	Teacher Number	1-2
	Card Number	3
	E1 (Accepts student feelings)	4-6
	R1	7-9
	E2 (Praises or encourages)	10-12
	R2	13-15
	E3 (Accepts student ideas)	16-18
	R3	19-21
	E4 (Asks questions)	22-24
	R4	25-27
	E5 (Lectures)	28-30
	R5	31-33
	E6 (Gives directions)	34-36
	R6	37-39
	E7 (Criticizes or justifies authority)	40-42
	R7	43-45
	E8 (Student talk--teacher-initiated)	46-48
	R8	49-51
	E9 (Student talk--student-initiated)	52-54
	R9	55-57
	E10 (Silence or confusion)	58-60
	R10	61-63

the variables may be discrete or continuous, and data of the nominal level are appropriate for analysis (Champion, 1970, p. 131)." The data for this study were ordinal because they could be categorized and ranked from encouraging to restricting.

A major concern in this study was whether the race and sex of teachers and pupils appeared to be variables in the nonverbal communication cues given by teachers to students. A variety of other questions was then generated using as crossbreaks for analysis such teacher demographic data as training, experience, and age. Thus, the basic Chi-square analyses were combinations of the variables shown in Figure 4.

Data were also manipulated arithmetically and recombined to provide comparisons. Where appropriate, ratios, totals, and percentages were computed.

Data from studies with public school teachers conducted by Cosper (1970), Shepard (1971), and Fowler (1972) were used to compare communication patterns of teachers in correctional institutional settings with those of teachers in public school settings. Comparisons were delimited to these three studies because they had the same basic research design and format as the present study. Also, there was continuity in videotaping procedures and data rating because Shepard trained the other two investigators in the use of the IDER system. Fowler and Shepard made several of the videotapes for the present study and helped this investigator categorize behaviors from the videotapes.

TEACHER VARIABLES
*Race, Sex, Age, Experience, Training**

PUPIL VARIABLES
Race
Sex

Combinations (sums) of Columns Used for Analyses
1-20
1-8
1, 3, 5, 7
2, 4, 6, 8
9-14
9, 11, 13
10, 12, 14
15-18
15-16
17-18
1-6
1, 3, 5
2, 4, 6
11-14
11, 13
12, 14
all odd (1-19)
all even (2-20)

*Although all computations of data from the general table above were computed, the Chi-square values were identified as N/A (not applicable) wherever the contingency tables did not meet the assumption that not more than one cell may have a theoretical frequency of less than five.

Figure 4. Format for Chi-Square Analyses.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The study, conducted in two North Carolina training schools for adjudicated delinquents, included 254 students and 25 teachers. Verbal and nonverbal teacher behavior was recorded on videotape and categorized according to the IDER system of behavioral analysis to answer the following questions:

1. Are there differences between the verbal and nonverbal cues transmitted by teachers to adjudicated delinquents?

2. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the race of the teacher?

3. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the sex of the teacher?

4. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the teacher's age, certification, and experience?

5. Are there differences in the general verbal and nonverbal behavior patterns of teachers of adjudicated delinquents in correctional institutional settings and selected teachers of students in public school settings?

The data are presented and analyzed in relation to these questions. Although data relating to questions two and three are

reported separately, an analysis of the relationships between these two questions is made. To answer question five, data from this study were compared with data from three other studies similar in design and conducted by Cosper (1970), Shepard (1971), and Fowler (1972).

I. QUESTION ONE

Are there differences between the verbal and nonverbal cues transmitted by teachers to adjudicated delinquents?

Of the 17,551 total behaviors in the study, 93.45 percent were encouraging (E) and 6.55 percent were restricting (R) as shown in Table V. Thus, the basic nonverbal communication climate-setting behaviors exhibited by most teachers in the two schools were very encouraging of further interactions. Approximately 14 percent of the total behaviors in the study were classified as indirect (I), requiring the pupil to think creatively, interact further with the teacher or other students, or permitting more alternatives for pupil response. Approximately 40 percent of the total behaviors were classified as direct (D) verbal behaviors which limit student response, give information, or maintain teacher control. The basic verbal communication climate-setting behaviors exhibited by teachers in this study were direct and thus limited verbal interaction.

The difference between the number of encouraging nonverbal behaviors (93.45 percent) and indirect verbal behaviors (14.11 percent) indicates inconsistent communication patterns. The teachers' nonverbal behaviors encourage student interaction, but their verbal behaviors generally limit further interaction.

TABLE V

COMPOSITE RATIO COMPUTATIONS BASED ON MAJOR STUDY VARIABLES

Variable Categories	Total Teacher Behaviors	Percent	Teacher Number	Teacher Mean	Ratios Based on Totals	
Encouraging (E) 1-10	16,402	93.45%	25	656.08		
					E/R	14.28
Restricting (R) 1-10	1,149	6.55	25	45.96		
Indirect (I) 1-4	2,476	14.11	25	99.04		
					I/D	.35
Direct (D) 5-7	7,004	39.91	25	280.16		
Revised Indirect (i) 1-3	975	5.56	25	39.00		
					i/d	.21
Revised Direct (d) 6-7	4,742	27.02	25	189.68		
TOTAL	17.551	100.00	25	702.00	---	---

These differences in communication patterns can also be shown by comparing the composite encouraging-restricting (E/R) ratio with the composite indirect-direct (I/D) ratio. To develop composite ratios for this study, all behaviors were first summed and then the ratio computations made. One purpose of this study was to collect baseline data which can be used to identify general patterns of teacher verbal and nonverbal behavior. Composite ratios provide information showing the general communication climate established by groups of teachers in a given school or schools.

In this study, the composite E/R ratio was 14.28 and the composite I/D ratio was 0.35 (see Table V). These ratios mean that for every 14 encouraging behaviors, there was one restricting behavior, and for every indirect behavior, there were approximately three direct behaviors. The communication climate in these schools was nonverbally encouraging of further interaction. However, the communication climate was verbally limiting of further interaction. The communication climate was inconsistent as shown by these differences between the verbal and nonverbal patterns.

Of the 17,551 total behaviors, 45.94 percent were either directed to a group of students or could not be classified as being directed toward a particular student of a given race and/or sex and were classified as "sex/race not identifiable" (see Table VI). The behaviors in category 10 (silence or confusion) accounted for over half of the behaviors that could not be classified by student race or sex. The majority of the remaining unclassified behaviors occurred in categories 5, 6, and 7 in which the teacher was lecturing, giving

TABLE VI

NUMBER AND PERCENT OF BEHAVIORS COMPARED BY CATEGORIES OF THE IDER MATRIX

IDER	Category		Sex/Race Identifiable Number	Sex/Race Identifiable Percent	Sex/Race not Identifiable Number	Sex/Race not Identifiable Percent	Totals Number	Totals Percent
(1)	Accepts Feelings	E	7	.07%	4	.05%	11	.06%
		R	2	.02	0	.00	2	.01
(2)	Praises or Encourages	E	235	2.48	68	.84	303	1.73
		R	2	.02	0	.00	2	.01
(3)	Accepts Ideas	E	506	5.33	123	1.53	629	3.58
		R	21	.22	7	.09	28	.16
(4)	Asks Questions	E	885	9.33	516	6.40	1,401	7.98
		R	71	.75	29	.36	100	.57
(5)	Lectures	E	759	8.00	1,340	16.62	2,099	11.96
		R	49	.52	114	1.41	163	.93
(6)	Gives Directions	E	2,977	31.38	1,208	14.98	4,185	23.84
		R	243	2.56	128	1.59	371	2.11
(7)	Criticizes or Justifies Authority	E	39	.41	37	.46	76	.43
		R	68	.72	42	.52	110	.63
(8)	Student Talk-- Teacher-Initiated	E	2,463	25.96	216	2.68	2,679	15.26
		R	87	.92	13	.16	100	
(9)	Student Talk-- Student-Initiated	E	981	10.34	90	1.12	1,071	6.10
		R	93	.98	22	.27	115	.66
(10)	Silence or Confusion	E	0	.00	3,948	48.96	2,948	22.49
		R	0	.00	158	1.96	158	.90
TOTALS			9,488	54.06%	8,063	45.94%	17,551	100.00%

directions, or justifying authority. Approximately 46 percent of the time teachers' behaviors were directed toward groups of students rather than individuals.

Almost one-fourth of all teacher behaviors were listed in category 10 (silence or confusion). During 75 percent of the time recorded, an individual (teacher or student) was talking. Slightly less than 25 percent of all behaviors recorded were in categories 8 and 9 (student talk). One-third of the talking was by pupils and two-thirds by teachers. Another 25 percent of total teacher-pupil interactions were in categories 6 and 7--categories where teachers gave directions, criticized pupils, or justified teacher authority. Approximately 13 percent of the total behaviors were in category 5 (lecture) and the remaining behaviors were listed in categories 1-4 (accepting student feelings, praising or encouraging, accepting student ideas, and asking questions).

Thus, in response to question one, there are differences between the verbal and nonverbal cues transmitted to adjudicated delinquents. Communication patterns are inconsistent: nonverbal communication cues are encouraging of further student interaction, but verbal cues are direct and limit student response.

II. QUESTION TWO

Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the race of the teacher?

The 10 black teachers in the study displayed a total of 7,177 behaviors, and 15 white teachers displayed a total of 10,374 behaviors.

The composite ratios for black teachers were: E/R = 8.19; I/D = 0.31; and i/d = 0.15. The composite ratios for white teachers were: E/R = 27.19; I/D = 0.37; and i/d = 0.25. (See Table VII.) These ratios suggested that the major differences between black and white teachers in communication patterns occurred in nonverbal cues. Black teachers emitted eight encouraging behaviors for every one restricting behavior; white teachers exhibited 27 encouraging behaviors for every one restricting behavior. Thus, white teachers were three times more encouraging nonverbally than black teachers, but their verbal communication patterns were basically the same. Two related aspects of question two concerning student race were also investigated.

(a) *Do black teachers transmit different cues to black students than they do to white students?*

There were 101 black students and 153 white students in the study (a ratio of two black to every three white students). Assuming that teachers and students had equal opportunities to interact, one would expect two interactions to black students for each three interactions to white students. Black teachers transmitted a total of 1,775 behaviors (25 percent) to black students and 1,750 behaviors (24 percent) to white students. Of the 7,177 total behaviors transmitted by black teachers, 3,652 (51 percent) were not identifiable as being directed toward a student of a particular race. (See Table VIII.)

Black teachers' composite E/R ratio toward black students was 7.65 compared with 7.41 toward white students. Their I/D ratio toward black students was 0.37 compared with 0.28 toward white students. (See Table IX.)

TABLE VII

RATIOS AND BEHAVIORS BY TEACHER RACE TOWARD ALL STUDENTS

Ratios and Behaviors	Teachers		
	Total Black (10)	Total White (15)	Total (25)
Ratios			
E/R	8.190	27.190	14.275
I/D	0.317	0.379	0.354
i/d	0.153	0.258	0.206
Behaviors			
E (1-10)	6,396	10,006	16,402
R (1-10)	781*	368	1,149
I (1-4)	917	1,559	2,476
D (5-7)	2,892	4,112	7,004
i (1-3)	363	612	975
d (6-7)	2,371	2,371	4,742
Total	7,177	10,374	17,551

*It should be noted that the behaviors of one black female accounted for over half of all black teachers' restricting behaviors.

TABLE VIII

BLACK TEACHER BEHAVIORS TOWARD BLACK AND WHITE STUDENTS

Teacher Number	Black Students		White Students		Not Identifiable		Totals	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
4	378	54.78%	90	13.04%	222	32.18%	690	100.00%
7	82	10.70	162	21.15	522	68.15	766	100.00
13	8	1.25	370	57.81	262	40.94	640	100.00
15	40	5.56	66	9.17	614	85.28	720	100.00
19	214	28.34	248	32.85	293	38.81	755	100.00
20	23	4.06	96	16.96	447	78.98	566	100.00
21	348	51.48	60	8.88	268	39.64	676	100.00
22	198	30.28	170	25.99	286	43.73	654	100.00
23	210	29.33	252	35.20	254	35.47	716	100.00
24	274	27.57	236	23.74	484	48.69	994	100.00
Totals	1,775	24.73%	1,750	24.39%	3,652	50.88%	7.177	100.00%

TABLE IX

BLACK TEACHERS' BEHAVIORS TOWARD BLACK AND WHITE STUDENTS BY MAJOR STUDY VARIABLES

Variable	Black Students (N=101)	White Students (N=153)	Sex/Race Not Identifiable	Totals (N=254)
Encouraging (E)	1,570	1,542	3,284	6,396
Restricting (R)	205	208	368	781
Indirect (I)	282	293	342	917
Direct (D)	746	1,015	1,131	2,892
Revised Indirect (I)	109	168	86	363
Revised Direct (D)	702	956	713	2,371
E/R Ratio	7.65	7.41	8.92	8.19
I/D Ratio	0.37	0.28	0.30	0.31
i/d Ratio	0.15	0.17	0.12	0.15

Thus, black teachers directed more total behavior toward black students than they did to white students even though there were 52 more white students than black students in the study. Despite this finding, there were no differences in their verbal and nonverbal behaviors toward the two groups. It was also interesting to note that black teachers were more encouraging nonverbally and more indirect verbally to the total group (sex/race not identifiable) than they were when their behavior was directed toward an individual black or white student.

(b) Do white teachers transmit different cues to black students than they do to white students?

White teachers transmitted a total of 3,243 behaviors (31 percent) toward black students and 2,720 (26 percent) toward white students. Of the 10,374 behaviors transmitted by white teachers, 4,411 (43 percent) were classified as "pupil race/sex not identifiable." (See Table X.)

White teachers' composite E/R ratio toward black students was 29.88 compared with 22.05 toward white students. Their I/D ratio toward black students was 0.63 compared with 0.35 toward white students. (See Table XI.)

White teachers emitted 523 more behaviors toward black students than they did to white students even though there were 52 more white students than black in the study. A comparison of the white teachers' E/R ratios toward black and white students shows that black students received 29 encouraging behaviors for every 22 encouraging behaviors received by white students. Also, white teachers were twice as indirect verbally toward black students as they were to white students. White teachers

TABLE X

WHITE TEACHERS' BEHAVIORS TOWARD BLACK AND WHITE STUDENTS

Teacher Number	Black Students (N=101)		White Students (N=153)		Sex/Race Not Identifiable		Totals	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	206	27.69%	347	46.64%	191	25.67%	744	100.00%
2	36	4.53	176	22.17	582	73.30	794	100.00
3	212	28.30	280	37.39	257	34.31	749	100.00
5	126	22.74	98	17.69	330	59.57	554	100.00
6	550	71.06	144	18.60	80	10.34	774	100.00
8	8	1.06	20	2.49	776	96.51	804	100.00
9	149	28.38	272	51.81	104	19.81	525	100.00
10	215	37.72	186	32.63	169	29.65	570	100.00
11	672	91.56	4	.54	58	7.90	734	100.00
12	380	49.60	170	22.20	216	28.20	766	100.00
14	112	23.93	96	20.51	260	55.56	468	100.00
16	258	41.88	148	24.03	210	34.09	616	100.00
17	140	17.72	383	48.48	267	33.80	790	100.00
18	103	13.48	312	40.84	349	45.68	764	100.00
25	76	10.53	84	11.63	562	77.84	722	100.00
Totals	3,243	31.26%	2,720	26.22%	4,411	42.52%	10,374	100.00%

TABLE XI

WHITE TEACHERS' BEHAVIORS TOWARD BLACK AND WHITE STUDENTS BY MAJOR STUDY VARIABLES

Variable	Black Students (N=101)	White Students (N=153)	Sex/Race Not Identifiable	Totals (N=254)
Encouraging (E)	3,138	2,602	4,266	10,006
Restricting (R)	105	118	145	368
Indirect (I)	698	456	405	1,559
Direct (D)	1,095	1,279	1,738	4,112
Revised Indirect (i)	290	206	116	612
Revised Direct (d)	698	971	702	2,371
E/R Ratio	29.89	22.05	29.42	27.19
I/D Ratio	0.64	0.36	0.23	0.38
i/d Ratio	0.42	0.21	0.17	0.26

were not as encouraging nonverbally toward white students as they were toward the total group (sex/race not identifiable), but they were more indirect verbally toward white students than toward the total group.

To summarize question two, the Chi-square analyses of major study variables by teacher race versus student race are presented in Table XII. Teachers were significantly more indirect verbally toward black students than toward white students, but they were not significantly more direct toward one group than another. Also, they were significantly more encouraging nonverbally toward black students than toward white students, but they were not significantly more restricting toward one group than another. There were significantly more total behaviors directed toward black than white students.

III. QUESTION THREE

Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the sex of the teacher?

The 12 male teachers in the study displayed a total of 8,363 behaviors, and the 13 female teachers displayed a total of 9,188. The composite ratios for male teachers were: E/R = 28.24; I/D = 0.30; and i/d = 0.22. The composite ratios for female teachers were: E/R = 9.64; I/D = 0.40; and i/d = 0.18. (See Table XIII.) These ratios show that the major differences in communication patterns for male and female teachers occurred in nonverbal communication cues. Male teachers displayed 28 encouraging behaviors for every one restricting behavior, while female teachers displayed nine encouraging behaviors for every one restricting behavior. Thus, male teachers were more than three

TABLE XII

SUMMARY OF CHI-SQUARE ANALYSES OF IDER DATA BY TEACHER RACE AND SEX BY STUDENT RACE AND SEX

IDER Data Columns Configuration	Student Race vs. Teacher Race	Student Sex vs. Teacher Sex	Student Race vs. Teacher Sex	Student Sex vs. Teacher Race	Student Sex/Race vs. Teacher Sex/Race
Degrees of Freedom	1	1	1	1	1
1-4 E&R (I)	20.00	11.07	50.07	30.21	N/C
5-7 E&R (D)	5.64*	293.24	2.65†	599.86	945.79
1-3 E&R (i)	25.25	20.82	46.76	19.30	N/C
6-7 E&R (d)	0.07†	319.16	0.72†	623.58	987.81
1-10 E (E)	14.26	517.11	223.55	407.97	1331.37
1-10 R (R)	0.28†	28.94	0.01†	3.27†	N/C
1-10 E&R (Total)	14.28	519.66	207.34	414.10	1341.92
8-9 E	6.19*	258.49	403.90	2.80†	680.76
8-9 R	7.59	N/C	3.90*	N/C	N/C

*Significant at .05 level.

†Not significant; all other numbers are significant at or beyond .01.

N/C = Not computed; more than 20 percent of the cells had five or less cases.

TABLE XIII

RATIOS AND BEHAVIORS BY TEACHER SEX TOWARD ALL STUDENTS

Ratios and Behaviors	Teachers Males (N=12)	Females (N=13)	Total (N=25)
Ratios			
E/R	28.24	9.64	14.27
I/D	0.31	0.40	0.35
i/d	0.22	0.19	0.21
Behaviors			
E (1-10)	8,077	8,325	16,402
R (1-10)	286	863*	1,149
I (1-4)	1,133	1,343	2,476
D (5-7)	3,667	3,337	7,004
i (1-3)	507	468	975
d (6-7)	2,258	2,484	4,742
Total	8,363	9,188	17,551

*It should be noted that the behaviors of one black female teacher accounted for over half of all female teachers' restricting behaviors.

times as encouraging to all students than were female teachers. The two related questions concerning student sex are discussed below.

(a) *Do male teachers transmit different cues to male students than they do to female students?*

There were 181 male students and 73 female students in the study (or five male students for every two female students). Male teachers transmitted a total of 3,179 behaviors (38 percent) toward male students and 644 behaviors (7 percent) toward female students. Of the 8,363 total behaviors transmitted by male teachers, 4,540 (54 percent) were classified as race/sex not identifiable. (See Table XIV.)

Male teachers' composite E/R ratio toward male students was 16.56 compared with 106.33 for female students. Their I/D ratio toward male students was 0.35 compared to 0.61 toward female students. (See Table XV.)

The low total and percentage of behaviors toward female students may be explained partially by the fact that four of the 12 male teachers did not have female students in their classes, and one male teacher had no interactions with the female students in his class. The composite ratios show that male teachers emitted 106 encouraging behaviors for every one restricting behavior toward female students compared with 16 encouraging behaviors for every restricting behavior toward male students. Also, male teachers were almost twice as indirect verbally to female students than they were to male students. The male teachers' composite i/d ratio toward female students was larger than their I/D ratio toward female students, indicating that male teachers gave more indirect behaviors in categories that show extreme sensitivity to student feelings (categories 1-3).

TABLE XIV

MALE TEACHERS' BEHAVIORS TOWARD MALE AND FEMALE STUDENTS

Teacher Number	Male Students (N=181)		Female Students (N=73)		Sex/Race Not Identifiable		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1	468	62.91%	85	11.42%	191	25.67%	744	100.00%
2	212	26.70	0	.00	582	73.30	794	100.00
5*	224	40.43	0	.00	330	59.57	554	100.00
8	0	.00	28	3.48	776	96.52	804	100.00
9	418	79.62	3	.57	104	19.81	525	100.00
12	150	19.58	400	52.22	216	28.20	766	100.00
13*	378	59.06	0	.00	262	40.94	640	100.00
15*	106	14.73	0	.00	614	85.28	720	100.00
18	375	49.08	40	5.24	349	45.68	764	100.00
21*	408	60.36	0	.00	268	39.64	676	100.00
22	354	54.13	14	2.14	286	43.73	654	100.00
25	86	11.91	74	10.25	562	77.84	722	100.00
Total	3,179	38.01	644	7.70	4,540	54.29	8,363	100.00

*No female students in this class.

TABLE XV

MALE TEACHERS' BEHAVIORS TOWARD MALE AND FEMALE STUDENTS BY MAJOR STUDY VARIABLES

Variable	Male Students (N=181)	Female Students (N=73)	Sex/Race Not Identifiable	Total (N=254)
Encouraging (E)	2,998	638	4,441	8,077
Restricting (R)	181	6	99	286
Indirect (I)	546	160	427	1,133
Direct (D)	1,525	260	1,882	3,667
Revised Indirect (i)	276	92	139	507
Revised Direct (d)	1,280	140	838	2,258
E/R Ratio	16.56	106.33	44.86	28.24
I/D Ratio	0.36	0.62	0.23	0.31
i/d Ratio	0.22	0.66	0.17	0.23

(b) *Do female teachers transmit different cues to male students than they do to female students?*

Female teachers transmitted a total of 3,472 behaviors (38 percent) toward male students and 2,193 behaviors (23 percent) toward female students. Of the 9,188 behaviors transmitted by female teachers 3,523 (38 percent) were classified as "pupil race/sex not identifiable." (See Table XVI.)

Female teachers' composite E/R ratio toward male students was 9.72 compared with 22.83 toward female students. Their I/D ratio toward male students was 0.49 compared to 0.33 toward female students, as shown in Table XVII.

Of the behaviors that could be classified by student sex, female teachers directed 40 percent toward female students even though only 29 percent of the student population was female. Male students received eight encouraging behaviors compared with 22 encouraging behaviors for females. However, female teachers were more indirect toward male students than toward female students.

To summarize question three, the Chi-square analyses of major study variables by teacher sex versus student sex are presented in Table XII (page 71). Female teachers were significantly more indirect verbally toward male students than toward female students, but male teachers were significantly more indirect verbally toward female students than male. Both male and female teachers were significantly more encouraging nonverbally toward female students than toward male students. In comparing total behaviors, female teachers emitted significantly more total behaviors toward female students but male teachers emitted significantly more

TABLE XVI

FEMALE TEACHERS' BEHAVIORS TOWARD MALE AND FEMALE STUDENTS

Teacher Number	Male Students) (N=181)		Female Students (N=73)		Sex/Race Not Identifiable		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
3	490	65.42%	2	.27%	257	34.31%	749	100.00%
4	186	26.95	282	40.88	222	32.17	690	100.00
6	454	58.65	240	31.01	80	10.34	774	100.00
7	184	24.02	60	7.83	522	68.15	766	100.00
10*	0	.00	401	70.35	169	29.65	570	100.00
11	384	52.32	292	39.78	58	7.90	734	100.00
14	152	32.48	56	11.96	260	55.56	468	100.00
16	328	53.24	78	12.67	210	34.09	616	100.00
17*	0	.00	523	66.20	267	33.80	790	100.00
19	359	47.55	103	13.64	293	38.81	755	100.00
20	113	19.96	6	1.06	447	78.98	566	100.00
23	312	43.58	150	20.95	254	35.47	716	100.00
24**	510	51.31	0	.00	484	48.69	994	100.00
Total	3,472	37.79	2,193	23.87	3,523	38.34	9,188	100.00

*No male students in the class.

**No female students in the class.

TABLE XVII

FEMALE TEACHERS' BEHAVIORS TOWARD MALE AND FEMALE STUDENTS BY MAJOR STUDY VARIABLES

Variable	Male Students (N=181)	Female Students (N=73)	Sex/Race Not Identifiable	Total (N=254)
Encouraging (E)	3,115	2,101	3,109	8,325
Restricting (R)	357	92	414	863
Indirect (I)	716	307	320	1,343
Direct (D)	1,437	913	987	3,337
Revised Indirect (i)	240	165	63	468
Revised Direct (d)	1,197	710	577	2,484
E/R Ratio	8.73	22.84	7.51	9.65
I/D Ratio	0.50	0.34	0.32	0.40
i/d Ratio	0.20	0.23	0.11	0.19

total behaviors toward male students. The differences in total behaviors by sex are due in part to the fact that several classes were segregated sexually.

IV. RELATIONSHIPS BETWEEN QUESTIONS TWO AND THREE

Because of the powerful associations between questions two and three, this section presents the relationships between the variables of teacher race and sex by student race and sex.

The total behaviors toward student groups revealed that the number of behaviors directed toward black and white males was approximately the same, as shown in Table XVIII. The number of behaviors directed toward females was considerably less, with white females receiving fewer teacher interactions than any other group of students, even though there were more white females than black females in the study. Also, several teachers who had an opportunity to interact with black female students who did not do so. Six of the 20 teachers who had black female students in classes did not interact with these students. Three of the six teachers were white males, two were white females, and one was a black female. However, even though six teachers did not interact with their black female students at all and there were fewer black than white females in the study, black females received a greater number of total teacher behaviors than did white females. These behaviors toward black females were significantly more encouraging than restricting. (See Table XIX.)

Chi-square analyses showed no significant difference between the total behaviors received by males and females (Table XX). However,

TABLE XVIII

NUMBER AND PERCENT OF INDIVIDUAL TEACHER TOTAL BEHAVIORS EXHIBITED TOWARD CATEGORIES OF STUDENTS

Teacher ID Number and Description	Male Students				Female Students				Sex/Race Not Identifiable		Totals	
	Black		White		Black		White					
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1 - WM	206	27.69%	262	35.22%	0	.00%	85	11.42%	191	25.67%	744	100.00%
2 - WM	36	4.53	176	22.17	0	.00	0	.00	582	73.30	794	100.00
3 - WF	212	28.30	278	37.12	0	.00	2	.27	257	34.31	749	100.00
4 - BF	106	15.36	80	11.59	272	39.42	10	1.45	222	32.17	690	99.99
5 - WM*	126	22.74	98	17.69	0	.00	0	.00	330	59.57	554	100.00
6 - WF	334	43.15	120	15.50	216	27.91	24	3.10	80	10.34	774	100.00
7 - BF	82	10.70	102	13.32	0	.00	60	7.83	522	68.15	766	100.00
8 - WM	0	.00	0	.00	8	1.00	20	2.49	776	96.52	804	100.00
9 - WM	149	23.38	269	51.24	0	.00	3	.57	104	19.81	525	100.00
10 - WF**	0	.00	0	.00	215	37.72	186	32.63	169	29.65	570	100.00
11 - WF	384	52.32	0	.00	288	39.24	4	.54	55	7.90	734	100.00
12 - WM	82	10.70	68	8.88	298	38.90	102	13.32	216	28.20	766	100.00
13 - BM*	8	1.25	370	57.81	0	.00	0	.00	262	40.94	640	100.00
14 - WF	84	17.95	68	14.53	28	5.98	28	5.98	260	55.56	468	100.00

TABLE XVIII (Continued)

Teacher ID Number and Description	Male Students				Female Students				Sex/Race Not Identifiable		Totals	
	Black		White		Black		White					
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
15 - BM*	40	5.56%	66	9.17%	0	.00%	0	.00%	614	85.28%	720	100.01%
16 - WF	216	35.06	112	18.18	42	6.82	36	5.84	210	34.09	616	99.99
17 - WF**	0	.00	0	.00	140	17.72	383	48.48	267	33.80	790	100.00
18 - WM	92	12.04	283	37.04	11	1.44	29	3.80	349	45.68	764	100.00
19 - BF	214	28.34	145	19.21	0	.00	103	13.64	293	38.81	755	100.00
20 - BF	17	3.00	96	16.96	6	1.06	0	.00	447	78.98	566	100.00
21 - BM*	348	51.48	60	8.88	0	.00	0	.00	268	39.64	676	100.00
22 - BM	88	28.75	166	25.38	10	1.53	4	.61	286	43.73	654	100.00
23 - BF	102	14.25	210	29.33	108	15.08	42	5.87	254	35.47	716	100.00
24 - BF*	274	27.57	236	23.74	0	.00	0	.00	484	48.69	994	100.00
25 - WM	22	3.05	64	8.86	54	7.48	20	2.77	562	77.84	722	100.00
Totals	3,322	18.93%	3,329	18.97%	1,696	9.66%	1,141	6.50%	8,063	45.94%	17,551	100%
Mean	132.88		133.16		67.84		45.64		322.52		702.04	
Range	384-0		370-0		298-0		383-0		776-58		994-468	

*No females in the class. **No males in the class.

TABLE XIX

COMPUTATION OF ACTUAL AND EXPECTED NUMBERS OF BEHAVIORS EXHIBITED TOWARD MAJOR GROUPS OF STUDENTS

Student Description	Number	Percent	Encouraging		Restricting		Total	
			Actual	Expected	Actual	Expected	Actual	Expected
Black Males	71	27.95%	3,041	2,474	281	178	3,322	2,652
White Males	110	43.30	3,072	3,833	257	275	3,329	4,108
Total Males	181	71.25%	6,113	6,307	538	453	6,651*	6,760
Black Females	30	11.82	1,667	1,046	29	75	1,696	1,122
White Females	43	16.93	1,072	1,499	69	108	1,141	1,606
Total Females	73	28.75%	2,739	2,545	98	183	2,837*	2,728
Total Black	101	38.77%	4,708	3,520	310	253	5,018	3,774
Total White	153	60.23%	4,144	5,332	326	383	4,470	5,714

Total Behaviors: 17,551
Total Behaviors Sex/Race Not Identifiable: 8,063
Total Behaviors Male and Female, Black and White: 9,488
Total Behaviors of 9,488: Encouraging, 8,852; Restricting, 636

*No significant difference between total males and total females; all other figures are significant at or beyond .01.

Expected behaviors were computed based on the number of students in each subgroup.

TABLE XX

CHI-SQUARE ANALYSES OF EXPECTED AND ACTUAL BEHAVIORS RECEIVED BY STUDENT GROUPS

Expected and Actual Behaviors Received	Total Males *vs.* Total Females	Black Females *vs.* White Females	Black Males *vs.* White Males	Total Black *vs.* Total White
Degrees of Freedom	1	1	1	1
Total Encouraging Behaviors	20.75	490.31	281.03	665.64
Total Restricting Behaviors	55.43	42.29	60.77	21.32
Total Behaviors	6.11*	428.28	316.99	680.88

*Not significant; all other numbers significant at or beyond .01.

males received significantly fewer encouraging and more restricting behaviors than would be expected, while females received significantly more encouraging and fewer restricting behaviors than would be expected. Expected behaviors were computed based on number and percent of students in each group relative to totals. Black students received significantly more behaviors than would be expected, while white students received significantly fewer behaviors.

Black males received both more encouraging and more restricting behaviors than would be expected; white males received both fewer encouraging and fewer restricting behaviors than would be expected. Black females received more encouraging and fewer restricting behaviors than would be expected, while white females received both fewer encouraging and fewer restricting behaviors than would be expected. (See Table XIX, page 82.)

Thus, white females and white males received significantly fewer encouraging, restricting, and total behaviors than would be expected. Black males received more encouraging, restricting, and total behaviors than would be expected. Black females received fewer restricting, but more total and encouraging, behaviors than would be expected.

Composite E/R and I/D ratios by categories of students identified differences between verbal and nonverbal communication patterns. (See Table XXI.) Although black males received the lowest E/R ratio (fewest encouraging to restricting behaviors), it must be remembered that black males received more encouraging and restricting behaviors than would be expected. The E/R ratio for black females was much higher than for any other subgroup. Black females received 57 encouraging

TABLE XXI

E/R AND I/D RATIOS BY MAJOR CLASSIFICATIONS
OF STUDENT "RECEIVER" VARIABLES

Student "Receiver"	Behaviors Received		Ratio
	Encouraging (E)	Restricting (R)	E/R
Black Males	3,041	381	10.76
White Males	3,072	257	11.95
All Males	6,113	538	11.36
Black Females	1,667	29	57.48
White Females	1,072	69	15.54
All Females	2,739	98	27.95
All Blacks	4,708	310	15.19
All Whites	4,144	326	12.71
Sex/Race Not Identifiable	7,550	513	14.72
Total Students	16,402	1,149	14.28
	Indirect (I)	Direct (D)	I/D
Black Males	693	1,310	0.53
White Males	569	1,652	0.34
All Males	1,262	2,962	0.43
Black Females	287	531	0.54
White Females	180	642	0.28
All Females	467	1,173	0.40
All Blacks	980	1,841	0.53
All Whites	749	2,294	0.33
Sex/Race Not Identifiable	747	2,869	0.26
Total Students	2,476	7,004	0.35

behaviors for every one restricting behavior, whereas the E/R ratios for the other student groups ranged from 10 (black males) to 15 (white females) encouraging behaviors for every one restricting behavior. I/D ratios for all student groups were similar, although black females received the highest I/D ratio (the most indirect to direct behaviors) and white females received the lowest I/D ratio. (See Table XXI.)

E/R and I/D ratios computed from behaviors toward all students by teacher race and sex showed that black male teachers had the highest E/R ratio and the lowest I/D ratio. Thus, black males were the most encouraging nonverbally, but the least indirect verbally toward all students. Black female teachers had the lowest E/R ratio of the four subgroups. E/R ratios varied widely, but, with the exception of black males, I/D ratios for all teacher groups were not significantly different, as shown in Table XXII.

Major differences in teacher communication patterns were revealed when E/R and I/D ratios by teacher race/sex variables were compared with student race/sex variables. (See Table XXIII.) White female teachers were more encouraging and more indirect toward black male students than any other group of teachers. Black male teachers were most encouraging but least indirect toward white male students than were any other group of teachers. White male teachers were most encouraging toward black female students, but black female teachers were most indirect toward black female students. White female teachers were most encouraging toward white female students, but black female teachers were most indirect toward white female students.

TABLE XXII

E/R AND I/D RATIOS TOWARD ALL STUDENTS BY TEACHER RACE AND SEX

Teacher Race and Sex	Ratios			Behaviors					
	E/R	I/D	i/d	E	R	I	D	i	d
Black Males	63.04	0.19	0.12	2,648	42	226	1,148	132	1,032
White Males	22.25	0.35	0.30	5,429	244	887	2,519	375	1,226
Total Males	28.24	0.30	0.22	8,077	286	1,133	3,667	507	2,258
Black Females	5.07	0.39	0.17	3,748	739	691	1,744	231	1,339
White Females	36.91	0.40	0.20	4,577	124	652	1,593	237	1,145
Total Females	9.64	0.40	0.18	8,325	863	1,343	3,337	468	2,484
Total Black	8.19	0.31	0.15	6,396	781	917	2,892	363	2,371
Total White	27.19	0.37	0.25	10,006	368	1,559	4,112	612	2,371
Grand Total	14.27	0.35	0.20	16,402	1,149	2,476	7,004	975	4,742

TABLE XXIII

E/R AND I/D RATIOS BY MAJOR TEACHER/STUDENT VARIABLES

Teacher Variables		Student Variables: Black Male	White Male	Total Male	Black Female	White Female	Total Female	Total Black	Total White
Black Male:	E/R Ratio	25.55	65.20	37.94	10.00	4.00	14.00	26.00	65.60
	I/D Ratio	0.23	0.20	0.21	0.01	0.00	0.01	0.22	0.20
White Male:	E/R Ratio	9.49	14.06	11.97	371.00	42.17	104.00	14.94	16.00
	I/D Ratio	0.46	0.56	0.52	0.71	0.54	0.64	0.54	0.56
Total Males:	E/R Ratio	13.41	19.68	16.65	381.00	42.83	106.33	17.64	21.11
	I/D Ratio	0.34	0.38	0.36	0.67	0.53	0.62	0.40	0.39
Black Female:	E/R Ratio	3.65	5.30	4.44	31.17	2.58	7.35	5.45	4.48
	I/D Ratio	0.47	0.30	0.37	0.81	0.75	0.78	0.53	0.36
White Female:	E/R Ratio	60.50	19.64	36.67	53.65	220.00	78.60	57.35	39.03
	I/D Ratio	0.99	0.33	0.67	0.42	0.14	0.26	0.71	0.22
Total Female:	E/R Ratio	9.60	7.72	8.73	44.35	12.94	22.84	14.18	9.51
	I/D Ratio	0.72	0.31	0.50	0.49	0.23	0.34	0.64	0.28
Total Black:	E/R Ratio	6.15	9.35	7.53	32.00	2.65	7.54	7.66	7.41
	I/D Ratio	0.34	0.25	0.29	0.71	0.73	0.72	0.38	0.29
Total White:	E/R Ratio	21.08	15.50	17.98	75.47	101.44	84.46	29.89	22.05
	I/D Ratio	0.73	0.47	0.59	0.51	0.22	0.35	0.64	0.36

Among teacher groups, black female teachers showed consistently lower E/R ratios toward all student groups than any other group of teachers; white female teachers showed the most diversity in their E/R ratios. Thus, black female teachers' nonverbal communication patterns were consistent toward all students, but white female teachers' nonverbal communication patterns varied depending on the race and/or sex of the student.

V. QUESTION FOUR

Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the teacher's age, certification, and experience?

To answer question four, Chi-square analyses of major study variables were computed comparing teacher certification, experience, and age with student race and sex. (See Table XXIV.) The lack of significance in analyses dealing with teacher experience in corrections may be important. With one exception, all of the nonsignificant results occurred in the analyses of teacher experience in corrections compared with student race and sex. Teachers with experience in correctional institutions provided consistent communication patterns regardless of student race or sex. However, teachers with experience in public schools had significantly different communication patterns depending on the race and sex of the pupil.

Cells not computed because more than 20 percent of the cells had five or less cases occurred in restricting categories. The reason for cells occurring in these categories is because there were so few

TABLE XXIV

SUMMARY OF CHI-SQUARE ANALYSES OF IDER DATA BY TEACHER CERTIFICATION, EXPERIENCE, AND AGE BY STUDENT RACE AND SEX

IDER Data Columns Configuration	Student Race *vs.* Teacher Certif.	Student Sex *vs.* Teacher Certif.	Student Race *vs.* Teacher Exp. in Correc.	Student Race *vs.* Teacher Exp. in Pub.Sch.	Student Sex *vs.* Teacher Exp. in Correc.	Student Sex *vs.* Teacher Exp. in Pub.Sch.	Student Sex *vs.* Teacher Age	Student Race *vs.* Teacher Age
Degrees of Freedom	2	2	2	2	2	2	2	2
1-4 E&R (I)	64.85	56.85	3.69†	33.31	2.38†	43.82	47.06	13.71
5-7 E&R (D)	135.33	355.24	0.87†	193.61	195.94	243.40	620.83	32.41
1-3 E&R (d)	50.23	46.15	5.16†	43.58	2.63†	33.34	28.04	24.64
6-7 E&R (d)	134.33	402.73	6.82*	244.70	271.30	214.84	499.15	21.53
1-10 E (E)	333.55	597.28	83.61	521.65	224.57	125.57	402.61	34.37
1-10 R (R)	3.32†	N/C	13.06	16.77	18.01	28.93	N/C	56.07
1-10 E&R (Total)	283.45	628.71	59.48	489.29	192.38	131.63	430.42	53.81
8-9 E	228.02	237.52	129.94	260.47	86.43	47.39	21.24	77.80
8-9 R	N/C	N/C	N/C	8.92*	N/C	N/C	N/C	N/C

*Significant at .05.
†Not significant; all other numbers are significant at or beyond .01.
N/C = Not computed; more than 20 percent of the cells had five or less cases.

restricting behaviors in the total study. Of the 72 Chi-square analyses, 55 were significant, six were not significant, and 11 were not computed. From Table XXIV, it can be seen that teacher verbal and nonverbal behaviors varied in relation to student race and sex when compared with teacher variables of certification, age, and experience in public schools.

VI. QUESTION FIVE

Are there differences in the general verbal and nonverbal behavior patterns of teachers of adjudicated delinquents in correctional institutional settings and selected teachers of students in public school settings?

Data related to E/R, I/D, and i/d ratios from the present study were compared to similar data from three other studies conducted by Cosper (1970), Shepard (1971), and Fowler (1972) at The University of Tennessee. Comparisons were delimited to these three studies because they had the same basic research design and format as the present study.

The studies differed in that they had different populations as well as different points of emphasis concerning nonverbal communication. Shepard analyzed teacher nonverbal communication cues in relation to socioeconomic status of the students. Fowler studied differences in nonverbal communication cues of the same teachers in public school classes and adult basic education (ABE) classes. Cosper analyzed nonverbal communication cues of four female teachers toward academically talented boys and girls. (See Table XXV.)

Data from the studies were compared in several ways. Using original data from each study, new E/R, I/D, and i/d ratios were computed

TABLE XXV

STRUCTURE AND ORGANIZATION OF STUDIES SELECTED FOR COMPARISON

Study and Year	Instrument	Age/Grade	Number of Teachers	Number of Behaviors	Data Collection	Data Analysis
Cosper (1970)	IDER	Grades 4 and 5	4	8,648	VTR	Tallies by raters Chi-Square Arithmetic manipulations
Shepard (1971)	IDER	Elementary-Secondary	11	12,914	VTR	Tallies by raters Chi-Square Arithmetic manipulations
Fowler (1972)	IDER	Elementary-Secondary	12	15,294	VTR	Tallies by raters Chi-Square
		Adults	12	15,134		Arithmetic manipulations
North Carolina (1973)	IDER	Age 10 to 16	25	17,550	VTR	Tallies by raters Chi-Square Arithmetic manipulations

to make the data comparable. The total number of behaviors from each study was used to develop composite ratios in which the total behaviors in each study were summed and then the ratio computations made. (See Table XXVI.)

The E/R ratios for the Cosper study and the present study were very similar, as were the ratios for the Shepard and Fowler studies. It should be noted that the first two studies above dealt with atypical student populations (delinquents and intellectually gifted students) and the last two dealt with more typical public school students. The E/R ratios showed that the nonverbal behaviors of teachers in the present study and the Cosper study were more encouraging of student interaction and involvement than were the nonverbal behaviors of teachers in the studies conducted by Shepard and Fowler.

The lowest composite I/D ratio (0.35) appeared in the present study and the highest composite I/D ratio (1.05) appeared in the Cosper study. These ratios indicated that teachers' verbal behaviors toward delinquents in the present study did *not* encourage verbal interactions with the students, but teacher verbal behaviors toward intellectually gifted students in the Cosper study were most encouraging of student interactions. Comparison of the composite i/d ratios for the four studies showed a decrease between the I/D and i/d ratios in the present study and the Cosper study, and an increase between these ratios in the other two studies. Thus, even though the present study and the Cosper study had similar nonverbal (E/R) ratios, the total classroom communication climate of each was very different from the other two studies when the verbal dimensions (I/D and i/d) were considered.

TABLE XXVI

COMPARISON OF MAJOR STUDY RATIOS

Description of Major Studies	E/R Ratios	I/D Ratios	i/d Ratios
North Carolina Study: Adjudicated Delinquents, Age 10 to 17	14.28	0.35	0.21
Cosper Study: Gifted, Summer Session, grades 4 and 5	13.18	1.05	0.94
Shepard Study: Elementary and Secondary	2.07	0.47	1.90
Fowler Study: Adult Basic Education	1.73	0.98	1.25
Fowler Study: Elementary and Secondary	2.55	0.97	1.28

The high E/R ratios in the present study and the Cosper study indicated that teachers gave both groups of students (delinquents and intellectually gifted) many more encouraging than restricting nonverbal behaviors than teachers in the other two studies. However, in the present study teachers were extremely direct in their verbal interactions with delinquent students. Conversely, in the Cosper study, teachers were indirect in their verbal interactions.

VII. SUMMARY

From analyses of the data collected, several general statements can be made in answer to the questions asked in this study. These are discussed in this section.

The communication cues transmitted by teachers toward adjudicated delinquents were inconsistent. The nonverbal cues were very encouraging of interaction, but the teachers' verbal communications were direct and discouraging of interaction.

The major differences between the nonverbal cues transmitted by black and white teachers as groups was that the black teachers were less encouraging than white teachers, and black teachers were more consistent in their nonverbal communications than white teachers. White teachers were more encouraging toward black students than toward white students, and white teachers were approximately three times more encouraging toward all students than were black teachers. In general, black students received more encouraging behaviors in comparison to restricting behaviors than did white students.

General differences between the nonverbal cues transmitted by male and female teachers as groups indicated that male teachers were three times more encouraging nonverbally to all students than were female teachers. However, both male and female teachers were more encouraging nonverbally toward female students than male students. Female teachers were significantly more indirect verbally toward male students than toward female students, but male teachers were more indirect verbally toward female students than toward male students. Black female students received significantly more total teacher behaviors than did white female students and these behaviors were very encouraging.

Teacher verbal and nonverbal behaviors varied significantly based on student race and sex when compared with teacher variables of certification, age, and experience in public schools; they did not vary significantly when compared with teacher experience in correctional institutions.

In comparing the studies by Shepard, Fowler, and Cosper with the present study, teachers in the Cosper study and the present study were the most encouraging nonverbally. However, teachers in the present study were the most direct verbally, while teachers in the Cosper study were the most indirect.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND DISCUSSION

The purpose of this study was to answer the following questions about verbal and nonverbal behaviors of teachers toward adjudicated delinquents:

1. Are there differences between the verbal and nonverbal cues transmitted by teachers to adjudicated delinquents?

2. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the race of the teacher?

    a. Do black teachers transmit different cues to black students than they do to white students?

    b. Do white teachers transmit different cues to black students than they do to white students?

3. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the sex of the teacher?

    a. Do male teachers transmit different cues to male students than they do to female students?

    b. Do female teachers transmit different cues to male students than they do to female students?

4. Are there differences between the verbal and nonverbal cues transmitted to adjudicated delinquents depending on the teacher's age, certification, and experience?

5. Are there differences in the general verbal and nonverbal behavior patterns of teachers of adjudicated delinquents in correctional institutional settings and selected teachers of students in public school settings?

The data, consisting of 17,551 nonverbal behaviors, were collected in two North Carolina schools for adjudicated delinquents using videotape recordings of class sessions. Data were coded and analyzed

by using the IDER system of teacher behavior analysis. There were 25 teachers in the study including eight white males, four black males, seven white females, and six black females. The student sample consisted of 71 black males, 110 white males, 30 black females, and 43 white females for a total of 254 students.

In addition to arithmetic computations such as percentages and ratios, the Chi-square statistic was used to test for significance of recorded differences in observed frequencies of behaviors. The .01 level of significance was accepted in this study. Chi-square analyses were made utilizing the following teacher and pupil demographic variables:

Student Sex *vs.* Teacher Sex
Student Race *vs.* Teacher Race
Student Race *vs.* Teacher Sex
Student Sex *vs.* Teacher Race
Student Sex/Race *vs.* Teacher Sex/Race
Student Sex *vs.* Teacher Certification
Student Race *vs.* Teacher Certification
Student Race *vs.* Teacher Experience in Corrections
Student Race *vs.* Teacher Experience in Public Schools
Student Sex *vs.* Teacher Experience in Corrections
Student Sex *vs.* Teacher Experience in Public Schools
Student Sex *vs.* Teacher Age
Student Race *vs.* Teacher Age

The "pupil race/sex not identifiable" classification was used in cases where the teacher directed a behavior to the total class or where it was impossible to determine the race and/or sex of a student to whom a behavior was directed.

Data were coded by using the IDER system. This system categorizes verbal behavior as *Indirect* (climate-setting verbal behavior that encourages further verbal interaction) or *Direct* (climate-setting behavior that limits further verbal interaction). Nonverbal behavior is classified as *Encouraging* (climate-setting nonverbal behavior that

encourages further nonverbal interaction) or *Restricting* (climate-setting nonverbal behavior that limits further nonverbal interaction). See Figure 5 for a visual presentation of these verbal and nonverbal behaviors.

I. FINDINGS

Findings from the study are summarized below:

1. Communication cues transmitted by teachers were inconsistent. Their nonverbal cues encouraged interaction but their verbal cues limited interaction.

2. Black teachers were less encouraging but more consistent in their communication cues than were white teachers.

3. White teachers were more encouraging toward black students than toward white students.

4. Male teachers were more encouraging toward all students than were female teachers.

5. Both male and female teachers were more encouraging toward female students than male students.

6. Female teachers were verbally more indirect toward male than female students, but male teachers were verbally more indirect toward female than male students.

7. Black female students received very few restricting behaviors, but they received significantly more encouraging behaviors than any other student group.

8. Teacher verbal and nonverbal behaviors varied significantly based on student race and sex when compared with teacher certification, age, and experience in public schools.

VERBAL	NONVERBAL
Indirect: 1. *Accepts feelings* 2. *Praises or encourages* 3. *Accepts ideas* 4. *Asks questions*	Encouraging (Categories 1-10)
Direct: 5. *Lectures* 6. *Gives directions* 7. *Criticizes or justifies authority*	Restricting (Categories 1-10)
Student Talk: 8. *Teacher-initiated* 9. *Student-initiated* Silence or Confusion	Encouraging or Restricting

I/D Ratio = (Categories 1-4)/(Categories 5-7)

E/R Ratio = (Encouraging 1-10)/(Restricting 1-10)

i/d Ratio = (Categories 1-3)/(Categories 6-7)

Figure 5. IDER System for Categorizing Verbal and Nonverbal Behaviors.

9. Teacher verbal and nonverbal behaviors did not vary significantly based on student race and sex when compared with teacher experience in correctional institutions.

10. Teachers of atypical (delinquent and gifted) students were more encouraging nonverbally than teachers of typical public school students.

11. Teachers in correctional institutions were the most direct verbally, while teachers of gifted public school students were the most indirect verbally.

II. CONCLUSIONS AND IMPLICATIONS

Adjudicated delinquents in this study "believed" the teachers' encouraging nonverbal communication cues rather than their direct verbal cues.

Conclusions. Although teachers' cues were nonverbally encouraging but verbally limiting of further interaction, the inconsistency did not appear to be confusing to the students. Instead, they seemed to accept the nonverbal cues and ignore the verbal cues when the two were in conflict.

There was a great deal of student movement within the classrooms and students spoke out rather than waiting to be called on by the teacher. The teachers ignored minor deviations from what might be considered normal school behavior, but were quick to enforce school policies and deal with potentially serious conflict situations (i.e., a student fight or a direct threat to the teacher's authority). These situations were handled by restricting nonverbal cues as well as by direct verbal cues.

Thus, the communication patterns in conflict situations were consistent--nonverbally restricting and verbally direct--making it impossible (or unnecessary) to identify which cue the student was reacting to. However, when the cues were inconsistent in nonconflict situations, students appeared to accept the encouraging nonverbal behaviors as "correct" and ignore the direct verbal behaviors.

Implications. It was interesting to note that all students in the sample for this study were from lower socioeconomic backgrounds. French and Achilles (1973) suggested that the lower socioeconomic pupil believes the nonverbal cues whenever verbal and nonverbal cues seem to be contradictory. The results of the present study seemed to support this hypothesis.

The lack of interactions, especially restricting interactions, with black females appears to have racial rather than sexual implications.

Conclusions. In this study six teachers who had the opportunity to do so did *not* interact at all with black females in their classes. Three of these teachers were white males, two were white females, and one was a black female. Although half of these teachers were male and half were female, five out of the six were white. Behaviors of the teachers who did interact with black females showed significantly more encouraging behaviors and fewer restricting behaviors than would be expected.

Implications. What caused the avoidance of restricting interaction with black female students? Is this pattern generalizable to the

population of black female students in public schools? Is the avoidance of interaction with black females related to the traditional matriarchal orientation of black families? Are black female students perceived to be "harder to handle"? "Boys can be mad, but girls can be worse" is a cliche often voiced by teachers to indicate that they feel discipline problems with girls are more difficult to handle than those involving boys. Also, male teachers might feel hesitant to discipline adolescent girls. Thus, a male teacher might avoid confrontations with female students which could lead to serious discipline problems.

Several limitations in the IDER system were identified during the collection and coding of data.

Conclusions. Although the investigator still feels that the IDER system is the best system available at the present time for analyzing verbal and nonverbal behavior, several weaknesses in the system were identified. The system is not designed to handle variables other than Flanders' 10 verbal categories and Galloway and French's encouraging-restricting nonverbal categories. The system does not provide for coding variables such as student race and sex or for deviations in teaching strategy from the traditional large group lecture. Much of the teaching in the two training schools was individualized and on a one-to-one basis. Thus, two videotapes might show a teacher working with only two students, although over a week's time the teacher would interact with all students. Also, it is impossible to tell from the coding sheets how many different students a teacher is interacting with. For example, interaction with five black males would be coded the same as interaction with one black male.

Implications. Another limitation is that the verbal categories do not differentiate between cognitive and affective interactions. A discussion of a student's problems related to returning home from training school (affective) and a discussion of how to diagram a sentence (cognitive) would be coded in the same way. Also, Flanders' category 10 does not distinguish among kinds of confusion that may occur. Four students enthusiastically talking at once about the subject of the lesson is different from four students fighting in the back of the room, but both are coded as "confusion."

Similarities in E/R ratios and differences in I/D ratios for delinquents and gifted students may be affected by the socioeconomic status and verbal ability of the students.

Conclusions. In the present study the students were from lower socioeconomic backgrounds and had limited verbal abilities (identified by reading level, language arts test scores, and verbal competence in the classroom). In the Cosper study (1970) students were from upper socioeconomic backgrounds and a high verbal ability was assumed by the investigator since these students were identified as gifted students. In spite of these differences between the two student groups, the E/R ratios are similar (14.28 for this study and 13.18 for the Cosper study).

Implications. Do students who are "different" from the so-called average student generally receive more encouraging nonverbal cues from teachers? Shepard (1971) also found that teachers were more encouraging nonverbally toward upper and lower class students than toward middle class

students. Socioeconomic status may well be a factor in differences in teacher-student interaction to the extent that socioeconomic status influences verbal ability. This suggestion is supported by the fact that although the E/R ratios for the present study and the Cosper study were similar, the I/D ratios dealing with verbal interactions were very different. In the Cosper study teachers were more encouraging verbally than were teachers in the present study (1.05 for the Cosper study and 0.35 for the present study). Given the high verbal ability of the students in the Cosper study, it seems reasonable to assume that teachers would direct encouraging verbal cues toward these students. However, the low verbal ability of students in the present study may explain why the teachers were not more verbally encouraging toward these students.

Teachers' experience in different organizational settings influences the consistency of their behaviors toward pupils.

Conclusions. Teachers with experience in public school settings showed significantly different communication patterns depending on the race and/or sex of the student. However, teachers with experience in correctional institutions exhibited consistent communication patterns regardless of student race or sex. What caused the difference in behavior between these two groups? Cosper found differences in public school teachers' communication patterns based on teacher and student sex. The present study found that teachers in correctional institutions who have had public school school experience interact differently with students depending on the students' race and sex.

Implications. Is another aspect of the differences in teacher behavior the influence of the organizational setting on behavior? The literature dealing with organizational theory suggests that an individual's behavior within the organization may be influenced by organizational structure, formal and informal communication channels, status position, and other factors. Would it be possible to identify differences in the two organizations in this study (public schools and correctional institutions) and then find out if these differences contribute to differences in the behavior of individuals? The present study has identified differences in behavior of personnel in the two institutions. Does working in a correctional institution as an organization contribute to consistent communication patterns between teachers and students? Does working in a public school as an organization contribute to inconsistent communication patterns? If so, what are the specific institutional variables that cause the difference?

III. IMPLICATIONS FOR TEACHER PREPARATION PROGRAMS

The racial and sexual differences in communication patterns identified in this study and the differences in communication patterns between teachers in public school settings and correctional institutional settings suggest that programs dealing with teacher preparation and staff development must emphasize student-teacher communication. Such programs must provide cognitive information about verbal and nonverbal communication utilizing research and available literature. In addition, each person involved in teacher preparation and staff development must identify his individual patterns of communication with groups of students.

Many of the suggestions for further studies identified later in this chapter could be used by groups of teachers to contribute to the research in the area as well as increase their personal knowledge and competence. For example, a school faculty might plan a staff development program focusing on differences in communication patterns in relation to verbal abilities of students.

More emphasis on patterns of communication in teacher preparation and development programs is critical because teachers increasingly must interact with students who are "different from" students they have previously taught. Teachers in desegregated schools must interact with students of different races and cultures. A common complaint of teachers and students in desegregated situations is the lack of communication between the races. Dillard (1972), Hall (1959), and others have identified racial and cultural differences in communication. However, this investigator feels that teachers in general are not familiar with this body of literature and do not understand how these concepts relate to their day-to-day interaction with students.

In special education programs there is a move toward returning special education students to the regular classroom and providing special help on a resource basis. The review of literature on delinquency has identified the move toward returning these students to public schools rather than isolating them in correctional institutions. However, in both cases these students were removed from the regular classroom because they presented problems that teachers could not handle. It would appear that returning these students to the regular classroom will not be effective unless teachers develop new skills for working with them. Helping

teachers acquire successful communication skills might be a beginning point to increase these students' chances of success in school.

IV. SUGGESTIONS FOR FURTHER RESEARCH

The investigator believes that the present study would have been enhanced if a student attitudinal survey or follow-up interviews had been conducted. Results of these data would have revealed students' attitudes about the general communication climate in the schools. Also, a major limitation of the study was that all of the raters were white. The tapes from the present study could be coded by black raters (male and female) to ascertain if coding does vary based on the race of the rater.

Although the IDER system does what it was designed to do--identify teacher verbal and nonverbal behavior--it does not provide for focusing on variables related to students and their behavior. Other instruments should be developed to provide these kinds of data. One instrument should which is available and would distinguish among classroom events in the PIT Model which classifies communication events as Personal, Institutional, or Task (French and Galloway, 1970, p. 549). Another study might use the videotapes made for the present study to code communication events according to the PIT Model to show how much time teachers in training schools spend on the three types of events. These data could be compared with data from public schools.

Future studies also could be designed to answer specific questions such as the following:

1. Are there patterns in the consistency or inconsistency of teachers' verbal and nonverbal behavior depending on various classroom situations?

2. Is reliance on verbal or nonverbal cues related to socio-economic background of the student?

3. Does the verbal ability of the student influence teachers' verbal and nonverbal communication patterns?

4. What is the incidence of discipline problems involving black female students in public schools?

5. Assuming the pattern of lack of interaction with black females is generalizable to other student populations, what are the implications of this pattern for the black female students?

6. What causes the difference in consistency of behavior between teachers with public school experience and teachers in correctional institutions?

The lack of research studies dealing with patterns of student-teacher interaction is a major limitation in the literature. Research has focused on curriculum, student achievement, instructional strategies, and so on, but relatively few studies have focused on teacher behavior and student-teacher interaction.

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APPENDICES

APPENDIX A

MEASUREMENT OF TEACHER VERBAL AND NONVERBAL BEHAVIOR

MEASUREMENT OF TEACHER VERBAL AND NONVERBAL BEHAVIOR*

A review of research studies has indicated that teacher-student verbal and nonverbal interactions are complex and that their effects on the learner are significant. These experienced relationships of students and teachers have a direct influence on the development of attitudes and future success of the student. According to Galloway (1970, p. 3), "much information in the classroom is in the form of behavioral actions, and the meaning of behaviors in communication influences the teaching-learning process."

In recent years researchers have attempted to measure the nonverbal language which teachers exhibit. Galloway (1962) was the first to measure classroom nonverbal interaction in major research. He developed and categorized these behaviors into seven categories. The designated categories were: (1) enthusiastic support; (2) helping; (3) receptivity; (4) *pro forma*; (5) inattentive; (6) unresponsive; and (7) disapproval.

Evolving from this research, French and Galloway (1968) developed the Indirect/Direct--Encouraging/Restricting (IDER) system for categorizing both teacher verbal and nonverbal behavior simultaneously. The Flanders' System of Interaction Analysis (Amidon and Flanders, 1963) served as the framework for the IDER system. Through the development of this system of measuring teacher behaviors, the nonverbal as well as the verbal element of communication could be explored.

Nonverbal behavior may more closely represent the affective elements of the teaching-learning process. Victoria (1971, p. 30) stated: "It is important to realize that students do attend to teachers' nonverbal expressive behaviors to determine the accuracy of the verbal message . . .. All students may find the nonverbal communication more reliable."

French (1971, p. 307) stated: "If we assume that the teacher is the dominant influence in the classroom, teachers obviously must give attention to their own nonverbal behaviors." To examine teachers' nonverbal behaviors, it is necessary to have a reliable instrument to categorize and analyze such behaviors. The IDER system is one of several such systems which have been successfully researched. The IDER system and some of its antecedents are examined in the following sections.

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*All material in this appendix has been taken directly (with minor adaptations) from William Fowler, "Comparative Analysis of Teacher Verbal and Nonverbal Behavior in Public Schools and Adult Basic Education Classrooms" (unpublished doctor's dissertation, The University of Tennessee, Knoxville, 1972).

I. THE FLANDERS SYSTEM OF INTERACTION ANALYSIS

One antecedent of the IDER system was Flanders Interaction Analysis. The Flanders (1959, 1960, 1965, 1967) system of categorizations of behavior is perhaps the most widely accepted model of conceptualizing teacher-student verbal interaction. This observational instrument has served as the technique used for much research in classroom interaction and its reliability has been validated by Amidon (1963, 1965, 1967), Hough (1967), and Pancratz (1967).

The Flanders system (1967) categorized teacher behaviors as either direct or indirect. The categories are:

1. Accepts feeling.
2. Praises or encourages.
3. Accepts or uses student ideas.
4. Asks questions.
5. Lectures.
6. Gives directions.
7. Criticizes or justifies authority.
8. Student talk--teacher-initiated.
9. Student talk--student-initiated.
10. Silence or confusion.

The first seven categories were designed to measure teacher behaviors along a continuum from indirect to direct. The first four categories represented the indirect influence, and the last three were considered the direct influence. Categories eight and nine represented student talk, and category ten provided for the remainder of classroom behaviors which could not be classified in the other nine categories.

In using the system, Flanders (1967, pp. 13-14) stated:

> *Every three seconds the observer writes down the category number of the interaction he has just observed. He records these numbers in sequence in a column. He will record approximately 20 numbers per minute; thus, at the end of a period of time, he will have several long columns of numbers. The observer preserves this sequence of numbers that he has recorded. It is important to keep the tempo as steady as possible, but it is even more crucial to be accurate. He may also wish to write down marginal notes from time to time, which can be used to explain what has been happening in the classroom . . .. The observer stops classifying whenever the classroom activity is changed so that observing is inappropriate . . .. He will usually draw a line under the recorded numbers, make a note of the new activity, and resume categorizing when the total class discussion continues. At all times the observer notes the kind of activity he is observing.*

French (1968, pp. 122-123) suggested that the complexities of categorizations make the establishment of a series of ground rules essential to any categorization system. The ground rules considered basic to the use of interaction analysis were:

> *1. When not certain in which of two or more categories a statement belongs, choose the category that is numerically farthest from Category 5.*
>
> *2. If the primary tone of the teacher's behavior has been consistently direct or consistently indirect, do not shift into the opposite classification unless a clear indication of shift is given by the teacher.*
>
> *3. The observer must not be overly concerned with his own biases or with the teacher's intent.*
>
> *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.*
>
> *5. If a silence is long enough for a break in the interaction to be discernible, and if it occurs at a three-second recording time, it is recorded as a 10.*

II. THE GALLOWAY MODEL OF NONVERBAL COMMUNICATION

The IDER system had as another antecedent Galloway's early working nonverbal categories. Galloway (1962) attempted to construct a system for categorizing nonverbal behavior which resulted in seven observational categories focusing on teacher facial expressions, actions, and vocal qualities. He identified the following seven categories:

1. Enthusiastic support.
2. Helping.
3. Receptivity.
4. *Pro forma.*
5. Inattentive.
6. Unresponsive.
7. Disapproval.

In addition to the categorizations, Galloway (1968) also worked with what he termed observation episodes, which could be interpreted as being encouraging, inhibiting or *pro forma.*

From his experience in these efforts, Galloway (1968) derived his model of teacher nonverbal communication which represents six dimensions of nonverbal activity. He suggested that nonverbal communication,

which is encouraging, has six basic characteristics:

1. Congruity between verbal intent and nonverbal referents.
2. Responsiveness to feedback.
3. Positive affectivity.
4. Attentive to others.
5. Facilitative by being receptive to others.
6. Supportive of pupils and pupil behavior.

The restrictive teacher nonverbal communication has six opposite characteristics:

1. Discrepancy between verbal intent and nonverbal referents.
2. Unresponsiveness to feedback.
3. Negative affectivity.
4. Inattentive to others.
5. Unreceptive to others.
6. Disapproving of pupil behavior.

In model form, these characteristics appear as six dimensions:

Teacher-Initiated	*Teacher Response*
Congruity - Incongruity	Attentive - Inattentive
Responsive - Unresponsive	Facilitating - Unreceptive
Positive - Negative Affectivity	Supporting - Disapproval

The model gave rise to a second attempt to develop a categorization system. This attempt consisted of numbering the encouraging and restricting characteristics of the model from one through 12, with one through six being the encouraging characteristics and seven through 12 being the restricting ones. The observer was required to tally the appropriate category number whenever the behavior occurred, rather than upon a predetermined time schedule.

III. THE IDER SYSTEM OF BEHAVIORAL ANALYSIS

The IDER system of behavioral analysis developed by French and Galloway (1968) was an attempt to match the 10 verbal categories of Flanders' interaction analysis with appropriate nonverbal dimensions. Flanders' concept of direct to indirect teacher influence was incorporated into a larger framework ranging from encouraging to restricting interaction.

Schematically, the system appears as follows:

Indirect - Direct (Verbal)	*Encouraging-Restricting (Nonverbal)*
1. Accepts student feeling	
2. Praises or encourages	Congruent-Incongruent
3. Uses student ideas	Implement-Perfunctory
4. Asks questions	Personal-Impersonal
5. Lectures, gives information	Responsive-Unresponsive
6. Gives directions	Involve-Dismiss
7. Criticizes or justifies authority	Firm-Harsh
8. Student talk (response)	Receptive-Inattentive
9. Student talk (initiated)	Receptive-Inattentive
10. Silence or confusion	Comfort-Distress

The IDER enables an observer to use the categories, time intervals, and ground rules of the original Flanders system while recording nonverbal behaviors simultaneously with verbal ones. By making a slash (encouraging) or dash (restricting) to the right of the recorded numerical tallies, the observer can record both dimensions of teacher behavior within the allotted three-second interval. The appropriate category number circled is used to designate a teacher behavior which is solely nonverbal.

Category 1 of the Flanders system (accepts student feeling) suggests both verbal and nonverbal phenomena. The verbal and nonverbal behaviors employed by the teacher in accepting student feelings are so closely related that any specification of particular cues which distinguish either the verbal or nonverbal aspect becomes exceedingly difficult. Indeed, the verbal characteristics are more elusive and hazardous to predict and defend than the nonverbal aspect. It is not difficult to determine whether the teacher does or does not accept student feeling, but an observer is pushed to make an observation solely on the basis of verbal information. The teacher behavior of accepting student feeling is a conjoint verbal and nonverbal activity.

Flanders' Category 2 (praises or encourages) implies a nonverbal dimension which can be classified as congruent or incongruent. When congruency occurs between the teacher's nonverbal cues and his verbal message the fidelity of teacher intent is clear and believable. Nonverbal cues can reinforce and further clarify the credibility of a verbal message so that no ambiguity in interpretation is present. When a discrepancy or contradiction appears between verbal and nonverbal cues the appearance of an incongruity can be observed. Individual styles of teacher behavior are so variant in their consequence that congruencies and incongruences can appear in many behavioral manifestations. Praise and encouragement are demanding behaviors for teachers and incongruities occur most frequently when praising or encouraging students. An important ground rule to be noted in observing teacher praise and encouragement is that all behavior should be viewed as congruent until it is obvious that an incongruity is evident.

The nonverbal consequences of Category 3 (uses student idea) is related to the question of whether a teacher actually uses an idea or merely acknowledges it, which differentiates it as either an implementing or perfunctory behavior. Although Flanders makes no distinction within this category, there are two ways in which teachers respond to student ideas or thoughtful contributions. In one way he may merely recognize or acknowledge student expression by automatically repeating or restating it. A teacher's use of student ideas in this way is perfunctory or *pro forma*. Conversely, a teacher may respond by using a student's idea in subsequent discussion; he may react to an idea by reflecting on it; or he may turn the idea to the class as worthy of consideration. Teacher response of this nature can be distinguished from perfunctory acknowledgement of student ideas, and can be understood as truly using or implementing ideas. Both perfunctory and implementing teacher response are largely dependent upon the purpose and direction of teacher response. While nonverbal cues are always present, they are often fewer and more mechanical in a perfunctory response. A perfunctory use of a student idea undoubtedly provides steady reinforcement, and the value of this response cannot be denied. But the active involvement and partial reinforcement provided by implementing student ideas in discussion is important to fostering classroom interactions and classroom learning.

Teacher question-asking, Category 4 of the Flanders system, can be personal or impersonal. Essentially, the difference between personalized and impersonalized questions is the difference between face-to-face confrontation and a verbal interchange in which mutual glances, and intimate physical expressions of feeling are avoided. Nonverbal cues which personalize questions carry warmth, a sense of nearness or proximity, the implication that the teacher has a personal involvement in meaningful interactions. Impersonal question-asking will convey detachment, aloofness, and a sense of distance. In both instance, nonverbal cues provide the basis for the distinction.

Lecture or giving information (Category 5) can be observed in light of teacher ability or willingness to use pupil nonverbal responses as cues to guide teacher talk. A teacher can be responsive or unresponsive to student behavior, and the key of this dimension is the teacher's sensitivity to his own behavior when talking to students. If pupils indicate that they are restive, bored, disinterested, or inattentive, the teacher may change the pace or direction of his own talk--this is responsive behavior. Teachers are frequently unable or unwilling to alter the pace or direction of their talk; they also have difficulty in detecting the meaning and relation of pupil nonverbal behavior to their verbal performance--teacher talk that continues in the face of unreceptive student behavior is unresponsive. A significant dimension in a description of teacher information-giving behavior is the response of pupil behavior to teacher talk, and the teacher's use of that feedback.

Category 6 (gives directions) can be viewed as behaviors that involve or dismiss students. Teacher directions can involve students in a clarification of either maintenance or learning tasks, or they can dismiss or control student behavior. While involving behaviors facilitate further pupil-teacher interactions, controlling behaviors restrict interaction. Facilitating directions get across to students the idea that learning is a conjoint venture in which both pupils and teacher have a mutual purpose. Dismissing directions tend to be punitive. The notion is communicated that the teacher would rather not clarify with directions but would rather control activity independent of student involvement.

The dimension firm or harsh helps to qualify Category 7 (criticizes or justifies authority). Firm criticisms or justifications of authority have their use in the classroom. Such criticisms evaluate a situation clearly and crisply, and clarify expectations for the situation. They lack the hostility, severity, and indignity of harsh criticisms, and they are devoid of the aggressive or defensive behaviors which criticisms can sometimes yield. It is almost needless to point out that teacher nonverbal expressions most often provide the means for differentiating between criticisms or authority justifications that make the difference between appearing firm or harsh.

Flanders separates student talk into two categories (response to teacher--Category 8; and student-initiated talk--Category 9). One nonverbal dimension is appropriate to both categories, for teacher behavior during student talk is almost entirely the nonverbal activity of being receptive or inattentive. Receptive teacher behaviors involve attitudes of listening and interest, facial involvement, and eye contact, and suppression of teacher distraction and egoism. Inattentive teacher behaviors during student talk generally involve a lack of attending, eye contact, and teacher travel or movement.

Category 10 (silence or confusion) in the Flanders system is used as a "catch-all" category, and possesses little inherent value. Yet, there are different kinds of silence and confusion which can exist in a classroom. The dimension of comfort or distress is useful for recording the distinction--comfortable silences are characterized by times of reflection, thought, or work; distressing instances are produced by embarrassment or tension-filled moments. Comfortable periods of confusion are those in which students are stimulated or exhibit excitement, while distressing instances of confusion reflect disorganization and disorientation. It is primarily the nonverbal cues provided by the teacher which set the stage for either comfortable or distressful classroom occurrences.

Figure 6 presents a schematic summary of the IDER system of interaction analysis.

		VERBAL	NONVERBAL	
			ENCOURAGING	RESTRICTING
TEACHER TALK	Indirect Influence	1. ACCEPTS FEELINGS	1.	1.
		2. PRAISES OR ENCOURAGES	2. *CONGRUENT:* nonverbal cues reinforce and further clarify the credibility of a verbal message.	2. *INCONGRUENT:* contradiction occurs between verbal and nonverbal cues.
		3. ACCEPTS OR USES IDEAS OF STUDENTS	3. *IMPLEMENTATION:* occurs when the teacher actually uses student's idea either by discussing it, reflecting on it, or turning it to the class for consideration.	3. *PERFUNCTORY USE:* occurs when the teacher merely recognizes student's idea by automatically repeating or restating it.
		4. ASKS QUESTIONS	4. *PERSONAL:* face-to-face confrontation.	4. *IMPERSONAL:* avoidance of verbal interchange in which mutual glances are exchanged.
	Direct Influence	5. LECTURES	5. *RESPONSIVE:* change in teacher's pace or direction of talk in response to student behavior, i.e., bored, disinterested, inattentive.	5. *UNRESPONSIVE:* inability or unwillingness to alter the pace or direction of lecture disregarding pupil cues.
		6. GIVES DIRECTIONS	6. *INVOLVE:* students are involved in clarification or maintenance of learning tasks.	6. *DISMISS:* teacher dismisses or controls student behavior.
		7. CRITICIZES OR JUSTIFIES AUTHORITY	7. *FIRM:* criticisms which evaluate a situation cleanly and crisply and clarify expectations for the situation.	7. *HARSH:* criticisms which are hostile, severe, and often denote aggressive or defensive behavior.
STUDENT TALK		8. STUDENT TALK (RESPONSE)	8&9. *RECEPTIVE:* involves attitude of listening and interest, facial involvement, and eye contact.	8&9. *INATTENTIVE:* involves a lack of attending eye contact and teacher travel or movement.
		9. STUDENT TALK (INITIATION)		
		10. SILENCE OR CONFUSION	10. *COMFORT:* silences characterized by times of reflection, thought, or work.	10. *DISTRESS:* instances of embarrassment or tension-filled moments, usually reflecting disorganization and disorientation

Figure 6. Summary of Categories for Interaction Analysis Using Nonverbal Categories.

APPENDIX B

TEACHER DATA WORKSHEETS

Ratios: I/D = 0.19

E/R = 45.50

i/d = 0.09

	1		2		3		4		5		6		7		8		9		10		
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			4		10		10		44		72	4			48		14				206
(2) Boy, white			2		4		22		26		155		1		84		8				262
(3) Girl, black																					0
(4) Girl, white					4		7				55				9		10				85
(5) Race/Sex not Identifiable											6	12							173		191
TOTALS	0	0	6	0	18	0	39	0	70	0	248	16	1	0	141	0	32	0	173	0	744

Figure 7. Teacher 1--White Male, Language Arts.

Ratios: I/D = 0.46

E/R = 131.33

i/d = 0.66

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			1		4	1	12				2	3			13						36
(2) Boy, white			4		30		23		3		15				68		33				176
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable			3		20		86		300		74	2			19		2		76		582
TOTALS	0	0	8	0	54	1	121	0	303	0	91	5	0	0	00	0	35	0	76	0	794

Figure 8. Teacher 2--White Male, Social Studies.

Ratios: I/D = 0.46

E/R = 12.38

i/d = 0.12

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 SITence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			6		15		45				42				100		4				212
(2) Boy, white					2		20	10	10		130	2		2	90	6	6				278
(3) Girl, black																					0
(4) Girl, white											2										2
(5) Race/Sex not Identifiable			3		2		7				20	28		1	7	5	5	1	177	1	257
TOTALS	0	0	9	0	19	0	72	10	10	0	194	30	0	3	197	11	15	1	177	1	749

Figure 9. Teacher 3--White Female, Reading Laboratory.

Ratios: I/D = 0.76

E/R = 48.29

i/d = 0.32

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			2		6		16		16		36				20		10				106
(2) Boy, white			2		8		10				40	2			6		12				80
(3) Girl, black			6		12		10		6		8		2		226		2				272
(4) Girl, white							2		2		2						4				10
(5) Race/Sex not Identifiable					14		34		32		54	12			16				60		222
TOTALS	0	0	10	0	40	0	72	0	56	0	140	14	2	0	268	0	28	0	60	0	690

Figure 10. Teacher 4-- Black Female, Language Arts.

Ratios: I/D = 0.18

E/R = 4.54

i/d = 0.02

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black							12	2	8	12	30	12		8	14	2	26				126
(2) Boy, white							8	4	14	2	22	14			12		22				98
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable			2				18	4	66	38	44	2			12		8		136		330
TOTALS	0	0	2	0	0	0	38	10	88	52	96	28	0	8	38	2	56	0	136	0	554

Figure 11. Teacher 5--White Male, Industrial Arts.

Ratios: I/D = 0.85

E/ = 128.00

i/d = 0.63

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			12		40		56		36		58		8		122		2				334
(2) Boy, white					4		38		26		16				30		6				120
(3) Girl, black			6		12		22		28		24	4	6	2	96		10				216
(4) Girl, white									16						6		2				24
(5) Race/Sex not Identifiable																			80		80
TOTALS	0	0	18	0	56	0	116	0	106	0	98	4	14	2	254	0	26	0	80	0	774

Figure 12. Teacher 6--White Female, Language Arts.

Ratios: I/D = 0.84

E/R = 13.19

i/d = 0.38

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			2		6		16		6		10	12	2		18		10				82
(2) Boy, white					16	4	26	2			4				42		8				102
(3) Girl, black																					0
(4) Girl, white					12		4		6			2			24		12				60
(5) Race/Sex not Identifiable			2				100	6	110	2	52	18	2	8	8		6		208		522
TOTALS	0	0	4	0	34	4	146	8	122	2	66	32	4	8	92	0	36	0	208	0	766

Figure 13. Teacher 7--Black Female, Health.

Ratios: I/D = 0.84

E/R = 13.19

i/d = 0.38

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		STTence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black																					0
(2) Boy, white																					0
(3) Girl, black					8																8
(4) Girl, white			12												8						20
(5) Race/Sex not Identifiable			8		36		84		460		12	4	20		72				80		776
TOTALS	0	0	20	0	44	0	84	0	460	0	12	4	20	0	80	0	0	0	80	0	804

Figure 14. Teacher 8--White Male, Music.

Ratios: I/D = 0.39

E/R = 86.50

i/d = 0.31

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			2		10		22		15		30	4			46		20				149
(2) Boy, white			4		14		4		32		55	2	2		154		2				269
(3) Girl, black																					0
(4) Girl, white											1						2				3
(5) Race/Sex not Identifiable											2								102		104
TOTALS	0	0	6	0	24	0	26	0	47	0	88	6	2	0	200	0	24	0	102	0	525

Figure 15. Teacher 9--White Male, Reading.

Ratios: I/D = 0.19

E/R = 42.85

i/d = 0.15

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black																					0
(2) Boy, white																					0
(3) Girl, black					17		10		44		70	11			24		39				215
(4) Girl, white			2		4		11		38		71	2	1		26		31				186
(5) Race/Sex not Identifiable							1		2		1						2		163		169
TOTALS	0	0	2	0	21	0	22	0	84	0	142	13	1	0	50	0	72	0	163		570

Figure 16. Teacher 10--White Female, Home Economics.

Ratios: I/D = 0.91

E/R = 60.17

i/d = 0.50

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			12		10		52		28		28	6			236		12				384
(2) Boy, white																					0
(3) Girl, black					4		26		30		8				216		4				288
(4) Girl, white																	4				4
(5) Race/Sex not Identifiable									4		4	6							44		58
TOTALS	0	0	12	0	14	0	78	0	62	0	40	12	0	0	452	0	20	0	44	0	734

Figure 17. Teacher 11--White Female, Language Arts.

Ratios: I/D = 0.54

E/R = 46.88

i/d = 0.55

	1		2		3		4		5		6		7		8		9		10		
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black							12		20		18	8			10	2	12				82
(2) Boy, white					4		12		12		14				18		8				68
(3) Girl, black			6		28		44		92		28				68		32				298
(4) Girl, white			8				12		26		10	2			22		22				102
(5) Race/Sex not Identifiable												4							212		216
TOTALS	0	0	14	0	32	0	80	0	150	0	70	14	0	0	118	2	74	0	212	0	766

Figure 18. Teacher 12--White Male, Mathematics.

Ratios: I/D = 0.17

E/R = 105.67

i/d = 0.13

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black							2				6										8
(2) Boy, white	2	2	20		8		6		6		244	4			28		50				370
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable			2				2												258		262
TOTALS	2	2	22	0	8	0	10	0	6	0	250	4	0	0	28	0	50	0	258	0	640

Figure 19. Teacher 13--Black Male, Woodworking.

Ratios: I/D = 0.26

E/R = 13.63

i/d = 0.03

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black							8				40	12			12		12				84
(2) Boy, white							12		4		8	8			12		24				68
(3) Girl, black											8						20				28
(4) Girl, white							8				8				8		4				28
(5) Race/Sex not Identifiable					4		16		72		28	12	4		20		12		92		260
TOTALS	0	0	0	0	4	0	44	0	76	0	92	32	4	0	52	0	72	0	92	0	468

Figure 20. Teacher 14--White Female, Language Arts.

Ratios: I/D = 0.18

E/R = 89.00

i/d = 0.17

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			2				2				20				16						40
(2) Boy, white			16		4				4		34				8						66
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable			20				12		66		188	8			2				318		614
TOTALS	0	0	38	0	4	0	14	0	70	0	242	8	0	0	26	0	0	0	318	0	720

Figure 21. Teacher 15--Black Male, Physical Education.

Ratios: I/D = 0.54

E/R = 153.00

i/d = 0.51

	1		2		3		4		5		6		7		8		9		10		
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			14		6		40		30		30	2			60		34				216
(2) Boy, white			4				8		62		28				4		6				112
(3) Girl, black					6		10				4				14		8				42
(4) Girl, white			2		4		2		8		2				12		6				36
(5) Race/Sex not Identifiable							2		10		4				2		4	2	186		210
TOTALS	0	0	20	0	16	0	62	0	110	0	68	2	0	0	92	0	58	2	186	0	616

Figure 22. Teacher 16--White Female, Mathematics.

Ratios: I/D = 0.14

E/R = 789.00

i/d = 0.12

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black																					0
(2) Boy, white																					0
(3) Girl, black			5		13		3				77				2		40				140
(4) Girl, white			14	1	11		7				311				8		31				383
(5) Race/Sex not Identifiable					2		1				6						7		251		267
TOTALS	0	0	19	1	26	0	11	0	0	0	394	0	0	0	10	0	78	0	251	0	790

Figure 23. Teacher 17--White Female, Home Economics.

Ratios: I/D = 1.23

E/R = 8.43

i/d = 1.15

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			1		12	2	19	1	8			1	3		12		27	6			92
(2) Boy, white				1	39	9	25	14	25	4	15	3	3		57	10	60	18			283
(3) Girl, black	1				2						3				3		2				11
(4) Girl, white					5		3				1				4		16				29
(5) Race/Sex not Identifiable	2				22	2	44	2	18	2	51	5			5		7		179	10	349
TOTALS	3	0	1	1	80	13	91	17	51	6	70	9	6	0	81	10	112	24	179	10	764

Figure 24. Teacher 18--White Male, Social Studies.

Ratios: I/D = 0.60

E/R = 0.50

i/d = 0.29

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black					7	4	14	21			17	27	1	22	17	41	23	20			214
(2) Boy, white					11	1	3	16	2	10	7	5		24	3	12	15	36			145
(3) Girl, black																					0
(4) Girl, white	4				12		8	1		21	14	13			3	12	6	9			103
(5) Race/Sex not Identifiable					5	3	7	14	7	15	2	7		23	14	6	4	16	44	126	293
TOTALS	4	0	0	0	35	8	32	52	9	46	40	52	1	69	37	71	48	81	44	126	755

Figure 25. Teacher 19--Black Female, Mathematics.

Ratios: I/D = 0.04

E/R = 6.96

i/d = 0.02

	1		2		3		4		5		6		7		8		9		10		
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black											13						4				17
(2) Boy, white					2		1				79				2		12				96
(3) Girl, black											6										6
(4) Girl, white																					0
(5) Race/Sex not Identifiable			2		2		4	1	35	55	136	8	5	2	1		7	3	169	17	447
TOTALS	0	0	2	0	4	0	5	1	35	55	234	8	5	2	3	0	23	3	169	17	566

Figure 26. Teacher 20--Black Female, Business Education.

Ratios: I/D = 0.25

E/R = 32.80

i/d = 0.08

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 Silence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			12		8		32				180	16	4		56		40				348
(2) Boy, white							8				32			4	12		4				60
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable																			268		268
TOTALS	0	0	12	0	8	0	40	0	0	0	212	16	4	4	68	0	44	0	268	0	676

Figure 27. Teacher 21--Black Male, Woodworking.

Ratios: I/D = 0.20

E/R = 80.75

i/d = 0.12

	1 Accepts Student Feelings		2 Praises or Encourages		3 Accepts Student Ideas		4 Asks Questions		5 Lectures		6 Gives Directions		7 Criticizes or Justifies Authority		8 Student Talk-- Teacher-Initiated		9 Student Talk-- Student-Initiated		10 SIlence or Confusion		TOTAL
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			6		2		14		10		112	6			20		18				188
(2) Boy, white			6		10		4				110				14		22				166
(3) Girl, black											8						2				10
(4) Girl, white											2						2				4
(5) Race/Sex not Identifiable			8		4		12		28	2	54				2		6		170		286
TOTALS	0	0	20	0	16	0	30	0	38	2	286	6	0	0	36	0	50	0	170	0	654

Figure 28. Teacher 22--Black Male, Arts and Crafts.

Ratios: I/D = 0.58

E/R = 11.79

i/d = 0.28

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			4		10		18		2		10		4	6	26		18	4			102
(2) Boy, white			2		8		14		6		122	16	2		30		10				210
(3) Girl, black					8		14		2		26	12			12		34				108
(4) Girl, white			8		2		4		2		14				6	2	4				42
(5) Race/Sex not Identifiable	2		10		12		42	2	26		12		6	8	28	2	12		88	4	254
TOTALS	2	0	24	0	40	0	92	2	38	0	184	28	12	14	102	4	78	4	88	4	716

Figure 29. Teacher 23--Black Female, Language Arts.

Ratios: I/D = 0.15

E/R = 40.42

i/d = 0.05

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black					12		14		2		122	14			102		8				274
(2) Boy, white			2		6		16				170	10			20		12				236
(3) Girl, black																					0
(4) Girl, white																					0
(5) Race/Sex not Identifiable							20		40		108								316		994
TOTALS																					

Figure 30. Teacher 24--Black Female, Language Arts.

Ratios: I/D = 0.15

E/R = 119.33

i/d = 0.11

	1		2		3		4		5		6		7		8		9		10		TOTAL
	Accepts Student Feelings		Praises or Encourages		Accepts Student Ideas		Asks Questions		Lectures		Gives Directions		Criticizes or Justifies Authority		Student Talk-- Teacher-Initiated		Student Talk-- Student-Initiated		Silence or Confusion		
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
(1) Boy, black			8								12						2				22
(2) Boy, white			12								40				2		10				64
(3) Girl, black			2		10		2		2		20				18						54
(4) Girl, white			2		4						6	4			4						20
(5) Race/Sex not Identifiable			8			2	24		64		350				8		8		98		562
TOTALS	0	0	32	0	14	2	26	0	66	0	428	4	0	0	32	0	20	0	98	0	722

Figure 31. Teacher 25--White Male, Physical Education.

APPENDIX C

INTER- AND INTRARATER RELIABILITY COMPUTATIONS

INTERRATER RELIABILITIES: COMPUTATIONS

The Scott Coefficient ($\pi = \frac{P_o - P_e}{1 - P_e}$) was used for one measure of interrater reliability. P_o (observed percent agreement) represents the percent of judgements on which two raters agree when coding the same data independently, and P_e is the acceptable percent agreement (.80 in this study). The Scott Coefficient (π) is the ratio of actual difference between obtained and chance agreement. (Scott, 1955, pp. 321-325)

	Tape 1	Tape 2	Tape 3
Rater A	278	198	232
Rater B	276	200	240
Rater C	275	206	243

Tape 1: $B/A = \frac{276/278 - .80}{1 - .80} = \frac{.1928}{.20} = .9640$

$C/B = \frac{275/276 - .80}{1 - .80} = \frac{.1964}{.20} = .9820$

$C/A = \frac{275/278 - .80}{1 - .80} = \frac{.1892}{.20} = .9460$

Tape 2: $A/B = \frac{198/200 - .80}{1 - .80} = \frac{.1900}{.20} = .9500$

$B/C = \frac{200/206 - .80}{1 - .80} = \frac{.1709}{.20} = .8545$

$A/C = \frac{198/206 - .80}{1 - .80} = \frac{.1612}{.20} = .8060$

Tape 3: $A/B = \frac{232/240 - .80}{1 - .80} = \frac{.1667}{.20} = .8335$

$A/C = \frac{232/243 - .80}{1 - .80} = \frac{.1547}{.20} = .7735$

$B/C = \frac{240/243 - .80}{1 - .80} = \frac{.1877}{.20} = .9385$

A second computation of interrater reliability consisted of the percentage of rater agreement on independent ratings regarding the total number of tallies when comparing ratings of a rater designated as an "expert" (whose data comprised a baseline and who instructed other raters) with the ratings of each rater designated as neophytes. Internal category checks could be computed using this same formula and data from any combination of internal categories, where,

$$P = \frac{N \text{ (Neophyte)}}{N \text{ (Expert)}} \text{ or } \frac{N \text{ (Expert)}}{N \text{ (Neophyte)}}$$

so as to produce a percent less than 100.

	Tape 1	Tape 2	Tape 3	$\bar{X}$
πEN_1	.992	.990	.966	.982
πEN_2	.989	.961	.954	.968
$\pi N_1 N_2$	.999	.971	.986	.976
$\bar{X}$	.993	.974	.968	.976

E = Expert

N_1 = Neophyte

N_2 = Neophyte

	Tape 1	Tape 2	Tape 3	$\bar{X}$
πEN_1	$\frac{276}{278} = .992$	$\frac{198}{100} = .990$	$\frac{232}{240} = .966$	.982
πEN_2	$\frac{275}{278} = .989$	$\frac{198}{206} = .961$	$\frac{232}{242} = .954$	.968
$\pi N_1 N_2$	$\frac{275}{276} = .999$	$\frac{200}{206} = .971$	$\frac{240}{243} = .986$	.976

See Table XXVII for interrater reliability data for the three raters by categories.

INTRARATER RELIABILITY: COMPUTATIONS

Intrarater reliability was established by using the same two reliability measures used for interrater reliability. Computations based on the Scott Coefficient are as follows:

$$\pi = \frac{330/336 - .80}{1 - .80} = \frac{.1821}{.20} = .9105$$

Computations based on the P method are: $P = \frac{330}{336} = .982.$

Table XXVIII shows the data for intrarater reliability for the two ratings by category.

TABLE XXVII

DATA FOR RATERS BY CATEGORY: INTERRATER RELIABILITY

Raters	1		2		3		4		5		6		7		8		9				Total
	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	
Tape 1																					
Rater 1	0	0	18	0	6	0	5	0	0	0	108	0	0	0	6	0	20	0	116	0	278
Rater 2	0	0	20	0	6	0	6	0	2	0	108	0	2	0	7	0	23	0	102	0	276
Rater 3	0	0	22	0	3	0	4	0	4	0	109	0	4	0	9	0	27	0	90	0	275
Tape 2																					
Rater 1	0	0	7	0	15	0	24	1	12	0	33	5	3	14	16	0	29	9	24	6	198
Rater 2	0	0	6	0	17	0	25	1	10	0	35	6	2	14	16	0	27	11	22	8	200
Rater 3	0	0	3	0	22	0	24	2	14	4	31	11	1	13	16	4	17	13	20	11	206
Tape 3																					
Rater 1	0	0	0	0	4	0	26	0	0	0	74	0	0	0	40	0	30	0	42	0	232
Rater 2	0	0	0	0	8	0	30	0	0	0	80	0	0	0	40	0	30	0	40	0	240
Rater 3	2	0	0	0	12	0	36	0	0	0	72	0	4	0	52	0	15	0	40	0	243

TABLE XXVIII

DATA FOR RATINGS BY CATEGORY: INTRARATER RELIABILITY

	1		2		3		4		5		6		7		8		9		10		
Rating	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	Total
First	2	0	4	0	18	0	34	0	22	0	90	18	6	0	42	0	42	0	52	0	330
Second	1	0	6	0	15	0	33	0	40	0	74	16	12	0	44	0	46	0	49	0	336

APPENDIX D

IDER COLUMNS USED AS VARIABLES IN DATA ANALYSES

TABLE XXIX

IDER COLUMNS USED AS VARIABLES IN DATA ANALYSES

Variable	IDER Columns
I	1-4 E&R
D	5-7 E&R
I/D	(1-4 E&R)/(5-7 E&R)
Adjusted I (i)	1-3 E&R
Adjusted D (d)	6-7 E&R
i/d	(1-3 E&R)/(6-7 E&R)
E	1-10 E
R	1-10 R
E/R	(1-10 E)/(1-10 R)
Total	1-10 E&R
C-3 or I-E	1-4 E
C-4 or I-R	1-4 R
C-5	8-9 E
C-6 or D-E	5-7 E
C-7 or D-R	5-7 R
C-8	8-9 E&R
C-9	8 E&R
C-10	9 E&R
C-11	10 E&R
C-12	8-9 R
C-13 or i-E	1-3 E
C-14 or i-R	1-3 R
C-15 D	6-7 E&R
C-16 or d-E	6-7 E
C-17 or d-E	6-7 R

VITA

Harriet Barnes Crump was born in Memphis, Tennessee, on October 20, 1940. She attended public schools in Memphis where she graduated from Memphis Central High School in 1958. After two years as an undergraduate at The University of Tennessee, Knoxville, she transferred to George Peabody College for Teachers where she received the Bachelor of Science degree with a major in elementary education in 1962. In 1967 she received the Master of Education degree with a major in curriculum and instruction from Memphis State University. After beginning advanced graduate work at The University of Tennessee Memphis Center, she became a resident student in the doctoral program at The University of Tennessee, Knoxville, and received the Doctor of Education degree in 1974.

Mrs. Crump was an elementary classroom teacher in the Shelby County School System from 1963 to 1966. In 1966 she served as an instructional coordinator in an all black school when the desegregation process began in Shelby County. In 1967 she was moved to the central office where she served as Elementary Science Supervisor and Early Childhood Education Supervisor. Since 1968 she has been Director of Curriculum Development for Shelby County Schools.

She has served as a consultant with the Educational Opportunity Planning Center and was a member of the task force for the Clay County, Tennessee, Urban-Rural Project. She has also participated in school surveys in Tennessee and holds membership in several professional

organizations. She is listed in *Outstanding Educators in America* (1973-1974), *Outstanding Young Women of America* (1973), and *Leaders in Education* (fifth edition).

Mrs. Crump is married to William Griffin Crump of Nashville, Tennessee. They have one daughter, Loren.