

PUPIL CLASSROOM SOCIABILITY AND TEACHER MODE
OF INTERPERSONAL INTERACTION

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CHAPTER I

INTRODUCTION

Socialization, as a concept of human development, has wide commerce in the social and behavioral sciences. Depending upon the discipline in question, it is a more or less central concept underlying theories of interpersonal and social behavior, as well as theories of personality. Essentially, socialization is a learning process, beginning at birth and continuing throughout life. Individuals acquire simple and complex behavior patterns--some relating to physical environment and biological needs, others more specifically relevant to socio-cultural and interpersonal situations. Human behavior "takes its beginning in protoplasm; and throughout life habits and attitudes develop that are characteristic of the manner in which each organism satisfies its needs and adjusts to its environment" (17, p. 92).

Research on lower-class* child-rearing practices, values, attitudes, and patterns of social interaction has

*The term "lower-class," as used in this paper, is synonymous with the terms "culturally deprived," "disadvantaged," and "poverty." It denotes an annual total income of \$3,000 or less for a family of four persons or more, a criterion published by U. S. Department of Health, Education and Welfare, Office of Economic Opportunity Bulletin, 1965.

been conducted for many years. Most studies have been analytic/descriptive in nature, with little interest in derivation of prescriptive remedies. Much has been learned, however, about social-class differences in child-rearing practices (14), social and educational expectations (7), values and value-emphasis (19), and differences in psychological development (23, 25). To summarize the findings of various studies, it may be said that the socialization--indeed, the total development--of the poverty child is seriously impaired, when compared to middle-class children in his age group. Bruner (9) has pointed out that sensory deprivation, a typical condition in the drab, monotonous home conditions attendant on poverty status, robs the child of the opportunity for constructing cognitive models of his environment, and for developing efficient strategies for evaluating information. Hebb (25, 26) found, in his studies of animal behavior, that varied sensory input during development resulted in greater competence at maturity in dealing with new and varied stimulation from the environment. He concluded that, "without it [adequate stimulation from the environment], intelligence does not develop normally, and the personality is grossly atypical" (26, p. 830). The poverty child has little opportunity to develop a concept of himself as a competent, worthwhile individual.

Getzels (23), in a paper presented at the White House Conference on Education, indicated that the lower-class child, when faced with the traditional middle-class-oriented school, is ill-equipped to cope with a situation basically alien to his previous experiences and acquired values. The result of the confrontation, Getzels pointed out, is to confirm the child's already negative or ambiguous self-image by the almost inevitable failure and frustration.

Of primary importance in the socialization process is the role of the family. The child experiences his first social learning in that context, and there is both clinical and experimental evidence that these early experiences are strongly influential on later social learning. Attitudes, roles, values, and self-concepts acquired at home in childhood seem to persist, even though they are frequently modified by later learning. Miller and Dollard (35) have demonstrated how early acquired behavior patterns, even though modified, continue as integral parts, or associational "links" in later acquired behavior. Allport (1, 2), on the other hand, has emphasized the modification of basic personality traits by later learning. Evidence from everyday life, as well as from theory and research, suggests that attitudes and behaviors change as the result of experience. Hence, the public schools, operating under the assumption that social as well as intellectual behaviors may be modified by experience,

have pursued an active role in attempting to direct the socialization process in young children. While the importance of early childhood experiences in the familial context cannot be minimized, neither should the extensive influence of the school environment on socialization of children be underestimated.

The so-called "early childhood movement" in education has a long history. Only in the last decade, however, has it risen to the status of a major focal point for training and research. In part, its rise has been due to the recognition that education must pave the way to full social and economic participation in American culture by racial and economic minorities (27). Further, it has been recognized that if poverty and cultural deprivation are to be alleviated, programs must begin early to shape the child's development into socially and economically competent behavior patterns as an adult. Investigations of the drop-out problem, the low and under-achievement problem, juvenile and adult delinquency have all pointed to the lower-class child's deficiencies in social and intellectual preparation for school. Whereas the middle-class child looks forward with anticipation to school attendance, and fully expects it to be a satisfying and successful experience, the lower-class child has had few, if any, experiences to orient him toward a positive view of school. Deutsch has stated, "The experiences

of the child from the disadvantaged background simply do not prepare him for successful school experience" (16, p. 16). One solution offered to overcome these difficulties is the preschool, of which Project Head-Start is one example. Preschools for the disadvantaged are mainly concerned with preparing the lower-class child to enter the traditional public school on as near an equal footing with his middle-class counterparts as possible. Depending upon the philosophical/theoretical basis for the program, a preschool for disadvantaged is aimed at learning objectives such as acquisition of perceptual, cognitive, and linguistic skills, sensory-motor coordination, familiarity with academic materials and routines. Some concentrate on emotional growth, creative expression, development of positive self-concept and positive attitudes toward school, and improved socialization of the child.

Culturally disadvantaged children may be considered to be inadequately socialized to function in the competitive environment of the middle-class-oriented public school. ("Socialized," as used here, encompasses a broad range of learned interpersonal and intellectual behaviors related to school performance.) The preschool environment, on the other hand, may be viewed as an extension of the home, in which the teacher assumes the role of a parental figure. That is, the preschool for disadvantaged children becomes a setting in

which much of the socialization usually acquired at home may take place; the teacher becomes like a parent, and the activities are designed to "fill in the socialization gaps." From this point of view, especially with very young children, the preschool or kindergarten teacher's role becomes considerably more complex than that of the ordinary elementary classroom teacher. She (most preschool teachers are women) must assume not only the role of "teacher", but also "mother". Her attitudes and behavior would seem likely to have a greater impact on the children than if she were teaching a group of middle-class first or second graders. By virtue of their often ill-defined self-concept, and the unfamiliar surroundings of the ordinary school setting, it further seems likely that preschoolers from disadvantaged backgrounds would be more sensitive to the attitudes and classroom behavior of the teacher than their middle-class counterparts.

If true, these suppositions suggest that teacher variables may be more responsible for improved socialization of the child than those other factors in the preschool such as materials and special equipment, or instructional method. A series of articles by Anderson, et al. (3), reporting the effects of teacher personality on pupil behavior, lends weight to the suggestion. In their study, teachers were characterized as using either

"domination" or "social integration" as the primary modes of interaction with their classes of elementary school pupils. "Domination" was defined as the issuance of direct verbal commands, and/or the use of real or threatened force to produce action. "Socially integrative" behavior was defined as soliciting expressions of opinions, allowing differences of opinion to be expressed followed by an attempt to emphasize common elements and bases for concurrence, and the use of supportive verbal behavior, cooperation, and persuasion to induce action. Under the socially integrative behavior, pupils were more attentive, less restless, contributed more to the lesson and showed more enthusiasm and initiative. There were fewer conflicts among the pupils. In addition, the children tended to adopt the teacher's mode of interaction as their own, even when the teacher was out of the classroom. In a series of follow-up studies, the teachers were found to be behaving in much the same way as the year before, indicating an habitual pattern in relating to a group of pupils. The pupils, on the other hand, were found to have adapted their classroom behavior to the traits and demands of their new teachers. While these pupils seemed to have maintained flexibility, and had overcome any adverse effects of the domination-oriented teacher, it should be noted that these were predominantly middle-class children--not disadvantaged children

just beginning a school experience. One would expect middle-class children to be more adaptive to changing conditions. They enter school with the expectation of success, and adaptability is a higher-level subcultural value for the middle-class child. Another relatively high-level subcultural value for the middle-class child is that of "getting along with others." Culturally deprived children, on the other hand, more often enter school with negative attitudes and expectations, and a different subcultural value system. A teacher with high dominance needs often confirms these negative "sets" and values for the disadvantaged child. In many cases, this confirmation of the negative may lead to the child's adopting stereotyped behavior--behavior which may be inappropriate to the interaction mode of the next teacher to whom he is assigned.

The teacher's pattern of interaction with pupils, ideally, should be flexible, with the teacher adapting his or her behavior mode to suit the needs of the pupils and to optimize learning. As the Anderson studies (3) concluded, however, many teachers tend to follow a single consistent pattern of behavior in interaction with pupils. Symonds (40) has observed that teachers respond in the classroom as they do out of it, in ways which have been built up over many years, and which represent a deeper core of personality. Teacher-pupil interaction patterns, related to teacher

personality but in some respects distinct from it, have been shown to affect pupil behavior and attitudes (8, 15, 12). Teacher expectations, too, play a large part in the behavior of pupils. Consideration of the importance of these teacher variables has led to the present study.

Statement of the Problem and Its Significance

Heavy emphasis in preschool programs for culturally deprived children often has been placed upon providing training and experience with concepts, materials and skills necessary for success in the middle-class-oriented public schools. Unquestionably, disadvantaged children who enter first grade without such preparation have been so poorly equipped to cope with academic requirements that subsequent failure and ultimate withdrawal from school have not been surprising consequences. Providing disadvantaged children with the intellectual tools required, however, has not been enough if their attitudes toward academic success and social competence remained those learned early in the home environment. Hence, the orientation of preschool programs for disadvantaged children has needed to be focused on development of more positive attitudes toward school and the school environment. According to various educational authorities, preschool experience contributes to improved social competence

and increased interpersonal skills. Conclusive research evidence has been lacking, however, to support that contention. Because of the sensitivity of young children to the behavior and attitudes of adults, one would expect the way in which a teacher interacted with and related to a child in the classroom to have been a critical variable in the child's academic and social achievement. In the case of the culturally disadvantaged child, lacking in a strong self-concept and in positive expectations about school and social success, it would seem likely that the interpersonal attitudes and behavior of his teacher would be an even more crucial influence on his performance. Again, research evidence to support such expectations has been lacking.

The present study was designed to provide data bearing directly on the question of the influence of the preschool experience, and specifically, teacher behavior, on pupil social behavior. Hunt (29), Deutsch (15), and others have stated that preschool experiences which have been "satisfactory," "rewarding," or "generally positive" for the disadvantaged child were the programs most likely to intervene the drastic social effects of cultural deprivation. Writers in the field of early childhood education seem to imply that the effects of exposure alone to the classroom environment, with its group activities and social interactions in a framework of cooperative problem-solving results in improvement

in interpersonal relations among pupils. These implications suggested that an investigation of the effects of the pre-school experience on pupils' interpersonal behavior would be of value. It was noted in the studies reported by Anderson (3) that pupils tended to adopt the mode of interaction among themselves that corresponded to their teacher's predominant mode of interaction with them. Thus, if a teacher's interaction with pupils was characteristically domineering, coercive, and rejecting, so became the pattern of the pupils' behavior toward each other. If, on the other hand, the teacher was habitually helpful, supportive, tolerant, and accepting, the pupils tended to respond similarly to their classmates. Anderson's subjects, however, were not described as culturally deprived. While Anderson's studies do support the assumption that teacher behavior distinctly influences social behaviors of pupils, systematic measurements were lacking. It was of interest, therefore, to investigate whether or not disadvantaged children exhibit a similar tendency to emulate teacher interaction patterns in their own classroom social behavior and to systematically assess changes in social climate which might be related to instructional method.

The effects of preschool experiences and teacher interaction patterns on pupil social behavior is a problem of concern to educators. The planning and conduct of preschool

programs, and the training and selection of teachers are activities which rest on the assumptions that preschool experience is an important contributor to later academic success, and that teachers trained and selected for the preschool will function in a manner to facilitate the social competence of pupils. The research questions investigated in the present study provide a point of departure for both a reappraisal of assumptions and further research.

Research Hypotheses

The hypotheses tested in the study under report were as follows: .

1. Preschool experience, per se, results in increased sociability among groups of disadvantaged pupils.
2. Each subject in a sample of kindergarten teachers exhibits an habitual mode of interaction with pupils.
3. Differences in the magnitude of increased sociability among kindergarten pupils can be attributed to differences in their teachers' habitual modes of interaction.
4. No differences in magnitude of increase in sociability can be attributed to differences in method of instruction.

Definitions

Terms in the hypotheses which required operational definition were "sociability", "mode of interaction", "increased", and "habitual". "Sociability" was operationally

defined in terms of two derived scores obtained on a sociometric test, one designated "Group Sociability Index", and one designated "Social Acceptability Score". These scores, discussed in detail in Chapter II, were interpreted as indicative of the interpersonal attitudes and behavior, or social climate, of the kindergarten classrooms. "Mode of interaction" was operationally defined as the Revised Indirect/Direct Ratio calculated from the Teacher-Pupil Interaction Analysis matrices discussed in Chapter II. The term "increased" was operationally defined as an increase in magnitude of a sociometric score which was statistically significant. A mode of interaction was "habitual" if there were no statistically significant differences (at the .05 level of confidence) between Revised Indirect/Direct Ratios derived from consecutive Teacher-Pupil Interaction Analysis matrices obtained by two independent raters from three separate observations of teacher behavior.

The statistical procedures employed to test the research hypotheses are presented in detail in Chapter II.

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CHAPTER II

METHODS AND PROCEDURES

Source of Data

In January, 1969, the Dallas Independent School District initiated a Pilot Kindergarten Program. This program was designed as a preliminary, experimental project to investigate the effectiveness of and gain experience in providing free public kindergartens, especially in areas of the district where cultural deprivation and academic handicaps constituted problems for pupils entering first grade. The overall objective of the Pilot Program was, therefore, to provide pre-school experiences for culturally deprived children to prepare them to enter first grade, and to test the effectiveness of such a program's use of varied techniques of instruction. Three elementary schools, located in areas populated largely by low-income, minority-group families were selected as sites for the pilot kindergartens, and specially-built portable-type classroom buildings were erected on each of the three campuses. Teachers were employed specifically for the project, and a non-professional teacher aide was hired and assigned to each teacher. Teacher aides were selected on the basis of their general intelligence, aptitude, and interest in working

with children, and a background of minority-group membership. All the teacher aides were either Negro or Latin-American. There were six white and four Negro teachers employed. The free, voluntary program was opened to all children who resided in the vicinity of each of the three schools and who would be enrolling in first grade at that school in September, 1969.

Four instructional models were utilized as a basis for differentiating among curricular approaches. While each of the four models placed emphasis upon some different aspect of preschool education, or utilized distinctive materials and techniques, it appeared from descriptions of the models that their similarities were greater than their differences. While one model might employ one kind of geometric form to facilitate the development of perceptual discrimination, another model would utilize a slightly different type of geometric form to teach both form and color perception. The following descriptions of the models were presented by the School District Research Department in an internal communication.

The Bank Street Model, developed at Bank Street College, New York, New York, emphasizes a program designed to contribute to cognitive growth and to the development of a positive self-concept. A further emphasis centers on securing parental involvement. Four major instructional goals are

1. Intellectual development,
2. Teacher-child supportive interaction,
3. Parental involvement,
4. Emotional growth.

The Deutsch Model, derived from programs at the Institute for Developmental Studies, New York University, New York, New York, emphasizes language development through classroom participation designed to elicit verbal responses from the pupils. It has been described as being an eclectic approach. Four major instructional goals are

1. Language development,
2. Perceptual development,
3. Concept formation and development,
4. Development of positive self-concept.

The Marie Hughes Model, developed by Dr. Hughes at the University of Arizona, Tucson, Arizona, utilizes a bilingual approach to facilitate cognitive growth and language development with heterogeneous groups. Four major instructional goals are

1. Intellectual development,
2. Foster positive attitudes toward school,
3. Language skills development,
4. Positive self-concept development.

The Weikert Model, developed by Dr. Weikert and Dr. Constance Kamii at the Ypsilanti Public Schools, Ypsilanti, Michigan, is based upon Piagetian concepts and emphasizes language stimulation and cognitive growth. Intellectual development is facilitated through utilization of a step-by-step approach which facilitates the transition from

sensory-motor to conceptual abilities. Major instructional goals are

1. Intellectual development,
2. Concept formation,
3. Language development,
4. Development of sensory-motor/perceptual skills,
5. Parental involvement.

In terms of the present study, similarities and differences among the four instructional models were not considered to be of crucial importance, since such discrimination was only secondary to the research hypotheses. Indeed, use of the models as units of analysis in the present study was employed primarily as a convenience in grouping subjects. Since there seemed to be considerable overlap in the materials, methods, and goals of the four models, it was not expected that there would occur differences in social behavior of pupils attributable to differences among the instructional models.

To evaluate the effectiveness of the Pilot Kindergarten Program, a comprehensive appraisal project was designed and conducted by the Research Department of the Dallas Independent School District. During the design phase of the appraisal project, permission was obtained to include administration of measuring instruments appropriate to the concerns of the present study. The final appraisal project called for a total of nine tests or rating scales to be administered to all pupils in the program, and two additional tests were administered to a random sample of pupils. Three measurement devices

were administered to teachers and teacher aides, and a parent questionnaire was employed.

Subjects

Pupils

Subjects were 207 kindergarten pupils enrolled in the Pilot Kindergarten Program. Originally, 269 pupils were enrolled in nineteen half-day classes, but 62 were deleted from the research population because of absence during data collection periods or withdrawal from the program. Selection of the pupils for admission to the Pilot Kindergartens was based on a child's age on September 1, 1969, and on residence in the vicinity of one of the three participating elementary schools. To enroll in the program, a child was to reach age six on or before September 1, 1969, and reside in the defined geographic unit served by the elementary school on the campus of which the kindergarten was conducted. Mean age of children in the research population was six years, zero months at the beginning of the program, with an age range of five years, two months to seven years, one month. The medical examination and smallpox vaccination required for admission to first grade in the Dallas Independent School District was also required, but was provided at no cost for those children who could not obtain these services privately. Within the limits of the age and residence criteria, participation was voluntary, and

was open to all children residing near the participating schools. Within the limits of the initial selection criteria, pupils were randomly assigned to teachers and models. Distribution of ethnic groups was assumed to be approximately representative of the distribution in the neighborhoods served by the participating schools. Composition of the pupil research population by ethnic group was approximately 60 per cent Negro, 30 per cent Latin-American, and 10 per cent Caucasian. Although actual income figures were not available for parents of the pupils included in the research population, it was estimated that fewer than 5 per cent earned incomes above the so-called "poverty" level.

Teachers

Ten kindergarten teachers (all women) also served as subjects in the study. These teachers were selected by the School District according to established personnel selection procedures and policies. They varied widely in training and teaching experience, but were assumed to be equally trained for the Pilot Kindergarten Program. Each teacher was given the opportunity to review the materials and literature pertaining to all of the instructional models to be employed in the Program, and to select the particular model she wished to employ in her classroom. Following her choice of a model, each teacher was sent to the institution from which her model was published for a two-week period of intensive training and

three month periods. Bronfenbrenner (9), in a similar study, reported a stability coefficient of .27 over a seven-month period. Using descriptions of both social and personal behavior as criteria, Bonney (7) found that highly chosen pupils on the sociometric test were also those most frequently described as possessing the most desirable personal and social attributes. The reliability, or stability, and validity of sociometric test results was therefore assumed to be adequate for the purpose of assessing the "social climate" of the kindergarten classrooms under study.

Administration of the sociometric test took place on three separate occasions during the kindergarten semester. The test consisted of two questions, one relating to choices and one relating to rejections, for each of two criteria: play and work. (See Figures 1 and 1a: copies of English and Spanish versions.) Following a period of about two to three weeks of class attendance, allowed to balance any biasing effects of acquaintance prior to enrollment in kindergarten, the first test was administered to each child. The child was taken aside in the classroom to an area apart from the rest of the pupils so that his responses could not be overheard. There, the questions were read to him, any necessary explanations given, and his responses recorded by the teacher or teacher aide. Children whose native language was Spanish were read the questions and given explanations

in Spanish. Positive choices were recorded as given, and no set number of choices was requested. Rejection questions were read as written, but care was taken to neither further encourage nor discourage rejections, except to assure the child that his responses would be kept confidential. At mid-term and again during the last week of the program, administration of the sociometric test was repeated in the same manner.

Scoring of the sociometric test was accomplished by counting the number of choices given, choices received, rejections given, and rejections received for each of the two criteria by each child. During the scoring procedure, it was noted that pupils were making infrequent discrimination between work and play criteria in naming their choices and rejections. That is, pupils tended to choose and to reject the same children on each of the criteria. Similar lack of discrimination among criteria has been noted in other studies. Evans (11) has advocated the practice of combining choices across criteria to obtain a sociometric score. Citing a study by Frankel, in which a general factor of "acceptability" was found to be a determinant of status in a group of nursery school children, she stated that ". . . it may matter very little what criteria of choice are used, and the sum of choices on a variety of criteria may be the best measure of status." (11, p. 33). It was decided, therefore, to combine

the data from both criteria, with duplications not counted to secure the sociometric scores.

Since the group, or kindergarten class-within-teacher,* was the unit of interest for the present study, rather than the individual pupil, two sets of derived sociometric scores were computed for each class-within-teacher for each of the three sociometric testings. The first set of derived scores was designated "Group Sociability Index," and was computed by subtracting the number of rejections given from the number of positive choices given by each pupil. This Index, when summed for all pupils in a class-within-teacher, was interpreted to be a measure of the positive social attitudes present in the group--that is, the attitudes of friendliness, readiness to relate to and interact with others in the group on a positive basis, acceptance of others, and tolerance toward individual differences. The greater the magnitude of the Group Sociability Index, the greater the prevalence and magnitude of these positive social attitudes. The second set of derived scores was designated "Social Acceptability Score." This measure, obtained by subtracting the number of rejections received by each child from the number of positive choices he received, was interpreted to be a measure of each

*"Class-within-teacher" is the designation which will be used henceforth to refer to the composite data derived from the morning and afternoon kindergarten sections taught by the same teacher.

pupil's acceptability to his peers. The sum of Social Acceptability Scores for all pupils in a class-within-teacher yielded a Social Acceptability Score for the group, which was interpreted to be an additional measure of the "social climate" in the class. Since both the Group Sociability Score and the Social Acceptability Score were derived from the same data, group sums and means were identical for both sets of scores. However, variances and standard deviations of the two scores could be expected to differ, inasmuch as one set of scores represented the positive social attitudes of the group, while the other set represented the individual pupil's acceptability to his peers. The differences found in the variances and standard deviations suggested that the two scores, though related, were in fact indices of somewhat different dimensions of the classroom social climate.

Teacher-Pupil Interaction Analysis

Among the earliest studies of teacher-pupil interaction were those of H. H. Anderson and his associates (2, 3, 4). As noted in Chapter I, Anderson's studies, and those of others, have shown teacher attitudes and behavior to be the most important single factor in setting the tone, or social climate in the classroom. In an extensive research project conducted over several years, Flanders (12) and his associates found data not only to support earlier research conclusions, but also data indicating a significant relationship between

patterns of teacher influence and academic achievement. In the course of these studies, Flanders and his project team developed a method of classroom observation, based on earlier work by Anderson (1) and Bales (5). This technique, called the Teacher-Pupil Interaction Analysis, utilizes ten categories to classify the verbal transactions occurring in a classroom during a period of observation. The method requires trained observers to record verbal classroom activities according to the category to which the transaction corresponds in a 10 X 10 category matrix. (See Fig. 2). Thus, a transaction is tallied in the column to which it corresponds, in the row corresponding to the transaction immediately preceding it, such that the completed matrix yields a profile of the sequence of classroom interaction which took place during the period of observation. Figure 3 shows the ten categories of classroom interaction, giving brief descriptions of the behaviors characteristic of each category.

Interpretation of the completed matrix can be made descriptively; that is, a matrix may be discussed in terms of the sequences of transaction, the focus of the transactions, who initiated the interaction, etc. In addition, Flanders and Amidon (12) have devised two quantitative measures to provide indices of the teacher's pattern of influence. These two measures are called the Indirect/Direct

Ratio and the Revised Indirect/Direct Ratio. The first ratio, referred to in print as I/D ratio, is a measure of the ratio of indirect to direct teacher statements. It is calculated by summing matrix tallies in Columns 1-4, and dividing this sum by the sum of Columns 1-7. It may be seen from Figure 3 that this calculation yields a ratio between the number of teacher statements categorized as indirect and the total number of teacher statements. The Revised Indirect/Direct Ratio, or i/d ratio is more concerned with the kind of emphasis given to motivation and control in the classroom under observation and seemed more appropriate for use in the present study. It is calculated by forming a ratio of the sum of matrix tallies in Columns 1-3, divided by the sum of Columns 1, 2, 3, 6, and 7, thus eliminating statements primarily concerned with the presentation of subject matter.

The use of observations, even by trained observers, always raises the question of reliability, or inter-rater agreement. Flanders (13) has provided a method of checking inter-rater agreement which he considered to be most appropriate for the purpose. It is a coefficient of reliability devised by W. A. Scott (18) and is called "pi". The pi-coefficient determines mathematically the amount that two observers exceeded chance agreement in relation to the amount perfect agreement exceeds chance. A pi-coefficient

is interpreted in the same way a correlation coefficient is interpreted in judging reliability. Flanders states, "A Scott coefficient of 0.85 or higher is a reasonable level of performance to expect of trained observers." (13, p. 13 of Appendix F). Pi-coefficients were calculated for the matrices obtained in the present study, and these data are presented in Table III.

The procedure employed to obtain Teacher-Pupil Interaction Analysis matrices in the present study was for two trained observers to make three separate visits to the classroom of each kindergarten teacher. At each visit, each observer was to obtain two hundred observations, usually requiring about one hour. Thus a total of twelve hundred observations was recorded for each of the eight kindergarten teachers in the study. Revised Indirect/Direct ratios were calculated from each matrix separately to provide measures of each teacher's mode of interaction with her pupils. To provide data on the consistency of mode of interaction, matrices obtained at approximately the same time by the two observers were paired, and i/d ratios were calculated from these matrix pairs. Comparisons were then made among the three paired observations to yield information on the teacher's consistency of interaction pattern.

Treatment of Data

The statistical treatment applied to the sociometric scores to test Hypothesis 1 was single classification analysis of variance for repeated measures. Two such analyses were made: one of Group Sociability Indices, combined across all groups for each of the three sociometric testings; and one of Social Acceptability Scores, combined across groups for each testing.

To test Hypothesis 2, it was necessary to first calculate reliability coefficients using Scott's formula (18; 13, p. 10 of Appendix F). Pi-coefficients of reliability for the observations by the two Observers ranged from 0.46 to 0.71, falling considerably short of Flanders' criterion for adequate inter-rater agreement. Discussion of this lack of agreement with the Observers suggested that their divergence was the result of lack of training and experience in the use of the method, rather than any discrepancy in their perceptions of teacher-pupil interactions. However, their lack of agreement necessitated separate treatment of observations rather than analysis of combined matrices. Analysis of the difference between i/d ratios calculated from each of three observations by one observer were conducted using a chi-square techniques suggested by Flanders for the two Observers separately (13, p. 25 of Appendix F).

Hypothesis 3 was tested by means of an 8 X 3 factorial analysis of variance design for repeated measures, grouped by class within teacher. Using this design, Hypothesis 3 would be confirmed if the analysis showed significant differences between three administrations of the sociometric tests, significant differences between the eight teachers, and a significant interaction. Analyses were conducted for each of the two sociometric scores. An additional analysis bearing on the relationship of the changes in social climate and teacher mode of interaction was to calculate a Pearson product-moment correlation coefficient for these two variables.

The statistical analyses employed to test Hypothesis 4 were two 4 X 3 analyses of variance for repeated measures. Results of these analyses would confirm Hypothesis 4 if no significant differences were found between main effects, or due to interaction.

Results of the statistical analyses are presented in detail in Chapter III.

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CHAPTER III

RESULTS

Results of the single classification analysis of variance of Group Sociability Indices and of Social Acceptability Scores are presented in Tables Ia and Ib in the Appendix. The F-ratios obtained in the two analyses were not significant, suggesting that the sociability scores of pupils in the kindergartens studied did not increase or improve over the course of the term. Hence, Hypothesis 1 was rejected.

Table II, of the Appendix, reflects means and S. D.'s of the sociability measures overall, by teacher and by instructional model obtained at each of three administrations of the sociometric test. Examination of Table II and Figure 4, of the Appendix, shows that definite changes in sociability, as measured by the sociometric test, did occur. Viewed graphically in Figure 4, the variability of the measured changes, and the differences between classes-within-teachers with respect to both magnitude and direction of change, suggest support for Hypothesis 3.

Revised i/d ratios, derived from three separate observations by two different Observers, is presented in Table III of the Appendix. It can be seen from Table III that, although some i/d ratios derived from the Interaction

Analysis Matrices of the two different Observers correspond fairly closely in both magnitude and direction, the Scott's pi-coefficients calculated to check reliability are below the acceptable level set by Flanders and accepted for the present study. As noted in Chapter II, the low reliabilities seemed to have been a function of the training and experience of the Observers with the recording method. Although the percentage agreement between Observers was below standard as regards assignment of a particular teacher-pupil interaction to a specific category in the matrix, the Observers appeared to agree well as regards placement of an observation in a direct or an indirect category. That is, there seemed to be considerable agreement as to whether an interaction was direct or indirect, but little agreement as to whether an observation belonged in matrix category 1, 2, or 3, for example. Figures 5 in the Appendix graphically illustrate the congruence of some of the Observers' perceptions in the assignment of teacher-pupil interactions to the gross categories of indirect versus direct. However, separate analyses of the data to test Hypothesis 2 showed that some teachers exhibited an habitual mode of interaction while some did not. Calculations of two-tailed Darwin's Chi-square statistic (1, 2) were performed to test the differences between matrices. The results, presented in Table IV, revealed that not only did teachers in this study tend to vary their mode of

interaction, but also the magnitude of difference seemed to have been perceived somewhat differently by the two Observers. Since this disparity of perception between Observers was noted above, further discussion seems unnecessary, except to point out that Darwin's Chi-square and Scott's pi-coefficient are calculated from matrix cell tallies and are more sensitive tests of difference or reliability than would be a test which employed only the Revised i/d ratios. Table III lists Revised i/d ratios for each Observer for each observation of each teacher. In addition, pi-coefficients of inter-rater reliability are shown for each teacher, and the calculated Chi-squares (two-tailed) are presented. On the basis of the data in Table IV, Hypothesis 2 is tentatively rejected. The inconsistency of the data alone is great enough to warrant a cautious rejection of the hypothesis, but also suggests that inaccuracy of measurement technique and inexperienced Observers may be contaminating the data.

Analyses of variance calculated on Group Sociability Indices and on Social Acceptability Scores to test Hypothesis 3 are presented in Tables Va and Vb of the Appendix. Increased sociability of pupils over the period of the pre-school experience (Hypothesis 1) was not shown to have occurred in either of the analyses presented in Tables Va and Vb, reaffirming the rejection of Hypothesis 1 noted in the earlier single classification analyses. Both Tables Va

and Vb showed, however, that what changes in sociability, or social climate did occur in the kindergartens (as were noted above from examination of Figure 4 of the Appendix) seemed to be definitely related to differences among the teachers to whom pupils were assigned. With respect to both sociometric scores, F-ratios for differences between Teachers and for Interaction of Teachers with time period were significant well beyond the .01 level. To investigate further the degree of relationship between changes in sociability among pupils and their teacher's mode of interaction, a Pearson product-moment correlation coefficient (\underline{r}) was calculated for each of the two devised sociometric scores in comparison with i/d ratios obtained from each of the two observers. Since the two sociometric scores for groups differed numerically only with respect to their variances, it was necessary to calculate only two coefficients of correlation. The computations, to measure the relationship between pupil sociability and teacher interaction mode, as recorded by Observer 1, yielded a Pearson \underline{r} of .264. Similar computations of \underline{r} using data reported by Observer 2 resulted in a coefficient of .245. To test the statistical hypothesis that these two correlation coefficients represent chance deviations from a true correlation of zero, the \underline{t} statistic suggested by McNemar (4, p. 146) for small samples was used. Calculations of \underline{t} for

each of the two correlations yielded t values of 1.29 and 1.18, neither of which approaches significance. However, the low-order positive relationships observed were in the direction predicted by Hypothesis 3. Consequently, Hypothesis 3 was retained in modified form to take into account the failure of the data to reflect increased sociability attributable to the kindergarten experience, per se.

Factorial analyses of variance performed to test Hypothesis 4 are summarized in Tables VIa and VIb of the Appendix. On the basis of the significant F-ratios between instructional models, Hypothesis 4 must be rejected. However, inspection of the data suggested that the observed difference between models might be due to the inclusion of a single outstanding class-within-teacher, specifically the data from classes assigned to Teacher A. Figure 6, of the Appendix, shows graphically that differences in mean pupil sociability scores are marked when classes of Teachers A and B are combined to represent the Bank Street Model. With the means for Teacher A's pupils removed, on the other hand, the curve reflects no marked divergence from the others (Bank Street, Adjusted). Review of Figure 4 and Figure 6 both suggest that the significant F-ratio found for Between Models in Tables VIa and VIb is spurious. On the basis of the re-evaluation of the data, with adjustment made for Teacher A, Hypothesis 4 was retained. Thus, differences

between models found in the present study were seen as more closely associated with differences between teachers than with models.

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CHAPTER IV

DISCUSSION AND CONCLUSIONS

Results of the present study did not support the assumption that kindergarten experience, per se, produces improvement in sociability. As measured by the sociometric test used, sociability in the classroom settings changed over the period of the term, but in five of the eight classes-within-teacher it actually declined. Sociability measures for two of the groups showed a steady decline in magnitude over the term, while scores of three groups showed steady improvement. The remaining three groups showed improvement between first and second testings, but a marked decline between second and third administrations of the sociometric test. Such variability suggested that the kindergarten experience itself, without regard to important components of that experience, cannot be regarded as a panacea for the problems of sociability among disadvantaged children. It was noted from the data presented in Figure 4 that the pattern of improvement or decline in sociability was not related to instructional model in a systematic way. Teachers A, B and G were assigned to class-within-teacher groups which showed improvement over the term, yet two instructional models were used. Classes assigned to teachers D and H showed steady

decline in sociability, although each of these teachers employed a different instructional method. Teachers G and H employed the same method, with different results with respect to changes in sociability. From the data obtained in the present study, it might be concluded that simply exposing a group of children to a sixteen-week term of kindergarten classes cannot be expected to result in improved sociability among classmates. While instructional method used was shown in the statistical analysis to have been significantly related to changes in sociability (Table VIa and VIb), examination of Figure 4 leads to the conclusion that the role of the teacher is perhaps of greater importance.

The theoretical and research reports reviewed in Chapter I led to an expectation that teachers in the present study would exhibit an habitual mode of interaction with pupils. That is, it was anticipated that a teacher would be likely to interact with pupils consistently, in keeping with either an indirect or a direct mode of behavior. The data failed to fulfill that expectation, indicating, on the contrary, a relatively high degree of flexibility in teacher's interaction patterns. No firm conclusions about the consistency of teacher interaction patterns can be drawn from the present study, however. The agreement between Observers concerning assignment of interaction sequences to particular Flanders

categories was far below the acceptable level. Discussions with Observers, as well as inspection of the data point to lack of adequate training and experience with the method as the probable reason for the low coefficients of reliability observed. Since the reliability coefficients were calculated from complete matrices, it was felt that the data might reflect more consistency if considered in terms of the less discriminating i/d Ratios. Figure 5 does suggest that Observers were able, in many instances, to agree on whether to assign an interaction sequence to an indirect or to a direct category in the tally matrix. Except in a few instances, the direction and magnitude of the i/d ratios derived from two Observer's work sheets are similar, as may be seen from Table III. The failure of the Teacher-Pupil Interaction Analysis data to meet expectations, while significantly reducing the smooth, methodological elegance planned for the present study, did not vitiate entirely the investigation. One benefit derived from the use of the Flanders method was to demonstrate its appropriateness for recording intrapersonal transactions between teacher and pupil in a kindergarten classroom. Selection of the i/d Ratio for the measure of teacher mode of interaction seemed at the outset, most logical in terms of typical structuring of the didactics in a kindergarten classroom. In a kindergarten, it seemed more likely that teachers would be concerned

with techniques of motivation and control than with methods of communicating specific subject material. Visits to the kindergarten to be studied tended to confirm the validity of that logic, hence i/d , rather than I/D Ratios were used. With well-trained, experienced Observers, the Flanders Teacher-Pupil Interaction Analysis technique offers a useful tool for study of the interpersonal behavior of classroom teachers, even at the kindergarten level.

As noted in Chapter I, much of the effort in early childhood education, especially for culturally disadvantaged children, is predicated upon the assumption that the pre-school experience results in not only improved academic preparedness, but also improved socialization of the child. Data from the present study, as well as from an earlier study by Bonney and Nicholson (1), did not support unequivocally the assumption of improved socialization, or sociability, on any group basis. Review of the sociability measures of individual pupils in the present study revealed that in terms of the measures used as defined, some pupils showed marked improvement, others showed little change, and some showed a decline in sociability. Group socialization experiences, therefore, need to be viewed more in terms of their relevant components if a sound appraisal of their value is to be obtained. One of the purposes of the present study was to ascertain the relevance of the classroom

teacher's habitual mode of interacting with pupils to changes in pupil sociability. As was seen from the graph in Figure 4 and from the statistical analyses presented in Tables Va and Vb, a relationship exists between changes in sociability among pupils and some qualities of their teachers. However, the low-order, non-significant correlations obtained between sociometric scores and i/d Ratios failed to support the research hypothesis. Several alternative hypotheses have presented themselves, but the least speculative explanation for the lack of conclusive support for Hypothesis 3 is the inadequacy of the Flanders data collected by the Observers in the present study. Because of the significant differences (in Tables Va and Vb) found in sociability between classes-within-teachers, the significant interaction term, and the positive correlations (though non-significant), Hypothesis 3 was tentatively retained in modified form. Originally, Hypothesis 3 was concerned with increases in sociability, being related to teacher mode of interaction--a concern based on the assumption that Hypothesis 1 was true. The data failed to support Hypothesis 1, but pointed to a relationship between teacher interaction mode and changes in sociability. Hence, the conclusion from the data was that changes in pupil sociability are related to teacher mode of interaction. The data did not, however, reflect accurately the precise nature and direction of the relationship, but suggested a position

correlation. This finding needs further investigation using highly trained observers and perhaps more observations before a definite conclusion can be reached.

Because of the similarities among the four instructional models employed in the kindergartens studied, it was hypothesized that no significant differences would be found in pupil socialization attributable to method. The data analysis initially did not support the hypothesis yielding significant F-ratios for Between Models and for Interaction between models and changes in sociability over the term. The significant Interaction term, and a review of Figure 4 suggested that the significant F-ratios might be due to the marked changes in sociability scores which occurred in the classes of one teacher. When data from her classes were removed, and change curves were constructed (Figure 6), it was seen that little difference obtained between models. Hence, the significant F-ratio for between models was interpreted as an artifact of the assignment of teachers to models.

The teacher whose classes contributed such a significant portion of the Between Models variance was not characterized in the Flanders Interaction Analysis data by any more consistent adherence to an indirect or a direct mode of interaction than the other teachers. On the contrary, she was seen by both Observers as more flexible, as was shown by two significant Chi-squares in Table IV of the Appendix.

The Flanders data supported the conclusion that Teacher A adapted her interaction style to the shifting demands of the situation, rather than remaining technique-dominated. A visit to Teacher A's classes found Teacher A enthusiastically participating with her pupils in the tasks and projects. Her room was one of the noisiest of the ten kindergartens, but in the midst of the chatter and apparent confusion, Teacher A was seen moving about the room, engaging pupils singly and in groups of two or three in animated, cheerful conversation. Her well modulated voice was authoritative, but did not appear to sound intimidating to the children, who seemed to respond quickly with questions and answers. At one point during the visit, Teacher A walked around to each small work table during a five to seven minute period holding the hand of a child whose hurt feelings had produced tears and wails. Teacher A comforted the child briefly to stop the wailing, then simply led her by the hand as she went about her work. After a complete circuit of the classroom, the child returned to her work table on her own initiative. The "climate" in Teacher A's classroom could not be described adequately in terms of indirect or direct modes of interaction, because her behavior in transactions with pupils were not that simple. It was easy to perceive, at a purely subjective level, however, why her pupils exhibited such marked improvement in sociability. Her

enthusiasm, energetic participation and her apparently positive attitudes toward both the group and individual children were conducive to development of positive social relations. There seemed no doubt that Teacher A set the tone of her classroom, and that the attitudes and behaviors of her pupils were reflections of hers.

In conclusion, results of the present study indicate that the assumptions concerning the efficacy of preschool experience, per se, in improving pupil sociability may not be valid. Indeed, the data suggested that teacher characteristics may be the component of preschool experience most crucial in determining the magnitude and direction of changes in pupil sociability associated with the kindergarten experience. By means of the Flanders Teacher-Pupil Interaction Analysis technique, a group of eight kindergarten teachers were shown to vary their mode of interaction with kindergarten pupils between indirect and direct modes, rather than consistently pursue a single mode of interaction. With reservations concerning the training and experience of Observers, the Flanders technique, and the Revised i/d Ratio derived from it, were found to be appropriate tools for study of teacher-pupil interactions in kindergarten classrooms. Differences in the magnitude and direction of changed pupil sociability over the period of a kindergarten term were found to be associated with teacher differences more than with

differences in instructional model. However, the failure of the calculated correlation coefficients to reach statistical significance suggested that while an indirect vs. a direct mode of interaction may be related at a low level, other aspects of teacher attitudes and behaviors may be equally relevant to changes in pupil sociability. Further investigation of this possibility is needed.

The degree to which the findings of the present study may be generalized is limited, not only by the inadequacy of the data on teacher-interaction patterns, but also by the unique socio-economic status of the majority of the sample of pupils. On the basis of sociological and social psychological theory and research, one might expect disadvantaged youngsters to respond more "favorably" to the more direct teachers, if by "favorable" response one means conformity to teacher standards and expectations. Data bearing on this question were ambiguous in the results of the present investigation.

The social learning history of disadvantaged children is different in quality as well as quantity from that of the middle-class child. As a consequence, his expectations and attitudes about school are different. To what extent those attitudes and expectations influenced the results of the present study cannot be determined from the data. It was concluded from the results, however, that assumptions

about the effects of preschool experience on pupil social-
bility need to be re-examined--to that may be added:
especially assumptions about preschool programs for dis-
advantaged children.

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APPENDIX

TABLE Ia
ANALYSIS OF VARIANCE: OVERALL INCREASE
IN GROUP SOCIABILITY INDEX

Source of Variation	df	Mean Square	F-Ratio
Between	158		
Within	318		
Pre-, Mid-term, Post-test Adminis- trations	2	11.85	2.48 (N.S.)
Residual	316	4.79	
Total	476		

TABLE Ib
ANALYSIS OF VARIANCE: OVERALL INCREASE
IN SOCIAL ACCEPTABILITY SCORE

Source of Variation	df	Mean Square	F-Ratio
Between	158		
Within	318		
Pre-, Mid-term, Post-test, Adminis- trations	2	11.85	2.44 (N.S.)
Residual	316	4.85	
Total	476		

TABLE II
 MEANS AND S.D.'S OF SOCIABILITY SCORES*
 DERIVED FROM THE SOCIOMETRIC TESTS

Grouping	First Testing		Second Testing		Third Testing	
	GSI		GSI		GSI	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Teacher A	1.94	1.77	1.94	1.87	1.94	1.87
Teacher B	0.82	1.78	0.82	2.92	0.82	2.92
Bank St. Model	1.26	2.09	1.26	2.20	1.26	2.20
Teacher C	1.71	1.53	1.71	1.03	1.71	1.03
Teacher D	1.16	1.63	1.16	1.63	1.16	1.63
Deutsch Model	1.39	1.94	1.39	1.43	1.39	1.43
Teacher E	0.67	1.85	0.67	2.28	0.67	2.28
Teacher F	1.83	1.28	1.83	1.74	1.83	1.74
Hughes Model	1.22	1.87	1.22	2.30	1.22	2.30
Teacher G	2.50	1.58	2.50	1.17	2.50	1.17
Teacher H	1.50	2.23	1.50	1.18	1.50	1.18
Weikert Model	2.03	2.37	2.03	1.28	2.03	1.28
Total	1.29	1.97	1.29	1.97	1.29	1.97
Kindergarten						

*Sociability scores are Group Sociability Index (GSI), and Social Acceptability Score (SAS).

TABLE III
 REVISED INDIRECT/DIRECT RATIOS COMPUTED FROM
 TEACHER-PUPIL INTERACTION ANALYSIS
 MATRICES, AND INTER-RATER
 RELIABILITY COEFFICIENTS
 FOR TWO OBSERVERS

Teacher	Observer	Observation 1	Observation 2	Observation 3	Pi-Coefficient
A	1	0.741	0.211	0.317	0.52
	2	0.660	0.644	0.343	
B	1	0.253	0.204	0.375	0.52
	2	0.196	0.205	0.655	
C	1	0.383	0.585	0.420	0.71
	2	0.391	0.519	0.773	
D	1	0.333	0.472	0.293	0.46
	2	0.493	0.917	0.392	
E	1	0.432	0.256	0.288	0.52
	2	0.578	0.806	0.632	
F	1	0.528	0.370	0.298	0.56
	2	0.541	0.456	0.464	
G	1	0.655	0.313	0.458	0.59
	2	0.463	0.431	0.431	
H	1	0.132	0.347	0.105	0.66
	2	0.271	0.246	0.053	

Note: The larger the ratio, the more "Indirect" the teacher's mode of interaction.

TABLE IV
 COMPARISONS OF INTERACTION ANALYSES MATRICES
 TO DETERMINE CONSISTENCY OF TEACHER
 MODE OF INTERACTION

Teacher	Observer 1		Observer 2	
	Chi-square	z	Chi-square	z
A	127.61	2.60*	138.42	2.86*
B	103.19	2.01	128.93	2.60*
C	111.45	2.10	127.43	2.59*
D	99.78	1.88	144.19	2.97*
E	100.14	1.90	126.26	2.59*
F	121.04	2.35	96.63	1.67
G	127.01	2.59*	90.32	1.37
H	109.22	2.10	126.64	2.59*

* $p < 0.01$

TABLE Va

ANALYSIS OF VARIANCE: CHANGES IN GROUP SOCIABILITY
INDEX OVER TIME BY GROUPINGS OF
CLASS-WITHIN-TEACHER

Source of Variation	df	Mean Square	F-ratio
Between	158		
Class-Within-Teacher	7	81.34	15.05*
Error Between	151	5.40	
Within	318		
Term of Program	2	10.81	1.89 (N.S.)
Class x Term	14	21.80	3.82*
Error Within	302	5.72	

*p < 0.01

TABLE Vb

ANALYSIS OF VARIANCE: CHANGES IN SOCIAL ACCEPTABILITY
SCORE OVER TIME BY GROUPINGS OF CLASS-WITHIN-TEACHER

Source of Variation	df	Mean Square	F-ratio
Between	158		
Class-Within-Teacher	7	81.34	9.24*
Error Between	151	8.80	
Within	318		
Term of Program	2	10.81	2.64 (N.S.)
Class x Term	14	21.80	5.32*
Error Within	302	4.10	

*p < 0.01

TABLE VIa

ANALYSIS OF VARIANCE: COMPARISON OF CHANGES IN GROUP
 SOCIABILITY INDEX OVER TIME, WITH GROUPINGS BY
 INSTRUCTIONAL MODEL

Source of Variation	df	Mean Square	F-ratio
Between	158		
Models	3	51.16	6.45*
Error Between	155	7.94	
Within	318		
Term of Program	2	7.23	1.66 (N.S.)
Model x Term	6	24.22	5.56*
Error Within	310	4.35	

* $p < 0.01$

TABLE VIb

ANALYSIS OF VARIANCE: COMPARISON OF CHANGES IN SOCIAL
 ACCEPTABILITY SCORE OVER TIME, WITH
 GROUPINGS BY INSTRUCTIONAL MODEL

Source of Variation	df	Mean Square	F-ratio
Between	158		
Models	3	51.16	4.55*
Error Between	155	11.25	
Within	318		
Term of Program	2	7.23	1.64 (N.S.)
Model x Term	6	24.22	5.48*
Error Within	310	4.42	

* $p < 0.01$

Dallas Independent School District
Dallas, Texas

SOCIAL-CLIMATE SCALE

Play Criteria

1. If we were going to play a game, what kids would you like to play with?

2. If there are any kids you would not like to play with, who are they?

Work Criteria

1. If you were asked to help your teacher get our group ready to go to lunch, what kids would you like to help you?

2. If there are any kids you would not like to help you, who are they?

Fig. 1--Sociometric test administered to all pupils in the Pilot Kindergartens.

DALLAS INDEPENDENT SCHOOL DISTRICT
KINDERGARTEN PROGRAM

SOCIAL-CLIMATE SCALE
(Spanish)

PLAY CRITERIA

1. Si fuéramos a jugar un juego ¿ con a cuales niños te gustaría a jugar?
2. Si hay unos niños con quien no te gustaría jugar ¿ a cuáles son?

WORK CRITERIA

1. Si la maestra te dice que le ayudes que te arregles para ir a comer ¿ quién quieres que te ayude arreglar a los niños?
2. Si hay unos niños que no quieres que te ayuden ¿ quiénes son?

Fig. 1a--Sociometric test in Spanish. This version used with pupils whose primary language was Spanish.

WORK MATRIX

	1	2	3	4	5	6	7	8	9	10	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											Matrix Total
TOTAL											
%											

Fig. 2--Matrix form used to record teacher-pupil interaction during period of classroom observation.

TEACHER TALK	INDIRECT INFLUENCE	<p>1.* ACCEPTS FEELING: accepts and clarifies the tone of feeling of the students in an unthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.</p> <p>2.* PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual, nodding head or saying "um hm?" or "go on" are included.</p> <p>3.* ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category 5.</p> <p>4.* ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.</p>
	DIRECT INFLUENCE	<p>5.* LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions.</p> <p>6.* GIVING DIRECTIONS: directions, commands, or orders which students are expected to comply with.</p> <p>7.* CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from unacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.</p>
STUDENT TALK		<p>8.* STUDENT TALK--RESPONSE: talk by students in response to teacher. Teacher initiates contact or solicits student statement.</p> <p>9.* STUDENT TALK--INITIATION: talk initiated by students. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk.</p> <p>10.* SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.</p>

Fig. 3--Definitions of Work-Matrix Categories

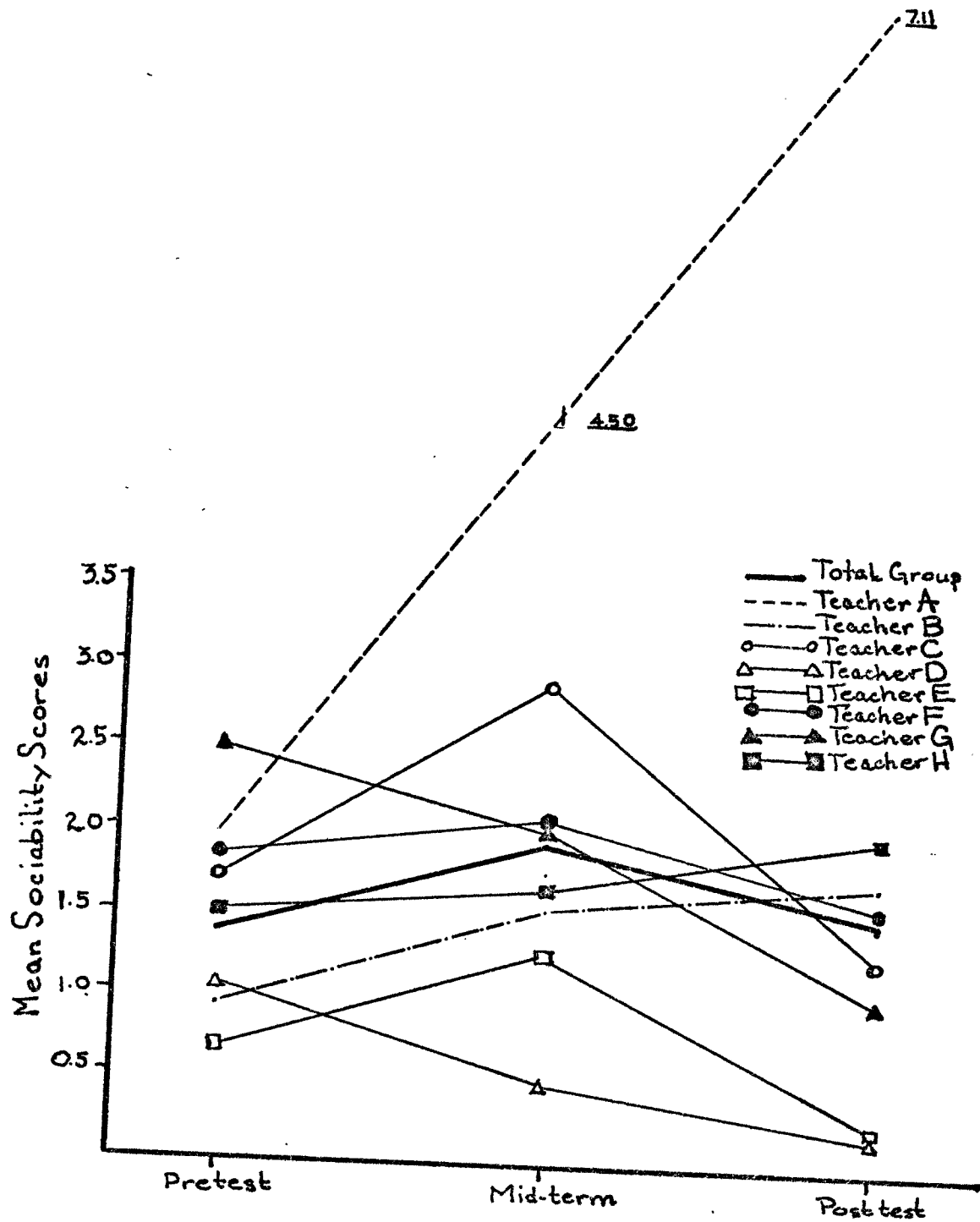


Fig. 4--Mean Sociability Scores: Total Group and Class-Within-Teacher.

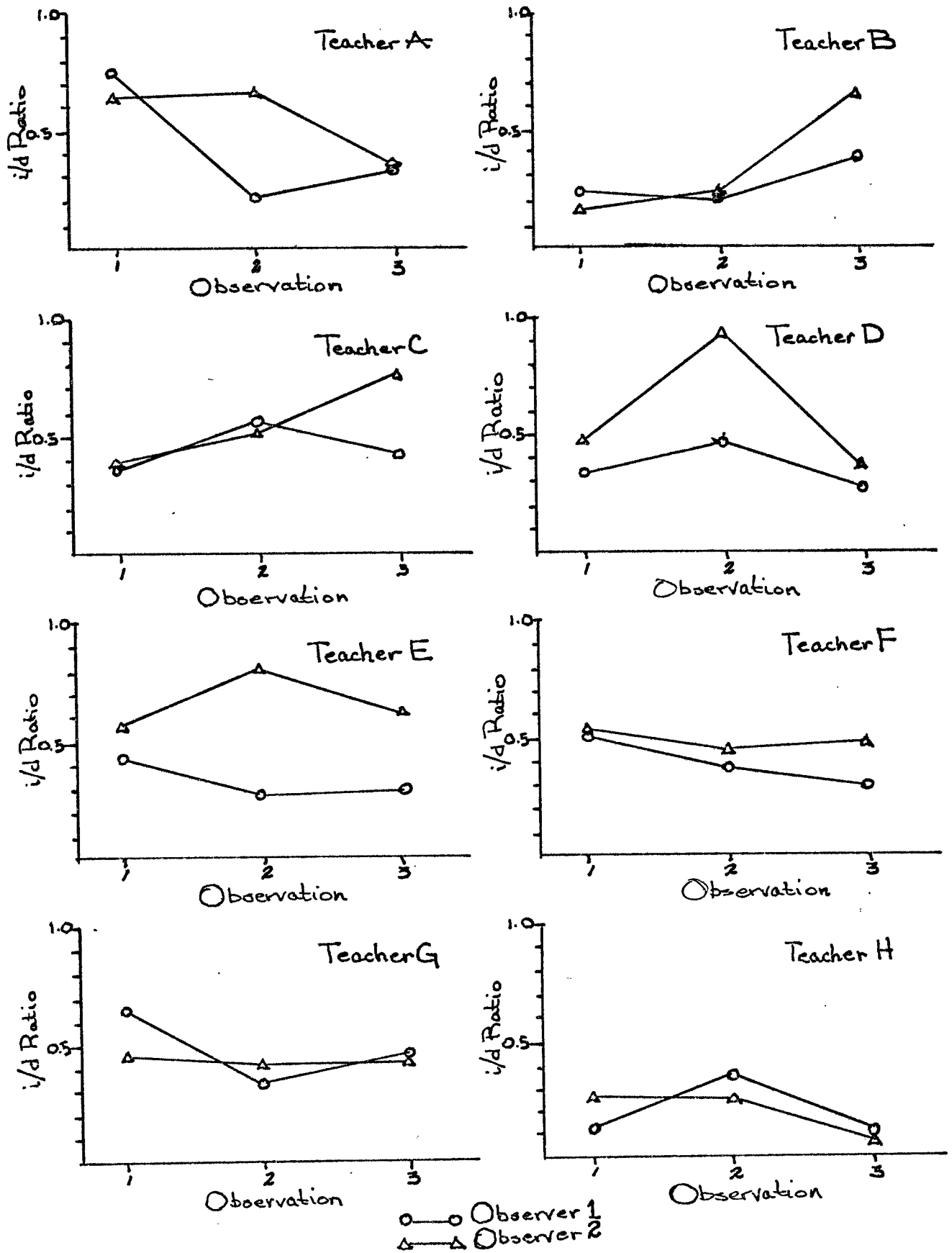


Fig. 5--Revised Indirect/Direct Ratios Derived from Observations by Two Observers.

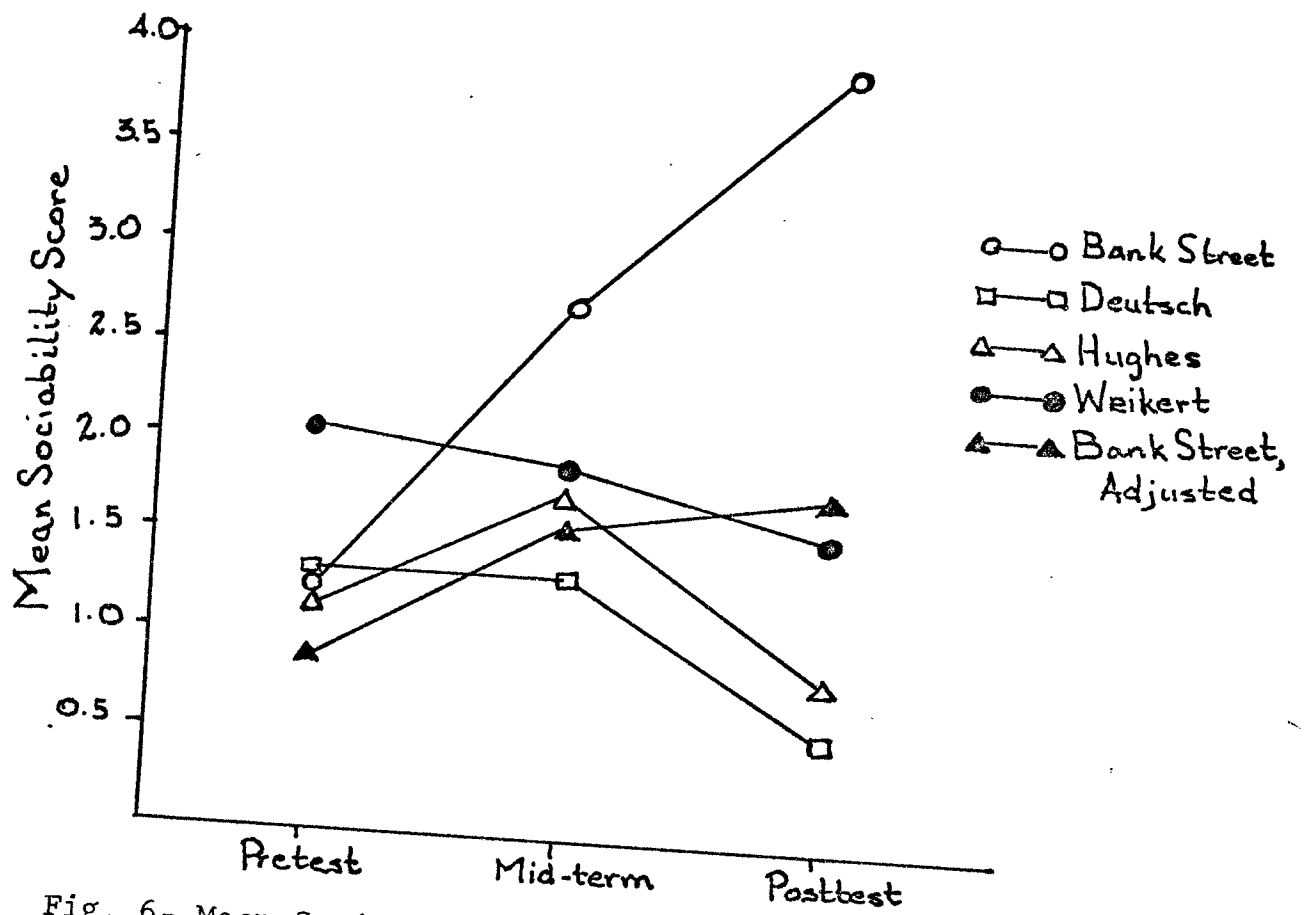


Fig. 6--Mean Sociability Scores: Instructional Model

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