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TITLE THE ACCURACY OF TEACHERS' JUDGMENTS CONCERNING THE SOCIOMETRIC STATUS OF SIXTH-GRADE PUPILS

AUTHOR NORMAN E. GRONLUND

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# THE ACCURACY OF TEACHERS' JUDGMENTS CONCERNING THE SOCIOMETRIC STATUS OF SIXTH-GRADE PUPILS

by

Norman E. Gronlund

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Committee in Charge:

Associate Professor Robert M. W. Travers (Chairman)
Professor Harlan C. Koch
Professor Howard Y. McClusky
Professor Willard C. Olson
Assistant Professor George A. Satter
Assistant Professor Alvin F. Zander

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# CHAPTER I

# INTRODUCTION

## Statement of the Problem

One of the objectives of modern education is the social adjustment of pupils. The extent to which pupils are chosen by their classmates as work companions, play companions, and seating companions is one evidence of social adjustment. This acceptance by peers is highly valued and sought after by the pupil and represents an important domain of pre-adolescent behavior. It should be of major concern to the teacher who is largely responsible for the social development of the members of her class. In an attempt to carry out this responsibility teachers are constantly making judgments concerning the relative acceptability of various members of the class. The extent to which these judgments are accurate determines, in part, the effectiveness of her efforts in this area.

This study is an attempt to determine the accuracy of teachers' judgments concerning the degree to which sixty-grade pupils are accepted by their classmates, and the relationship of certain variables to the accuracy of these judgments.

## Definition of Terms

In order to clarify the terms used in this study, they are defined as follows:

Sociometric test -- an instrument which "requires an individual to choose his associates for any group of which he is or might become a member."[1]

Criterion -- basis on which associates are chosen on a sociometric test. In this study the criteria are work companion, play companion, and seating companion.

Sociometric status -- degree to which a pupil is accepted by his classmates, in terms of the number of choices he receives from them on a sociometric test.

Teacher preference -- status of pupil in terms of whether the teacher most prefers or least prefers having him in her class.

Teacher judgment -- relative position of pupil to his classmates in terms of the teachers' estimate of his sociometric status.

## Nature of the Study

The general nature of the study is revealed in the statement of the problem. While this reflects the central

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[1] Jacob L. Moreno, Who Shall Survive? Washington, D. C.: Nervous and Mental Disease Publishing Co., 1934. P. 11

theme throughout the study there are a number of specific questions for which answers are sought. These questions are listed below to help clarify the exact nature of this study.

1. To what extent are teachers accurate in judging the sociometric status of all pupils in the classroom?
2. Is there any difference between teachers in the accuracy of their judgments?
3. Is there any difference in the accuracy of teachers' judgments of boys and girls?
4. Is there any difference in the accuracy of teachers' judgments on the criteria of seating, play, and work?
5. What is the relationship between the average accuracy of the teachers' judgments and each of the following variables?
   a. Age of teacher.
   b. Years of teaching experience.
   c. Length of time in present position.
   d. Semester hours of college training.
   e. Recency of training.
   f. Semester hours in education courses.
   g. Semester hours in psychology courses.
   h. Size of class.

i. Marital status of teacher.

j. Length of contact with class.

k. Whether or not the teacher had a course in Child Development.

6. Do teachers over-judge those boys and girls they most prefer, and under-judge those boys and girls they least prefer as pupils in class?

7. If the above phenomenon exists, what is the relationship between the degree to which this bias is present in a teacher's judgments and the accuracy of her judgments?

8. What is the relationship between the amount of freedom the pupils feel they have in class and the accuracy of teachers' judgments?

Delimitations of Study

This study is restricted to forty women teachers at the sixth grade level teaching in the Flint, Willow Run, and Ypsilanti public schools. Only women teachers were included in this study for several reasons. First, the teachers at this grade level are predominantly women. Second, to include the few men teachers that were available at this grade level would only tend to complicate the results.

Several considerations also prompted the decision

to confine this study to the sixth grade level. First, it was desired to obtain a situation in which the teachers were with the same group for the major part of the day. Second, the pre-adolescent period is one of the most important stages in the pupil's social development. Finally, the reliability of the sociometric test has been shown to increase with age, at the elementary level, thereby providing the most reliable bases against which to compare the teachers' judgments.

The selection of the Flint, Willow Run, and Ypsilanti public schools was prompted by the deep interest of the administrators and teachers in problems of social adjustment. The fine cooperation of these administrators and teachers in carrying out this research in their classrooms is gratefully acknowledged.

## Method of Investigation

A sociometric test was administered to forty sixth-grade classes. On this test each pupil was asked to choose five classmates with whom he would prefer to work, five classmates with whom he would prefer to play, and five classmates near whom he would prefer to sit. In addition, each pupil was requested to respond to eight questions concerning the freedom he had in carrying out routine class activities.

In the same forty classes the teacher was asked to make judgments concerning the sociometric status of each pupil on the criteria of seating companion, play companion, and work companion. Further, the teacher was asked to indicate which three boys and three girls she most preferred as pupils in her class, and which three boys and three girls she least preferred as pupils in her class. Personal data information regarding the teachers was obtained from school records where possible. Where the school records were not available the teacher was requested to provide the desired information on a personal data sheet.

## Organization

The next chapter will review the literature related to this problem. Chapter III will describe the method of investigating the problem, including the procedures and instruments used, description of the subjects, and method of collecting data. Chapter IV will present an analysis of the data and the results of that analysis. Chapter V will contain a summary, conclusions, and implications for further research in this area.

# CHAPTER II

## RELATED LITERATURE

The literature pertinent to this study falls into three categories: (1) that concerning the use of sociometric tests; (2) that concerning the accuracy of adults' judgments of sociometric status, in childhood and adolescent groups; and (3) that concerning factors which may possibly be related to the accuracy of adults' judgments of sociometric status, in childhood and adolescent groups.

The literature on sociometric testing is voluminous and much of it has no direct bearing on the present problem. Since this is a study of teachers' judgments of pupil sociometric status, only that literature on sociometric testing will be reviewed which is pertinent to this problem.

### Sociometric Tests

Moreno,[1] who devised the sociometric technique, defines it as follows:

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[1] Jacob L. Moreno, Who Shall Survive? Washington, D. C.: Nervous and Mental Disease Publishing Co., 1934. P.11.

> An instrument to measure the amount of organization shown by social groups is called a sociometric test. The sociometric test requires an individual to choose his associates for any group of which he is or might become a member.

He cautions that the accurate giving of the test is important if it is to be correctly called sociometric. The two specifications that he sets up to meet this requirement are that the test must "determine the feelings of individuals towards each other and, second, to determine these in respect to the same criterion."[1]

The sociometric test devised by Moreno was first used in a public school by him in Brooklyn, New York. The boys and girls of all classes from the kindergarten through the eighth grade were requested to choose among their classmates those whom they would most prefer to have sit near them. The results of this first attempt to use a sociometric technique in a classroom were described by Moreno[2] as follows:

> As a consequence of the test given to these pupils a complex structure of the class organization was uncovered, widely differing from the prevalent one. A number of pupils

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[1] Ibid., p. 15.

[2] Ibid., p. 24.

> remained unchosen or isolated; a number chose each other, forming mutual pairs, triangles, or chains; others attracted so many choices that they captured the center of the stage like stars.

The most extensive research done with the sociometric test in the classroom, and a logical extension of Moreno's original work, was that by Bronfenbrenner.[1] He conducted a sociometric study of 151 elementary school children from the nursery school through the sixth grade. Although his primary purpose was to set up and evaluate a scoring method for sociometric testing, his contributions were many. In the fall and spring term the children at all grade levels were asked to name the classmates they would like best to work with, play with, and have sit near them. These three criteria were selected on the basis of observation of the classes. They were considered to be the ones common to all grade levels; familiar to all members of the group; equally available for all members to participate; and least influenced by extraneous environmental factors.

In deciding whether to use the number of choices received by each child or the number of different persons

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[1]Urie Bronfenbrenner, "A Constant Frame of Reference for Sociometric Research: Part II, Experiment and Inference," Sociometry, 7 (February, 1944), 40-75

by whom he was chosen, as the best unit for fine discrimination, Bronfenbrenner[1] states:

> A comparison of indices based on both types of unit revealed that while negative deviations from the expected value were equally marked in one or the other distribution, extreme deviations in excess of chance expectancy were obtained only when the number of choices rather than the number of different persons choosing was utilized for computing indices.

Using the number of choices as an index of sociometric status he made no distinction between a first, second, third, etc., choice. This was prompted by the difficulty of determining the social significance of different choice levels; the dubiousness of assigning a priori values; and the complication of the scoring procedure with weighted choices.

Through the development and application of a formula based on the Pearson Type III Curve Bronfenbrenner[2] found that the number of choices a pupil receives on a sociometric test is a reliable index of sociometric status, within certain restrictions. In this regard Bronfenbrenner[3] states:

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[1] Ibid., p. 44.

[2] Ibid., p. 68.

[3] Ibid., p. 69.

> In summary, for sociometric situations involving as many as three criteria with five choices allotted per person, the total number of choices received by each child may be used with reasonable confidence as a reliable index of sociometric status provided the number of criteria and choices allotted remains constant for all groups tested.

He contends that this holds true if the groups include no less than ten and no more than fifty persons.

Comparing the fall and spring sociometric results, using the total number of choices each child receives as an index of sociometric status, Bronfenbrenner[1] found that sociometric status remained fairly stable. In regard to his findings in this respect, he concludes:

> In classroom situations, marked shifts in sociometric status are comparatively rare. On the whole, children tend to retain the same general social position and this tendency becomes more pronounced in older age groups.

This finding is in general accord with that of Bonney[2] who found sociometric status as stable as that

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[1] Ibid., p. 73

[2] Merl E. Bonney, "The Relative Stability of Social, Intellectual, and Academic Status in Grades II to IV, and the Inter-Relationships between these Various Forms of Growth," Journal of Educational Psychology, 34 (January, 1943), 88-102.

of intelligence and academic attainment. He administered a sociometric test, intelligence test, and general achievement test to the same class of students for three consecutive years when they were in the second, third, and fourth grades. Correlations between the scores of successive grade levels in these measurements were quite high with sociometric status approximately as stable over the three years as intellectual and academic status.

While general stability of sociometric status has been shown, to obtain a true index of the reliability of the sociometric test is a difficult problem. Newstetter, Feldstein, and Newcomb[1] allotted thirty fourteen-year-old boys in a summer camp five choices each for tentmate at two-day intervals, the results of which correlated .92±02. Jennings[2] found similar results in a training school for girls using an unlimited number of choices. A four-day re-test of approximately twenty-eight girls on the criterion of work with, live with, spend leisure time with, and study with

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[1]Wilber J. Newstetter, Mark J. Feldstein, and Theodore M. Newcomb, Group Adjustment: A Study in Experimental Sociology. Cleveland: School of Applied Sciences, Western Reserve University, 1938. P. 35.

[2]Helen H. Jennings, Leadership and Isolation. New York: Longmans, Green and Co., 1943. P. 31.

yielded a reliability coefficient of .96. Zeleny[1] allotted five choices for membership in a discussion group at two-day intervals, the results of which correlated between .93 and .95. Although these reliability coefficients are high there can be little doubt that the memory factor played a large part in the repetition of the choosing situation. On the other hand, a low correlation between sociometric tests several months apart would not necessarily mean the instrument is unreliable, but may be merely indicating the real changes that have taken place in the social development of the group. In addition to the findings of Bronfenbrenner and Bonney, Jennings[2] also found that sociometric status was fairly stable over several months. A re-test of 131 girls after an eight-month period correlated .65. Despite the fact that "reliability" in its usual meaning can not be directly applied to the sociometric test, a fair degree of stability of sociometric status is indicated.

Although the sociometric test is said to be valid by definition, in that it purports to measure choice

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[1]Leslie D. Zeleny, "Sociometry of Morale," American Sociological Review, 4 (December, 1939), 804.

[2]Jennings, op. cit., p. 57.

behavior, it is desirable for the purposes of this study to determine if sociometric status is related to other evidences of social adjustment.

Jennings[1] has presented data to show that the behavior descriptions of those who recieve few choices on the sociometric test are quite different from those who are highly chosen. The personality descriptions were obtained from an analysis of the "complaints" and "commendations" of house mothers concerning each of 124 girls living in a training school for girls. The under-chosen members of the group were characterized most frequently as exhibiting behavior disagreeable to the house mother such as quarrelsome, complaining, nervous, agressive, and dominant behavior. In addition they were most frequently described as interfering with the group's activities, and exhibiting attention-seeking behavior. On the other hand, the over-chosen members were characterized most frequently by behavior regarded as "Commendatory" by the house mother, such as cooperative even disposition, initiative, non-attention-seeking, etc., behaviors.

A similar relationship between behavior descriptions and number of choices received on a sociometric test in

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[1] Jennings, op. cit., pp. 144-163

a classroom situation was found by Olson.[1] He asked teachers in ten elementary school classes to make comments about each child concerning factors that may affect the number of choices received on a sociometric test. The social and emotional factors were categorized and compared to the number of choices the children received. Those children classified as ill, sulky, conduct problems, bossy, new in class, and shy tended to be below the mean in number of choices received; whereas those classified as good natured, quiet, friendly, well adjusted, and dependable tended to be above the mean in the number of choices received.

Bonney[2] also found significant differences in the personality traits of those highly chosen by their classmates and those chosen by few. He administered a sociometric test to three fourth-grade classes and compared the results with teacher and pupil ratings of members of the class, on twenty personality traits. In describing the personality traits which distinguished the high chosen from those receiving few choices,

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[1]Willard C. Olson, Child Development. Boston: D. C. Heath and Company, 1949. Pp. 200-201.

[2]Merl E. Bonney, "Personality Traits of Socially Successful and Socially Unsuccessful Children," Journal of Educational Psychology, 34 (November, 1943), 449-472.

Bonney[1] concludes:

> ...the traits which proved most significant in differentiating between the popular and unpopular children may be organized into two syndromes. The first syndrome is composed of strong, aggressive personality traits such as leadership, enthusiasm, daring, and active participation in recitations. The second syndrome is not so definite but is composed of traits which count the most in direct inter-personal contacts, such as a pleasing appearance, a cheerful disposition, and friendly attitudes.

Kuhlen and Lee[2] conducted a similar study on sixth, ninth, and twelfth grade students with similar findings. Those receiving the largest number of choices were judged most frequently as being popular, cheerful and happy, enthusiastic, friendly, able to enjoy jokes, and to initiate games and activities.

In a study concerning the relationship of personal problems to sociometric status Kuhlen and Bretsch[3] administered a sociometric test and the Mooney Problem Check List to about 700 ninth-graders. On the problem check

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[1] Ibid., p. 458.

[2] Raymond G. Kuhlen and Beatric J. Lee, "Personality Characteristics and Social Acceptability in Adolescense," Journal of Educational Psychology, 34 (November, 1943), 321-340.

[3] Raymond G. Kuhlen and Howard S. Bretsch, "Sociometric Status and Personal Problems of Adolescents," Sociometry, 10 (May, 1947), 122-127.

list the students were asked to check each item in the category of never, sometimes, or often. They found that those with lowest sociometric status (bottom quartile) checked more personal problems "often" than the top quartile in sociometric status. These personal problems that were checked "often" by the low sociometric status group revealed greater concern with social skills, unhappiness and lack of status, family problems, and dislike of school.

Northway[1] made an intensive study of the personality traits of this low sociometric status group (lower quartile). In a sociometric study of eighty fifth and sixth grade pupils she selected the twenty least chosen members for special clinical study concerning their personality make-up. She found that this low sociometric status group fell into three distinct personality patterns--the listless, recessive children; the quiet and retiring, socially uninterested children; and the noisy, rebellious, socially ineffective children.

The past several studies have shown that sociometric status is related to other evidences of social adjustment.

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[1]Mary L. Northway, "A Study of the Personality Patterns of Children Least Acceptable to Their Age Mates," Sociometry, 7 (February, 1944), 10-25.

In this respect the sociometric test may be considered valid for the purposes of this study.

Judgment of Sociometric Status.

Ever since Moreno devised the sociometric technique there has been some question concerning the extent to which an outside observer could judge the sociometric status of members of a group. In his original administration of the test to all classes of the first eight grades of a Brooklyn public school Moreno[1] asked the teachers to judge which boy and girl would receive most of the choices from their classmates and which two would receive next most. In addition he asked them to judge which two would receive the least choices and which two would receive the next least. Concerning the over-all accuracy of the teachers' judgments he stated:

> In 48 per cent of the instances the teachers' judgments coincided with the findings through the sociometric test in respect to the two most chosen boys and girls; in 38 per cent of the instances in respect to the least chosen boys and girls in her classroom.

He found that the degree of accuracy varied with

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[1]Moreno, op. cit., p. 25.

the grade level, having its highest point in the kindergarten and first grade and declining as the grade level increased. The average degree of accuracy was thirty per cent at the sixth grade level. This declining accuracy he attributes to increasing complexity of groups, and the development of a social cleavage between adults and children. Concerning the lack of insight teachers have into children's groups Moreno[1] comments:

> The teachers' judgments concerned only the extremes in position. The average positions of individuals are, it is evident, far more difficult to estimate accurately. The intricacies of the children's own associations prevent the teacher from having a true insight. This fact appears as one of the great handicaps in the development of teacher-child relationships.

It is regrettable that more research workers did not follow Moreno's cue and explore this important area. Only a few studies are available concerning the adult's ability to judge the sociometric status of members of childhood and adolescent groups. In the majority of these investigations this judgment of sociometric status was incidental to other purposes, and consequently a limited number of subjects were used.

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[1]Moreno, op cit., p. 54

Bonney[1] in a sociometric study of the fifth grade had three teachers, at the end of the year, make judgments concerning the pupils' sociometric status. The teachers were asked to place the pupils in five categories--highest group, above average, about average, below average, and lowest group. They were told they need not place the same number in each group. Comparing this teacher grouping of pupils with the sociometric results Bonney[2] found that "approximately ninety per cent of the children were placed by the teachers, either in the same quintile, or only one removed from that in which they were placed by pupil choices."

In another, more comprehensive study, by Bonney[3] thirteen teachers were asked to make judgments concerning the sociometric status of 291 high school students. The students were asked to select their two best friends. The results of this choosing situation were divided into three groups--high, middle and low. The high group

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[1]Merl E. Bonney, "The Constancy of Sociometric Scores and Their Relationship to Teacher Judgments of Social Success, and to Personality Self-Ratings," Sociometry, 6 (November, 1943), 409-424.

[2]Ibid., p. 419.

[3]Merl E. Bonney, "Sociometric Study of Agreement Between Teacher Judgments and Student Choices," Sociometry, 10 (May, 1947,) 133-146.

consisted of those students who received three or more choices and contained forty-five students; the middle group one or two choices and contained thirty-five students; and the low group no choices and contained thirty students. Each category had approximately an equal number of boys and girls. Three months after the students made their choices the thirteen teachers were asked to rate the students in the high, middle, or low group on the basis of their estimate of how many choices each student received. An "unable to judge" category was used where the teacher did not know the student well enough to judge. The teachers were told how many students were included in each group on the basis of choices and were told to try to place the same number in each group. However, this could not be done due to the large number of "unable to judge" ratings. Approximately forty-four per cent of the ratings fell in this category. Of the remaining ratings twenty-one per cent were in the high group; twenty-three per cent in the middle group; and eleven per cent in the low group. The average accuracy of teachers' judgments was forty-five per cent for the high and middle group, and twenty-eight per cent for the low group. However, the few ratings in the low group plus the large number of ratings in the "unable to judge" category make the results

of dubious value, if not altogether uninterpretable.

A much more limited study was carried out in a summer camp. In this setting Newstetter, Feldstein, and Newcomb[1] asked six counselors to make judgments concerning the sociometric status of thirty fourteen-year-old boys, who had been allotted five choices each for tentmate preference. The counselors rated these thirty boys on a seven-point scale for sociometric status. The correlation between the counselors' judgments and the boys' choices revealed a mean coefficient of .756 $\pm$ .20. The reliability of the ratings was determined by correlating the judgments of raters for a one-week interval. These correlations ranged from .830 to .998, with a mean correlation of .945 $\pm$ .01.

While these results are encouraging and reveal that an adult can have considerable insight into the group life of children and adolescents, as measured by a sociometric test, they can not be transferred *in toto* to the classroom situation. The informality and freedom of camp life is quite different from the usual classroom routine. In addition, the restriction of the camp population to boys simplifies the judgment situation over

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[1]Newstetter, Feldstein, and Newcomb, *op. cit.*, pp. 35-53

that of the classroom where sexes are mixed.

This may provide a good point to sum up the major shortcomings of all of the above studies in judgment of sociometric status. No mention was made of differences between the judges in any of the above studies. The underlying assumption seemed to be that all adults are equally capable of judging sociometric status in childhood and adolescent groups. Certainly one would expect the judges to vary in the amount of insight they have into group structure. This area may have been avoided due to the limited number of judges used, which is a second shortcoming of the above studies. While Moreno's[1] study shows that the accuracy of teachers' judgments declined gradually from the kindergarten to the seventh grade, might that not be explained in part by differences of the ability of teachers to judge sociometric status, rather than solely on the basis of declining insight into older age groups. The fact that the accuracy of teachers' judgments in this study increased from twenty-five per cent in the seventh grade to forty per cent in the eighth grade would tend to indicate such an assumption. Regardless, the lack of information on the differential ability of the teachers

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[1]Moreno, op.cit., p. 28.

to make such judgments plus the limited number of teachers at each grade level causes the results to be questionable.

In Bonney's[1] fifth grade study only three teachers were used, which would limit the value of any statements that could be made about differential ability to make such judgments. In his[2] more extensive study at the high school level thirteen teachers were used, but they were asked to judge the sociometric status of students, approximately half of whom they did not have an opportunity of observing in groups. Another criticism of this latter study might be that he had the teachers make their judgments three months after the administration of the sociometric test. While large shifts in sociometric status are rare, it is to be expected that some shifts in status will take place over a three-month period.

## Factors Affecting Judgment of Sociometric Status

Due to the few studies in this area of judgment it should be important to consider what are some of the

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[1]Bonney, op. cit. P. 419.

[2]Bonney, op. cit. pp. 133-146

factors that may possibly influence the judgment of sociometric status. Travers[1] in a study concerning the judgment of the opinions of groups found that "the individual tends to overestimate the percentage of the group being judged who thinks as he does." It would be valuable to know if such a bias exists in the teachers' judgment of sociometric status. Stated another way, would the teacher tend to overestimate the sociometric status of pupils she most prefers? The possibility of such a bias existing is revealed in a statement by Stokes.[2] He states:

> One common error on the part of teachers is to confuse social adjustment between children with social adjustment between adults and children. The two are not necessarily antithetical but it is perfectly possible for a child to achieve satisfactory relationships between himself and his teachers, and yet fail to make himself acceptable to his peers. The converse is equally true; and all the shades of variation between these extremes also.

If teachers do tend to confuse social adjustment between children with social adjustment between adults

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[1]Robert M. W. Travers, A Study in Judging the Opinions of Groups. Archives of Psychology, No. 266. New York: Bureau of Publications, Columbia University, 1941. P. 66.

[2]Stuart Stokes, The Social Analysis of the Classroom. Division on Child Development and Teacher Personnel, American Council on Education, January, 1940. P. 2

and children then Tryon's[1] findings would imply that the teacher's judgment of sociometric status would be more accurate with girls than with boys. She made a study of the personality characteristics 350 pupils considered desirable in each other, and concludes, in part:

> For the twelve-year-old girl, quiet, sedate, non-aggressive qualities are associated with friendliness, likeableness, good humor, and attractive appearance. Behavior which conforms to the demands and regulations of the adult world is admired.
>
> At the twelve-year level the idealized boy is skillful and a leader in games; his daring and fearlessness extends beyond his social group to defiance of adult demands and regulations. Any characteristic which might be construed as feminine by one's peers such as extreme tidiness or marked conformity in the classroom is regarded as a weakness.

If such sex differences exist in traits pre-adolescent pupils consider desirable in one another then it is conceivable that the teacher's judgment of the sociometric status of girls would be more accurate than that of boys.

Bonney,[2] who made a similar study concerning the

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[1]Caroline M. Tryon, Evaluations of Adolescent Personality by Adolescents. Monographs of the Society for Research in Child Development, IV. Washington: National Research Council, 1939. P. 77.

[2]Merl E. Bonney, "Sex Differences in Social Success and Personality Traits," Child Development, 15 (March, 1944), 63-79.

sex differences of personality traits on the fourth-grade-level, found that traits admired by adults consistently favored the girls although the sex differences were not large.

Although there are no studies directly concerning the personal data variables which may possibly affect the teachers' judgments of pupil sociometric status in the classroom a study by Kelly and Perkins[1] may shed some light on this area. They determined the relationship between various personal data variables and the teachers' knowledge of child and adolescent behavior, as measured by an objective test, for both grade school and high school. A brief summary of their conclusions follows:

> There were significant relationships between mean scores and the following variables:
>
> 1. Number of years of training. For both grade school and high school.
> 2. Number of courses in education. For both grade school and high school.
> 3. Number of courses in psychology. For grade school.
> 4. Recency of training. For grade school.
> 5. Length of time in present position. For grade school.

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[1]Ida B. Kelley and Keith J. Perkins, An Investigation of Teachers' Knowledge of and Attitudes toward Child and Adolescent Behavior in Every Day School Situations. Purdue University Studies in Higher Education, XLII. Lafayette, Indiana: Purdue University, 1941. P. 101.

6. Subject taught. For high school.
7. Age for high school.
8. Sex for high school.
9. Marital status. For high school.
10. Having children. For high school.

Since the first five personal data variables show a significant relationship to the elementary teachers' knowledge of child and adolescent behavior it would be interesting to determine if this relationship exists in the application of that knowledge to a restricted area, as represented in the present study.

Summary

The sociometric test has been described and its use in classroom situations illustrated. Studies have revealed that the total number of choices received by an individual on a sociometric test may be used as a reliable index of sociometric status, where no more than three criteria and five choices are used, and where the groups include no less than ten and no more than fifty persons.

It has been shown that sociometric status is fairly stable. It has also been shown that sociometric status is related to other evidences of social adjustment.

Several studies concerning the judgment of sociometric status have been reviewed and their shortcomings pointed out. Their major shortcomings were insufficient number of judges, and lack of information concerning the differential ability of judges to make such judgments.

Several factors which may possibly affect the accuracy of teachers' judgments were revealed in the literature. These were personal bias, sex differences among pre-adolescents, and personal data variables among teachers.

It may be concluded that the literature pertinent to this problem has furnished many valuable leads, but has not satisfactorily answered any of the questions raised in the first chapter.

# CHAPTER III

# METHOD OF INVESTIGATING THE PROBLEM

This study has been defined, in the first chapter, as an attempt to determine the accuracy of teachers' judgments concerning the degree to which sixth-grade pupils are accepted by their classmates, and the relationship of certain variables to the accuracy of these judgments.

## General Procedure

The general procedure used in this study may be described as follows: A sociometric test was administered to forty sixth-grade classes. On this test each pupil was asked to choose five classmates with whom he would prefer to work, five classmates with whom he would prefer to play, and five classmates near whom he would prefer to sit. The number of choices each pupil receives on each of the above criteria, indicates the degree to which he is accepted by his classmates as work companion, play companion, and seating companion. This acceptance is referred to as the sociometric status of the pupil. In addition to the sociometric test each pupil was requested to respond

to a pupil activity form. This form was concerned with the freedom the pupils had in choosing their own companions for routine class activities. It was used to measure the opportunity pupils were given to exhibit choice behavior, observable to the teacher.

In the same forty sixth-grade classes each teacher was requested to make judgments concerning the sociometric status of the pupils in her class. These judgments were made separately for boys and girls in the following manner. The teacher wrote the names of the boys, in her class, in alphabetical order on a previously prepared teacher judgment form. To the right of the boys' names were three columns, one each for work companion, play companion, and seating companion. In the work companion column the teacher ranked the boys in the order in which she judged they would be accepted by their classmates as work companions. This was repeated for each boy's acceptance as play companion and seating companion. Continuous ranks were used in each column with the teacher ranking from the ends of the distribution toward the center. When the teacher had completed her judgments for boys the above procedures were repeated for girls, on a separate judgment form.

This procedure provided six sets of judgments for



each teacher: one each for the sociometric status of boys as work companion, play companion, and seating companion; and one each for the sociometric status of girls as work companion, play companion, and seating companion. Thus the teacher's judgments of boys and girls could be compared directly with the sociometric results on each criterion, and the accuracy of her judgments determined.

In addition to these judgments each teacher was requested to indicate which three boys and three girls she most preferred as pupils in her class, and which three boys and three girls she least preferred as pupils in her class. This information was sought in order to determine the relationship between the teacher's preference for certain pupils and the accuracy of her judgments.

Personal data information regarding the teachers was obtained from the school records where possible. When the school records were not available the teacher was requested to provide the desired information on a personal data sheet.

## Development of Instruments Used in This Study[1]

A brief discussion of the development and nature of the instruments used in this study follows.

### Sociometric Test

Several considerations were necessary in the selection of criteria for the sociometric test. First, they had to be familiar to all teachers, as well as all pupils, at the sixth-grade level. Second, they had to be concerned with activities which occurred within the realm of the teacher's daily observation. Third, they had to concern activities where the choice of classmates was a normal procedure. Finally, they had to concern activities which were common from class to class. It was decided that the only criteria which adequately met these requirements were the three used by Bronfenbrenner.[2] These are work companion, play companion, and seating companion.

The criteria were placed in statement form, and the directions indicated the pupils' choices were to be

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[1]Copies of the instruments used in this study are in the appendix, in the order in which they are described here.

[2]Bronfenbrenner, op.cit., p. 43.

in terms of the children they most preferred for each activity. The three statements of choice appear on the sociometric form as follows:

1. I would choose to work with these children:
2. I would choose to play with these children:
3. I would choose to have these children sit near me:

A space for five names was left under each statement, and the pupils were requested to make five choices for each. The use of five choices was prompted by a desire to obtain the sociometric status of the pupils on each criterion. Five choices were necessary to obtain the proper spread of scores for this purpose. In addition, Newstetter, Feldstein, and Newcomb[1] found that the reliability of sociometric status, on one criterion, increased with the number of choices up to five. Choices beyond that number made no appreciable change.

The choosing, on each criterion, was confined to pupils within their own class. This was necessary since the teacher's judgments were to be based on the classroom situation. This was thought to be a normal choice procedure, in keeping with the pupil's usual class

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[1]Newstetter, Feldstein, and Newcomb, op. cit., p. 35.

experience. During regular class hours the pupil's choice of work, play, and seating companions is restricted to his own classmates. The mere physical environment confines his choice behavior to this group.

At the top of the sociometric form the pupil's name, school, age, and sex were requested. This information was used to describe the student population, and enabled the sociometric results to be analyzed separately for boys and girls.

Pupil Activity Form

This form was devised in an attempt to obtain information regarding the freedom of activity the pupils had in class. The assumption underlying its construction was a s follows. If pupils were allowed freedom in carrying out class activities, and selecting their own companions for these activities, they would be exhibiting overt choice behavior observable to the teacher. Thus the teacher would have a better basis for her judgments of sociometric status than where this freedom was not permitted. Consequently it was expected that her judgments would be more accurate. The above assumption was to be tested by determining the relationship between the responses to the pupil activity form and the accuracy of the teacher's judgments.

This form consisted of eight questions to which the pupils were asked to respond. The first question was concerned with the number of different pupils they studied or worked with in class during the past week. Numbers from one to fifteen followed the question and the pupils were asked to underline the most appropriate number. Questions two, five, and seven were concerned with whether or not the pupils were permitted to choose their own work, play, and seating companions in class. The remaining questions were concerned with the freedom allowed the pupils in their daily associations with classmates. Each of these last seven questions was followed by two alternatives and the pupils were instructed to underline the one which best answered the question.

The pupils were requested not to put their names on this form since the majority of the questions concerned the teacher. It was believed that this would prevent the pupils from fearing exposure of their answers, and would thereby elicit more honest responses.

Teacher Judgment Forms

In the construction of the teacher judgment forms it was decided that several requirements had to be met.

First, the teachers' judgments of sociometric status should be separate for boys and girls. This was considered necessary since boys and girls seldom choose members of the opposite sex as companions at the sixth-grade level. The varying number of boys and girls in each class would tend to complicate the results if they were not considered separately. Second, the teachers' judgment should be in terms of the same criteria used in the sociometric test, administered to the pupils. This was considered necessary in order to make the teachers' judgments comparable to the sociometric results. Third, the teachers' judgments should be in the form of continuous ranks. This would force the teacher to judge the relative acceptance of each pupil. In addition, it would provide a type of judgment familiar to the teacher, since she is constantly comparing one pupil with another during the course of her teaching. Fourth, the teachers' judgments should be made from the extremes of the distribution toward the center. It was believed that this procedure would enable the teacher to make her judgments more easily and more efficiently.

In accord with the above considerations, two similar judgment forms were constructed--one for the teacher's judgments of girls, and one for the teacher's judgments

of boys. The forms were arranged in such a way that the names of the boys and girls could be written in alphabetical order on their respective sheets. To the right of the names were three columns, one each for seating companion, play companion, and work companion. This arrangement permitted the teacher to rank the pupils in the first column, fold it back underneath the page, and then rank the pupils in the next column, etc., obtaining as independent judgments as possible on each criterion.

Two instruction sheets accompanied the teacher judgment forms. The first sheet explained the nature and purpose of the sociometric test given to the class, and the general nature of the judgments to be made by the teacher. The second sheet outlined in detail the specific procedures to be followed in making her judgments. The teachers were instructed to rank the boys in each column first, and then rank the girls in each column.

Although the instructions requested the teacher to circle the rank numbers of those who they believed would receive no choices on the sociometric test, this aspect of the instructions had to be deleted. The majority of the teachers stated that all pupils would receive some choices, and therefore no isolates could

be indicated. The sociometric results later indicated that this was true.

Teacher Preference Form

This form provided a space for the teacher to list the names of the three boys and three girls she most preferred as pupils in her class, and the three boys and three girls she least preferred as pupils in her class. The accompanying instructions requested the teacher to base her preferences on the assumption that her class was to be divided into two sections, and she was to choose the pupils she would most and least prefer in her section. She was further instructed to make her selections solely on the basis of how much she would, or would not, enjoy having them as pupils in her section.

This instrument was used to determine the relationship between the teacher's preference for certain pupils and the accuracy of her judgments. It was believed that the extremes of the teacher's preferences were sufficient for the above purpose.

Teacher Personal-Data Form

The personal-data form was constructed for the obtainment of information on the teacher's age, length

of teaching experience, length of time in present position, total number of semester hours of college training, recency of college training, number of semester hours in psychology, whether or not a course in child development had been taken, and whether single or married. The length of time the teacher had been in contact with her class was obtained directly from the teacher.

These personal-data variables were collected in order to determine their relationship to the accuracy of the teacher's judgments.

## Description of Subjects

The subjects consisted of forty teachers and 1,258 pupils in forty sixth-grade classes from the Flint, Willow Run, and Ypsilanti public schools. The distribution by schools of sixth-grade classes included in the study may be seen in Table I. Examination of this table reveals that the majority of classes were located in the Flint public school system. The city of Flint is a typical industrial metropolis which contains a cross-section of most creeds, nationalities, and social classes.

The school system in Flint varies in type of organization at the elementary level. The majority of the

TABLE I

DISTRIBUTION BY SCHOOLS OF SIXTH-GRADE CLASSES INCLUDED IN STUDY

| Name of School | Number of Sixth-Grade Classes | Number of classes Included in Study |
|---|---|---|
| Flint | | |
| Civic Park.. | 3 | 3 |
| Cody..... | 2 | 2 |
| Cook..... | 1 | 1 |
| Dort..... | 3 | 3 |
| *Doyle..... | 2 | 1 |
| Durant..... | 2 | 2 |
| Garfield.... | 3 | 3 |
| Homedale.... | 1 | 1 |
| *Jefferson... | 2 | 1 |
| Lewis..... | 3 | 3 |
| Martin..... | 1 | 1 |
| *McKinley.... | 2 | 1 |
| Oak..... | 2 | 2 |
| Stevenson... | 2 | 2 |
| Walker..... | 3 | 3 |
| Washington.. | 2 | 2 |
| Zimmerman... | 3 | 3 |
| Willow Run | | |
| Foster..... | 2 | 2 |
| Ross..... | 1 | 1 |
| Spencer..... | 1 | 1 |
| Ypsilanti | | |
| Central..... | 2 | 2 |
| Total..... | 43 | 40 |

*These three classes were eliminated because the teacher had already administered a sociometric test to her class.

elementary schools are organized under the platoon system. With this arrangement the pupils spend half of the day with a home-room teacher. The remaining half-day is spent by the pupils in special classes, with a different teacher for each class. All of the Flint elementary schools included in this study, except one, are organized under the platoon system. This lone exception is Doyle, which is organized along traditional lines.

All sixth-grade classes from Flint, included in this study, were home-room classes where the teacher spent at least a half-day period with the pupils. The remaining sixth-grade classes, from Willow Run village and Ypsilanti, are organized along traditional lines, with the teacher spending the entire day with the pupils.

Willow Run village is a war-born government housing project made up largely of industrial workers. Ypsilanti is a small college and industrial city.

## Pupil Population

The 1,258 pupils were fairly evenly divided by sex. There were 632 boys and 626 girls. The average age of the boys was 11.8, while the average age of girls was 11.5.

The number of pupils per class ranged from fifteen to forty-three, with an average of thirty-two. The pupil population was almost entirely white. Only five of the 1,258 pupils were colored and they were distributed among four classes.

Teacher Population

The teachers participating in this study consisted of forty women all of whom were white. The personal-data factors describing the teacher population are presented in Tables II through VIII.

An examination of the first six tables will reveal that there is a wide spread of all personal-data variables among the forty teachers. The average teacher, representing this group, would be approximately forty-seven years of age with twenty years of teaching experience. Approximately thirteen of these years would have been spent in her present position. She would have 114 hours of college credit, half of which would have been earned before 1932. Twenty-two of these credits would be in education courses, and approximately nine in psychology courses. In general, the teacher population is a rather highly experienced and mature group.

Table VIII reveals that eighteen of the teachers were single, in comparison with twenty-two married.



TABLE II

AGES OF TEACHER POPULATION (N= 40)

| Age | Frequency |
|---|---|
| 21-25 years..... | 4 |
| 26-30 years..... | 3 |
| 31-35 years..... | 0 |
| 36-40 years..... | 1 |
| 41-45 years..... | 4 |
| 46-50 years..... | 10 |
| 51-55 years..... | 9 |
| 56-60 years..... | 4 |
| 60-65 years..... | 5 |

Mean age = 47.5 years.

TABLE III

YEARS TEACHING EXPERIENCE AND YEARS IN PRESENT POSITION (N= 40)

| Years | Frequency--Teaching Experience | Frequency--Present Position |
|---|---|---|
| 1-3..... | 3 | 7 |
| 4-6..... | 3 | 7 |
| 7-9..... | 1 | 4 |
| 10-12..... | 1 | 4 |
| 13-15..... | 2 | 0 |
| 16-18..... | 4 | 1 |
| 19-21..... | 3 | 5 |
| 22-24..... | 3 | 5 |
| 25-27..... | 8 | 5 |
| 28-30..... | 12 | 2 |

Mean Years Teaching Experience = 20.5
Mean Years Present Position = 13.6

TABLE IV

SEMESTER HOURS CREDIT EARNED IN COLLEGE (N = 40)

| Semester Hours | Frequency |
|---|---|
| 61-70 | 2 |
| 71-80 | 0 |
| 81-90 | 4 |
| 91-100 | 2 |
| 101-110 | 2 |
| 111-120 | 16 |
| 121-130 | 10 |
| 131-140 | 0 |
| 141-150 | 4 |

Mean Semester Hours = 114.0

TABLE V

RECENCY OF COLLEGE TRAINING BASED ON MIDPOINT BETWEEN FIRST AND LAST DATES OF TRAINING (N = 40 )

| Years | Frequency |
|---|---|
| 1925-1926 | 6 |
| 1927-1928 | 3 |
| 1929-1930 | 9 |
| 1931-1932 | 8 |
| 1933-1934 | 5 |
| 1935-1936 | 2 |
| 1937-1938 | 0 |
| 1939-1940 | 1 |
| 1941-1942 | 1 |
| 1943-1944 | 5 |

Mean Year = 1932

TABLE VI

SEMESTER HOURS CREDIT EARNED
IN EDUCATION COURSES (N = 40 )

| Semester Hours | Frequency |
|---|---|
| 10-12 | 4 |
| 13-15 | 4 |
| 16-18 | 2 |
| 19-21 | 8 |
| 22-24 | 12 |
| 25-27 | 3 |
| 28-30 | 2 |
| 31-33 | 1 |
| 34-36 | 1 |
| 37-39 | 2 |
| 40-42 | 1 |

Mean Semester Hours = 22.2

TABLE VII

SEMESTER HOURS CREDIT EARNED
IN PSYCHOLOGY COURSES (N = 40 )

| Semester Hours | Frequency |
|---|---|
| 3-4 | 8 |
| 5-6 | 12 |
| 7-8 | 4 |
| 9-10 | 4 |
| 11-12 | 4 |
| 13-14 | 0 |
| 15-16 | 2 |
| 17-18 | 2 |
| 19-20 | 2 |
| 21-22 | 2 |

Mean Semester Hours = 8.9

TABLE VIII

DIVISION OF TEACHER POPULATION ACCORDING TO MARITAL STATUS; LENGTH OF CONTACT WITH CLASS; AND WHETHER OR NOT TEACHER HAD COURSE IN CHILD DEVELOPMENT (N = 40)

| | Frequency |
|---|---|
| Single..... | 18 |
| Married..... | 22 |
| One Semester with Class... | 16 |
| Two Semesters with Class.. | 24 |
| Had Course in Child Development..... | 15 |
| No Course in Child Development..... | 25 |

Sixteen of the teachers were with their classes only one semester. This situation resulted from the fact that some elementary schools in Flint have mid-year promotions. The remaining twenty-four teachers were with their classes the entire year. Of the forty teachers participating in this study, fifteen had taken a course in Child Development and twenty-five had not taken such a course.

## Collection of Data

The data used in this study were collected during the last three weeks of May, 1949. The administrative and supervisory officials of the Flint, Willow Run, and Ypsilanti public school systems were contacted early in May and arrangements were made to meet with the forty sixth-grade classes. A schedule of meetings with the classes was set up and the investigator contacted each class during its regular school time. The fine cooperation of the principals and teachers enabled this research to be carried out in a natural setting.

The teachers prepared their classes for the arrival of the investigator, but the pupils were not informed of the nature of their participation. The teachers, likewise, were made aware of the fact that the investigation was a study concerning teacher judgment, but the exact nature of the study was not revealed to them until the time of the sociometric testing.

### Procedure in Collection of Data

In contacting each of the forty sixth-grade classes the investigator was introduced to the teacher by the principal. After giving the teacher a brief explanation of the nature and purpose of the investigation, out of hearing of the students, the teacher introduced the

investigator to the class and then turned the class entirely over to him, returning to her desk. The verbal introduction and directions, of the investigator to the pupils, were standard for all classes. The verbal directions were as follows:

> I am making a study of classroom groups to find out what a classroom would be like if every pupil would choose his own work companions, his own play companions, and his own seating companions.
>
> On this sheet that I shall give you (demonstrating sociometric form) there is a place for the names of five pupils with whom you would most prefer to work; five pupils with whom you would most prefer to play; and five pupils whom you would most prefer to have sit near you. Write here (pointing to spaces for names) the names of those whom you would choose. You may choose anyone in this class you wish, including those pupils who are absent. Your choices will not be mentioned to anyone else. Give both first and last names. Spell them the best you can.
>
> Please make your choices thoughtfully and carefully, for the value of this whole study depends on how accurately you do this.
>
> When I give you this sheet (demonstrating sociometric form) print your name, school, whether you are boy or girl, and give your age--at the top of the sheet. When you have done this please look up, so I will know you are ready to start. Do not write any choices on your paper yet.

At the conclusion of these verbal directions a copy of the sociometric test was passed to each pupil. After all students had completed filling in the personal data

at the top of the form, the investigator said:

> Now, place number--in the top right-hand corner of your paper.

This referred to a code number assigned to each class, to prevent mixing up the sociometric tests from different classes. It also enabled the teachers' responses to be anonymous to everyone but the investigator. When the pupils had placed the code number in the top right-hand corner they were told:

> Remember!
>
> 1. Your choices must be from pupils in this class, including those who are absent.
> 2. You must give both first and last names, spelling them the best you can.
> 3. Your choices will not be seen by anyone else.
> 4. You may choose a pupil for more than one thing if you wish.

With the above reminder the pupils were given permission to start. The adequacy of the above directions, and the rapport established with the pupils, was revealed by their response to the test situation. All pupils approached the task seriously and diligently. Everyone of the pupils, in all classes, made five choices for each criterion. None of the pupils wrote

in a fictitious name, or the name of a person outside of their class.

When the pupils began the sociometric test the investigator gave the teacher a self-addressed envelope which contained the Teacher Judgment Forms and the Teacher Preference Form. These forms, and the envelope, each bore the code number which was assigned to her class. The teacher was requested to read the directions for each form, to make certain they were clearly understood. In addition to its major purpose this procedure kept the teacher occupied at her desk, thus preventing her from observing the pupils' responses to the sociometric test.

When the pupils had completed the sociometric test, they were collected by the Investigator. A copy of the Pupil Activity Form was then passed to each pupil, with the following directions:

> There are eight questions on this sheet. Please read each question, and underline the the answer which you think best answers the question. Please do not ask any questions about this sheet, but do it the best you can.
>
> You need not put your name on this sheet, but place number--in the top right-hand corner.

The pupils were then told to begin. When the Pupil Activity Form was completed by the students it also was

collected by the investigator. None of the teachers had seen any of the responses, either to the Sociometric Test or the Pupil Activity Form.

Before the investigator departed he checked with the teacher to make sure the procedures for making her judgments and preferences were clearly understood. At this time, the teacher was reminded that in recording her judgments there could be no ties in rank. The teacher was then requested to complete the forms as soon as possible and mail them to the investigator.

The adequacy of the above procedure was revealed by the quick return and the completeness of the responses to the forms. The majority of the teacher-forms were received within a few days after the sociometric testing of the class. The remainder were received within two weeks after the testing. All teachers had filled out the forms according to the directions.

The personal-data factors, concerning the teacher, were gathered from the school personnel records in the Flint school system. In the other two schools a personal-data form was included in the envelope left with the teacher. She was requested to fill it out along with the other forms.

## Summary

The general procedure used in this study has been described. In brief, it consisted of measuring the acceptability of pupils to their classmates by means of a sociometric test, and having teachers make judgments concerning that acceptance. In addition, information was gathered on the freedom of activity the pupils had in class, the teachers' preferences for certain pupils, and personal-data factors regarding the teacher. Information on these variables was obtained in order that their relationship to the accuracy of the teachers' judgments might be determined.

The development and nature of the instruments used in this study was discussed. These instruments are the sociometric test, pupil activity form, teacher judgment forms, teach preference form, and the personal data-form for teachers.

The subjects were described as forty teachers and 1,258 pupils from forty sixth-grade classes in the Flint, Willow Run, and Ypsilanti public schools.

The specific procedures used in collecting the data were described, and the verbal instructions to pupils were illustrated.

It was decided that a description of the analysis

of data, collected in this study, would have little meaning without a presentation of the results derived from that analysis. They are therefore presented together in the following chapter. It will suffice here to state that all statistical procedures, used in the analysis, are based on standard formulas.

# CHAPTER IV

# ANALYSIS OF DATA AND RESULTS

The preceding chapter described the method used in investigating this problem. This chapter presents an analysis of the data obtained.

## Accuracy of Teachers' Judgments of Sociometric Status

To determine the extent to which teachers are accurate in judging the sociometric status of all pupils in the classroom the sociometric results were analyzed separately for boys and girls, on each of the three criteria, and their relationship to the teachers' judgments determined. This procedure was carried out for each class in the following manner.

The number of choices each pupil received on each of the three criteria of the sociometric test were tallied separately for boys and girls. Each choice was given a value of one regardless of whether it was first, second, third, fourth, or fifth choice. This procedure provided six sets of sociometric results for each class. Three sets of sociometric results represented the sociometric status of boys as work companion, play companion,

and seating companion, and three sets represented the sociometric status of girls on the same criteria.

The teacher's judgments of sociometric status were separate for boys and girls, in the form of continuous ranks, on each of the three criteria. These ranks were converted into standard scores, with a mean of zero and standard deviation of one, using Fisher's[1] conversion table. Thus the degree of relationship between the six sets of teacher's judgments and the sociometric results, for each class, could be determined by Pearson product-moment coefficients of correlation. Table IX presents these correlation coefficients for all forty classes. The degree of relationship expressed by these coefficients is henceforth referred to as the accuracy of the teachers' judgments of sociometric status.

An examination of this table reveals that all except two of the 240 coefficients are greater than zero and positive. The mean accuracy of the teachers' judgments for boys on the criteria of work companion, play companion, and seating companion is .593, .569, and .614,

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[1]Ronald A. Fisher, and Frank Yates, Statistical Tables for Biological, Agricultural, and Medical Research. Edinburgh: Oliver and Boyd, Ltd., 1948. P. 66.

TABLE IX

CORRELATION COEFFICIENTS REPRESENTING THE ACCURACY OF TEACHERS' JUDGMENTS OF THE SOCIOMETRIC STATUS OF BOYS AND GIRLS IN FORTY SIXTH-GRADE CLASSES

| CLASS NUMBER | BOYS | | | GIRLS | | | Average Accuracy of All Judgments |
|---|---|---|---|---|---|---|---|
| | Work Companion | Play Companion | Seating Companion | Work Companion | Play Companion | Seating Companion | |
| 1 | .265 | .112 | .480 | .643 | .502 | .509 | .419 |
| 2 | .418 | .610 | .457 | .299 | .530 | .368 | .447 |
| 3 | .931 | .668 | .690 | .661 | .529 | .550 | .671 |
| 4 | .012 | .640 | .657 | .599 | .414 | .577 | .483 |
| 5 | .727 | .321 | .662 | .509 | .446 | .348 | .502 |
| 6 | .386 | .490 | .645 | .724 | .442 | .700 | .565 |
| 7 | .288 | .062 | .568 | .131 | .205 | .355 | .268 |
| 8 | .780 | .546 | .414 | .394 | .216 | .065 | .403 |
| 9 | .791 | .637 | .811 | .618 | .538 | .607 | .667 |
| 10 | .365 | .360 | .627 | .712 | .557 | .666 | .548 |
| 11 | .458 | .750 | .688 | .811 | .357 | .348 | .569 |
| 12 | .860 | .541 | .868 | .536 | .701 | .492 | .666 |
| 13 | .791 | .687 | .521 | .652 | .792 | .744 | .698 |
| 14 | .376 | .572 | .468 | .530 | .415 | .609 | .495 |
| 15 | .739 | .544 | .563 | .616 | .294 | .598 | .559 |
| 16 | .480 | .079 | .464 | .899 | .905 | .843 | .612 |
| 17 | .487 | .506 | .679 | .681 | .844 | .798 | .666 |
| 18 | .443 | .677 | .410 | .385 | .549 | .581 | .508 |
| 19 | .603 | .627 | .626 | .738 | .572 | .748 | .652 |
| 20 | .221 | .443 | -.105 | .758 | .552 | .606 | .413 |
| 21 | .590 | .585 | .721 | .686 | .585 | .636 | .634 |
| 22 | .796 | .710 | .752 | .757 | .332 | .753 | .683 |
| 23 | .553 | .544 | .625 | .372 | .505 | .558 | .526 |
| 24 | .693 | .772 | .618 | .688 | .434 | .720 | .654 |
| 25 | .671 | .886 | .640 | .593 | .504 | .334 | .605 |
| 26 | .858 | .544 | .821 | .872 | .866 | .899 | .810 |
| 27 | .643 | .473 | .591 | .846 | .795 | .827 | .696 |
| 28 | .842 | .775 | .642 | .374 | .561 | .595 | .632 |
| 29 | .234 | .858 | .686 | .795 | .796 | .787 | .693 |
| 30 | .621 | .633 | .540 | .672 | -.114 | .511 | .477 |
| 31 | .867 | .816 | .856 | .778 | .827 | .885 | .838 |
| 32 | .801 | .381 | .784 | .780 | .399 | .669 | .636 |
| 33 | .713 | .682 | .644 | .426 | .525 | .643 | .605 |
| 34 | .655 | .536 | .662 | .750 | .737 | .713 | .675 |
| 35 | .551 | .592 | .666 | .876 | .190 | .764 | .607 |
| 36 | .715 | .693 | .499 | .654 | .584 | .725 | .645 |
| 37 | .308 | .400 | .337 | .645 | .670 | .658 | .503 |
| 38 | .778 | .834 | .814 | .807 | .796 | .813 | .807 |
| 39 | .700 | .389 | .713 | .634 | .295 | .611 | .557 |
| 40 | .698 | .774 | .759 | .683 | .604 | .736 | .709 |
| Mean | .593 | .569 | .614 | .640 | .531 | .624 | .595 |

respectively. The mean accuracy of the teachers' judgments for girls on the same three criteria is .640, .531, and .624, respectively. The last column on the right presents the average accuracy of all of the judgments of sociometric status, for each teacher. An examination of these coefficients will reveal that they vary from .268 to .838 with a mean of .595. Apparently teachers differ rather widely in their ability to make such judgments.

The questions raised in Chapter I concerning the sources of variation in the accuracy of these teachers' judgments, and the relationship of certain variables to this accuracy will now be considered. It was decided that the best means of securing answers to these questions would be to place them in the form of null hypotheses. This will be done, as each question is considered in the following pages.

## Variations in the Accuracy of Teachers' Judgments of Sociometric Status

There were three questions raised in Chapter I concerning the variation in the accuracy of teachers' judgments. These may be stated in the form of null hypotheses as follows:

> There is no difference between teachers in the accuracy of their judgments of the sociometric status of pupils in the classroom.
>
> There is no difference in the accuracy of teachers' judgments of the sociometric status of boys and girls in the classroom.
>
> There is no difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom on the criteria of work, play, and seating companion.

The above hypotheses were tested by applying an analysis of variance to the 240 correlation coefficients, in Table IX, representing the accuracy of teachers' judgments of boys and girls on each criterion. The results of this analysis are presented in Table X.

An examination of this table reveals that the variation among teachers in the accuracy of their judgments is significant beyond the one per cent level.

TABLE X

ANALYSIS OF VARIANCE OF THE 240 CORRELATION COEFFICIENTS REPRESENTING ACCURACY OF TEACHERS' JUDGMENTS

| | Degrees of Freedom | Sum of Squares | Mean Square |
|---|---|---|---|
| (1) Teachers | 39 | 3,276,548 | 84,041 |
| (2) Pupil Sex | 1 | 2,432 | 2,432 |
| (3) Criteria | 2 | 243,482 | 121,741 |
| Remainder | 197 | 4,900,879 | 24,878 |
| Total | 239 | 8,423,341 | |

| | Levels of Significance |
|---|---|
| (1) $F = \frac{84,041}{24,878} = 3.3770$ | 1% = 1.69<br>5% = 1.45 |
| (2) $F = \frac{2,432}{24,878} = .0978$ | 1% = 6.76<br>5% = 3.89 |
| (3) $F = \frac{121,741}{24,878} = 4.8935$ | 1% = 4.71<br>5% = 3.04 |

These data are inconsistent with the hypothesis that there is no difference between teachers in the accuracy of their judgments of the sociometric status of pupils in the classroom.

The source of this difference between teachers, in the accuracy of their judgments, will be sought later by determining the relationship between certain selected variables and the average accuracy of the teachers' judgments.

In addition, these data are consistent with the hypothesis that there is no difference in the accuracy of teachers' judgments of the sociometric status of boys and girls in the classroom.

A further examination of Table X reveals that the variation in the accuracy of teachers' judgments among the three different criteria is significant beyond the one per cent level. This finding is inconsistent with the hypothesis that there is no difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom on the criteria of work, play, and seating companion.

Since such a difference exists it would be of some value to determine the comparative accuracy of the teachers' judgments on each criterion. An examination of the correlation coefficients in Table IX reveals that the mean accuracy of the teachers' judgments is lowest on the play companion criterion, both for boys and girls.

The question immediately arises as to the significance of these differences. Is the mean accuracy of the teachers' judgments on the play companion criterion significantly different from that on the criterion of

seating or work? The answer to this question was determined by applying the Fisher t-test to determine the significance of the difference between means.

The results presented in Table XI, reveal that there is no significant difference between the mean accuracy of the teachers' judgments on the criteria of seating and play, or work and play, for boys. However, the difference between the mean accuracy of the teachers' judgments on these same criteria is significant beyond the five per cent and two per cent levels, respectively, for girls. It appears that the tendency for teachers to be less accurate in their judgments of the sociometric status of pupils on the criterion of play is more pronounced for girls than boys. The teachers' judgments of girls probably accounts for the major part of the variation among criteria revealed by the analysis of variance.

TABLE XI

SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN ACCURACY OF TEACHERS' JUDGMENTS ON DIFFERENT CRITERIA

| Variables | | $N_1$ | $N_2$ | $M_1$ | $M_2$ | t | P |
|---|---|---|---|---|---|---|---|
| Boys | | | | | | | |
| 1. | Seating-Play | 40 | 40 | .614 | .569 | 1.09 | >.10 |
| 2. | Work-Play | 40 | 40 | .593 | .569 | .51 | >.50 |
| Girls | | | | | | | |
| 1. | Seating-Play | 40 | 40 | .624 | .531 | 2.11 | <.05 |
| 2. | Work-Play | 40 | 40 | .640 | .531 | 2.49 | <.02 |

## Relationship of Selected Variables to the Average Accuracy of Teachers' Judgments of Sociometric Status

It has been shown that there is a significant variation among teachers in the accuracy of their judgments of the sociometric status of pupils in the classroom. The question immediately arises as to the relationship of certain variables to this difference between teachers in their ability to make such judgments. The variables which were considered important in this respect are the personal-data variables concerned with the training and experience of the teachers, as well as the size of class with which the teachers' judgments were concerned.

Eight of the variables were of a continuous variety and their relationship to the average accuracy of

the teachers' judgments may best be tested by placing them in the form of a null hypothesis, as follows:

> There is no relationship between the average accuracy of the teachers' judgments of the sociometric status of pupils in the classroom and each of the following variables:
>
> (1) Age
> (2) Years of teaching experience
> (3) Length of time in present position
> (4) Semester hours of college training
> (5) Recency of college training
> (6) Semester hours in education
> (7) Semester hours in psychology
> (8) Size of class.

The above hypothesis was tested by the following procedure. The correlation coefficients representing the accuracy of the teachers' judgments on each criterion, for boys and girls, were averaged for each teacher. This average accuracy of all the judgments, for each teacher, may be seen in the last column of Table IX. The personal-data variables were collected on a personal-data form and are presented in Tables II through VII in Chapter III. The size of class was obtained from analysis of the data and ranged from fifteen to forty-three pupils per class. The degree of relationship between these variables and the average accuracy of the teachers' judgments was obtained by means of Pearson's product-moment coefficients of correlation. The resulting coefficients are presented in Table XII.

TABLE XII

CORRELATION COEFFICIENTS REPRESENTING THE DEGREE OF RELATIONSHIP BETWEEN THE AVERAGE ACCURACY OF TEACHERS' JUDGMENTS AND CERTAIN SELECTED VARIABLES (N = 40)

| | Variables | Average Accuracy of Teachers' Judgments | t | P |
|---|---|---|---|---|
| 1. | Age..... | -.021 | -.132 | .895 |
| 2. | Years of Teaching Experience..... | -.035 | -.217 | .829 |
| 3. | Length of Time in Present Position..... | -.021 | -.128 | .898 |
| 4. | Semester Hours of College Training..... | .014 | .087 | .931 |
| 5. | Recency of College Training..... | .017 | .104 | .917 |
| 6. | Semester Hours in Education..... | .010 | .060 | .952 |
| 7. | Semester Hours in Psychology..... | .040 | .249 | .805 |
| 8. | Size of Class..... | -.007 | -.045 | .964 |

An examination of this table reveals that all correlation coefficients are near zero. To determine if any of the coefficients were significantly different from zero Fisher's t-test was applied and the values of P determined. All of these values are greater than .80, which means that one could expect correlations of this

size or greater eighty, or more, times out of a hundred if the true correlation were zero.

These data are consistent with the hypothesis that there is no relationship between the average accuracy of the teachers' judgments of the sociometric status of pupils in the classroom and each of the eight selected variables.

These results are somewhat surprising, especially since a study[1] discussed in Chapter II showed that variables three through seven were significantly related to elementary teachers' knowledge of child and adolescent behavior, as measured by an objective test. Two possible explanations may be presented to account for the lack of relationship found in this study. First, the accuracy of the teachers' judgments of sociometric status in the classroom is not dependent merely upon general knowledge of child and adolescent behavior, but upon the application of that knowledge to a restricted area. Second, the judgment of sociometric status is a specific type of judgment dependent upon insight into group life, which apparently is not obtained from general training or experience.

The lack of relationship between the size of class and the average accuracy of the teachers' judgments may be partly explained by the restricted range in class

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[1]Travers, op. cit., P. 66

size. The number of pupils per class ranged from fifteen to forty-three. It is possible that the accuracy of the teachers' judgments of sociometric status is not affected by class size within this range.

Relationship of Other Variables

In addition to the eight variables treated above, three variables, considered to be important, were of a dichotomous variety and required seperate treatment. Stated in null hypothesis form:

> There is no difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom, between:
>
> (1) Those teachers who are single, and those who are married.
>
> (2) Those teachers who were with the class two semesters, and those who were with the class one semester.
>
> (3) Those teachers who had taken a course in Child Development, and those who had not taken such a course.

To test the above hypothesis the mean accuracy of the teachers' judgments were calculated for the teachers in each category. The significance of the difference between these means was determined through application of the Fisher's t-test. The number of teachers

falling in each category, the mean accuracy of the teachers' judgments, and the significance of the difference between means is presented in Table XIII.

TABLE XIII

SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN ACCURACY OF TEACHERS' JUDGMENTS FOR THREE SELECTED VARIABLES

| | Variable | $N_1$ | $N_2$ | $M_1$ | $M_2$ | t | P |
|---|---|---|---|---|---|---|---|
| 1. | Marital Status..... | 18 single | 22 married | .611 | .582 | .79 | >.10 |
| 2. | Length of Time with Class..... | 24 Two Semesters | 16 One Semester | .604 | .581 | .61 | >.10 |
| 3. | Course in Child Development.. | 15 Yes | 25 No | .678 | .545 | 12.96 | <.01 |

This table reveals that the difference between the mean accuracy of judgment of the eighteen single teachers and the twenty-two married teachers is not significant at the ten percent level. A difference this large or larger would be expected ten, or more, times out of a hundred, by chance alone, if the true difference were zero.

The difference between the mean accuracy of

judgment of the twenty-four teachers who were with their classes two semesters and the sixteen teachers who were with their classes one semester is also not significant. It is possible that teachers know their pupils well enough after one semester to make such judgments, and a longer contact with the pupils does not improve the accuracy of these judgments to any significant degree. Further research would be required to verify such a possibility.

A further inspection of Table XIII will reveal that there is a significant difference between means on the last variable. The difference between the mean accuracy of judgment of the fifteen teachers who had taken a course in Child Development and the twenty-five teachers who had not taken such a course is significant far beyond the one per cent level. Less than once out of a thousand would such a difference occur by chance if the true difference were zero. An inspection of the means reveals that this difference is in favor of more accurate judgments by those teachers who had taken a course in Child Development.

This finding must be interpreted in light of the type of Child Development course taken by these fifteen teachers. The majority of these teachers had taken an

in-service course, offered in Flint, through the co-operation of the University of Michigan. The content of the course centered around the development of the whole child, with a great deal of emphasis on social adjustment. In this area the class members were made familiar with the theory of the sociometric technique and its application to the classroom.

In regard to the above course description several explanations appear possible for the more accurate judgments made by teachers taking such a course. First, taking the course while in service may have provided an immediate application of the principles of child development learned, thus increasing the practical benefits of the course. Second, the emphasis in the course on social adjustment may have made the teachers more aware of the social adjustment of the pupils in their classes, thus focusing their attention on this important area. Third, familiarity with the sociometric technique and its application in the classroom may have made the teachers more conscious of overt signs of choice behavior in the classroom, thus increasing the accuracy of their observations.

It is, of course, entirely possible that none of the above explanations are valid. It may be that those

teachers who are more conscientious, and more concerned about the social adjustment of their pupils, to begin with, elect to take such a course. The data presented here can only reveal that there is a relationship between taking a course in Child Development, as described above, and greater accuracy in teachers' judgments of sociometric status of pupils in the classroom. Further research would be required to identify the cause of this relationship.

These data are consistent with the hypothesis, regarding the first two variables, that there is no difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom, between: those teachers who are single, and those who are married; those teachers who were with the class two semesters, and those who were with the class one semester.

These data are inconsistent with the hypothesis, regarding the third variable, that there is no difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom, between: those teachers who had taken a course in Child Development and those who had not taken such a course.

## Relationship between Teachers' Preferences for Certain Pupils and Errors in their Judgments of the Sociometric Status of those Pupils

It will be recalled that each of the forty teachers in this study was requested to indicate which three boys and three girls she most preferred as pupils in her class, and which three boys and three girls she least preferred as pupils in her class. These data were gathered to determine if the teacher's preference for certain pupils was related to the errors in her judgments of the sociometric status of those pupils. In view of a study[1] quoted in Chapter II, it seemed probable that a teacher may over-judge the sociometric status of those pupils she most prefers and under-judge the sociometric status of those pupils she least prefers. To determine if such a tendency existed the following null hypotheses were tested.

> Teachers do not over-judge the sociometric status of the three boys and three girls they most prefer as pupils in class.
>
> Teachers do not under-judge the sociometric status of the three boys and three girls they least prefer as pupils in class.

The procedure used in testing the above hypotheses was to compare the teachers' judgments with the

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[1] Travers, op. cit., P 66

sociometric results, for the pupils in each of the four preference groups, and to determine the amount and direction of the teachers' judgment error. However, before this comparison could be made it was necessary to convert both the teachers' judgments and the sociometric results into total comparable scores. This was done for each class in the following manner.

It will be recalled that the teacher's judgments were separate for boys and girls. These judgments were in the form of continous ranks on each of the three criteria for boys, and each of the three criteria for girls. These ranks had been converted into standard scores, with a mean of zero and a standard deviation of one, as previously described. Thus each boy had a standard score representing the teacher's judgment of his sociometric status on each of the three criteria. An average of these three standard scores would yield the teacher's judgment of the total sociometric status of each boy in her class. The teacher's judgment of the total sociometric status of each girl in her class could be computed the same way. Since the standard scores were averaged the resulting distributions for boys and girls would still have a mean of zero and a standard deviation of one.

To make the sociometric results, for boys and girls,

comparable to these teacher's judgments the following procedure was used. The number of choices each boy received on the three criteria of the sociometric test were totaled. These total sociometric scores for boys were converted into standard scores with a mean of zero and a standard deviation of one. The total sociometric scores for girls were computed in the same way, and converted into similar standard scores.

The above procedure provided two sets of comparable standard scores for each boy and girl in class: one set representing the teacher's judgment of the total sociometric status of the pupil, and one set representing the total sociometric status of the pupil as measured by the sociometric test.

The average amount of discrepancy between these two sets of standard scores was computed for each of the following groups: three boys <u>most</u> preferred by the teacher; three boys <u>least</u> preferred by the teacher; three girls <u>most</u> preferred by the teacher; and three girls <u>least</u> preferred by the teacher. If this discrepancy indicated the teacher had <u>over-judged</u> the sociometric status of those pupils she <u>most</u> preferred, or <u>under-judged</u> the sociometric status of those pupils she <u>least</u> preferred it was designated as a <u>positive-judgment error</u>, since it was in the direction of the teacher's preference.

If this discrepancy indicated the teacher had under-judged the sociometric status of those pupils she most preferred, or over-judged the sociometric status of those pupils she least preferred it was designated as a negative-judgment error; since it was away from the teacher's preference.

The above procedure was carried out for each of the forty classes. Table XIV presents the average amount and direction of error in the teachers' judgments of the pupils in each of the four preference groups. An examination of this table will reveal that the majority of judgment errors are positive for each preference group. This indicates a tendency for more teachers to over-judge those pupils they most prefer and to under-judge those pupils they least prefer. The last column on the right presents the total judgment error for each teacher. It will be noticed that only five of the values are negative. In other words, thirty-five of the forty teachers made greater judgment errors in the direction of their preferences.

A further examination of Table XIV will reveal that the mean error of the forty teachers' judgments is positive for each preference group. Had no relationship been present between the teachers' judgments and their preferences, for the pupils in these groups, one

TABLE XIV

AVERAGE AMOUNT[1] AND DIRECTION[2] OF ERROR IN TEACHERS' JUDGMENTS OF THE SOCIOMETRIC STATUS OF BOYS AND GIRLS THEY MOST AND LEAST PREFER AS PUPILS IN CLASS

| Teacher Number | Boys | | Girls | | Total Judgment Error for Each Teacher |
|---|---|---|---|---|---|
| | Three Most Preferred | Three Least Preferred | Three Most Preferred | Three Least Preferred | |
| 1 | + .72 | +1.04 | + .30 | .00 | +2.06 |
| 2 | + .52 | + .33 | − .09 | + .77 | +1.53 |
| 3 | + .09 | − .08 | + .14 | + .15 | + .30 |
| 4 | + .51 | +1.00 | + .02 | + .10 | +1.63 |
| 5 | − .42 | + .38 | +1.00 | + .62 | +1.38 |
| 6 | + .74 | + .04 | .00 | + .37 | +1.15 |
| 7 | + .75 | + .24 | − .02 | + .52 | +1.49 |
| 8 | − .11 | + .67 | +1.05 | + .28 | +1.89 |
| 9 | + .17 | + .23 | + .64 | + .97 | +2.01 |
| 10 | − .57 | + .66 | + .28 | + .66 | +1.03 |
| 11 | − .54 | + .52 | + .40 | − .05 | + .33 |
| 12 | + .30 | − .24 | − .52 | + .22 | − .24 |
| 13 | + .20 | + .23 | + .13 | − .15 | + .41 |
| 14 | − .14 | + .73 | + .31 | + .29 | +1.19 |
| 15 | − .42 | − .59 | − .16 | − .24 | −1.41 |
| 16 | + .80 | − .34 | .00 | + .01 | + .47 |
| 17 | + .07 | +1.39 | .00 | + .21 | +1.67 |
| 18 | + .14 | + .12 | + .24 | + .85 | +1.35 |
| 19 | + .59 | +1.09 | − .18 | − .16 | +1.34 |
| 20 | + .98 | + .06 | − .19 | − .27 | + .58 |
| 21 | + .14 | + .86 | + .19 | + .36 | +1.55 |
| 22 | + .12 | − .14 | − .07 | +1.10 | +1.01 |
| 23 | + .04 | +1.09 | + .59 | + .28 | +2.00 |
| 24 | − .15 | + .09 | + .67 | + .02 | + .63 |
| 25 | + .48 | + .18 | − .47 | + .23 | + .42 |
| 26 | − .16 | + .27 | − .10 | + .11 | + .12 |
| 27 | + .36 | + .41 | .00 | − .43 | + .34 |
| 28 | + .18 | + .26 | + .63 | + .38 | +1.45 |
| 29 | − .53 | .00 | + .01 | + .06 | − .46 |
| 30 | − .65 | + .12 | + .01 | + .68 | + .16 |
| 31 | − .04 | + .14 | − .25 | − .28 | − .43 |
| 32 | + .28 | + .72 | − .16 | + .93 | +1.77 |
| 33 | + .58 | + .39 | + .34 | + .71 | +2.02 |
| 34 | + .02 | − .09 | + .30 | + .73 | + .96 |
| 35 | + .41 | + .63 | + .07 | + .33 | +1.44 |
| 36 | − .13 | + .39 | + .02 | + .36 | + .64 |
| 37 | + .59 | + .93 | + .05 | − .09 | +1.48 |
| 38 | + .42 | + .19 | − .04 | + .03 | + .60 |
| 39 | − .47 | + .13 | + .40 | − .20 | − .14 |
| 40 | − .26 | + .51 | + .40 | + .49 | +1.14 |
| Mean | + .14 | + .37 | + .15 | + .27 | + .93 |

[1]Amount of error is expressed in standard scores with a mean of zero and standard deviation of one.

[2]Direction is expressed by algebraic sign. Plus (+) indicates error in the direction of the teachers' preference. Minus (-) indicates error away from teachers' preference.

would expect random errors of judgment with resulting means of zero. Thus the significance of these means can be determined by applying the Fisher t-test to determine if they are significantly different from zero. This was done for the mean error of judgment in each group. The results are presented below in Table XV.

TABLE XV

SIGNIFICANCE OF THE MEAN ERROR OF THE FORTY TEACHERS' JUDGMENTS FOR THE THREE BOYS AND THREE GIRLS MOST AND LEAST PREFERRED BY THE TEACHER

| Group | N | M | t | P |
|---|---|---|---|---|
| Boys | | | | |
| Most Preferred | 40 | .14 | 2.05 | <.05 |
| Least Preferred | 40 | .37 | 5.33 | <.01 |
| Girls | | | | |
| Most Preferred | 40 | .15 | 2.73 | <.01 |
| Least Preferred | 40 | .27 | 4.52 | <.01 |

This table reveals that all four means are significantly different from zero if the five per cent level of significance is accepted. Three of the means are significant beyond the one per cent level. Means this large or larger would be expected less than once out of a hundred by chance if the true means were zero.

These data are inconsistent with the hypothesis that teachers do not over-judge the sociometric status of the three boys and three girls they most prefer as pupils in class. Likewise, these data are inconsistent with the hypothesis that teachers do not under-judge the sociometric status of the three boys and three girls they least prefer as pupils in class.

## Bias and the Accuracy of Teachers' Judgments

It has been shown that teachers' judgments of sociometric status have a tendency to be biased in the direction of their preference for having or not having certain pupils in class. The question immediately arises as to the relationship between the degree to which a teacher's judgments are biased in this way, and the accuracy of her judgments of all pupils in the classroom.

To determine if there is such a relationship the following null hypothesis was tested.

> There is no relationship between the degree to which teachers' judgments of sociometric status are biased in the direction of the three boys and three girls they most and least prefer as pupils in class, and the accuracy of their judgments of the sociometric status of all pupils in the classroom.

To test the above hypothesis it was necessary to calculate the total amount of bias entering into each teacher's judgments of the three most and three least preferred boys and girls. The last column on the right in Table XIV presents this total. When this total amount of bias for each teacher was correlated with the average accuracy of each teacher's judgments of the sociometric status of all pupils in the classroom a coefficient of -.37 was obtained. The negative relationship expressed by this correlation coefficient reveals a tendency for a larger bias in teachers' judgments to be associated with less accurate judgments. Applying a Fisher t-test to this correlation coefficient it was found to be significantly different from zero. A coefficient this large or larger would be expected only twice out of a hundred by chance if the true correlation were zero.

These data are inconsistent with the hypothesis that there is no relationship between the degree to which teachers' judgments of sociometric status are biased in the direction of the three boys and three girls they most and least prefer as pupils in class, and the accuracy of their judgments of the sociometric status of all pupils in the classroom.

## Relationship between the Freedom Pupils Have in Class and the Accuracy of the Teacher's Judgments of Sociometric Status

As previously discussed, it appeared probable that a teacher who allowed pupils greater freedom in class activities would be more accurate in her judgments of sociometric status. This was based on the assumption that more overt choice behavior would be exposed to the teacher, resulting in a better basis for her judgments. To determine if such an assumption is tenable the folowing null hypothesis was tested.

> There is no relationship between the freedom pupils have in class, as determined by their responses to eight items on a pupil-activity form, and the accuracy of teachers' judgments of sociometric status.

It will be recalled that the pupils in each of the forty classes were requested to respond to a pupil-activity form, indicating the range of activity they had in class and the freedom they had in carrying out this activity. The pupils' responses to the eight questions on this form were scored in the following manner.

The first question requested each pupil to indicate how many classmates he worked or studied with during the past week. The responses to this question

were scored, for each class, by taking the median number of pupils indicated.

The remaining seven questions had two alternative answers: one indicating freedom of pupils to choose their own companions, move around in class, and associate with other class members; the other alternative indicating lack of freedom in these areas. The responses to each of these seven questions were scored, for each class, by calculating the difference between the number of pupils selecting each alternative. If this difference was in the direction of more pupils indicating freedom of activity it was assigned a plus (+). If this difference was in the direction of more pupils indicating a lack of such freedom it was assigned a minus (-). To make these scores comparable for all classes they were divided by the number of pupils in class.

The above procedure provided an index of pupil freedom on each question for all forty classes. Since each question was concerned with freedom in a specific activity it was decided to correlate the index of pupil freedom on each question with the accuracy of the teachers' judgments of boys and girls on each criterion.

Table XVI presents the resulting correlation coefficients. An examination of these coefficients will reveal that they are all small and approximately evenly

TABLE XVI

CORRELATION COEFFICIENTS REPRESENTING THE DEGREE OF RELATIONSHIP BETWEEN THE ACCURACY OF FORTY TEACHERS' JUDGMENTS OF SOCIOMETRIC STATUS AND PUPILS' RESPONSES TO EIGHT ITEMS ON A PUPIL-ACTIVITY FORM

| Items on Pupil-Activity Form | Accuracy of Teachers' Judgments | | | | | |
|---|---|---|---|---|---|---|
| | Boys | | | Girls | | |
| | Work Companion | Play Companion | Seating Companion | Work Companion | Play Companion | Seating Companion |
| 1 | .135 | -.123 | -.090 | .010 | -.050 | -.013 |
| 2 | -.045 | .210 | .070 | .139 | -.091 | -.036 |
| 3 | .149 | -.025 | .128 | .177 | .014 | .148 |
| 4 | -.126 | -.051 | -.292 | -.373* | -.082 | -.234 |
| 5 | .152 | -.100 | -.109 | .013 | -.019 | -.159 |
| 6 | .363* | .143 | .111 | .072 | .167 | .095 |
| 7 | -.012 | .044 | .309 | .064 | .163 | .067 |
| 8 | -.193 | -.169 | -.034 | .208 | .183 | .040 |

*significantly different from zero at the five per cent level.

divided between positive and negative. They range from -.373 to .363. The Fisher t-test was applied to each of these coefficients to determine if any of them were significantly different from zero. It was found that only two were significantly different from zero at the five per cent level. These were the extreme negative and positive values just mentioned. It would be expected on the basis of chance alone that two of these correlations would exceed the five per cent level of significance so one can conclude that the data are consistent with the null hypothesis that no relationship exists between the variables under discussion.

Since the relationship between the class response to each item and the teacher's judgments of the boys and girls on each criterion was not significant it was decided to correlate the total score on the pupil-activity form, for each class, with the average accuracy of the teachers' judgments. This yielded a correlation coefficient of .133, which was not significantly different from zero at the ten per cent level.

These data are consistent with the hypothesis that there is no relationship between the freedom pupils have in class, as determined by their responses to eight items on a pupil-activity form, and the accuracy of teachers' judgments of sociometric status.

## SUMMARY

An analysis of the data has revealed the extent to which teachers are accurate in judging the sociometric status of sixth-grade boys and girls on the criteria of work companion, play companion, and seating companion.

The findings indicated no difference in the accuracy of the teachers' judgments of boys and girls. Their judgments on the play companion criterion were slightly less accurate than on the criteria of work companion and seating companion.

The ability to make accurate judgments of sociometric status varied widely among the forty teachers. This variation could not be accounted for by the general training and experience of the teacher, size of class, marital status of teacher, length of time the teacher had been in contact with the class, or the freedom pupils felt they had in class. The data revealed more accurate judgments by those teachers who had taken a course in Child Development.

There was a tendency for teachers to over-judge the sociometric status of those pupils they most preferred, and to under-judge the sociometric status of those pupils they least preferred. The amount of bias in this direction was negatively related to the accuracy of their judgments.

# CHAPTER V

# SUMMARY OF THE STUDY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

## The Problem and the Method of Study

The problem defined in the first chapter was that of determining the accuracy of teachers' judgments concerning the degree to which sixth-grade pupils are accepted by their classmates, and the relationship of certain variables to the accuracy of these judgments. The acceptance of sixth-grade pupils by their classmates was determined by the administration of a sociometric test. The number of choices a pupil received on this test was referred to as his sociometric status. Various specific questions were raised concerning the accuracy with which teachers could judge this sociometric status. A review of the related literature revealed that these questions had not previously been answered.

The method of investigating the problem was discussed in the third chapter. It consisted of the following procedures. A sociometric test was administered to forty sixth-grade classes. On this test each pupil

was requested to choose the five classmates with whom he would most prefer to work, the five classmates with whom he would most prefer to play, and the five classmates near whom he would most prefer to sit. In addition, each pupil was requested to respond to eight questions concerning the freedom he had in carrying out routine class activities.

Each teacher, in the same forty classes, made judgments concerning the sociometric status of her pupils on the criteria of work companion, play companion, and seating companion. In addition, each teacher indicated which three boys and three girls she most preferred as pupils in her class, and which three boys and three girls she least preferred as pupils in her class. Personal data information concerning the teachers' training and experience were obtained from the school records wherever possible. Where the school records were not available, the teachers provided the desired information on a personal-data sheet.

The forty sixth-grade classes used in this study ranged in size from fifteen to forty-three pupils per class, with an average of thirty-two. There were 1,258 pupils in all, of whom 632 were boys and 626 were girls. The average age of the boys was 11.8 years, while the average age of the girls was 11.5 years. All except

five of the 1,258 pupils were white.

The teachers included in this study consisted of forty women, all of whom were white. The personal-data variables describing the experience and training of these teachers were spread over a wide range. The average teacher, representing this group, was described as approximately forty-seven years of age, with twenty years of teaching experience, thirteen of which were spent in her present position. She was described as having 114 semester hours of college credit, with twenty-two of these in education courses, and nine of them in psychology. Half of her college training was earned before 1932. In addition to the above description of the teacher population, it was found that eighteen of the teachers were single, in comparison with twenty-two married. Sixteen of the forty teachers had been with their classes only one semester and the remaining twenty-four had been with their classes for one school year. Fifteen had taken a course in Child Development and twenty-five had not taken such a course.

The data used in this study were collected during the last three weeks of May, 1949, just before the close of the school year. In collection of the data the investigator contacted each class personally, and used standardized directions for the administration of the

sociometric test. The teachers' judgments and preferences were recorded on previously prepared forms and mailed to the investigator within a short time after the sociometric testing. Code numbers were used on these forms so that the teachers' responses would be anonymous to everyone but the investigator. The adequacy of the above procedure was revealed by the quick return and completeness of the responses to all forms.

The teachers' judgments were separate for boys and girls, in the form of continuous ranks, on each of the three criteria. These ranks were converted into standard scores with a mean of zero and standard deviation of one. The relationship between these teachers' judgments of sociometric status and sociometric status as measured by the sociometric test was determined by Pearson product-moment coefficients of correlation. The degree of relationship expressed by these coefficients was referred to as the accuracy of the teachers' judgments.

It was decided that the questions raised in the first chapter, concerning the accuracy of these teachers' judgments, could best be answered by placing them in the form of null hypotheses and determining the consistency of the data with each hypothesis. This was done in the last chapter. The results revealed the

data to be consistent with each of the conclusions listed below.

## Main Conclusions and their Interpretations

1. There is a difference between teachers in the accuracy of their judgments of the sociometric status of sixth-grade pupils in the classroom. Correlation coefficients representing the average accuracy of each teacher's judgments ranged from .268 to .838, with a mean of .595.

This finding should have some value for teacher training and selection. If the teacher is to be effective in the social adjustment of pupils she must be able to recognize the pupil's present status. From the above findings it is apparent that the ability to do this varies rather widely among teachers. Would it not be wise, then, to take this ability into account in the training and selection of teacher candidates? It is true that much more needs to be known about this area before positive recommendations can be made, but teacher training institutions would do well to make explorations of this ability among their student teachers.

2. There is no difference in the accuracy of teachers' judgments of the sociometric status of boys and girls in the classroom.

It is often said that women teachers do not understand boys as well as they do girls. Since all of the teachers in this study were women it is apparent that these data are not consistent with that belief, in so far as judging the sociometric status of pupils is concerned.

3. There is a difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom among the criteria of work companion, play companion, and seating companion. This difference was accounted for to a major extent by the lower accuracy of the teachers' judgments on the play companion criterion. This tendency was greater for girls than for boys.

This finding was not surprising since a majority of the teachers stated they had not had the opportunity to observe the pupils as much on this criterion as on the other two.

4. There is no relationship between the average accuracy of the teachers' judgments of the sociometric

status of pupils in the classroom and each of the following variables: age of teacher, years of teaching experience, length of time in present position, semester hours of college training, recency of college training, semester hours in education courses, semester hours in psychology courses, and size of class.

Apparently the ability required in making judgments of sociometric status is not dependent upon the general training and experience revealed in the first seven variables. Since this is a specific type of judgment based on insight into group life it is possible that training of a specific nature is required.

The lack of relationship between the size of class and the accuracy of the teachers' judgments may be partly explained by the restricted range in class size. The number of pupils per class ranged from fifteen to forty-three. Apparently the accuracy of teachers' judgments of sociometric status is not affected by class size within this range.

5. There is <u>no</u> difference in the accuracy of teachers' judgments of the sociometric status of pupils in the classroom between: those teachers who are single and those teachers who are married; those teachers who were with the class two semesters and those who were with the class one

semester.

There is a difference in the accuracy of teachers' judgments between those teachers who had taken a course in Child Development and those who had not taken such a course. This difference was in favor of more accurate judgments by those teachers who had taken the course.

The course taken by these teachers was described as one concerned with the development of the whole child, in which emphasis was given to social adjustment and the application of the sociometric technique. In light of the above course description it appears possible that these teachers may have become more aware of social adjustment, and more conscious of overt signs of choice behavior in the classroom, thus increasing the accuracy of their judgments. On the other hand, it may be that those teachers who elected to take such a course were more accurate judges of sociometric status to begin with.

The data in this study have merely revealed a relationship between taking a course in Child Development, as described above, and greater accuracy in teachers' judgments of sociometric status. However, this provides a fruitful area for further research. The cause of this relationship may provide a valuable lead in the training of teachers to make such judgments.

6. There is a tendency for teachers to over-judge the sociometric status of the three boys and three girls they most prefer as pupils in class, and to under-judge the sociometric status of the three boys and three girls they least prefer as pupils in class. This systematic bias in teachers' judgments appeared to a marked degree with all four groups of pupils.

This phenomenon is consistent with a study mentioned in the related literature, concerned with the judgment of group opinion. It also supports the statement that teachers tend to confuse the social adjustment between children with the social adjustment between adults and children.

7. There is a relationship between the degree to which teachers' judgments of sociometric status are biased in the direction of the three boys and three girls they most and least prefer as pupils in class, and the accuracy of their judgments of the sociometric status of all pupils in the classroom.

This relationship revealed a tendency for a larger bias in teachers' judgments to be associated with less accurate judgments. This accounts in part for the difference between teachers in the accuracy of their judgments of sociometric status.

8. There is no relationship between the freedom pupils have in class, as determined by their responses to eight items on a pupil-activity form, and the accuracy of teachers' judgments of sociometric status. This finding was surprising since it was assumed that pupils would exhibit more overt choice behavior, observable to the teacher, where they were given greater freedom in class. It was believed that this would provide a better basis for the teacher's judgments of sociometric status, resulting in more accurate judgments.

The lack of relationship found in this study reveals that the amount of freedom which pupils were allowed in choosing their own companions, moving around in class, and associating with their classmates, cannot account for the difference between teachers in the accuracy of their judgments of sociometric status.

## Implications and Suggestions for Further Research

The conclusions just listed have at least provided tentative answers to the questions raised in the first chapter. They have helped to clarify a special ability desirable in teachers, and suggest some modifications in the training and selection of teacher condidates. In addition, they have thrown some light on the extent

to which adults have insight into childhood and adolescent groups. The implications of these conclusions as well as problems they suggest for further research will now be considered.

The social adjustment of pupils has received much emphasis in education. The majority of the teacher's efforts in this area has been dependent upon her judgment of the social adjustment of the pupils in her classroom. This study has shown that the ability of teachers to make such judgments, in a special area, varies widely among teachers. Some teachers are so inaccurate in their judgments that it is hard to believe that their efforts in this area can be effective at all. On the other hand, some teachers' judgments are quite accurate. The investigator will admit that accurate judgments of social adjustment are not necessarily followed by proper ameliorative practices. It is only emphasized here that accurate judgments are a prime prerequisite. However, this does raise the question of the relationship between the ability of teachers to make such judgments and indices of teaching efficiency. Research in this area may provide an improvement in the selection of teacher candidates.

It has been shown that teachers with the ability to make accurate judgments in this area can not be

selected in terms of general training and experience. Therefore, some specific training has been suggested. The more accurate judgments made by teachers who had taken a course in Child Development has revealed an important lead in this direction. Before any recommendations can be made concerning the value of such training, in this respect, further research would be necessary. This may be done with a group of teachers making judgments before and after taking such a course.

In addition to the above suggested researches, it would appear valuable to determine the comparative accuracy of teachers' judgments at different grade levels. One of the research studies discussed earlier has shown a declining accuracy from the kindergarten to the seventh grade. This should be substantiated with a larger number of teachers at each grade level.

The tendency for teachers to over-judge those pupils they most prefer and under-judge those pupils they least prefer would appear to handicap their efforts in the area of social adjustment. This phenomenon may be so deeply seated in human nature that it cannot be eradicated entirely. However, it calls for increased emphasis, in teacher training institutions, on the teacher's awareness of the pupil's role to his classmates in relation to the pupil's role to herself.

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# APPENDIX

Instruments Used in Study:

- Sociometric Test
- Pupil Activity Form
- Teacher Judgment Forms
  - General Instructions to Teachers
  - Procedures in Making Judgments
  - Teacher Judgment--Boys
  - Teacher Judgment--Girls
- Teacher Preference Form
- Personal Data Form

# SOCIOMETRIC TEST

NAME _____ SCHOOL _____

ARE YOU A BOY OR GIRL? _____ HOW OLD ARE YOU? _____

WE WOULD LIKE TO KNOW WHICH CHILDREN IN THIS ROOM YOU PREFER TO WORK AND PLAY WITH. WRITE THE NAMES OF THOSE WHOM YOU WOULD CHOOSE; CHOOSE ANYONE IN THIS ROOM YOU WISH; YOUR CHOICES WILL NOT BE MENTIONED TO ANYONE ELSE. GIVE BOTH FIRST AND LAST NAMES. SPELL THEM THE BEST YOU CAN.

I WOULD CHOOSE TO WORK WITH THESE CHILDREN:

1. _____
2. _____
3. _____
4. _____
5. _____

I WOULD CHOOSE TO PLAY WITH THESE CHILDREN:

1. _____
2. _____
3. _____
4. _____
5. _____

I WOULD CHOOSE TO HAVE THESE CHILDREN SIT NEAR ME:

1. _____
2. _____
3. _____
4. _____
5. _____

# PUPIL-ACTIVITY FORM

## What I Do in This Class

Please read the following questions, and underline the answer which you think best answers the question.

1. How many different pupils did you study or work with in class last week?

| | | | |
|---|---|---|---|
| 1 | 5 | 9 | 13 |
| 2 | 6 | 10 | 14 |
| 3 | 7 | 11 | 15 |
| 4 | 8 | 12 | |

2. Do you usually choose your own study or work companions in this class, or does the teacher choose them for you?

   (a) Choose them myself
   (b) Teacher chooses them for me

3. Do you usually move around in class when studying with other pupils, or working on group projects?

   (a) Yes
   (b) No

4. Do you usually visit with other pupils in class when studying with others, or working on group projects?

   (a) Yes
   (b) No

5. Did you choose the seat you are now sitting in, or did the teacher ask you to sit there?

   (a) Chose it myself
   (b) Teacher asked me to sit here

6. Do you ever play games in this class?

   (a) Yes
   (b) No

7. If you play games, do you usually choose your own play companions, or does the teacher choose them for you?

   (a) Choose them myself
   (b) Teacher chooses them for me

8. Do you usually raise your hand before talking out loud to your neighbor, in class?

   (a) Yes
   (b) No

## GENERAL INSTRUCTIONS TO TEACHERS

The students in your class will be asked to name the five children with whom they would prefer to work, the five children with whom they would prefer to play, and the five children near whom they would prefer to sit. The total number of choices each child receives on each of the above, will indicate his (her) acceptability to his (her) classmates as work companion, play companion, and seating companion. On each of these three criteria, some children will be highly accepted, receiving many choices; some will remain unchosen; the remainder will fall in between these extremes. Consequently, the children can be ranked in the order of their relative acceptability from the most accepted to the least accepted.

We are interested in determining the extent to which teachers can judge the relative acceptability of each child to his (her) classmates as work companion, play companion, and seating companion. As you know, boys and girls at the sixth grade level seldom choose members of the opposite sex as companions. Therefore we are asking you to judge the boys and girls in your class separately.

## SPECIFIC INSTRUCTIONS

On the following page, entitled TEACHER JUDGMENT- BOYS, please write the names of the boys, in your class, in alphabetical order (Place last names first).

On the following page, entitled TEACHER JUDGMENT-GIRLS, please write the names of the girls, in your class, in alphabetical order (Place last names first).

## PROCEDURES IN MAKING JUDGMENTS

Turn to the page entitled TEACHER JUDGMENT-BOYS. In each column, you are to rank all of the boys in the order in which you think they are accepted by their classmates. Use the following procedure:

A. In the work companion Column:

(1) Place a 1 after the boy who you think is most accepted by his classmates as work companion.

(2) Place a 100 after the boy who you think is least accepted by his classmates as work companion.

(3) Place a 2 after the boy who you think is next most accepted.

(4) Place a 99 after the boy who you think is next least accepted.

(5) Continue this procedure until each boy is ranked in the work companion column.

(6) Now, place a circle around the rank number of those boys, who you think will receive no choices from their classmates as work companion.

(7) Next, fold the work companion column back underneath the page so it is not visible to you.

B. In the play companion column, repeat the above procedure for each boy's acceptance as play companion.

C. In the seating companion column, repeat the above procedure for each boy's acceptance as seating companion.

WHEN YOU HAVE COMPLETED THE RANKING IN ALL THREE COLUMNS FOR BOYS, AND HAVE INDICATED THOSE IN EACH COLUMN WHO YOU THINK WILL RECEIVE NO CHOICES, TURN TO THE PAGE ENTITLED TEACHER JUDGMENT-GIRLS AND REPEAT THE SAME PROCEDURE.

CODE NO. ____

TEACHER JUDGMENT - BOYS

| Boys Names (Last, First) | Seating Companion | Play Companion | Work Companion |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| 13. | | | |
| 14. | | | |
| 15. | | | |
| 16. | | | |
| 17. | | | |
| 18. | | | |
| 19. | | | |
| 20. | | | |
| 21. | | | |
| 22. | | | |
| 23. | | | |
| 24. | | | |
| 25. | | | |

Code No._____

TEACHER JUDGMENT - GIRLS

| Girls Names (Last, First) | Seating Companion | Play Companion | Work Companion |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| 13. | | | |
| 14. | | | |
| 15. | | | |
| 16. | | | |
| 17. | | | |
| 18. | | | |
| 19. | | | |
| 20. | | | |
| 21. | | | |
| 22. | | | |
| 23. | | | |
| 24. | | | |
| 25. | | | |

Code No._____

# TEACHER-PREFERENCE FORM

Assume that your class is to be divided into two sections, only one of which you will teach. List below the names of the three boys and the three girls whom you would most prefer as pupils in your section. Also list below the names of the three boys and the three girls whom you would least prefer as pupils in your section. Make your selections only on the basis of how much you would, or would not, enjoy having them as pupils in your section.

| Most Prefer | Least Prefer |
|---|---|
| **Boys** | **Boys** |
| 1. _____ | 1. _____ |
| 2. _____ | 2. _____ |
| 3. _____ | 3. _____ |
| **Girls** | **Girls** |
| 1. _____ | 1. _____ |
| 2. _____ | 2. _____ |
| 3. _____ | 3. _____ |

# PERSONAL-DATA SHEET

Name_____School_____

Number of years of teaching experience_____Age_____ Sex_____

Record of the college or University training you have had:

| | Institution Attended | Dates Attended | Semester Hours Credit | Degrees Awarded |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |

Major study in undergraduate training_____

Major study in graduate training_____

Length of time in present position_____

Indicate how many semester hours of credit you have in each of the following fields:

| Education | | Psychology | |
|---|---|---|---|
| _____ | Educational Psychology | _____ | General |
| _____ | Child Growth and Development | _____ | Mental Hygiene |
| _____ | Guidance | _____ | Child |
| _____ | Other | _____ | Other |

List the specific teaching positions you have held:

| | Location | Grades Taught | Years |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

Are you: Single_____Married_____Widowed_____Divorced_____