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An analysis of the effects of sociometric techniques on the socio-economic cleavage in an elementary school.

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Thesis

AN ANALYSIS OF THE EFFECTS OF SOCIOMETRIC
TECHNIQUES ON THE SOCIO-ECONOMIC CLEAVAGE IN AN
ELEMENTARY SCHOOL

Submitted by

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(B.A., University of Maine, 1948)

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CHAPTER I

INTRODUCTION

In the school systems of our country today each teacher has the opportunity, if not the obligation, to do as much as she can to inculcate democratic attitudes in children and help provide for the development of the mental health of these children. In most cases the school offers children their first opportunity for organized group experience outside the family, and, as a result, the classroom becomes a setting for the give and take which are so necessary to the process of learning to live with other people. The social interaction of the kind which can be experienced by the children in the classroom should lead to their natural acceptance of the idea of social equality—the essence of a democratic attitude—and should result in their gaining a positive emotional approach to living with other people from different backgrounds. The classroom teacher finds herself in an excellent position for determining the extent of the group's progress and for deciding what factors in the situation are deterrents to the ideal of democratic and satisfying human relations.

Chief among the factors necessary for developing a full life in a heterogeneous group such as a class of children is a satisfactory friendship pattern. When a child is with others who accept him and respond to him—others with whom he wants to be—he can contribute more and function
better in the group. When there are obstacles to the attainment of this group friendship pattern, it is important that the teacher find out what they are and how best to deal with them. It is of course true that the behavior of children toward one another is the result of many different forces playing upon them; however, in discussing the factors involved in the formation of a friendship pattern Bonney says in part: "The socio-economic and cultural level of a child's home is of sufficient importance, even within a limited range of home backgrounds, to leave a small, measurable imprint upon the process of friendship formation." Bonney also says:

"It has been demonstrated and emphasized theoretically that no society or sub-group within that society can prosper to the fullest extent either materially or spiritually except that all its members prosper and thereby contribute to the welfare of the whole. Therefore, it should be the aim of educators and social psychologists to promote practices which will enable individuals in all categories of social status to inspire some degree of admiration from their respective peers and to establish inter-personal bonds between them. As this is done there will be a greater degree of acceptance among all members of a group regardless of original social status."

Source of this study.— The writer was keenly aware that there was not wide understanding and full communication among the children in the six grades of the school in which she was teaching. In every activity undertaken there seemed to be two groups participating in each grade, and


the writer, cognizant of the family backgrounds of a large percentage of the children, realized that the line of demarcation in each group was based on the socio-economic level and neighborhood location of the families of the children involved. Although most of the children in the different groups seemed not unhappy with the situation, especially in the lower grades, there was a significant number of children in each grade obviously dissatisfied and desirous of intercourse with the other group. In each grade the one group seemingly accepted the other group as it was, was not unkind to the members, but ignored, in general, the overtures made by some in the other group. For the most part the children wishing to cross the line were those from the estimated lower of the two groups. The writer wishes to make clear, however, that in a few cases line crossing was accomplished with no apparent trouble; a possible explanation may be Bonney's theory: "It is known that some children who stand high in group acceptance are characterized by generous and humanitarian attitudes which cause them to include in the orbit of their social interests individuals who are generally lower in group acceptance." Also, several children whose socio-economic status placed them on the fringe of one group or the other were more easily able to ally themselves with either group.

ประสิทธิ์ ถ้าผู้มีภูมิใจและมีใจที่ดีจะได้รับการยอมรับจากผู้อื่นในกลุ่มของตัวเอง

Justification for and purpose of this study.-- In order to acquire reasonable proof that the suspected socio-economic cleavage did exist in the school, the writer decided to administer a sociometric test to one grade. Because of the fact that the first grade was the grade which

1/Bonney, op. cit., p. 366.
the writer taught and with which she was sufficiently familiar, she felt that this grade would be the best to use to obtain the sampling. On the basis of the writer's knowledge of the family background and residence area of each child in the class, the writer divided the class into two socio-economic groups. After administering the sociometric test, which gave the children an opportunity to choose their three associates for seating proximity in the classroom, the writer tabulated the results and drew up a sociogram. It was found that 14 children out of 29 in the lower socio-economic group chose to sit near children in the upper socio-economic group and were not reciprocated, and that six children out of eleven in the upper socio-economic group chose to sit near children in the lower socio-economic group and were not reciprocated. With the exception of two out-group choices which were reciprocated, all the remaining choices were in-group choices. Therefore the writer proposed to conduct a study measuring the effect of a succession of sociometric groupings, based on the results of sociometric tests, on those socio-economic cleavages. The writer planned to accomplish this by using three grades in the school as experimental groups and comparing the changes with those three grades not grouped sociometrically, which would constitute the control groups. With the aid of this relatively simple technique and instrument the writer hoped that each group would become more aware of individuals in the other groups and make out-group as well as in-group choices when given a chance to choose classroom seating associates. The writer's ultimate desire was to lessen the effects of this socio-economic cleavage which was evident
in every activity of the school and to develop such group life in the
school as would engage the interests of the children in one another,
widening mutual appreciation and exchange, and offer maximum opportunity for
the development of varying individual capacities.

Scope of this study.— The school in which this experiment took
place is in a suburb of Boston—a town with a population of nearly 21,000,
according to the latest census figures. This suburb is considered wealthy
by all standards of comparison. Statistics concerning per pupil costs,
valuation, tax rates, etc., for the school year 1951-1952, released by
the Department of Education, Commonwealth of Massachusetts, are as fol-
lows:

Valuation per pupil in net average membership year ending June 30, 1952 $17,133
Expended for schools from local taxation year ending Dec. 31, 1951 per $1,000 valuation $ 13.06
Expended from local taxation per pupil in net average membership $ 223.93
Expended from all sources per pupil in net average membership (includes state reimbursement) $ 250.34

A part of the public school system, the school is located in an older sec-
tion of the town—a section which is now made up predominantly of families
falling in the upper lower and middle classes. However, the school also
serves children from a section geographically adjacent except that it is
on the other side of a state thoroughfare. The families in this section
are in the upper middle class and upper class category. The pupils in the
six grades of this elementary school—totaling 168—were used by the
writer for this study. Grades one, three, and five, containing 90
pupils, were used as the experimental groups; grades two, four, and six,
containing 75 pupils, were used as the control groups. The writer first
placed each child's family on a socio-economic scale. Then, in order
that the effect of groupings based on sociometric techniques on the
socio-economic cleavage in the school might be determined, the children
in the experimental groups were arranged according to their choices of
classroom seating associates. They were questioned four times at five
week intervals as to their choices, and each time except at the final
questioning their seats were rearranged. The control groups, although
asked for their choices, were not rearranged.
CHAPTER II
RELATED LITERATURE AND RESEARCH

From the maze of research in the field of sociology which could be considered connected in some small part with the subject of this study, the writer has tried to choose only that having specific relation to the work undertaken. Although in late years more and more studies have been made in an effort to determine the factors which influence the formation of mutual attractions within heterogeneous groups, not all of these works are applicable to this writer's study.

Foundation of this study.-- The assumption upon which this study rests is that cleavages within groups which are based upon artificial criteria—such as differences in economic status—are detrimental to the formation of the friendship patterns necessary for the mental health of the group. That friendship in one form or another is vital to each individual is stressed by Potashin who says:

"Friendship represents a pattern of interaction which may exist between any two people. It has been recognized and extolled by philosophers, poets, and ordinary people for many centuries. That it is a pleasant and satisfying relationship is readily recognized by anybody who has ever had a friend or knows two people who are friends. That it is important to adequate personality development is recognized by clinical psychologists, mental hygienists, and educators. In former centuries a child was discouraged from having contemporaries about him, lest it distract him from carrying out the so-called necessities of

\[\text{Potashin, "A Sociometric Study of Children's Friendships," Sociometry (February, 1945), 9;45-70, p. 48.}\]
life and education, and lest they lead him outside the prescribed moral code of the culture. We are coming now to an awareness of the importance of this relationship as a training ground for acquiring techniques of personal interaction in many phases of the individual's life and as a prelude to marriage, and also for its influence on the development of a satisfactory personality. From the mental health point of view, it would seem to be essential for every child to have or be able to have some close personal relationship with a contemporary."

It is, of course, not necessary for the two people who become friends to be of different socio-economic backgrounds; the important consideration is that there should be no barrier except personality. There should be wide understanding and full communication within the group, with complete freedom for the individuals to choose their friends.

Jennings's study of cleavages. — The fact that cleavages, interferences with communication, and other tensions usually limit the opportunity to develop group skills and absorb energy that could be used for positive achievement is stated by Jennings who says:

"Many experiments in the project testify to the fact that when the emotional shocks due to inadequate or discordant group life are removed and advantage is taken of the existing psychological affinities, there usually results a heightening and release of children's intellectual abilities along with a redirection of their thinking processes. These outcomes are related not only to what happens to individual personalities, but also to the play of group or social motivation on performance. Positive interaction in learning allows members of a group to complement one another's capacities and hence contribute to greater total achievement. Individuals can stimulate one another in place of competing with one another. But, above all, group motivation adds an extra stimulus which cannot be set up in individuals by themselves, especially when they may be emotionally conditioned for rivalry instead of collaboration. A basis is thus created for the natural discipline resulting from wanting to please other members in a group, from wanting to perform adequately in the group endeavor."

Neugarten's study of effects of social status cleavages. -- A study concerning to what extent and in what observable ways the factor of social status affects the social development and friendships of children was carried out by Neugarten. Her specific purpose was to determine whether the social class position of a family is a contributing factor in determining a child's choice of friends or the child's reputation among his friends, and if so how the operation might vary with the increasing age of the child. Findings from this study indicate that children select as friends, first, children of higher status than their own, and second, children of their own status level. Neugarten says:

"It is not the contention of the writer that young children are conscious of the class structure of their community. They probably select and reject their associates not on the basis of social class itself but on the basis of a whole configuration of factors related to social class—whether or not the child is clean, the kind of clothes he wears, the kind of playthings he has, the language he uses, his manners, where he lives, his attitude toward school, and a host of similar factors. The child, consciously or unconsciously using this criteria in selecting his friends, is probably reflecting the class stereotypes as he has learned them from his parents, and he applies these criteria uncritically."

According to Neugarten, fifth and sixth graders make judgments about each other along extremely stereotyped lines. Therefore, by the time children reach the fifth grade, the child of lower social status faces a very different problem of adjustment than does the child of higher social status. This child is soon aware of his reputation and desirability as a

2/Ibid., p. 309.
friend, and he must make his own adjustment in the light of what others
think of him. This may be one of the reasons for the child of lower
class so often being the behavior problem. He finds himself rejected
by his classmates and looks for some other kind of recognition. This
may also be one of the reasons why lower class children often find school
unpleasant and unrewarding and why the child of lower class so often wel-
comes the first opportunity to leave school altogether.

A similar study by Bonney.-- In a study involving some of the same
considerations Bonney says in part:

"The socio-economic level of the homes involved played a
role greater than chance alone would allow in determining mutual
friendships... (There is) a strong tendency for the more popular
children to come from the smaller family units. This is true
on each grade level. ...The most popular children, as a group,
came from homes which were decidedly superior to those of other
children in cultural, social, and economic factors."

Bonney also says:

"The reason why a few children can achieve a high degree of
social success in spite of serious handicaps in intelligence
and home backgrounds is undoubtedly to be found in the structure
of their personalities. These children have attained the right
proportion of aggressiveness, daring, sympathetic responses and
friendliness--traits which have been found...to be very im-
portant in winning admiration and establishing interpersonal
relationships."

According to Bonney, findings also show that some children who

1/Engarten, op. cit., pp. 310-313.

2/Bonney, "Relationship between Social Success, Family Size, Socio-
Economic Home Background, and Intelligence among School Children in

3/Ibid., p. 34.

4/Bonney, "A Study of the Sociometric Processes Among Sixth Grade Chil-
are far apart on a scale of general group desirability as play associates
may nevertheless play with each other and apparently with some degree of
satisfaction. On the other hand, those who are lowest in the total group
estimation from the standpoint of their acceptance as co-workers in an
activity involving knowledge, are almost completely rejected by those
who are rated highest in this regard.

Basis for experimental work in the field.— Moreno's important
discovery of a means of fundamentally analyzing the nature of society's
inter-personal structure was the basis for the above-mentioned studies as
well as for most other experimental work along this line. This technique
of group analysis known as the sociometric test was outlined by him in
his Who Shall Survive? In an explanation of sociometry Moreno says:

"An inquiry into the nature of the foundation of human
society became necessary as a preliminary to any genuine plan
for its reconstruction in accord with the requirements of well-
balanced human inter-relations. Sociometry is concerned with
both of these problems and their inter-dependence."

Moreno's exact definition of sociometry is: "...the mathematical
study of psychological properties of populations, the experimental tech-
niques of and the results obtained by application of quantitative methods."
More simply, in Moreno's definition, the sociometric test consists of an
individual's choosing his associates for any group of which he is or

1/ Jacob L. Moreno, Who Shall Survive? Nervous and Mental Disease Publish-

2/ Moreno, "Foundations of Sociometry," Sociometry (February, 1941), 4:
15-35, p. 15.

might become a member. He says:

"The requirements of a good sociometric test are: a) that it reaches and measures two-way relations, b) that the participants in the situation are drawn to one another by one or more criteria, c) that a criterion is selected to which the participants are bound to respond, d) that the subjects are adequately motivated so that their responses may be sincere, e) that the criterion selected for testing is strong, enduring, and definite and not weak, transitory, and indefinite."

Jennings' clarification.—Jennings clarifies, saying:

"Stated briefly, sociometry may be described as a means of presenting simply and graphically the entire structure of relations existing at a given time among members of a given group. The major lines of communication, or the pattern of attraction and rejection in its full scope, are made readily comprehensible at a glance. This is done by asking the children to choose from among themselves preferred companions in some school situation that is real to them, and arranging the results in what is called a sociogram—a diagram of the choices."

Jennings also states:

"It has been disclosed that individuals generally seek to relate themselves to other individuals regardless of the response toward them made by other individuals with whom they are in contact.

When individuals are allowed to group themselves according to the positive choice and rejection they feel towards one another, the structure which results is not merely the genuine psychosocial structure of that community; it is the structure which represents the alignment of the members toward one another because of basic needs which find fulfillment through specific other members of that community."

The first sociometric approach.—The initial effort to bring a


2/Jennings, op. cit., p. 11.

sociometric approach to the problem of inter-personal relations was made by Moreno and Jennings. The sociometric test was first administered by them to the population of Public School 181, Brooklyn, New York, under the condition of allowing two choices for studying with others. Following this pioneer experiment, in-group and out-group relationships, the concept of cleavages within groups, and such other aspects of groups as cohesion or integration were given sociometric analysis by Moreno. However, both Moreno and Jennings warned that the sociometric test and diagram are not sufficient to explain the motives underlying the choices made; nor do they show the actual values which affect the children's interaction.

Jennings says:

"...not only is each sociogram a starting point for further investigation, but also a whole series of sociograms are needed at stated intervals before a classroom "society" may be properly understood. As a starting point, however, the chief significance of a sociogram lies in its comprehensive revelation of the group structure and its clear direction toward the next steps for study or investigation."

In the same vein Moreno says:

"Sociometry can well be considered the cornerstone of a still undeveloped science of democracy. The so-called democratic process is not truly democratic as long as the large spheres of invisible processes disclosed by sociometric procedures are not integrated with and made a part of the political scheme of democracy."

It is the writer's discovery that few experiments have been carried out attempting to use concretely the advice of Moreno and Jennings as


2/Moreno, "Foundations of Sociometry," op. cit., p. 15.
presented in the preceding paragraphs. To use concretely the sociometric groupings indicated by sociometric tests in an effort to encourage the individuals in the group to live more democratically was the aim of this writer's undertaking.
CHAPTER III
PROCEDURE

1. Preliminary Preparations

Description of Warner's social status survey technique.-- The
writer, feeling that results of the sociometric pre-test administered to
Grade 1 offered reasonable justification for a study based on a socio-
economic cleavage in the school with which she was connected, set about,
as a necessary preamble, to determine scientifically the socio-economic
status of the family of each child in the school. The weighted scale for
determining social status, set forth by William Lloyd Warner in his
Social Class in America, was chosen as a suitable means for accomplishing
this task. The four determinants chosen by Warner are: 1) occupations,
2) source of income, 3) house type, 4) neighborhood. Each of these general
classifications is given a weight, and each classification is divided into
seven descriptive sub-classifications. By deciding which of the seven
descriptive sub-classifications is correct for each child's family, by
multiplying the number of the sub-classification by the assigned weight
for the general classification, and by adding the four figures derived, a
total weighted score for each family is obtained. Warner's key translates
these figures, ranging from 12 to 66, to one of the following social status
classifications: upper upper; lower upper; lower upper to upper middle;

1/William Lloyd Warner, Social Class in America, Science Research Asso-
ciates, Chicago, 1949, pp. 131-159.
upper middle; upper middle to lower middle; lower middle; lower middle to upper lower; upper lower; upper lower to lower lower.

Table 1. Warner's Key for Translating Weighted Scores to Social Status Classifications

<table>
<thead>
<tr>
<th>Score</th>
<th>Social Class</th>
</tr>
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<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>12 - 17</td>
<td>Upper Upper</td>
</tr>
<tr>
<td>18 - 22</td>
<td>Lower Upper</td>
</tr>
<tr>
<td>23 - 24</td>
<td>Lower Upper - Upper Middle</td>
</tr>
<tr>
<td>25 - 33</td>
<td>Upper Middle</td>
</tr>
<tr>
<td>34 - 37</td>
<td>Upper Middle-Lower Middle</td>
</tr>
<tr>
<td>38 - 50</td>
<td>Lower Middle</td>
</tr>
<tr>
<td>51 - 53</td>
<td>Lower Middle - Upper Lower</td>
</tr>
<tr>
<td>54 - 62</td>
<td>Upper Lower</td>
</tr>
<tr>
<td>63 - 66</td>
<td>Upper Lower - Lower Lower</td>
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</tbody>
</table>

Use of Warner's technique.— The social status of the family of each of the 168 children in the school was determined as suggested by Warner. This necessitated: 1) a thorough examination by the writer of the existing school records on each child in order to ascertain the occupation and source of income of the provider in each family; and 2) a personal observation of the outside of the dwelling place of each family in order to make a judgment concerning the house type and the neighborhood in which it was located. After each family was placed on Warner's scale, the writer, for the purposes of this study, simplified Warner's key by dividing his classifications into two socio-economic groups, higher and lower. The higher group included all scores from the upper upper classification down through
the upper middle classification; the lower group included all scores from the lower middle down through the lower lower classification. Thus each child's family was classified as belonging to either a higher group or a lower group.

Table 2. Key Used in this Study for Translating Weighted Scores to Social Status Classifications

<table>
<thead>
<tr>
<th>Scores</th>
<th>Socio-Economic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 through 35</td>
<td>Upper</td>
</tr>
<tr>
<td>36 -</td>
<td>Lower</td>
</tr>
</tbody>
</table>

Control and experimental groups set up.— The total population of the elementary school, exclusive of kindergarten, was 168, made up of one class of each grade, one through six. Grades one, three, and five, containing 90 pupils, were chosen by the writer to be the experimental groups, and grades two, four, and six containing 78 pupils, were chosen to be the control groups.

2. Actual Experiment

Method used to get choices.— After enlisting the cooperation of the teachers of each grade, the writer asked each child in the three control groups and each child in the three experimental groups to choose the three children in his grade near whom he would most like to sit. In grades one, two, and three it was necessary for the writer to ask each child
individually, since spelling of names is difficult, if not impossible, for children at those grade levels; in grades four, five, and six each child wrote his own choices on paper distributed by the writer. Previous to the writing of the choices in the experimental groups the writer held a brief discussion with the children about the fact that people are happier if they are able to be and work with other people whom they like; the writer also explained to the children that their seats would be rearranged so that each child would be able to sit near either his first, second, or third choice. Previous to the writing of the choices in the control groups the writer simply asked if the children would be willing to help her by giving the names of the three children near whom they would most like to sit if it were possible for the seats in the classroom to be rearranged.

Application of sociograms and seating arrangements in the classrooms.—The writer transferred the choices from the individual papers to a sociometric tabulation form which simplified the procedure of ascertaining the total number of choices received by each child. This was a prelude to discovering who were the most chosen children and who were the children receiving no choices (the isolates). From these tally sheets the sociograms for each grade were made. On each sociogram the names of the children in the upper socio-economic group were arranged in one cluster and the names of the children in the lower socio-economic group in another separate cluster. The boys were shown by ovals, and the girls by circles. The choices of each child were then broken down into in-group choices, out-group reciprocated choices, and out-group non-reciprocated choices. In-group choices were represented by broken lines going out from the names of the choosers, out-
group non-reciprocated choices by arrows, and out-group reciprocated choices by double-pointed arrows.

Upper Group

Lower Group

Key:

- = girl
- = boy
- - - = in-group choices
- - - - - = out-group non-reciprocated choices
- - - - - = out-group reciprocated choices

Figure 1. Types of Choices Made by Grade 3, an Experimental Group Grade, on First Sociometric Test
The seats of the children in the experimental groups were then rearranged by the writer, in order that each child might sit near either his first, second, or third choice. In this process a special attempt was made to put as many lower and upper children adjacent to each other as possible;
also, the isolates were given their first choices and placed as near as possible to the most-chosen children in the grade. The seats of the children in the control groups were not rearranged.

Further sociometric tests.-- The complete procedure carried out in the first sociometric test was repeated two times at five week intervals (second and third tests). Each time the situation probably became less real to the control groups, since no seating was changed; however, their replies showed considerable consistency. At the end of six more weeks a final measure was taken (fourth test), the choices were tallied, and the sociograms were constructed; however, the seats of the children in the experimental groups were not rearranged as had been done previously. (See Appendix, pp. 12-13, for sample fourth test sociograms.)

Play group choices.-- In order to obtain outside corroboration and validation extending beyond the classroom, the writer observed many spontaneous play groups and, at the same time as the first sociometric test in the classroom, asked each child in each of the experimental groups and in each of the control groups during an organized game period to choose the three children with whom he would most like to play. These choices were broken down into the three types of choices already mentioned and were shown by sociograms. This same procedure was carried out a second time in conjunction with the final sociometric test in the classroom. (See Appendix, pp. 44-47, for sample play group sociograms.)

3. Treatment and Presentation of Data

Expected and obtained in-group choices of upper and lower socie-
economic class students in each grade on the first test. In order to decide whether or not there was a departure from the choices one would expect on a chance basis in proportion to the presence of upper and lower class students in the classroom, the data were handled on a grade by grade basis. As a preliminary the proportions of in-group choices made by upper and lower socio-economic groups for each grade on each test were figured. Next were derived percentages of in-group choices expected.

Table 3. Proportions of In-Group Choices Made by Upper and Lower Socio-economic Groups in Each Grade on Each Sociometric Test

<table>
<thead>
<tr>
<th>Grade</th>
<th>Socio-economic Group</th>
<th>Proportions of in-group choices</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
<th>Test 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upper</td>
<td>0.65</td>
<td>0.37</td>
<td>0.32</td>
<td>0.41</td>
<td>0.91</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.82</td>
<td>0.76</td>
<td>0.71</td>
<td>0.75</td>
<td>0.87</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upper</td>
<td>0.76</td>
<td>0.63</td>
<td>0.67</td>
<td>0.52</td>
<td>0.83</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.62</td>
<td>0.45</td>
<td>0.53</td>
<td>0.39</td>
<td>0.44</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Upper</td>
<td>0.78</td>
<td>0.66</td>
<td>0.59</td>
<td>0.57</td>
<td>0.79</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.53</td>
<td>0.47</td>
<td>0.62</td>
<td>0.52</td>
<td>0.63</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Upper</td>
<td>0.73</td>
<td>0.65</td>
<td>0.67</td>
<td>0.57</td>
<td>0.56</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.56</td>
<td>0.60</td>
<td>0.71</td>
<td>0.60</td>
<td>0.79</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Upper</td>
<td>0.41</td>
<td>0.28</td>
<td>0.33</td>
<td>0.44</td>
<td>0.17</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.75</td>
<td>0.59</td>
<td>0.64</td>
<td>0.69</td>
<td>0.67</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Upper</td>
<td>0.67</td>
<td>0.65</td>
<td>0.70</td>
<td>0.74</td>
<td>0.60</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>0.73</td>
<td>0.69</td>
<td>0.63</td>
<td>0.69</td>
<td>0.77</td>
<td>0.93</td>
<td></td>
</tr>
</tbody>
</table>

from the upper class and lower class children in each grade in proportion to the presence of upper and lower class children in the room. The
proportions of expected and obtained in-group choices for the first test were distributed grade by grade, and the percentage differences between expected and obtained choices for upper and lower groups in each grade were figured. The following formulae were then used to show whether or not there was a statistically significant in-group choice among the upper and among the lower socio-economic classes in each grade:

\[ \sigma_p = \sqrt{pq/n} \]  
"p" - proportion of in-group choices expected from upper group children in each grade in proportion to their presence in the grade
\[ q \] - proportion of in-group choices expected from lower group children in each grade in proportion to their presence in the grade
\[ n \] - number of students

\[ C.R. = \frac{D_p}{\sigma_p} \]  
"Dp" - difference in proportion between expected and obtained in-group choices

Expected and obtained in-group choices of upper and lower socio-economic class children in experimental and control groups on first test.— Next, in order to decide whether or not there was a departure both in the upper socio-economic group and the lower socio-economic group from the number of in-group choices one would expect on a chance basis in proportion to the total number of choices made by each socio-economic level, the data for the first sociometric test were handled on the basis of the two groups, total experimental and total control. As a preliminary the proportions of in-group choices made by upper experimental, upper control, lower experimental, and lower control groups for each of the four tests and for the upper groups on the two play measures were figured. Then were derived the proportion
Table 4. Expected and Obtained In-Group Choices of Upper and Lower Socio-economic Groups in Each Grade on First Sociometric Test

<table>
<thead>
<tr>
<th>Grade</th>
<th>Socio-economic Group</th>
<th>N</th>
<th>P(exp.)</th>
<th>P(obt.)</th>
<th>Dp</th>
<th>$\sigma_D$</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>11</td>
<td>.28</td>
<td>.66</td>
<td>.38</td>
<td>.07</td>
<td>5+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29</td>
<td>.72</td>
<td>.82</td>
<td>.10</td>
<td>.07</td>
<td>1+</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>40</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upper</td>
<td>9</td>
<td>.31</td>
<td>.76</td>
<td>.45</td>
<td>.086</td>
<td>5+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>.69</td>
<td>.52</td>
<td>.17</td>
<td>.086</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>29</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Upper</td>
<td>12</td>
<td>.36</td>
<td>.78</td>
<td>.42</td>
<td>.085</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>.64</td>
<td>.52</td>
<td>.11</td>
<td>.085</td>
<td>1+</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>33</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Upper</td>
<td>8</td>
<td>.32</td>
<td>.74</td>
<td>.42</td>
<td>.093</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>.68</td>
<td>.56</td>
<td>.12</td>
<td>.093</td>
<td>1+</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Upper</td>
<td>6</td>
<td>.33</td>
<td>.41</td>
<td>.08</td>
<td>.11</td>
<td>.72</td>
</tr>
<tr>
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<td></td>
<td>12</td>
<td>.67</td>
<td>.75</td>
<td>-.08</td>
<td>.11</td>
<td>-.72</td>
</tr>
<tr>
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<td>Total</td>
<td>18</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Upper</td>
<td>10</td>
<td>.40</td>
<td>.67</td>
<td>.27</td>
<td>.10</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>.60</td>
<td>.73</td>
<td>-.13</td>
<td>.10</td>
<td>-1.3</td>
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<td></td>
<td>Total</td>
<td>25</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: $N =$ Number of children  
$P(exp.) =$ Proportion of in-group choices expected  
$P(obt.) =$ Proportion of in-group choices obtained  
$Dp =$ Difference in proportion  
$\sigma_D =$ Difference in proportion  
$C.R. =$ Critical ratio $\frac{Dp}{\sigma_D}$

The data showed that with the exception of the fifth grade there was a statistically significant in-group choice in the upper socio-economic class in each grade but none in the lower socio-economic class in any grade.
of in-group choices one would expect to be made by upper and lower socio-economic levels for the two groups—experimental and control—in proportion to the total number of choices made in each of the groups. The proportions of expected and obtained in-group choices of upper and lower socio-economic class children in the experimental and control groups were distributed, and the percentage differences between expected and obtained in-group choices for upper experimental, for lower experimental, for upper control, and for lower control were computed. The following formulae were then used to show whether or not there was a statistically significant in-group choice existing among the upper and lower socio-economic classes in the experimental and control groups.

\[ \text{C.R.} = \frac{D_p}{\sigma_p} \]

Expected and obtained in-group choices of lower socio-economic class children in experimental and control groups on the fourth test. Since the above handling of the data indicated that on the first test there was a statistically significant in-group choice among the upper socio-economic level children but not among the lower level, both in each separate grade
Table 5. Expected and Obtained In-Group Choices of Upper and Lower Socio-economic Class Children in Experimental and Control Groups on First Sociometric Test

<table>
<thead>
<tr>
<th>Socio-Economic Group</th>
<th>N</th>
<th>P(exp.)</th>
<th>P(obt.)</th>
<th>Dp</th>
<th>$\sigma_{Dp}$</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>22</td>
<td>.32</td>
<td>.66</td>
<td>.34</td>
<td>.03</td>
<td>11*</td>
</tr>
<tr>
<td>Upper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>171</td>
<td>.68</td>
<td>.70</td>
<td>.02</td>
<td>.03</td>
<td>0.6</td>
</tr>
<tr>
<td>Lower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Socio-Economic Group</th>
<th>N</th>
<th>P(exp.)</th>
<th>P(obt.)</th>
<th>Dp</th>
<th>$\sigma_{Dp}$</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>131</td>
<td>.66</td>
<td>.60</td>
<td>.06</td>
<td>.031</td>
<td>1.9</td>
</tr>
<tr>
<td>Upper</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key:  
N = Number of choices made  
P(exp.) = Proportion of in-group choices expected  
P(obt.) = Proportion of in-group choices obtained  
Dp = Difference in proportion  
$\sigma_{Dp}$ = $\sigma$ Difference in proportion  
C.R. = Critical ratio  
\[ \frac{Dp}{\sigma_{Dp}} \]

The data showed that there was a statistically significant in-group choice in the upper socio-economic levels in both experimental and control groups but none at the lower socio-economic levels in either group and in each of the two groups, experimental and control, the data for the lower socio-economic class on the fourth test were treated the same way, in order to make certain that the in-group bias still did not exist.

The tests for significance of the net differences between the responses on the first and subsequent tests. Next, in order to test for significance—to determine whether the change in responses between each test of the experimental group took place as a result of the interpolated
Table 6. Expected and Obtained In-Group Choices of Lower Socio-economic Class Children in Experimental and Control Groups on Fourth Test

<table>
<thead>
<tr>
<th>Socio-economic Group</th>
<th>N</th>
<th>P(exp.)</th>
<th>P(obt.)</th>
<th>Dp</th>
<th>$\overline{Dp}$</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Experimental</td>
<td>185</td>
<td>.71</td>
<td>.66</td>
<td>.05</td>
<td>.28</td>
<td>-.17</td>
</tr>
<tr>
<td>Lower Control</td>
<td>149</td>
<td>.66</td>
<td>.54</td>
<td>-.12</td>
<td>.31</td>
<td>-.38</td>
</tr>
</tbody>
</table>

Key:  
N = Number of choices made  
P(exp.) = Proportion of in-group choices expected  
P(obt.) = Proportion of in-group choices obtained  
Dp = Difference in proportion  
$\overline{Dp}$ = $\sigma$ Difference in proportion  
C.R. = Critical ratio  

experience or whether the difference was attributable to chance—, the following procedure was carried out four times. It is described in detail for the difference between the first and second tests; the same steps were taken for the differences between the first test and each of the three subsequent tests, and between the first and second play group tests.

1. The difference in the proportion of the experimental group making in-group choices between the first and the second test was found ($D_{e1} = P_{e1} - P_{e2}$).  
2. The difference in the proportion of the control group making in-group choices between the first test and the second test was found ($D_{c1} = P_{c1} - P_{c2}$).
3. The net difference between the two changes was found

\[ D = D_{11} - D_{10} \]. This difference is the most meaningful
and the one tested for significance.

4. Since the two proportions (before and after) for each group
were based on the same individuals, the formula for the
standard error of the difference between correlated propor-
tions was used in obtaining

\[ \sigma_D = \sqrt{\frac{\sigma_{D_E}^2}{N_D} + \frac{\sigma_{D_C}^2}{N_C}} \]

This necessitated obtaining the standard error of the differ-
ence in proportions in the experimental and control groups

\[ (D_{p_E} \text{ and } D_{p_C}) \] using the tabulation plan suggested by McNemar
in his *Psychological Statistics*.

\[
\begin{array}{c|c|c|c}
\text{Frequencies} & \text{Proportions} \\
\hline
\text{2nd Test} & \text{2nd Test} \\
\hline
\text{Out} & \text{In} & \text{Out} & \text{In} \\
\hline
\text{In} & A & B & a & b \\
\text{Out} & C & D & c & d \\
\hline
A+C & B+D & N & q & p & q' & p' \end{array}
\]

The standard error of the difference between two correlated pro-
portions was then found by means of the formula

\[ \sigma_D = \sqrt{\frac{3+q}{N_D}} \]

5. After the standard error of the difference between correlated pro-
portions was ascertained, the critical ratio \[ \frac{D}{\sigma_D} \]
was determined in order to decide whether the findings were
statistically significant.

\[ \text{McNemar}, \text{ *Psychological Statistics*, John Wiley and Sons, Inc.,}
\text{ New York, 1949, pp. 79-80.} \]
CHAPTER IV
ANALYSIS OF DATA

The writer was mainly concerned with the fact that the two socio-economic groups seemed to be limiting their associates to their own groups; therefore it was with the in-group choice data that the statistical analysis was carried out.

Statistical significance of in-group choices determined for upper and lower socio-economic classes in each grade on first test.-- After having derived the figures showing what percentage of each socio-economic class (upper and lower) in each grade made in-group choices on each sociometric test (Table 3), the writer attempted to discover whether the in-group choices at the two socio-economic levels for each grade on the first test were statistically significant (Table 4). Critical ratios for each socio-economic level in each grade were obtained, and, considering a critical ratio of 2.58 as statistically significant, it was found that with the exception of the fifth grade (critical ratio of .72) there was a statistically significant in-group choice among the upper classes in each grade, but none in the lower classes. Of course, the answer as to how large a critical ratio should be, or what level in terms of probability should be adopted in order to call a finding statistically significant is, according to McNemar quite involved. He says:

1/McNemar, op. cit., pp. 68-69.
"There is the question of the likelihood of independent verification, and... there is the whim of personal preference; some individuals are more eager than others to announce a positive finding, i.e., a difference as opposed to no difference, ... whereas some prefer to be more conservative about drawing positive conclusions. It follows that no hard and fast rule can be given beyond that of interpreting a given finding in terms of the probability of its occurrence by chance and then noting whether the P is near the significance level which seems appropriate when all factors are weighed."

McNemar suggests that if a criterion regarding what is or is not significant must be had, the level indicated by a critical ratio of 2.58 may be taken.

Statistical significance of in-group choices determined for upper and lower socio-economic classes for each group — experimental and control — on first test. — First were derived the figures indicating what percentage of each socio-economic class made in-group choices on each sociometric test on the basis of the two groups — experimental and control (Table 7). Next the writer set about to determine whether or not the in-group choices for each socio-economic level in the experimental and in the control groups on the first test were statistically significant (Table 5). Critical ratios for each level in each group were obtained, and it was found that there was a statistically significant in-group choice at the upper socio-economic levels in both groups but none at the lower levels (lower experimental critical ratio being .6 and lower control being 1.9).

Statistical significance of in-group choices checked for lower socio-economic classes in experimental and control groups on fourth test. — As further proof that there was no in-group bias among the lower socio-economic class in either of the two groups, the in-group choice data for the fourth
Table 7. Proportions of In-Group Choices Made by Upper and Lower Experimental and Control Groups on Four Sociometric Classroom Tests and on First and Second Play Group Tests

<table>
<thead>
<tr>
<th>Upper Group Choices</th>
<th>Grade</th>
<th>First Test</th>
<th>Second Test</th>
<th>Third Test</th>
<th>Fourth Test</th>
<th>First Play Group Test</th>
<th>Second Play Group Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>IN</td>
<td>%</td>
<td>N</td>
<td>IN</td>
<td>%</td>
</tr>
<tr>
<td>Experimental</td>
<td>1</td>
<td>29</td>
<td>19</td>
<td>66</td>
<td>30</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>36</td>
<td>28</td>
<td>72</td>
<td>32</td>
<td>21</td>
<td>37</td>
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<td></td>
<td>5</td>
<td>17</td>
<td>7</td>
<td>41</td>
<td>18</td>
<td>5</td>
<td>18</td>
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<tr>
<td></td>
<td>E</td>
<td>42</td>
<td>74</td>
<td>.66</td>
<td>54</td>
<td>.66</td>
<td>63</td>
</tr>
<tr>
<td>Control</td>
<td>2</td>
<td>25</td>
<td>19</td>
<td>76</td>
<td>27</td>
<td>17</td>
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<td>4</td>
<td>23</td>
<td>17</td>
<td>76</td>
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<td>49</td>
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<td>30</td>
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<td>76</td>
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<td>E</td>
<td>72</td>
<td>72</td>
<td>.72</td>
<td>72</td>
<td>.72</td>
<td>72</td>
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<tr>
<td>Lower Group Choices</td>
<td>1</td>
<td>73</td>
<td>60</td>
<td>84</td>
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<td>82</td>
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<td>31</td>
<td>60</td>
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<td>60</td>
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<tr>
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<td>E</td>
<td>153</td>
<td>91</td>
<td>.60</td>
<td>149</td>
<td>.56</td>
<td>150</td>
</tr>
</tbody>
</table>

Key:  
- N = Total number of choices  
- IN = Number of in-group choices made  
- % = Percentage of in-group choices made
test was analyzed, critical ratios were obtained, and again no statistically significant in-group choice was found. A critical ratio of .17 was derived for the experimental group, and a critical ratio of .38 was derived for the control group (Table 6).

Results of tests of significance of net differences between the responses on the first test and the subsequent tests and on the two play tests.-- Most important and finally came the tests to decide whether or not the differences which occurred in the experimental group were sufficiently greater than those to be expected by chance and thus attributable to the use of sociometric techniques. The net difference between the two changes (i.e., the change in the upper group and the change in the control group) was found for the changes in response taking place on the first and each of the three subsequent tests and on the two play tests. Critical ratios were obtained for the difference between the first and second tests, the first and third tests, the first and fourth tests, and the two play tests. All the critical ratios except that for the difference between the first and fourth tests were found to be highly significant. The critical ratio for the difference between the first and fourth tests, 1.5, was not considered significant (Table 6).

Discussion of results.-- Since the statistics show that chance was not the factor bringing about the change, and since nothing else was done by the writer to effect a change of values or to increase the acceptance by one group or the other, it would seem that the interpolated experience—the arranging of seats according to sociometric choice—was instrumental
Table 8. Net Differences between Responses on First Sociometric Test and Subsequent Tests and between First and Second Play Group Tests (Data derived from Table 7)

<table>
<thead>
<tr>
<th>Sociometric Test</th>
<th>$D_E$</th>
<th>$D_C$</th>
<th>$D$</th>
<th>$\sigma_{DP_E}$</th>
<th>$\sigma_{DP_C}$</th>
<th>$\sigma_D$</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2</td>
<td>.20</td>
<td>.05</td>
<td>.12</td>
<td>.025</td>
<td>.026</td>
<td>.034</td>
<td>3.5</td>
</tr>
<tr>
<td>1 - 3</td>
<td>.23</td>
<td>.07</td>
<td>.16</td>
<td>.03</td>
<td>.026</td>
<td>.04</td>
<td>4</td>
</tr>
<tr>
<td>1 - 4</td>
<td>.18</td>
<td>.11</td>
<td>.07</td>
<td>.033</td>
<td>.03</td>
<td>.043</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Key:

- $D_E$ = Difference in proportion of experimental group children choosing in-group from test to test
  
  $D_E = P_E^{(1)} - P_E^{(2)}$

- $D_C$ = Difference in proportion of control group children choosing in-group from test to test
  
  $D_C = P_C^{(1)} - P_C^{(2)}$

- $D$ = Net difference between the two changes
  
  $D = D_E^{(1)} - D_E^{(2)}$

- $\sigma_{DP_E}$ = Standard error of the difference in proportions of experimental group children choosing in-group—a difference based on the same sample
  
  $\sigma_{DP_E} = \sqrt{\frac{a + \bar{a}}{N}}$

- $\sigma_{DP_C}$ = Standard error of the difference in proportions of control group children choosing in-group—a difference based on the same sample
  
  $\sigma_{DP_C} = \sqrt{\frac{a + \bar{a}}{N}}$

- $\sigma_D$ = Standard error of the difference between proportions
  
  $\sigma_D = \sqrt{\sigma_{DP_E}^2 + \sigma_{DP_C}^2}$

- C.R. = Critical ratio
  
  $C.R. = \frac{D}{\sigma_D}$
in bringing about the decrease in the proportion of in-group choices among the upper experimental groups. Because the upper class children tended to make in-group choices on each sociometric test their choices, in being granted, somewhat restricted the freedom of rearrangement; even so, the change occurred.

The writer is uncertain as to the reason for the insignificant critical ratio obtained for the difference between the first and fourth tests. Although the seats were not rearranged after the fourth test, the children were not told at the time of the test that such would be the case. Since this final test took place approximately six weeks before the end of the school year, the writer feels that the atmosphere of "closing time" had not yet pervaded the school and influenced the children. The experience of being able to choose the children near whom they would like to sit and of having their seats rearranged was, of course, no longer new and exciting to the youngsters by the time of the fourth test; this fact may have affected their approach to the process of choosing—and thereby their choices. It is more likely, however, that mere rearrangement of seating, while having an initial stimulating effect, is not sufficient to reduce the cleavage, and that additional means to change the inter-personal attitudes are necessary.

The critical ratio for the difference between the first and second play group tests, 5.5, was significantly large—the largest critical ratio obtained. The reason for this, in addition to the interpolated experience, may have been that the children, especially the boys, chose their play
associates mainly upon the basis of athletic ability. The first play group test took place in January when playground activity was somewhat restricted; however, at the time of the second play group test, playground activity was in full swing. It was evident that many of the lower socio-economic level boys were better athletes than some of the upper level boys; therefore, at the time of the second test the upper level boys may have made more out-group choices than on the first test.
CHAPTER V
SUMMARY, CONCLUSIONS, AND SUGGESTIONS

Summary of the study.— This study was carried out in an elementary school of six grades in a suburb of Boston. The main purpose of the study was to discover whether the use of sociometric techniques, in the form of choices for classroom seating, would have any effect on a socio-economic cleavage which the writer felt existed in the school. After determining, by a preliminary sociometric test in one grade, that the socio-economic cleavage actually did exist in the school, the writer classified the family of each child as belonging to either an upper or a lower class. This was done by means of Warner’s social status survey scale. Grades one, three, and five were used as experimental groups; grades two, four, and six were used as control groups. The children in each grade were asked by the writer to choose the three children in the grade near whom they would most like to sit if it were possible to do so. On the basis of these choices the seats of those in the experimental group were rearranged; each child was seated near either his first, second, or third choice. The seats of those in the control group were not rearranged. This procedure was repeated two times at five week intervals; a final sociometric test was administered after six more weeks, although no rearranging of seats took place. Outside corroboration was obtained by the writer in the form of play group tests. At the same time as the first classroom test took place each child was asked during an organized game
period to make a choice of three children with whom he would most like to play. This process was repeated at the time of the final classroom test.

**Conclusions reached by the study.** The following conclusions were reached:

1. With the exception of the fifth grade there was a statistically significant in-group choice among the upper classes in each grade in the first test, but none in the lower classes. Chance, therefore, was not the factor bringing about the choice, and an actual cleavage existed in each grade.

2. There was a statistically significant in-group choice at the upper socio-economic levels in both the experimental and control groups on the first test, but none at the lower levels. Chance was not the factor bringing about the choice, and an actual cleavage existed in each group.

3. No statistically significant in-group choice was found among the lower socio-economic levels in the two groups on the fourth test; this was further evidence that there was no in-group bias among the lower class.

4. The net differences (the difference between experimental and control groups) obtained for the change between first and second tests, first and third tests, and first and second play group tests were highly significant. The net difference between the first and fourth tests was not considered significant.
5. The observed differences in the experimental group, particularly at the second and third tests, presumably result from sociometric seating; therefore the writer feels that the use of the sociometric technique—choice of seating associates in the classroom—was instrumental in effecting the decrease in the proportion of in-group choices among the upper socio-economic classes in the experimental group.

Suggestions for further research.-- The writer feels that there is a definite place for more research concerning the schools' possibilities in the field of solving the problems brought about by social class hierarchy. The schools of the country are depended upon to a great extent by the people for the process of helping children to learn to live democratically. Whether or not the schools are accomplishing this by encouraging social mobility—and in what ways, if so—or whether they are hindering by accepting the status quo and discouraging social mobility might well and profitably be studied.

The writer specifically suggests that more study be given the question of what brought about the markedly insignificant critical ratio obtained for the change between the first and fourth sociometric tests. The following theories, if developed further, might prove to be possible answers:

1. Upon becoming better and satisfactorily acquainted with the members of the opposite socio-economic group over the period of 16 weeks, the children in each group, by the time of the fourth test, may not have been as anxious to be friends with those in the other group and may have changed their responses accordingly.
2. Mere seating proximity for a comparatively short period of 16 weeks may not have been sufficient in the end to effect a permanent acceptance of one socio-economic group by another.
APPENDIX
### Social Status Survey - Classifications

<table>
<thead>
<tr>
<th>Rank - I Occupations (Weight 4)</th>
<th>Rank - III House Type (Weight 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Professional and proprietors of large businesses</td>
<td>1 Excellent houses - large, ostentatious, in top shape, large, well-cared for grounds</td>
</tr>
<tr>
<td>2 Semi-Professional and smaller officials of large businesses</td>
<td>2 Very good houses - those which don't measure up to above; lesser but perhaps newer</td>
</tr>
<tr>
<td>3 Clerks and kindred workers - sales</td>
<td>3 Good houses - conventional, slightly larger than needs, unostentatious</td>
</tr>
<tr>
<td>4 Skilled workers</td>
<td>4 Average houses - conventional 1 1/2 or 2 story frame or brick, single-family dwellings, little or no landscape</td>
</tr>
<tr>
<td>5 Proprietors of very small businesses</td>
<td>5 Fair houses - as in #4 but not in good condition; also small houses in good condition</td>
</tr>
<tr>
<td>6 Semi-skilled workers</td>
<td>6 Poor houses - state of disrepair barely possible of being mended</td>
</tr>
<tr>
<td>7 Unskilled workers</td>
<td>7 Very poor houses - badly deteriorated, debris</td>
</tr>
</tbody>
</table>

### II Sources of Income (Weight 3)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inherited wealth - main income made in previous generations and passed on</td>
</tr>
<tr>
<td>2</td>
<td>Earned wealth - those who have earned in their own right enough money to enable them to retire - the successful man in terms of money-making</td>
</tr>
<tr>
<td>3</td>
<td>Profits and fees - professional men who derive income from fees for services, business owners from profits, writers, etc.</td>
</tr>
<tr>
<td>4</td>
<td>Salary - income received on a regular monthly or yearly basis, including commissions</td>
</tr>
<tr>
<td>5</td>
<td>Wages - usually determined on an hourly basis and paid weekly</td>
</tr>
<tr>
<td>6</td>
<td>Private relief - supported by family, friends, churches, associations, etc.</td>
</tr>
<tr>
<td>7</td>
<td>Public relief - receiving government aid or aid from semi-public source which reveal name of recipient. Include here the non-respectable sources - gambling</td>
</tr>
</tbody>
</table>

### IV Neighborhood (Weight 2)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Most exclusive - the aristocracy</td>
</tr>
<tr>
<td>2</td>
<td>Less pretentious, fewer mansions, difference one of reputation</td>
</tr>
<tr>
<td>3</td>
<td>Nice, respectable area inhabited mainly by society folks. Streets neat and well-cleaned</td>
</tr>
<tr>
<td>4</td>
<td>Average neighborhood - workingman's neighborhood</td>
</tr>
<tr>
<td>5</td>
<td>Mixed neighborhood, frequently too close to railroad, industry or some such distracting factor</td>
</tr>
<tr>
<td>6</td>
<td>Semi-slum. Houses too close, no new buildings, sometimes poor street</td>
</tr>
<tr>
<td>7</td>
<td>Slum area - worst in town. Distinct social stigma attached to area</td>
</tr>
</tbody>
</table>

*By William Lloyd Warner*
Sample Experimental Grade Classroom Sociogram

Upper Group

Lower Group

Key:

= girl

= boy

--- = in-group choices

-------- = out-group non-reciprocated choices

-------- = out-group reciprocated choices

Types of Choices Made by Grade Three on Fourth Sociometric Test
Sample Control Grade Classroom Sociogram

Upper Group

Lower Group

Key:

- - = girl

- = boy

- - - = in-group choices

- - - = out-group non-reciprocated choices

- - - = out-group reciprocated choices

Types of Choices Made by Grade Six on Fourth Sociometric Test
Sample Experimental Grade Play Group Sociogram

Upper Group

Lower Group

Key:

- = girl
- = boy
- - - - = in-group choices
- - - -> = out-group non-reciprocated choices
<- -> = out-group reciprocated choices

Types of Choices Made by Grade Three on First Sociometric Play Group Test
Sample Experimental Grade Play Group Sociogram

Upper Group

Lower Group

Key:

= girl
= boy
= in-group choices
= out-group non-reciprocated choices
= out-group reciprocated choices

Types of Choices Made by Grade Three on Second Sociometric Play Group Test
Sample Control Grade Play Group Sociogram

Types of Choices Made by Grade Six on First Sociometric Play Group Test
Sample Control Grade Play Group Sociogram

Types of Choices Made by Grade Six on Second Sociometric Play Group Test


13. Frankel, Esther E. and Reva Potashin, "A Survey of Sociometric and Pre-Sociometric Literature on Friendship and Social Acceptance among Children," Sociometry (November, 1941), 7:422-


