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CHARACTERISTICS OF GROUPS TAUGHT
UNDER TWO SOCIAL CLIMATES

THESIS

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CHAPTER I

INTRODUCTION

Over the past several years research in education and psychology has attempted to evaluate a variety of teaching methods employed in the classroom. Most of these studies (1)(2)(4) have been concerned primarily with relating these methods to academic success, rather than investigating their effectiveness in promoting social development through the creation of certain group characteristics.

One of the central themes underlying current educational philosophy is that the educational process should be concerned not only with formal intellectual pursuits but with social development as well. Although the school is one of the most important institutions for developing social aptitudes and skills, comparatively little research has been conducted concerning factors which produce certain group characteristics within the psycho-social world of the school. This information could provide us with the basic steps for creating social learning processes consonant with the society in which we live.

Statement of the Problem

The problem of this study is to determine the effects of two different social climates, as created by different

teaching methods, upon the characteristics of college class groups. The social climates utilized in the present investigation were: (a) a democratic social climate, and (b) an autocratic social climate. The actual meaning of the adjectives used to label these social climates is necessarily somewhat different from the meanings attributed to them in political or economic discussions. The following tabulation, which is a modified version of the one used by White and Lippitt (5), describes briefly the principal characteristics of these two social climate variations:

| Democratic | Autocratic |
|---|---|
| 1. All policies a matter of group discussion and decision, encouraged and assisted by the leader. | 1. All determination of policy by the leader. |
| 2. The members are free to work together on tasks which are of mutual interest. | 2. The leader dictates the tasks to be done by the individuals. Very little work is done in groups. |
| 3. There is an absence of status hierarchies. The leader attempts to become a regular group member. | 3. There is a definite status division with the leader being the absolute authority. |
| 4. The leader tends to be "objective" or "reflective" in his discussions with the group members. | 4. The leader tends to be "dogmatic" in his discussions with group members. |

For this study, group characteristics under consideration are operationally defined in terms of the following categories

found on the Group Dimensions Description Questionnaire (GDDQ) (3): Control, Flexibility, Hedonic Tone, Participation, Polarization, Potency, Stratification, and Viscidity. A definitive description of these categories will appear in Chapter III.

Hypotheses

The hypotheses are derived from the proposition that there are distinct differences in characteristics of groups taught under two different social climates.

Hypothesis I. Groups taught under a democratic social climate will characteristically exhibit more team work than those groups taught under an autocratic social climate. The scores on the categories of "Participation" and "Polarization" should be significantly higher for democratic groups as compared to autocratic groups.

Hypothesis II. Democratic groups will display more freedom of activity and expression than those groups taught under an autocratic social climate. The score on the categories of "Control" and "Stratification" should be significantly lower for democratic groups as compared with autocratic groups.

Hypothesis III. Less dissension will be found between the members of groups taught under a democratic social climate than those taught under an autocratic social climate. Significantly higher scores would be expected on

the categories of "Viscidty" and "Potency" for democratic groups when compared with autocratic groups.

Hypothesis IV. A more pleasant, more agreeable class atmosphere will exist in groups taught under a democratic social climate than for groups taught under an autocratic social climate. A significantly higher score would be expected on the category of "Hedonic Tone" for democratic groups when compared with autocratic groups.

Hypothesis V. Groups taught under a democratic social climate will exhibit more flexibility than groups taught under an autocratic social climate. A significantly higher score on the category of "Flexibility" would be expected for democratic groups when compared with autocratic groups.

Limitations

This study was conducted with a rather specialized population under circumstances which would constitute a somewhat unique academic setting. Consequently, the results of this investigation may be limited in applicability to situations similar to the one in which the study was conducted.

Some of the teaching personnel participating in this study were not academically accredited teachers. They were chosen to teach a particular academic course consonant with their professional training. In view of this it is suggested that the results of this investigation may not be valid in the usual academic setting.

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CHAPTER II

RELATED LITERATURE

Although research concerning the effectiveness of certain types of "social climate" in creating group characteristics is admittedly limited, there is a small number of excellent investigations related to this study. Too, there are a few studies which have no direct relationship with the subject matter of this investigation but, nevertheless, contribute materially to our knowledge of group characteristics as created by different social atmospheres in situations related to, but outside the formal classroom setting. A few of these studies will be summarized in this chapter.

White and Lippitt (9) made an extensive study on leader behavior and member reaction in three "social climates." The "social climates" delineated and defined by the authors were: Democracy, Autocracy, and Laissez-Faire. Four groups of ten year old boys engaged in after-school hobby activities served as the subjects of the investigation. The subjects were taught by using the three different "social climates" under investigation. The results of this investigation were based on observation of various members' reactions to the different "social climates" and upon personal interviews with members. The following is a general presentation of the results:

1. Democracy. Democratic groups were found to be more original in their work, more highly motivated, more independent, more "group-minded" and more friendly than either the Autocratic or Laissez-Faire groups. However, the Democratic groups did less work than the Autocratic groups.

2. Autocracy. Autocratic groups characteristically exhibited more hostility, aggression, dominating ascendancy, dependence, needs for attention, personal property destruction, scapegoat behavior and underlying discontent than the other groups.

3. Laissez-Faire. Laissez-Faire was not the same as democracy. There was less work done in it as compared to the Democratic and Autocratic groups. Considerable "play" activity was present during many of the Laissez-Faire group meetings.

In another experiment using a related but somewhat different experimental design as that cited above, Lewin, Lippitt, and White (6) studied the effects of "social climates" upon patterns of aggressive behavior. In this study, one group of five ten year old boys under autocratic leadership was compared with an equal group of boys under democratic leadership. Trained observers recorded the conversations and activities of the members of the two groups.

The data showed that hostility was thirty times as frequent in the autocratic as in the democratic group. Aggression was directed toward two successive scapegoats within

the group. Little or no aggression was directed toward the autocratic leader.

In general, the results of these investigations suggest that more positive social attributes are created by a democratic "social climate" than by an autocratic "social climate."

Preston and Heintz (7) studied the effects of participatory and supervisory leadership on group judgment. The purpose of this investigation was to try to effect changes in member attitudes concerning their preference for a president of the United States. Each member of a class of eighty-three students was given a list of names of twelve prominent men with instructions for placing them in an order of merit, assigning first place to that man who would make the best president of the United States, and the last place to the person who would be the least choice for president of the United States. Following the rankings, the subjects were divided into eighteen groups of four or five members. Leaders were elected from each group, drawn aside, and given specific instruction in either a participatory or a supervisory type of leadership to be used with their group. When each of the two types of groups met they were given thirty minutes in which to arrive at a group or collective ranking of the twelve men. Twenty-four hours later the members of the various groups were asked to rank the twelve

names for a third time. Each subject was then asked to write down his ranking for all three times he had participated in ranking the twelve names. Too, he was asked to answer some questions designed to secure introspective data and data relative to the study.

The results show that the freer atmosphere of the participatory group stimulated thinking on a more individual or creative basis. Too, participatory subjects more often reported the task as being more interesting, meaningful, and enjoyable than the supervisory groups.

In a study by Levine and Butler (4), group decision was compared with formal lecture as a method of producing changes in socially undesirable behavior. The subjects consisted of twenty-nine supervisors of 395 workers employed in a large manufacturing plant. Upon investigation of past employee ratings made by these supervisors, it was discovered that the highly skilled workers were consistently rated higher in performance than the less skilled. The problem set forth was to determine the most effective means of getting these supervisors to change their basis of rating so that a more equitable rating system would be utilized.

The twenty-nine subjects were divided into three groups: a control group, a discussion group, and a lecture group. In the discussion group the leader discussed the disparities in the past ratings and introduced the problems

briefly before turning the discussion over to the group. The lecture groups were given a detailed lecture concerning the ratings and how they could be improved.

Comparisons of the ratings made by the supervisors before and after the discussion and lecture were the basis for the results of the investigation.

The findings show the performance ratings were significantly affected only if the raters had had group discussion. There was a significant increase in rating efficiency among those supervisors who had had some group discussion, whereas, the lecture method showed no significant influence in effecting change.

In another study concerning group decision under different "social climates," Lewin (5) investigated six Red Cross groups in relation to changing food habits. The object was to increase the use of beef hearts, sweetbreads, and kidneys by the members of the groups.

In three groups attractive lectures were given linking the problem of nutrition to the war effort, and emphasizing the positive aspects of these meats. For the other three groups the leaders began the discussion by linking the problem of nutrition with the war effort, then turned the discussion over to the group.

A follow-up showed that only 3 per cent of the women who heard the lectures served one of the meats never served before,

whereas 32 per cent of the women who experienced the freer atmosphere of the group discussion served one of the meats never served before. The conclusion was that group decision was more effective than lecture decision in bringing about change in behavior.

Similarly, Radke, and Klisurich (8) conducted experiments with six groups consisting of from six to nine housewives using an experimental design closely related to the one used by Lewin in the study cited above. In this experiment, the object was to increase home consumption of milk. Three groups were given lectures on the value of drinking milk, with the other three groups being conducted as a discussion group concerning the same subject.

A follow-up study indicated that group decision showed considerably greater effectiveness in increasing home consumption of milk than the lecture method, both after two weeks and after four weeks and for both fresh and evaporated milk. This study indicates that decisions reached in free discussion groups are not only more effective than the lecture method in promoting change but also that the change is rather permanent.

Bovard (1), in a study of group perception, has attempted to demonstrate the difference between the perceptions of groups of different structure. His hypothesis was that group-centered groups would show greater modification of perception of an objective stimulus in the direction of

a common norm than would leader-centered groups. The primary difference in the procedures of the two groups was that the group-centered group had free member-to-member verbal interaction, whereas, member-to-member verbal activity was held at a minimum in the leader-centered group. The stimulus to be judged was the length of a green rectangle.

The procedure was to ask the members of each group to estimate the length of the rectangle individually. Then, the individuals of the group were informed of the individual estimates and the average for the group. The members of each group were then asked to give a final estimate of the length of the rectangle individually.

The findings supported the hypothesis that greater modification of perception of an objective stimulus would occur in the direction of a common norm for the group-centered groups than for the leader-centered groups. Group-centered structure seemingly has more power to alter the perceptions of individuals in the direction of a common norm than has leader-centered structure.

One of the best studies to date concerning the effects of a "student-centered" climate was one conducted by Faw (2) with a class of 122 general psychology students. The primary purpose of this investigation was to determine the amount and kind of classroom participation resulting from two kinds of teacher-student relationships.

For two of the four weekly class periods, the class met as a whole in a lecture situation and on the two remaining periods the class was divided into three discussion groups of equal size, with which the instructor met in turn. Discussion Group A was conducted in non-directive therapeutic fashion and called the "student-centered group." The techniques employed were those outlined by Carl Rogers. Discussion Group C was conducted in directive fashion and was called the "instructor-centered group." This group was taught in the traditional manner. In Group B the methods used in Groups A and C were alternated. The statements made by each student were recorded throughout and objective tests were given at the termination of the period of investigation.

The results of this investigation are as follows:

1. The results of the objective tests indicate that the students in the student-centered group equaled or did slightly better than the other two groups in terms of actual learning. However, the students felt that they had learned somewhat less material under this teaching method than they would have under the traditional method.

2. Students who had been exposed to any of the student-centered methods (Groups A and B) felt that they had received more social and emotional value from this approach, and that their interest and enjoyment of the subject matter

was greater than would have been the case had they been in an instructor-centered situation.

Gross (3), in an experiment with "student-centered" methods, demonstrated that "self-understanding" could be a product of social climate. In this experiment, the author taught one academic course in a non-directive manner and another teacher taught a second course by conventional methods. Both groups were matched according to age, level of education, and socio-economic status. At the beginning of the course and five weeks after the courses were started a partially standardized scale for measuring self-insight was given to both groups.

Even though the results of this investigation could not be subjected to numerous statistical procedures due to limitations in the experimental design, there was seemingly a functional relationship between the non-directive method of teaching and self-insight.

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CHAPTER III

METHODOLOGY AND DESCRIPTION OF EVALUATING INSTRUMENT

Methodology

Subjects

This investigation was conducted with a group of twenty-two freshman students in the Psychiatric Nurse-Technician Training Program at the Rusk State Hospital, Texas, during the spring semester of 1957. The students involved in the study constituted the entire freshman class. They were all enrolled in the same four academic classes from which data were obtained for this study. The academic subjects taught in these classes were: Beginning Psychology (Group One), Nursing Arts (Group Two), Anatomy and Physiology (Group Three), and American History (Group Four). The students ranged in age from eighteen to forty-six years with a mean age of twenty-nine years. The groups were composed of both males and females.

Upon satisfactory completion of the two-year Psychiatric Nurse-Technician Training Program, each student receives a Nurse-Technician Certificate issued under the auspices of the Texas State Board of Hospitals and Special Schools. Most of the students receive an Associate of Arts Degree from Henderson County Junior College--the affiliated academic institution.

Description of Groups

The descriptions of groups which follow are based on: (a) observation of teacher-student relationships in the classroom; (b) observation of private conferences between teacher and student; (c) observation of member-to-member relationships in the classroom; (d) conferences with the teachers; (e) private conferences with the students; and (f) the results of a Teacher Rating Scale (1). (See Appendix.)

Democratic groups.--The students in Group One were taught by the method outlined by Carl R. Rogers (3, pp.334-428) known as the Student-Centered Teaching Method. This method was employed in an attempt to create a highly permissive and democratic atmosphere within the group.

During the first meeting of Group One, the students were requested to select one of five psychological topics which were written on the blackboard. These topics were:

- A. Psychological tests and their significance
- B. Mental illness in relation to normal behavior
- C. Psychotherapy, theory and application
- D. Schools of psychological thought
- E. Psychological report writing.

Approximately five minutes of discussion and explanation was devoted to each of these topics. This was done in order to stimulate interest in the areas of psychology to be considered in relation to each of the five topics and also to

expedite the students' choice formation. Following the discussion, it was explained that no one was obligated to select one of the topics presented by the instructor. If the student was interested in some other phase of psychology relevant to hospital work, he was free to choose it for his topic.

The students who had selected the same topic were encouraged to work together as a group in order that they might bring to class a coordinated discussion concerning their topic. They were informed that the topic they had chosen was their responsibility in terms of gathering material apropos to the subject and presenting their findings in class. The instructor stated his willingness to furnish source material and guidance to the groups if his assistance on these matters was requested.

The class was conducted as a discussion group with all members, including the instructor, taking part in the class activities. When a change in topic occurred in the class discussion, the leadership role changed accordingly. For example, if the members of Topic B were assuming the leadership roles in a discussion of Mental Illness in Relation to Normal Behavior and the class discussion evolved into a discussion concerning Psychological Tests and Their Significance, the members of Topic A would assume the leadership functions.

The only limitations placed on the discussion were that it must concern an area of psychology which was applicable

to the hospital situation and that by the end of the term, the main topics selected for discussion should have been treated thoroughly. The class was to progress at a rate set by the class members.

The class period was usually started by the instructor asking a question similar to the following: "What shall we discuss today?" This was usually sufficient in initiating the class discussion. When the group process was underway, the instructor's role was that of moderator and class member.

At the beginning of the second month of the semester, the class members were asked to devise a means by which to evaluate themselves in terms of a letter grade for the course. Following this request, the students elected one of the members of the class to act as chairman of an evaluation committee. Two weeks later the committee submitted their recommendations to the class. These recommendations were:

A. Each student was to prepare a research paper on a topic in the field of psychology applicable to the hospital setting.

B. The instructor was to grade these papers and return them to the students.

C. On the basis of this grade, and their class participation, the student was to evaluate himself in terms of a letter grade for the course.

D. This letter grade was to be submitted to the

instructor by each student at the end of the term. This grade was to constitute their final grade for the course.

Some of the class members voiced an objection to writing a research paper and stated that they would prefer an objective examination instead. However, when the final vote was taken, the recommendations cited above were approved by the majority of the class members.

No tests were given except for the final examination which was required by the school. Since the students had decided upon a system of evaluation, the results of the final examination had no bearing upon their course grade.

Group Two utilized both lecture and discussion methods in its teaching design. The lectures given by the instructor were deliberately informal and students felt free to interrupt at any time in order to ask questions or to make some appropriate comment. Group discussion was permitted to occur rather spontaneously and often the lecture would give way entirely to group discussion. The instructor played a minor role in the group discussion, preferring to let the students arrive at their own decisions and conclusions. The discussions usually centered around the merits or limitations of certain nursing practices.

A considerable amount of classroom time was devoted to practical on-the-job training. For these experiences the class went en masse to a certain ward of the hospital where actual demonstrations of nursing skills were

presented by the instructor and the ward personnel. During these demonstrations, the students were free to ask questions or hold discussions concerning the nursing activities under consideration.

In general, the class was conducted in an informal, relaxed, and friendly manner. The instructor encouraged class participation but did not force it. She was considerate of the students' problems, personal or academic, and tried to be as helpful as possible. During private discussions with students concerning academic problems, the instructor used a positive and empathetic approach.

Formal examinations and written reports were required in the group. However, the students were informed as to the nature of the material to be covered on these examinations and, to some extent, they were given an opportunity to choose topics for their written reports. No unannounced examinations were given.

Autocratic groups.--Group Three was taught entirely by the formal lecture method. In general the class procedures were conducted in a very formal and rigid manner. In order to ask questions or make comments in the class, the students had first to get recognition from the instructor by raising their hands. No member-to-member discussion was permitted in the group. If such discussion did occur, it was arrested immediately by the instructor. Class participation

of a rather formal nature was "forced" by the instructor, that is, the students were made to feel that a considerable portion of their final grade would depend on class participation.

It was difficult for the instructor to accept academic errors made by this group. On several occasions, she made sarcastic and somewhat humiliating remarks to students who had not attained a high academic standing in the class. According to observation, a high percentage of the remarks were made to students while the class was still in session.

The status arrangement for the class was very rigid. The instructor was the absolute authority of the class and dictated the activities, policies, and procedures of the class without reference to the opinions or interests of the students. The students were required to rise when she entered the classroom and to remain standing until she gave them permission to sit. Observation of this group indicated considerable annoyance and discomfort among the students during the class period.

Numerous formal examinations and unannounced quizzes were given to this group. The material to be covered by the formal examinations was never discussed prior to the examination period. The unannounced quizzes were usually over the material covered during the previous class period. Written reports were required in the class. However, the students were given no choice in the selection of topics

for the written reports and were obligated to prepare a paper on some topic given to them by the instructor.

Group Four also was taught entirely by the lecture method. However, the class procedure was somewhat less formal for this group than for Group Three. No member-to-member discussion was permitted although a forced type of class participation was encouraged. Students were not required to raise their hands in order to receive recognition from the instructor nor were they required to rise when the instructor entered the classroom. Occasionally, the instructor made somewhat sarcastic or humiliating remarks to students who had erred academically, but these remarks were not usually as intense as those observed in Group Three.

Formal examinations and written reports were required in this class. The students had no choice in their topics for written reports but they were informed as to the material to be covered on the formal examinations. Several unannounced quizzes were given to this group.

Procedure and Description of Evaluating Instrument

One week prior to the termination of the semester, the students were asked to rate each of the four classes they had attended that semester by the Group Dimensions Descriptions Questionnaire (GDDQ). This questionnaire consists of 150 statements about group characteristics or attributes.

The procedure for administering these instruments consisted of passing out four separate questionnaires to each student. The class members were asked to number each of the four questionnaires with the numbers one, two, three, and four, respectively. After they had completed numbering the questionnaires the following instructions were given:

The purpose of this questionnaire is to determine as far as possible some of the group characteristics existing in the four class groups you have attended this semester. You are to fill out one of these questionnaires in relation to each of these classes. In other words, you will fill out one questionnaire in relation to your Beginning Psychology class; one in relation to your Nursing Arts class; one in relation to your Anatomy and Physiology class; and one in relation to your class in American History. When filling out a questionnaire with reference to a particular class, be sure that you answer all questions with regard to that particular class. Please write the name of the class you are rating in the upper right hand margin on the first page of each questionnaire in the following order:

Questionnaire One--Beginning Psychology
Questionnaire Two--Nursing Arts
Questionnaire Three--Anatomy and Physiology
Questionnaire Four--American History

Now, everyone please look at the first statement on the questionnaire, and read it carefully. Think about how well the item tells something about the group you are describing. Next, find the number in the answer column which corresponds with the number of the item you are considering. After each number in the answer column you will find five letters--A, B, C, D, and E. If the item you are considering tells something about the group which is definitely true, circle the letter A. If the item you are considering tells something which is mostly true, circle the letter B. If the item tells something which is to an equal degree both true and false, or you are undecided about whether it is true or false, circle the letter C. If the item you are considering tells something which is mostly false, circle the letter D. If the item you are considering tells something about the group which

is definitely false, circle the letter E. After you have completed the first item, proceed to the next one in order. You may have as long as you need to complete your descriptions. Be sure the number in the answer column corresponds with the number of the item being answered. When you complete the first Questionnaire go on to the second, etc. When you have finished all four Questionnaires you may turn them in to the instructor. There will be no need for you to put your names on these Questionnaires but be sure to have all of your questionnaires stapled together securely when you turn them in (2, pp. 51-52).

According to the design of the GDDQ, the responses of the subjects were classified according to the following categories:

1. Autonomy. Autonomy is the degree to which a group functions independently of other groups and occupies an independent position in society. It is reflected by the degree to which a group determines its own activities, by its absence of allegiance, deference and/or dependence relative to other groups.
2. Control. Control is the degree to which a group regulates the behavior of individuals while they are functioning as group members. It is reflected by the modifications which group membership imposes on complete freedom of individual behavior and by the amount of intensity of group-derived government.
3. Flexibility. Flexibility is the degree to which a group's activities are marked by informal procedures rather than by adherence to established procedures. It is reflected by the extent to which duties of members are free from specification through custom, tradition, written rules, regulation, codes of procedure, or even unwritten but clearly prescribed ways of behaving.
4. Hedonic Tone. Hedonic Tone is the degree to which group membership is accompanied by a general feeling of pleasantness or agreeableness. It is reflected by the frequency of laughter, conviviality, pleasant anticipation of group meetings, and by the absence of griping and complaining.
5. Homogeneity. Homogeneity is the degree to which members of a group are similar with respect to

socially relevant characteristics. It is reflected by relative uniformity of members with respect to age, sex, race, socio-economic status, interest, attitudes, and habits.

6. Intimacy. Intimacy is the degree to which members of a group are mutually acquainted with one another and are familiar with the most personal details of one another's lives. It is reflected by the nature of topics discussed by members, by modes of greeting, forms of address, and by interactions which presuppose a knowledge of the probable reaction of others under widely differing circumstances, as well as by the extent and type of knowledge each member has about other members of the group.
7. Participation. Participation is the degree to which members of a group apply time and effort to group activities. It is reflected by the number and kinds of duties members perform, by voluntary assumption of non-assigned duties and by the amount of time spent in group activities.
8. Permeability. Permeability is the degree to which a group permits ready access to membership. It is reflected by absence of entrance requirements of various kinds, and by the degree to which membership is solicited.
9. Polarization. Polarization is the degree to which a group is oriented and works toward a single goal which is clear and specific to all members.
10. Potency. Potency is the degree to which a group has primary significance for its members. It is reflected by the kind of needs which a group is satisfying or has the potentiality of satisfying, by the extent of readjustment which would be required of members should the group fail, and by the degree to which a group has meaning to the members with reference to their central values.
11. Stability. Stability is the degree to which a group persists over a period of time with essentially the same characteristics. It is reflected by the rate of membership turnover, by frequency of re-organizations and by constancy of group size.

12. Stratification. Stratification is the degree to which a group orders its members into status hierarchies. It is reflected by differential distribution of power, privileges, obligations, and duties and by asymmetrical patterns of differential behavior among members.
13. Viscosity. Viscosity is the degree to which members of the group function as a unit. It is reflected by absence of dissension and personal conflict among members, by the ability of the group to resist disrupting forces, and by the belief on the part of the members that the group does function as a unit (2, pp. 2-4).

Five of the characteristics listed and defined above were eliminated from the present study since they either were not designed to differentiate between groups composed of the same population or they would not apply to college class groups. The five categories eliminated were: Autonomy, Homogeneity, Intimacy, Permeability, and Stability.

Statistical Procedures

The scores obtained from the two Democratic Groups on the different categories of the GDDQ were combined to form one Democratic Group. Likewise, the scores obtained from the two Autocratic Groups on the different categories of the GDDQ were combined to form one Autocratic Group. The t test of reliability of the differences between the means of related groups will be used with all eight categories used from the GDDQ.

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CHAPTER IV

STATISTICAL ANALYSIS OF DATA

In the first chapter five hypotheses were formulated concerning the differences in characteristics of groups taught under two different social climates. In order to test these hypotheses, the t test of related groups was used to examine the significance of the difference between the means of the Democratic Group and the Autocratic Group on eight of the thirteen characteristics found in the GDDQ.

In the discussion of the results, each hypothesis will be treated separately. The first hypothesis was:

Groups taught under a democratic social climate will characteristically exhibit more team work than those groups taught under an autocratic social climate. The scores on the categories of "Participation" and "Polarization" should be significantly higher for democratic groups as compared to autocratic groups.

The factor of "Participation" was used in the hypothesis since a close relationship was assumed to exist between class participation and teamwork. The selection of the factor of "polarization" was based on the assumption that teamwork would be reflected by the strength of class goals. Consequently, the results of these two factors should furnish a fairly reliable index of the degree of teamwork existing in the groups.

Table I shows that no significant difference exists between the Democratic and Autocratic Groups on the factor of

TABLE I

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS
OF THE DEMOCRATIC AND AUTOCRATIC GROUPS ON THE GDDQ
FACTORS OF "PARTICIPATION" AND "POLARIZATION"

| Criterion | N | $M_1 - M_2$ | σ_{dm} | \underline{t} | P |
|---------------|----|-------------|---------------|-----------------|-----------|
| Participation | 44 | .31 | .88 | .382 | ... |
| Polarization | 44 | -4.36 | 1.35 | 3.237 | Above 1 % |

"Participation." One probable explanation of the lack of disparity between the groups may be found when considering the methods employed by each group to stimulate class participation. In the Democratic Group it was a matter of individual choice whether or not the members would participate in the class discussions, whereas, in the Autocratic Group the members were led to believe that participation was a prime requisite in the determination of their letter grade. Consequently, it would appear that even though the results of this investigation show no significant difference between the two groups with respect to amount of participation, there may be a difference in the quality of that participation.

The results on the factor of "Polarization" (Table I) show that a highly significant difference exists between the Democratic and Autocratic Groups in the direction opposite to that which was hypothesized. This indicates that the members of the Autocratic Group were significantly more oriented toward class objectives and goals than were members

of the Democratic Group. Observation revealed that the instructors of the Autocratic Group were quite specific in regard to class goals and objectives. By way of contrast, the formulation of the goals and objectives in the Democratic Group was the responsibility of the group members. Another observation was that in the Democratic situation, class objectives and goals were flexible and subject to change. Consequently, it may have been a very difficult task for the members of the Democratic Group to formulate long-range class goals. In any event, the results found in Table I show that teamwork, as measured by member participation and the degree to which class goals are clear and specific, is significantly higher for Autocratic Groups than for Democratic Groups. Consequently the first hypothesis was rejected.

The second hypothesis stated was:

Democratic groups will display more freedom of activity and expression than those groups taught under an autocratic social climate. The score on the categories of "Control" and "Stratification" should be significantly lower for democratic groups as compared to autocratic groups.

The factors of "Control" and "Stratification" were used in the hypothesis on the assumption that a close relationship would exist between the amount of control and stratification and freedom. This relationship should be inverse, i.e., as control and stratification increase, freedom of activity and expression should decrease and vice versa.

Table II shows, in the results presented, that the second hypothesis was supported by the findings of this

investigation. The factor of "Control" was significant to the 1 per cent level of confidence and the factor of "Stratification" was significant to the 5 per cent level in differentiating between the Democratic and Autocratic Groups in the hypothesized direction. This indicates that individual freedom is relatively greater in the Democratic Group than in the Autocratic Group.

TABLE II

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS OF THE DEMOCRATIC AND AUTOCRATIC GROUPS ON THE GDDQ FACTORS OF "CONTROL" AND "STRATIFICATION"

| Criterion | N | $M_1 - M_2$ | σ_{dm} | t | P |
|----------------|----|-------------|---------------|-------|-----------|
| Control | 44 | 8.80 | 2.09 | 4.210 | Above 1 % |
| Stratification | 44 | 4.36 | 1.89 | 2.309 | Above 5 % |

Since the factors of "Control" and "Stratification" are so closely related, it is interesting that "Stratification" was not as significant as "Control" in differentiating the two experimental groups. One explanation may be that the students in the Democratic Group held differing degrees of status based on academic standing, personality, personal appearance or other attributes, rather than status based on authority.

The third hypothesis was stated as follows:

Less dissension will be found between the members of groups taught under a democratic social climate than those taught under an autocratic social climate. A significantly higher score would be expected on the categories of "Viscosity" and "Potency" for democratic groups when compared with autocratic groups.

The inclusion of the factor of "Viscosity" in the hypothesis was based on the assumption that a small degree of dissension would exist between the members of a group if the group was able to operate as an autonomous unit. Too, it was assumed that if the group was highly meaningful to the students in terms of satisfying certain individual needs, less dissension would be indirectly reflected by a high score on the factor of "Potency." Thus the factors of "Viscosity" and "Potency" taken together should reflect the degree of dissension existing in the groups under consideration.

The results presented in Table III show that there was no significant difference between the Democratic Group and the Autocratic Group in relation to "Viscosity." This indicates that dissension among the members of the group existed to a similar degree in both the Democratic and Autocratic Groups. Since both the Democratic and Autocratic Groups were composed of the same students, it may be that member-to-member dissensions existed prior to the formation of the class groups, and may have transferred from one social climate to another.

The factor of "Potency" was not found to be significant in differentiating between the two groups. This indicates that both the Democratic Group and the Autocratic Group

were relatively equal in meaningfulness to the students. One explanation for this similarity may be found in the area of motivation. Some of the students admitted quite frankly that their primary reason for taking part in the Psychiatric Nurse-Technician Training Program was the substantial increase in salary given to graduates of the school. If this type of motivation was characteristic of a large number of the students, it may be that one class group would be no more meaningful than another.

TABLE III

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS OF THE DEMOCRATIC AND AUTOCRATIC GROUPS ON THE GDDQ FACTORS OF "VISCIDITY" AND "POTENCY"

| Criterion | N | $M_1 - M_2$ | σ_{dm} | t | P |
|-----------|----|-------------|---------------|-------|-----|
| Viscosity | 44 | 2.54 | 1.46 | 1.733 | ... |
| Potency | 44 | 2.16 | 1.25 | 1.728 | ... |

Since neither "Viscosity" nor "Potency" were found to differentiate between the Autocratic and Democratic Groups, the third hypothesis was rejected. This is not in agreement with the results of a study conducted by Lewin, Lippitt, and White (1).

The fourth hypothesis presented was:

A more pleasant class atmosphere will exist in groups taught under a democratic social climate than in groups

taught under an autocratic social climate. A significantly higher score would be expected on the category of "Hedonic Tone" for democratic groups when compared with autocratic groups.

The factor of "Hedonic Tone" was included in the hypothesis because it was designed to determine the degree to which group membership was accompanied by a general feeling of pleasantness or agreeableness. Consequently, it was assumed that this factor would be a reliable indicator of the atmosphere existing in the groups.

The results presented in Table IV show that the factor of "Hedonic Tone" was significantly higher for the Democratic Group. From these results it may be concluded that the Democratic Group exhibited a more pleasant class atmosphere than the Autocratic Group. This is in substantial agreement with the results of a study reported by White and Lippitt (2).

TABLE IV

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS OF THE DEMOCRATIC AND AUTOCRATIC GROUPS ON THE GDDQ FACTOR OF "HEDONIC TONE"

| Criterion | N | $M_1 - M_2$ | σ_{dm} | t | P |
|--------------|----|-------------|---------------|-------|-----------|
| Hedonic Tone | 44 | 2.98 | .81 | 3.652 | Above 1 % |

The fifth hypothesis stated was:

Groups taught under a democratic social climate will exhibit more flexibility than groups taught under an

autocratic social climate. The score on the category of "Flexibility" should be significantly higher for democratic groups as compared to autocratic groups.

The factor of "Flexibility" as included in the hypothesis since it was designed to determine the degree to which a group was marked by informal and flexible procedures as opposed to procedures which are rigid and inflexible. A reliable indication of the degree of group flexibility should be obtained from this measure.

The results presented in Table V show that the Democratic Group scored significantly higher than the Autocratic Group on the factor of "Flexibility." Consequently, it may be concluded that the Democratic Group was characteristically more

TABLE V

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS OF THE DEMOCRATIC AND AUTOCRATIC GROUPS ON THE GDDQ FACTOR OF "FLEXIBILITY"

| Criterion | N | $M_1 - M_2$ | σ_{dm} | t | P |
|-------------|----|-------------|---------------|-------|-----------|
| Flexibility | 44 | 5.77 | 1.52 | 3.796 | Above 1 % |

informal in terms of class procedures than the Autocratic Group. This implies that the Democratic Group may have been at liberty to create procedures and activities consonant with an immediate need or an unexpected problem. In this respect, Democratic Groups may display more originality and creativeness

than groups taught by autocratic methods. However, the validity of this aspect must be determined through future investigation.

It is suggested that, to some extent, the class or group attitudes studied in this investigation may have been influenced by the difficulty or ease of the academic course. It may be recalled that the two groups which were combined to form one Democratic Group were composed of students taking the courses of Beginning Psychology and Nursing Arts. The groups forming the Autocratic Group were taking the subjects of Anatomy and Physiology and American History. There is little doubt that the subjects taught to the members of the Autocratic Group were more difficult to master than those taught to members of the Democratic Group. It is recommended that future studies make an attempt to equate the degree of difficulty of the academic courses in order to eliminate the influence of this variable.

In future studies, an evaluation of the attitudes of group members should be made before as well as after the formal experiment. It may be that some of the group characteristics reported in this investigation were influenced by member attitudes that existed prior to the experiment.

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CHAPTER V

SUMMARY AND CONCLUSIONS

Twenty-two freshman students enrolled in the Psychiatric Nurse-Technician Training Program at the Rusk State Hospital were taught four academic subjects, two of which were conducted in an atmosphere of democracy and two of which were conducted in an atmosphere of autocracy. At the end of the term, the Group Dimensions Description Questionnaire was administered to the groups in order to determine the differences in characteristics, if any, existing between the Democratic and Autocratic Groups. The data obtained in this study appeared to warrant the following conclusions and recommendations:

1. The group taught under a democratic social climate was found to exhibit more flexibility of behavior, more pleasurable class activity, less control and fewer hierarchies of status than groups taught under an autocratic social climate.

2. The group taught under an autocratic social climate was found to be significantly more oriented toward group goals and objectives than the Democratic Group.

3. No significant differences were found to exist between the Democratic and Autocratic Groups on class participation, the degree of member-to-member dissension, and meaningfulness of the group.

4. In view of the fact that the Autocratic Group was composed of two groups taking difficult academic subjects, and the Democratic Group was composed of the two class groups taking relatively easy academic courses, it was suggested that class or group attitudes may have been influenced by the difficulty or ease of a particular academic course. Future studies should attempt to equate the difficulty of the courses taught to the experimental groups in order to eliminate the possible influence of their variable.

5. In future studies, an attempt should be made to evaluate the attitudes of the individual members of the groups concerning the classes to which they belong before as well as after the formal experiment has occurred.

APPENDIX

TOTAL SCORES OBTAINED BY THE MEMBERS OF THE DEMOCRATIC
AND AUTOCRATIC GROUPS ON SECTIONS VI AND VIII OF
THE BONNEY-KOOKER TEACHER RATING SCALE

| Students | Teachers | | | |
|----------|----------|---------|---------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 125 | 121 | 79 | 121 |
| 2 | 116 | 119 | 120 | 115 |
| 3 | 119 | 97 | 112 | 97 |
| 4 | 117 | 103 | 90 | 104 |
| 5 | 116 | 117 | 75 | 96 |
| 6 | 117 | 114 | 102 | 115 |
| 7 | 117 | 113 | 91 | 113 |
| 8 | 118 | 121 | 79 | 111 |
| 9 | 125 | 107 | 88 | 99 |
| 10 | 120 | 124 | 91 | 85 |
| 11 | 125 | 96 | 68 | 105 |
| 12 | 120 | 121 | 71 | 112 |
| 13 | 125 | 124 | 25 | 75 |
| 14 | 123 | 113 | 84 | 106 |
| 15 | 119 | 123 | 92 | 110 |
| 16 | 122 | 122 | 81 | 115 |
| 17 | 125 | 121 | 75 | 109 |
| 18 | 121 | 95 | 74 | 123 |
| 19 | 125 | 123 | 16 | 117 |
| 20 | 110 | 105 | 47 | 89 |
| 21 | 110 | 116 | 87 | 91 |
| 22 | 119 | 114 | 62 | 99 |
| Totals | 2634 | 2509 | 1743 | 2307 |
| Means | 119.72 | 114.04 | 79.22 | 104.86 |
| Rank | First | Second | Fourth | Third |

THE BONNEY-KOOKER TEACHER RATING SCALE
(Sections VI and VIII)

SECTION VI: TEACHERS METHODS FOR GETTING STUDENTS PARTICIPATION

Instructions

If you feel that the following characteristics apply, to the ways in which your instructor gets student participation, to a very high degree, circle the letter A in the answer column. If they apply to a fairly high degree, circle the letter B. If they apply to a moderate degree, circle the letter C. If they apply to a fairly low degree, circle the letter D. If they apply to a very low degree, circle the letter E.

1. Considerate
Never embarrasses anyone. Does not force participation.
Respects comments. A B C D E
2. Informal, relaxed, friendly manner
Encouraging and interested. Always tries to see students' viewpoint. Asks for questions and comments. Always answers questions. A B C D E
3. Allows ample opportunity to ask questions and discuss topic. A B C D E
4. Impartial
Assigns work equally to all students. Calls on students evenly. A B C D E
5. Guidance given when needed during student activities. A B C D E
6. Uses small groups for discussion and projects thus helping to pool ideas, broaden viewpoints, and promote acquaintances. A B C D E
7. Uses class talent or "authorities"
Calls on pupils for information. A B C D E
8. Not enough group discussion, oral reports or group projects. A B C D E
9. Too much time and emphasis placed on participation.
(Asking questions, having class discussion, presenting oral reports, promoting group work.) A B C D E

10. Really does not try to get participation
Never asks for questions or discussion. Gives little opportunity for comments. A B C D E
11. Never asks for volunteers
Does not call on students with their hands raised, but calls on those who obviously do not know the answer or who seem bored. A B C D E
12. Too lenient in requirements and in discipline to hold interest. A B C D E
13. Unusual participation allowed
Some students monopolize all discussions while others never participate. A B C D E
14. Presents questions unclearly. A B C D E
15. Partial to a few
Calls on a few favorites all the time. A B C D E
16. Impatient
Gives student no time to think of the correct answer before asking someone else to answer or answering it himself. A B C D E
17. Sarcastic and humiliating
Humiliates whoever makes errors. Enjoys using witty sarcasm to make a "fool" out of students. Insults their intelligence. Asks embarrassin questions of shy modest students. A B C D E

SECTION VIII. HOW THE TEACHER ATTEMPTS TO STIMULATE ORIGINALITY, INDEPENDENT THINKING AND PROBLEM SOLVING

Instructions

If you feel the characteristics apply, to the way the teacher stimulates problem solving, to a very high degree, circle the letter A in the answer column. If they apply to a fairly high degree, circle the letter B. If they apply to a moderate degree, circle the letter C. If they apply to a fairly low degree, circle the letter D. If they apply to a very low degree, circle the letter E.

18. Friendly, informal manner
Makes students feel comfortable and relaxed. Sense of humor makes learning fun. A B C D E

19. Firm, frank manner
Keeps students' respect by maintaining dignity of positions without acting superior. A B C D E
20. Interested in students
Always has time to listen to anyone and try to be helpful. Attempts to learn of special interests and abilities of his students. A B C D E
21. Fair and impartial
Treats all alike. No favorites A B C D E
22. Kind, considerate, and courteous
Respects students as mature individuals. Never ridicules or embarrasses anyone. He may laugh with you, but not at you. A B C D E
23. Gives each student responsibilities
Expects the best from his students. A B C D E
24. Impersonal
Formal, cold attitude. Bored. Lacks interest in individuals. Never friendly. A B C D E
25. Partial
Definitely has favorites. Calls on certain students excessively. Classifies students as to ability and effort too soon. A B C D E
26. Acts superior and domineering
Thinks students should have more knowledge of subject than they do. Must win every argument. A B C D E
27. Ridicules and embarrasses students
Shows little respect for students or for their opinions. Picks on certain students. Sarcastic. A B C D E

Weights

Statements 1 through 7 and 18 through 23 were given the following weights:

- A -- 5 points
- B -- 4 points
- C -- 3 points
- D -- 2 points
- E -- 1 point

Statements 8 through 17 and 2 through 27 were given the following weights:

A -- 1 point
B -- 2 points
C -- 3 points
D -- 4 points
E -- 5 points

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "PARTICIPATION"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 39 | 32 | 41 | 32 |
| 2 | 33 | 32 | 36 | 35 |
| 3 | 30 | 41 | 39 | 31 |
| 4 | 39 | 39 | 39 | 39 |
| 5 | 34 | 40 | 38 | 36 |
| 6 | 36 | 40 | 40 | 40 |
| 7 | 37 | 33 | 38 | 38 |
| 8 | 36 | 38 | 40 | 38 |
| 9 | 41 | 45 | 45 | 45 |
| 10 | 33 | 29 | 42 | 30 |
| 11 | 40 | 40 | 40 | 40 |
| 12 | 47 | 36 | 28 | 35 |
| 13 | 25 | 31 | 33 | 28 |
| 14 | 42 | 31 | 31 | 28 |
| 15 | 36 | 34 | 30 | 35 |
| 16 | 34 | 40 | 35 | 40 |
| 17 | 26 | 36 | 37 | 36 |
| 18 | 33 | 36 | 35 | 36 |
| 19 | 33 | 38 | 35 | 32 |
| 20 | 27 | 36 | 42 | 38 |
| 21 | 40 | 42 | 38 | 34 |
| 22 | 43 | 37 | 39 | 37 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
 DEMOCRATIC AND AUTOCRATIC GROUPS ON
 THE GDDQ FACTOR OF "POLARIZATION"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 35 | 45 | 56 | 45 |
| 2 | 40 | 42 | 45 | 39 |
| 3 | 51 | 60 | 59 | 57 |
| 4 | 56 | 57 | 57 | 57 |
| 5 | 44 | 60 | 60 | 60 |
| 6 | 41 | 54 | 54 | 54 |
| 7 | 52 | 51 | 51 | 60 |
| 8 | 48 | 46 | 49 | 48 |
| 9 | 45 | 46 | 45 | 45 |
| 10 | 39 | 37 | 44 | 38 |
| 11 | 55 | 55 | 55 | 50 |
| 12 | 34 | 49 | 49 | 50 |
| 13 | 44 | 54 | 53 | 54 |
| 14 | 49 | 54 | 54 | 55 |
| 15 | 50 | 34 | 36 | 38 |
| 16 | 38 | 54 | 54 | 54 |
| 17 | 39 | 51 | 57 | 58 |
| 18 | 29 | 51 | 48 | 51 |
| 19 | 29 | 52 | 59 | 54 |
| 20 | 43 | 44 | 60 | 56 |
| 21 | 40 | 52 | 44 | 36 |
| 22 | 47 | 48 | 40 | 48 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "CONTROL"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 20 | 28 | 34 | 24 |
| 2 | 16 | 30 | 54 | 16 |
| 3 | 16 | 25 | 33 | 28 |
| 4 | 16 | 27 | 40 | 31 |
| 5 | 16 | 38 | 41 | 34 |
| 6 | 12 | 38 | 45 | 40 |
| 7 | 24 | 26 | 27 | 24 |
| 8 | 25 | 30 | 42 | 35 |
| 9 | 15 | 47 | 47 | 29 |
| 10 | 16 | 42 | 42 | 42 |
| 11 | 20 | 32 | 60 | 30 |
| 12 | 27 | 27 | 27 | 27 |
| 13 | 26 | 37 | 49 | 33 |
| 14 | 25 | 25 | 25 | 25 |
| 15 | 16 | 24 | 33 | 25 |
| 16 | 25 | 20 | 40 | 24 |
| 17 | 30 | 35 | 40 | 35 |
| 18 | 31 | 42 | 50 | 30 |
| 19 | 31 | 33 | 32 | 32 |
| 20 | 22 | 39 | 50 | 39 |
| 21 | 22 | 28 | 39 | 43 |
| 22 | 21 | 25 | 36 | 35 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "STRATIFICATION"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 17 | 18 | 17 | 18 |
| 2 | 20 | 22 | 34 | 34 |
| 3 | 16 | 20 | 20 | 20 |
| 4 | 12 | 15 | 28 | 15 |
| 5 | 12 | 37 | 36 | 31 |
| 6 | 12 | 48 | 49 | 47 |
| 7 | 19 | 22 | 19 | 19 |
| 8 | 18 | 29 | 28 | 26 |
| 9 | 12 | 39 | 43 | 16 |
| 10 | 18 | 44 | 40 | 44 |
| 11 | 16 | 28 | 51 | 44 |
| 12 | 20 | 16 | 16 | 16 |
| 13 | 37 | 30 | 31 | 23 |
| 14 | 15 | 15 | 17 | 17 |
| 15 | 16 | 30 | 18 | 22 |
| 16 | 19 | 20 | 16 | 18 |
| 17 | 26 | 30 | 30 | 30 |
| 18 | 16 | 20 | 36 | 18 |
| 19 | 26 | 35 | 35 | 35 |
| 20 | 32 | 35 | 44 | 27 |
| 21 | 29 | 52 | 33 | 29 |
| 22 | 20 | 26 | 26 | 29 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "VISCIDITY"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 43 | 49 | 43 | 49 |
| 2 | 56 | 41 | 26 | 36 |
| 3 | 46 | 54 | 47 | 52 |
| 4 | 48 | 48 | 46 | 48 |
| 5 | 37 | 28 | 28 | 36 |
| 6 | 45 | 33 | 33 | 36 |
| 7 | 42 | 38 | 42 | 56 |
| 8 | 47 | 48 | 59 | 52 |
| 9 | 52 | 52 | 52 | 52 |
| 10 | 54 | 55 | 58 | 52 |
| 11 | 52 | 52 | 57 | 52 |
| 12 | 50 | 45 | 20 | 45 |
| 13 | 43 | 42 | 43 | 42 |
| 14 | 57 | 30 | 28 | 30 |
| 15 | 54 | 36 | 43 | 48 |
| 16 | 57 | 43 | 55 | 55 |
| 17 | 47 | 33 | 31 | 33 |
| 18 | 40 | 37 | 42 | 41 |
| 19 | 50 | 50 | 48 | 55 |
| 20 | 46 | 51 | 49 | 52 |
| 21 | 60 | 60 | 58 | 40 |
| 22 | 51 | 45 | 44 | 48 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "POTENCY"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 42 | 54 | 41 | 38 |
| 2 | 39 | 47 | 29 | 35 |
| 3 | 35 | 31 | 37 | 33 |
| 4 | 27 | 33 | 33 | 23 |
| 5 | 32 | 44 | 42 | 44 |
| 6 | 45 | 40 | 36 | 40 |
| 7 | 38 | 50 | 49 | 50 |
| 8 | 52 | 40 | 49 | 50 |
| 9 | 48 | 41 | 41 | 36 |
| 10 | 35 | 42 | 41 | 41 |
| 11 | 43 | 43 | 38 | 39 |
| 12 | 42 | 40 | 34 | 42 |
| 13 | 48 | 37 | 33 | 38 |
| 14 | 46 | 35 | 46 | 46 |
| 15 | 35 | 29 | 39 | 29 |
| 16 | 30 | 46 | 35 | 37 |
| 17 | 41 | 38 | 38 | 42 |
| 18 | 41 | 57 | 37 | 49 |
| 19 | 46 | 44 | 45 | 45 |
| 20 | 47 | 63 | 46 | 29 |
| 21 | 46 | 52 | 54 | 42 |
| 22 | 38 | 41 | 35 | 41 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
 DEMOCRATIC AND AUTOCRATIC GROUPS ON
 THE GDDQ FACTOR OF "HEDONIC TONE"

| Student No. | Democratic Group | | Autocratic Group | |
|-------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 25 | 18 | 16 | 22 |
| 2 | 21 | 17 | 13 | 19 |
| 3 | 21 | 17 | 15 | 18 |
| 4 | 20 | 17 | 15 | 12 |
| 5 | 20 | 19 | 19 | 19 |
| 6 | 19 | 15 | 13 | 15 |
| 7 | 21 | 15 | 14 | 15 |
| 8 | 21 | 18 | 18 | 21 |
| 9 | 25 | 8 | 8 | 15 |
| 10 | 20 | 21 | 21 | 21 |
| 11 | 23 | 18 | 5 | 18 |
| 12 | 23 | 23 | 25 | 23 |
| 13 | 18 | 16 | 9 | 15 |
| 14 | 24 | 24 | 24 | 24 |
| 15 | 25 | 25 | 17 | 21 |
| 16 | 22 | 22 | 14 | 21 |
| 17 | 21 | 14 | 11 | 13 |
| 18 | 23 | 21 | 11 | 19 |
| 19 | 18 | 17 | 17 | 17 |
| 20 | 23 | 20 | 16 | 16 |
| 21 | 18 | 19 | 16 | 15 |
| 22 | 17 | 25 | 25 | 25 |

RAW SCORES OBTAINED BY THE MEMBERS OF THE
DEMOCRATIC AND AUTOCRATIC GROUPS ON
THE GDDQ FACTOR OF "FLEXIBILITY"

| Student No. | Democratic Group | | Autocratic Group | |
|----------------|------------------|---------|------------------|---------|
| | Group 1 | Group 2 | Group 3 | Group 4 |
| 1 | 42 | 33 | 33 | 33 |
| 2 | 47 | 29 | 38 | 34 |
| 3 | 48 | 28 | 33 | 34 |
| 4 | 36 | 36 | 36 | 36 |
| 5 | 48 | 32 | 24 | 42 |
| 6 | 50 | 34 | 34 | 35 |
| 7 | 44 | 39 | 36 | 44 |
| 8 | 44 | 28 | 32 | 28 |
| 9 | 38 | 38 | 38 | 38 |
| 10 | 52 | 51 | 36 | 48 |
| 11 | 41 | 41 | 41 | 41 |
| 12 | 34 | 36 | 14 | 38 |
| 13 | 43 | 43 | 41 | 43 |
| 14 | 44 | 34 | 34 | 42 |
| 15 | 48 | 42 | 36 | 40 |
| 16 | 44 | 38 | 39 | 38 |
| 17 | 52 | 27 | 18 | 24 |
| 18 | 50 | 27 | 27 | 26 |
| 19 | 52 | 30 | 22 | 28 |
| 20 | 54 | 46 | 38 | 42 |
| 21 | 48 | 48 | 36 | 36 |
| 22 | 38 | 32 | 39 | 40 |

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