THE RELATIONSHIP OF SUBJECT AREA AND SELECTED PERSONALITY TRAITS TO THE PREFERENCE TO TEACH BY THE GROUP OR LECTURE METHOD

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THE RELATIONSHIP OF SUBJECT AREA AND SELECTED PERSONALITY TRAITS TO THE PREFERENCE TO TEACH BY THE GROUP OR LECTURE METHOD

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

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By

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CHAPTER I

INTRODUCTION

The writers of psychology text books have generally agreed that the individual human is a unique person. There is no one else exactly like him. McGuire (24) reported that there are many and varied definitions of what constitutes human personality and how it influences patterns of behavior.

Getzels and Jackson (12) stated that the personality of the teacher is a significant factor which influences markedly the type and quality of classroom instruction. They stated that research within the past decade had supported the principle that learning within the classroom was related to the level of personal relations which occurred both between the teacher and his students and between the students themselves.

An area of frequent discussion by educators has concerned the teacher in relation to how he happened to develop his preference for a particular method of teaching. Questions have arisen such as, What kind of teacher likes to teach by the Lecture method—the Group method—or a combination of the two? Do teachers with given personality
traits prefer one method of teaching as opposed to another? Questions similar to these have been asked by researchers such as Barr (2), Brookover (4), or Coxe and Anderson (9), who were interested in investigating the relationship of teaching method and teacher personality.

Studies conducted by Zelen (32), Haggerty (17), and Baxter (1), among others, have established that good personal relations in the classroom depend heavily upon the personality of the teacher. In this regard it was reported that the teacher was mostly responsible for developing an atmosphere most favorable for learning. The teacher was expected to be both willing and capable of relating in wholesome fashion to his students, to accept them emotionally, and to understand their problems and aspirations. In relation to the methods of instruction which are normally practiced by teachers, it is the personal attributes, scheme of values and general temperament which combine to determine in large measure the quality of experiences the teacher is capable of offering.

Wingo (30) wrote that a high degree of personal interaction was most often associated with the teacher who possessed within his own personal make-up the ability to be warm and friendly. Wingo also stated that the
relationship of the teacher and the student was a critical factor in the teaching process and should be considered an important aspect of methodology.

Bush (6) found that teachers who were able to develop effective relationships with a majority of their students, who were sympathetic and accepting with respect to individual abilities, were most likely to be successful with whatever method of instruction they preferred to use. Although the evidence indicated that the personality of the teacher was an essential aspect of teaching method, there was reason for the recommendation that additional study was needed.

Although Wingo has reported on many of the different methods used by teachers, not all researchers have agreed upon which instructional method is best. In addition to the type of instructional method preferred by teachers, research of the past decade has supported the principle that learning, both qualitative and quantitative, is related to the types of personal relations which prevail in the classroom (16, 24, 31).

A study by Lewin (23) revealed that classroom teachers who were able to promote a democratic atmosphere were likely to be more successful as teachers. This investigation was augmented by Nedelsky (25), who indicated
that the authoritarian teacher tended to cause a rise in anxiety which in effect impeded the progress of learning within a classroom. Other researchers who reported that advantages in learning could be derived from teachers with personal traits such as acceptance, warmth, and friendliness were Cook and Cook (8), and Perkins (27).

If some investigators found data which supported the contention that the student-centered or Group method of instruction was best, there were those who found similar support for the teacher-centered or Lecture method of instruction. Edmiston and Braddock (11) reported that the Lecture method of teaching provided results in learning at the high school level which were superior to a method of teaching which centered about student recitation. Also, in this respect, Jayne (20) showed that students taught by the Lecture method made greater initial gains than an equated group taught by a more democratic method. However, neither of the cited studies which presented evidence favoring the Lecture method reported any data which pertained to the effect of teacher personality.

Throughout the available literature many studies were found which related to the personality of teachers. Also, just as many studies reported evidence concerning one or more teaching methods. However, there was an obvious lack
of reports which investigated the relationship of teacher personality with the preferred method of instruction. Thus, the lack of that type of research contributed to the need for the present study.

Statement of the Problem

The problem of this study was to determine the relationship between preference of experienced secondary teachers to instruct by the Group or Lecture method, their subject field, and selected personality traits.

Purpose of the Study

The purpose of this study was to determine if experienced secondary teachers who preferred a certain method of teaching could be identified by scores received on selected personality traits. Finding the answer to this problem involved the following sub-problems:

1. Does the preference to teach by the Group or Lecture method, as revealed by scores received on the Patterson Instructional Preference Scale (26), have any significant relationship to the subject taught by an experienced teacher in the following subject areas:
   a. mathematics
   b. science
   c. language arts
   d. social studies
2. Is the preference to teach by the Group or Lecture method significantly related to one or more of the scores on selected personality traits as measured by the Gordon Personal Inventory (13) and the Gordon Personal Profile (14)?

Hypotheses

The following hypotheses were formulated and tested:

1. When teachers are classified by subject area, the following relationships will be shown to exist:

a. mathematics teachers, as a group, will show a significant preference to teach by the Lecture method by having a mean score on the Patterson Instructional Preference Scale that is equal to or below the 33rd percentile of the total sample.

b. science teachers, as a group, will show a significant preference to teach by the Lecture method by having a mean score on the Patterson Instructional Preference Scale that is equal to or below the 33rd percentile of the total sample.

c. language arts teachers, as a group, will show a significant preference to teach by the Group method by having a mean score on the Patterson
Instructional Preference Scale that is equal to or above the 67th percentile of the total sample.

d. social studies teachers, as a group, will show a significant preference to teach by the Group method by having a mean score on the Patterson Instructional Preference Scale that is equal to or above the 67th percentile of the total sample.

2. Mathematics teachers will have a group mean score on the Patterson Instructional Preference Scale which is significantly different from the mean scores received by
   a. science teachers
   b. language arts teachers
   c. social studies teachers

3. Science teachers will have a mean group score on the Patterson Instructional Preference Scale which is significantly different from the mean scores received by
   a. language arts teachers
   b. social studies teachers

4. Social studies teachers will have a mean group score on the Patterson Instructional Preference Scale which is significantly different from the mean score received by language arts teachers.
5. There will be significant differences between the groups classified by subject area on each of the eight personality traits.

6. The total variability of the mean scores on the Patterson Instructional Preference Scale will be significantly different among the following subject areas:
   a. mathematics
   b. science
   c. language arts
   d. social studies

7. Within each subject area, those teachers designated as Group-oriented will have mean personality trait scores that are significantly different from the mean scores received by those who were designated as Lecture-oriented.

8. Within each subject area, the teachers scoring within the high range on any personality trait will have a mean score on the Patterson Instructional Preference Scale that is significantly different from the mean scores received by the low group.

9. The mean scores on each of the eight personality traits will be significantly different for teachers within the following subject areas:
   a. mathematics
   b. science
c. language arts
d. social studies

Definition of Terms

1. **Group Method of Instruction.**--Defined by the Patterson Instructional Preference Scale as follows:

   Group instruction may include one or more of the following: panel discussions, committee and individual reports, student-centered method, and the question and answer technique. Group methods allow for student participation, the class decides upon its own activities, students are encouraged to contribute personal experiences, the instructor accepts student contributions, goals are determined by the class, students evaluate each other with emphasis upon affective and attitudinal change, and there is a de-emphasis of tests and grades as goals in themselves (24, p. 46).

2. **Lecture Method of Instruction.**--Defined by the Patterson Instructional Preference Scale as follows:

   The lecture method consists mainly of instructor participation, the instructor determines the activities, discussion is kept on course materials, there is regular use of tests and grades, student contribution is evaluated by the instructor, goals are determined by the instructor, and student participation is encouraged only for the purpose of seeking information from the instructor (24, p. 46).

3. **Experienced teachers.**--Teachers having three or more years' experience teaching within one of the following subject areas:

   a. mathematics
   b. science
c. language arts
d. social studies

4. **Secondary school.**—Grades 7, 8, and 9 within the junior high school and grades 10, 11, and 12 within the senior high school.

**Assumptions**

The following basic assumptions were made for this study:

1. It was assumed that a minimum of three years' teaching experience was adequate to allow each participant to have formed a stable attitude about his preference to teach by either the Group or Lecture method of instruction.

2. It was assumed that each of the teachers participating in this study provided honest answers on the three questionnaires.

3. It was assumed that the Patterson Instructional Preference Scale was an accurate measure of each teacher's preference to use either the Group or Lecture method of instruction.

4. It was assumed that the personality trait scores as measured by the *Gordon Personal Inventory* and the *Gordon Personal Profile* were accurate representations of the teacher's personal characteristics.
5. It was further assumed that even though many of the teachers who participated in this study were volunteers, a representative cross-section of teachers was obtained in each subject area.

Limitations of the Study

1. The study was limited to 502 teachers who had at least three or more years of secondary teaching experience in one of the following areas:
   a. mathematics
   b. science
   c. language arts
   d. social studies

2. The junior high and high schools participating in the study included a total of twenty schools located within six school districts in the vicinity of Dallas, Texas.

3. The teachers participating in this study were volunteers. Each administrator who issued questionnaires to his teaching staff was asked to use no coercion in gaining the cooperation of his faculty.

4. The study was further limited in that scores on the eight personality traits were obtained from the Gordon Personal Inventory and the Gordon Personal Profile.

5. The determination of whether or not a teacher preferred to use the Group or Lecture method of instruction
was limited to scores on the Patterson Instructional Preference Scale.

Background and Significance of the Study

During the present century much effort has been expended in research toward the improvement of teaching methods. Broudy (5) reported that an accurate account of the origin and development of teaching methods would essentially be a history of education, which would also be a story of mankind. He also stated that an accurate chronology of education would reveal that the training of new teachers has been the concern of educators at least since the first century.

Wallen and Travers (28) reported that in many studies the experimenter decided in advance which teachers would be asked to teach according to a prescribed manner. The assumption was that such teachers could at will demonstrate certain classroom behavior. Wallen and Travers also wrote that even if the ad hoc assignment of teaching methods was a common experimental technique, little evidence was yet available to show that such teachers actually switched from one pattern of behavior to another. They stated that in reality such a transposition by individual teachers was far from easy and that the possibility always existed that
the teachers involved would favor one method of instruction over another.

Crosthwait (10) made the following statement in conclusion of his study:

Although most of the relationships hypothesized in this study were not found, this investigation tends to indicate that teacher instructional preference is not based primarily upon social adjustment. Therefore it is recommended that additional research be conducted to determine the true basis of teacher instructional preference. Study of the relationship existing among other traits of teacher personality (besides sociability) and instructional preference may produce findings of great worth.

The effect of teaching experience upon the inter-relationship of personality and instructional preference is an area in need of investigation. After this inter-relationship has been determined, it is recommended that a further study, designed along the lines presented in this paper, be conducted. Experienced teachers, rather than student teachers should compose the study population (10, p. 64).

Birney and McKeachie (2) reported that little attention had been given to the role of teacher attitudes as a factor in determining individual preference for method of instruction. They also reported that in research on teaching methods, one of the difficulties has been lack of adequate description and measurement of the independent variable—the teaching method.

As stated by Wallen and Travers, a researcher can hardly expect teachers to put their full efforts into
methods of instruction that they do not consider worthwhile. Perhaps such experimenters could profit by being able to determine beforehand, for which method of instruction the teachers he will investigate are actually best suited.

Wingo reported that good personal relations in the classroom depended greatly on the ability of the teacher to relate wholesomely to his students. Such a teacher should accept pupils as they are and be capable of understanding their problems and aspirations. He also pointed out that in most schools the influence of the teacher is of great importance in determining the character of the atmosphere within the classroom. He wrote that a large part of the success of the teacher's preferred way of teaching rested upon his personal attributes, his personal values, and his general temperament.

Several researchers have emphasized the importance of teacher personality to the development of a satisfactory relationship with students. Hart (18), Hopkins (19), and Witty (31) reported data indicating that teacher qualities which are most effective in dealing with students are those universally admired in all persons. Such qualities included fairness in dealing with others, congeniality, understanding, and friendliness. Also, Brookover (4) wrote that students
who have a high degree of person-to-person interaction with a given teacher tended to rank that teacher high as an instructor.

Wallen and Travers reported that it was not uncommon for a school to establish an educational policy in curriculum development which required a particular method of teacher behavior for its execution. These authors also stated that officials responsible for new curriculum programs often err by assuming that if the prevailing instructional method is to be altered, the affected teachers will be flexible enough to acquire almost overnight the desired changes. They also revealed that such a position seemed to be common to educational reformers who felt that once teachers saw the benefits deriving from a change in teaching method, the altered behavior would automatically follow.

Wallen and Travers also remarked that some educational researchers have made the mistake of expecting a teacher, who might have ruled his class with an iron hand for years, to quickly change his personality for their convenience into a relaxed, permissive person.

Griffin (15) believed that an investigation of teacher personality in relation to learning within a subject area was needed since he felt a lack of information definitely
existed concerning the relationship between how a teacher taught his subject and the amount of learning he inspired. 

Watson (29) wrote that a logical analysis of the behaviors to be expected from personality characteristics and the value system of the teacher was needed in order that consequent teaching behavior in the classroom might be more accurately predicted.

In this respect, Lee (22) suggested that studies should be made to explore the stability of personality characteristics among those who have entered teaching in order to learn how these traits relate to their preferred methods of instructing. Kearney and Rocchio (21) reported that individuals who chose to teach special subjects were basically different in attitude structure from other teachers.

Thus, not only might new teachers be more effectively selected, but the results of this study could permit the present teaching staffs of many schools to be more effectively assigned. Then, as new teachers were inducted into the school system, they could be more accurately assessed in relation to their abilities to complement the prevailing or desired method of instruction.

Not only could the results of this study aid in the improvement of secondary teacher assignments, but added
benefits could be expected to accrue from an increase in job satisfaction. In this respect, Charters (7) indicated that increased personality knowledge about teachers could decrease the amount of personnel turnover since the teacher who was working in a situation commensurate with his personality and in agreement with his preference toward method of instruction would be unlikely to suddenly seek new employment based on reasons of assignment.

Also, in addition to allowing more effective programs of teacher education to be planned, the capability of pairing personality patterns with teaching method and subject field ought to provide officials of public schools with the means to develop more efficient programs in curriculum.

Procedures for Collecting Data

Participating in the study were 502 secondary teachers, each with at least three years' experience in one of the following areas: mathematics, science, language arts, or social studies.

The teachers who participated were volunteers taken from graduate classes at North Texas State University and from six school districts in the vicinity of Dallas, Texas. To encourage honest answers, the identification of each teacher was kept anonymous by use of a code number. The
questionnaires were scored by machine.

Each teacher was administered the Patterson Instructional Preference Scale to determine his preference to teach by the Lecture or Group method of instruction. Scores on eight selected personality traits were obtained for each teacher from the Gordon Personal Inventory and the Gordon Personal Profile.

Procedure for Treating Data

All computations with data were made at the Computer Center at North Texas State University. In all cases the 0.05 level was used to determine if the data were significant.

The first hypothesis was tested by determining in what way the mean score for each subject area on the Patterson Instructional Preference Scale was related to the 67th and 33rd percentiles of the total sample. If a particular group, classified by subject area, had a mean score equal to or greater than the 67th percentile, it was considered to prefer to teach by the Group method of instruction. If the group in question had a mean score equal to or lower than the 33rd percentile, that group was considered to prefer the Lecture method of instruction. However, if the group's mean score was between the two
extremes, it was considered to have shown no preference to teach by either method.

Hypotheses 2, 3, 4, 7, and 8 were tested by using Fisher's t. A table of t distribution was used to determine if each derived t was indicative of a significant difference between the means.

Hypotheses 5, 6, and 9 were tested by use of simple analysis of variance. In each case, the variance ratio (signified by F) was computed and a table of F distribution was used to indicate if a significant difference existed between the groups.
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CHAPTER II

SURVEY OF RELATED LITERATURE

Present-day educational researchers are continually conducting research relative to the teacher as an individual and the manner in which he teaches. In this relation there are those who have sought to improve pedagogical practices by investigating primarily the personality characteristics of the person who does the teaching (42, 75, 79). Also there are researchers who are mostly interested in improving teaching processes by investigating primarily the current methods of instruction (17, 30).

This survey of the literature will be divided into the following sections: (1) Personal Characteristics of Teachers, and (2) Methods of Teaching.

Personal Characteristics of Teachers

Among the many definitions of personality, authors have usually emphasized the organization, uniqueness, and continuity which are found in the behavior tendencies of most individuals (6). For instance, Allport (1), and Jersild (40), wrote of personality as "the sum total of an individual's properties as a distinct and unique human being". McDonald (48) defined the term as "the unique,
integrated and organized system of all the behavior of an individual". Hilgard (35) defined personality to be "the individual characteristics and ways of behavior which, in their organization and patterning, account for an individual's unique adjustment to his total environment".

According to McGuire (49), some of those who have attempted to evaluate a person's personal qualities have based their opinions on recurrent behavior patterns, attributes and qualities, or one's self concept. He also stated that there are those who prefer to measure personal traits by observing a person's behavior, or by his responses to objective-type tests.

Wingo (74) reported that research since the early fifties has tended to support the principle that learning, both qualitative and quantitative, was related to the types of personal relations which prevailed in the classroom. Two dimensions were reported to be especially important in this respect: the degree of rapport between the teacher and his students and the type of inter-pupil relationships. Wingo also wrote that good personal relations in the classroom depended on the ability of the teacher to relate wholesomely to his students. Such a teacher needed to accept pupils emotionally and be capable of understanding
their problems and aspirations.

Wingo pointed out that in many schools the most conjugal atmosphere which existed in any classroom was a function partly of the individual teacher and partly of the school as a whole. In most schools the influence of the teacher was of great importance in determining the character of the climate which existed in a classroom. This in turn was also largely dependent on the personal attributes of the teacher, his personal scheme of values, and his general temperament.

It was also stressed by Wingo that the teacher may be the type who, having failed to establish agreeable relations with his students, tries to demand conformance to his will. In this case Wingo felt that such a relationship within the classroom would be primarily the result of the teacher's personal make-up. He related that the climate which prevailed within the classroom was not only important to the student's educational welfare, but was critical to his adjustment socially.

Anderson (3, 4), in his studies of the effect of personality upon the effectiveness of the teacher, found that teacher behavior tended to be reflected rather faithfully in the behavior of the class members. Anderson discovered that the dominative teacher tended to cause
dominative behavior among his pupils. He also found that the teacher who was largely integrative tended to affect student behavior in that direction. Withall (76) also found that the teacher communicated his own problems of social relations to the members of his class.

Hart (33) and Hopkins (37) reported that students who rated their teachers according to the personal qualities desired, felt the most successful teachers were fair in dealing with students and were also personally congenial and understanding.

Witty (77, 78), after studying 12,000 replies by students who described the teacher that had helped them most, wrote that the teachers most admired had probably achieved warm, friendly relations with students and possessed a well-adjusted personality. Witty also concluded that students preferred their teachers to have these personal qualities more than specific skills in teaching.

A study by Tenenbaum (70) revealed that generally when the student disliked school it was largely due to his dislike of one or more teachers. In a study by Brookover (11), it was reported that students having a high degree of person-to-person interaction with a given teacher,
also tended to rank that teacher high with respect to
general teaching competence.

Dixon and Morse (23) conducted a study to determine
if a specific personality trait might be correlated with
an effectiveness rating of that particular teacher. They
discovered that teachers who had high empathic capacity,
as indicated by their pupils, were also regarded as the
best teachers.

In their study, Heil and Washburne (34) hypothesized
that a relationship existed between the changes which took
place in students and the personalities of their teachers.
They found that there were identifiable types of teachers
and that different types of teachers have different
effects upon their students. Other investigators who
reported studies with similar results included Cassel and
Johns (16), Tyler (71), and Ryan (64).

Reed (58) discovered that although warmth and intrinsic
motivation were separate variables of teacher personality,
they were strongly intercorrelated. Another research team,
Sheldon, Coale, and Copple (67), provided evidence that
teacher friendliness is positively related to such teacher
characteristics as higher intelligence, less authoritarian-
ism, higher need for affiliation, and less need for
succorance.
A study by Lewin, et al. (46), reported that a democratic atmosphere tended to keep classwork at a relatively high level even in the absence of the teacher. Nedelsky (54) concluded from his study that an authoritarian climate kept interaction and inter-communication among students at a minimum. He also related that when competition for status in the eyes of the teacher arose, anxiety became widespread within the class members.

A study by Perkins (57) illustrated that when interaction among students was encouraged and the lines of communication were kept open, membership of cliques could change without disrupting the group or producing a high incidence of insecurity among group members. In this respect, Cook and Cook (18) stated that students tended to be conscious of a warm acceptance by the teacher and expressed their greatest fondness for the democratic teacher.

An investigation by Cunningham, et al. (20), indicated that a good group climate is the product of conscious effort on the part of students and teachers, wherein the leader of the group played the most crucial role. Callis (14) stated that teacher-pupil rapport was significantly related to teacher attitude. In conducting his study, Callis deter-
mined the attitude of experienced teachers by having them rated by supervisors, students and neutral observers.

Rocchio and Kearney (61) described a study which compared scores of experienced secondary teachers on the Minnesota Teacher Attitude Inventory to the rate at which they gave failing grades to their pupils. The participants in the study were reported by the researchers to include 395 teachers in a large Midwestern city. It was found that failure rates were not significantly different for teachers within the academic (English, mathematics, science, social studies) and non-academic areas (arts and crafts, commercial, industrial arts and homemaking, music, and physical education). However, when the teachers of academic subjects were compared with teachers in the non-academic subjects, it was found that their rates of failure were significant to the 0.01 level. The investigators concluded the following:

The high school teacher with undesirable teacher-pupil relations, who creates an atmosphere of fear and tension, and thinks in terms of the subject matter to be covered rather than in terms of what the pupils need, feel, know, and can do, is more likely to fail pupils than a teacher who is able to maintain harmonious relations with his pupils and who is interested in pupils as pupils (61, p. 251).
Jones (41) conducted an investigation to discover if differences in personality traits could be used to identify the "good" or "poor" teacher. She divided her sample of 46 female high school teachers into "good" and "poor" groups on the basis of principals' ratings and student teaching grades. She then measured the teachers on five traits assessed by the Guilford-Zimmerman Temperament Survey (general activity, restraint, ascendance, sociability, and emotional stability). The only trait which was significantly different in the two groups was general activity which correlated 0.46 with a composite criterion of teaching success. In relation to these findings, Jones made the following statement:

Good teachers would appear to be characterized as liking a rapid pace rather than a slow and deliberate one; they may be further characterized by a liking for quickness of action and production and efficiency (41, p. 178).

In a similar manner Lamke (44) assessed the personal traits of secondary teachers who had been rated "good" or "poor" by use of Cattell's Sixteen Personality Factor Questionnaire. Lamke made the following statement concerning his findings:

Using Cattell's terminology for source trait F (Surgency-Desurgency), the good teachers are more than usually talkative, cheerful, placid, frank, and quick; whereas the poor teachers are below average in these respects.
For the source trait H (Parmia-versus Threctia), the good teachers are above average in their tendencies to be gregarious, adventurous, frivolous, to have abundant emotional responses, strong artistic or sentimental interests, and to be interested in the opposite sex. The poor teachers are below average in these respects.

On trait N (Shrewdness-versus-Naive), the good teachers are approximately average in their tendencies to be polished, fastidious and cool, while poor teachers are definitely below average in these respects (44, p. 243).

One of the most extensive studies of teachers has been made by Ryan. During the approximate six years devoted to carrying out the study, some 100 separate research projects were conducted, and more than 6,000 teachers in 1,700 schools participated in the research. While many of the studies were involved in the assessment of teachers by a number of observers, other investigations tended to relate to the personality of teachers by surveying teacher activities, preferences, and attitudes. One portion of the study dealt with characteristics of teachers who had been classified as high, average, or low by their observed performance in the classroom. Another segment of Ryan's study compared the characteristics of teachers nominated by principals as superior or inferior. In general the outcomes which related to the personal make-up of the teacher included the following classification
of teachers according to their behavior:

Pattern $I_0$ - warm, understanding, friendly
versus aloof, egocentric,
restricted teacher behavior

Pattern $Y_0$ - responsible, businesslike,
 systematic versus evading,
unplanned, slipshod teacher
behavior

Pattern $Z_0$ - stimulating, imaginative,
surgent versus dull, routine
teacher behavior (64, p. 388)

In relation to the described patterns of teachers,
the following general comparisons were reported: (1) All
three patterns were found to be not only highly inter-
correlated among elementary teachers but each was also
highly correlated with respect to pupil behavior. The
inter-correlations between patterns and with pupil behavior
was discovered to be less in the case of secondary teachers.
(2) The actual observed pupil behavior in the classroom
did not seem to be related to the attitudes held by the
teachers.

Ryan also reported that teachers in larger schools
scored significantly higher than teachers in smaller
schools on scales which measured friendly and stimulating
classroom behavior, favorable attitudes toward administ-
rators, verbal understanding, and emotional stability.
Frymier (27) made the following statements concerning the teacher-pupil relationship and the personality of teachers:

What teachers are is communicated to pupils. Teachers communicate themselves. Their being is perceivable stuff for kids. As a pupil looks at his teachers, he perceives the teacher's values, the teacher's concept of himself, the teacher's motivations, the teacher's concept of other people, the teacher's attitudes toward learning, and the teacher's role and view of authority. The learner builds himself, at least in part, out of the psychological dynamics and dimensions of the teacher (27, p. 79).

Teachers must learn to use the powers of their personalities to achieve particular educational ends, for it is the teacher that is the most powerful element in the educational operation. People who enter teacher education programs ought to be selected very carefully. If their personality patterns are undesirable, they should probably be kept out of the classroom. In selecting teachers at the school level, people should be sought whose personality is already fully developed and adequate--those who see themselves and others in positive terms. By the very nature of their being, teachers should communicate a personality to their students which is positive. There are some teachers who are now teaching who, by their very existence are the antithesis of everything we hope for--who hate ideas, who are not motivated, who do not want to learn, who are tolerant of ambiguity, and who hate people. They should be denied access to children (27, p. 90).

Hollister (36) reported that achievement of students could be enhanced if teachers could be found whose personal ego styles and method of relating to people were the type that would catalyze student ego development.
Amidon, et al. (2), stated that the greatest communication between teachers and their students was a form of verbal behavior. If the teacher was skillful enough he could learn to challenge a student without also threatening him. These researchers concluded that above-average achievement and positive student behavior were related to certain kinds of teacher behavior, such as the teacher's willingness to accept the student as a person and to give him credit for his ideas. The effectiveness of teacher-pupil communication, stated these writers, depended upon the level of teacher-pupil relationships, which in turn was largely a function of the attitudes of the teacher.

Rothman (62) concluded that teachers must be specialists in accepting the sensitivities and sensibilities of their students. It was also reported that each teacher should possess those personal qualities which would help each student to develop an adequate concept of himself. Some of the personal qualities were reported as understanding, emotional expression, and skill in personal relationships.

Spaulding (68) announced that high pupil self-concepts were found in the classes of teachers who were socially integrative or learner-supportive. Negative relationships with self-concept were obtained with dominative, threatening and sarcastic teacher behavior.
Buhler (12) revealed that a dominating teacher could force an already shy student into further withdrawal, or that a teacher with social-class prejudice might generate negative attitudes toward learning on the part of his students. Buhler also stated that teachers who have colorless, drab personalities may cause pupils to be restive and inattentive.

Sears (66), from a study of the influence of classroom conditions on the strengths and achievement of students, reported that achievement in the classroom was related to the amount of liking the students had for their teacher, which in turn was influenced by his personality. Bernard (7) stated that the school's most important influence on pupils is provided by the teacher, who sets the tone of the classroom and establishes the mood of the group. The teacher was described by this writer as a model that is commonly imitated, especially if the students like him and sometimes even if they dislike him.

Methods of Teaching

Wallen and Travers (73) stated that teachers differ from one another in the methods they use in teaching, just as in any group of people there are those who differ in the manner they choose in performing a particular kind
of activity. Wingo emphasized that available research has made it possible to draw the following general inferences that have an important bearing upon teaching methods:

(1) When the aims of education are conceived to include social learning as an important outcome, then teaching method must reflect and express the values associated with the democratic process as it is commonly understood.

(2) The social climate in the classroom is the single most potent influence on the kind of social learning which occurs.

(3) The social climate of the classroom is a product of the behavior of the group, which includes the teacher.

(4) The influence of the teacher, as it is reflected in his relations with students and the way in which he organizes the activities of the classroom, is a powerful factor in determining the character of the group climate.

(5) Productive work or academic achievement in school seems to be related to group climate, though the evidence is insufficient to support a very broad generalization (74, p. 850).

Wingo also reported that until quite recently much of the research in teaching methods was restricted to the so-called "named methods". Among these were included the "project method", "laboratory method", "Morrison method", "activity method", and so on. He also stated in his report that thus far there has been insufficient evidence to establish the superiority of any one of the various methods of instruction. Wingo did write, however, that the more superior methods of instruction should include
the following features: (1) adaptation to individual differences, (2) encourage students to take the initiative, and (3) means of stimulating individual and group participation. He stated that some instructional methods obviously permit more flexibility than others, and give teachers more opportunity to use their imagination in planning experiences which are adaptive to varying conditions. He further noted that much of the success of any one teaching method depended directly upon the resourcefulness and energies that a teacher was able and willing to exert in its application.

Much experimentation has been done in an attempt to show which of a large number of various methods of instruction will cause the most learning. McKeachie (50) reported that college students preferred the recitation method over methods based on group work and related techniques. He pointed out however that even though students received higher grades with the recitation method, an explanation might be that they were reluctant to depart from the more conventional teacher-centered methods, coupled with an anxiety over grades in general.

Dale and Raths (21), even though they were unable to show that the memorization method was superior, did find after sampling teaching techniques used in 200
classrooms that memorizing of subject matter from textbooks was the method of teaching commonly employed. Another researcher, Feany (26), found after surveying teaching methods in 36 school systems in five Midwestern states that the method most commonly used was the memorization of factual material from textbooks. He discovered that teachers employed extensively the use of question-answer techniques, and little evidence was found that group or individual work was used.

A study by Bloom (9) revealed that the advantages of the lecture method was dependent upon the objectives of the teacher. Bloom stated that if the teacher's intent were to convey factual knowledge, that the lecture method was as efficient as any other method. He also wrote that if the objective of the teacher is to develop problem-solving abilities and an attitude of inquiry within students, the discussion or group method of teaching is the superior of the two.

In a summary of teaching methods that had been evaluated by researchers, Wispe (75) reported that a reaction has been forming against teacher-centered methods of instruction during the past forty years.

Much of the research concerning the group method of teaching has, according to Miel, et al. (52), been centered
upon the effect this method has had upon the social competence of students and teachers. Miel stated that there are important changes in social contacts between students that are brought about with the introduction of the group method. Monroe and Marks (53) stated that when group effort and group techniques of problem solving were used by a competent teacher in relation to achieving pre-planned objectives, this instructional method compared favorably with other general approaches to methods of teaching.

Other researchers have reported that there are no significant differences between the lecture method and the discussion method of instruction. Such writers include Bills (8), Carlson (15), Deignan (22), Eglash (24), Haigh and Schmidt (32), and Husband (38).

However, in opposition to those who have written that there are no real differences in the lecture and discussion methods, there are investigators whose research has caused them to state the superiority of the lecture method (13, 31, 60, 63).

Faw (25), in contrast, described an investigation which showed the superiority of the discussion method of teaching. Although he did not state that the discussion method was in all respects superior to the lecture method, Patton (56)
concluded that the discussion method provided greater acceptance of responsibility for learning on the part of students. Another singular advantage of the discussion method was announced to be a greater opportunity to use knowledge of psychology by Bovard (10), McKeachie (51), and Perkins (57).

Other researchers have reported that the discussion method is superior to the lecture method in the following ways: (1) student attitudes are changed more effectively, (2) interpersonal relations are improved to a greater extent, and (3) the self-concept of the student is increased (5, 45, 47).

Giles (28), after an investigation of a teaching method which incorporated teacher-pupil planning, stated the major advantage was that students were allowed and encouraged to develop attitudes of cooperative living through actual experiences in a democratic social climate. He also wrote that through teacher-pupil planning, the students were better adjusted socially, were more considerate of each other, and showed greater willingness to accept responsibility. Another investigator, Thelen (69), found that superior learning was accomplished by an experimental group which applied teacher-pupil planning to such aspects as objectives of the work, planning of procedures, use of scientific
procedure, performance and participation, and evaluation of procedures. Also, Schneider (65) reported that teachers who were able to develop specific techniques for introducing group activities were most likely to succeed when teaching by the group method.

A study by Rehage (59) showed that when two classes were observed for a thirty-week period, the class that utilized teacher-pupil planning achieved just as much as the control group when attainment of objectives was the criterion of comparison. As a result of this study, Rehage reported that the time spent in teacher-pupil planning did not detract from the achievement of the students. He also wrote that very little difference was noted in the two groups concerning: (1) development of insight into principles of group planning, (2) changes in the internal structure of the group, and (3) group productivity. At the conclusion of his report Rehage wrote a few words of caution concerning the acceptance of claims for the superiority of teacher-pupil planning.

Park (55) reported, from a study of a teaching method designed to motivate students, that thus far although there are many ways to motivate students, the personality of the teacher is the single most important factor in this respect.
Coxe and Anderson (19) related the results of a study whose purpose was stated to determine which teachers would meet twenty-three common problems in a similar manner. The methods by which the teachers chose to handle the various problems were identified by reports from both the teachers involved and their pupils. The researchers concluded the following:

In general in dealing with these twenty-three problem situations the teachers would either defeat their own purposes by making the problem worse, or they would use techniques unrelated to the problem (19, p. 544).

Frymier wrote the following statements concerning the teacher and methods of instruction:

It must be recognized that different teachers feel comfortable with different kinds of strategy. Some teachers' "natural" way of working is the directive approach. Other teachers' natural way is a discursive approach. Some are more comfortable as persuaders, and others feel more natural in supportive roles. If it is not appropriate to use one kind of teaching strategy with children who have various kinds of psychological needs, it might be that we ought to try to organize the school in such a way that children who have particular kinds of motivational and personality patterns are grouped with those teachers who normally use a particular kind of teaching strategy. Thus, teachers and students could be fitted together administratively (27, p. 88).

Kosier and DeVault (43) reported that although pupil personalities might cause slight teacher personality changes, the major influence was in the opposite direction.
These researchers concluded that through further research, results might be helpful in determining the placement of pupils with special personality problems such as lack of emotional control, withdrawal, acting out, or extreme guilt feelings. These students could be assigned to teachers with personality trait scores which could be predicted to positively alter the personality traits of the afflicted students.

Grimes and Allinsmith (29) found that teaching method did interact with personality characteristics in determining the response of students to classroom instruction. Their study disclosed that highly anxious or highly compulsive students who had been taught by a structured method were superior to similar students who had been taught by an unstructured method.

Jeep and Hollis (39) stated that the group method of instruction required more self confidence and personal skills than did most any other teaching method. They presented, as a result of their study, forty-six principles which were designed for use by any teacher who might attempt to adopt the group method of instruction. The students who composed the two classes used in this study were taught by the group dynamics method and were asked and encouraged to react in the following ways:
1. The class members were encouraged to be informal and relaxed in expression of ideas, attitudes, and beliefs.

2. Any and all statements made by a student were accepted.

3. All students were encouraged to "think out loud".

4. Students were encouraged to get acquainted with one another.

5. Each student was encouraged to talk about himself.

6. Each student was encouraged to read, without assignment, from an extensive bibliography according to his felt "needs".

7. Note taking of facts was discouraged during class.

Concerning the use of group dynamics as a method of teaching the researchers made the following comments:

Group dynamics is successful to the extent that the instructor is skillful enough to create and maintain an atmosphere within which the class can experience purposeful learning with progressively emerging group goals and objectives and with continuous self-evaluation and re-evaluation. The group method of teaching helps individuals to grow toward independence and self-security while at the same time learning that in a society one member depends upon another.

We feel that group dynamics enables students to release their feelings and aggressions, which increases their chances for individual and social adjustment. Group dynamics creates a situation in which the individual is responsible and is ego involved, and always present is motivation for learning, constructive action,
and self evaluation. The teacher must be secure in his position, confident in his subject matter, and skillful in the psychology of human relations before attempting this method of instruction (39, p. 205).

Woetjen (72) reported that in order to allow for effective learning to take place, it was important that the teacher not only develop rapport with his students, but make each person contribute without feeling he might be threatened or reprimanded.


52. Miel, Alice, et al., Cooperative Procedures in Learning, Teachers College Record, LIV (December, 1952) 131-137.


60. Remmers, H. H., "Learning, Effort and Attitudes as Affected by Three Methods of Instruction in Elementary Psychology", Purdue University Studies in Higher Education, No. 21, 1933.


CHAPTER III

METHODS AND PROCEDURES

Subjects

The subjects in this study were 502 teachers who had taught a minimum of three years in the secondary school. At the time of the study the teachers were employed as full-time teachers within an approximate 50-mile radius of Dallas, Texas. The subjects were obtained specifically from two sources: (1) from graduate classes at North Texas State University during the second summer semester and fall semester of 1966, and (2) from twenty secondary schools located within six school districts in the vicinity of Dallas, Texas.

The teachers who contributed data for this study were teaching within one of the following subject areas (the number of teachers in each subject area is shown in parentheses):

1. mathematics (116) . . . algebra I & II, plane geometry, related mathematics, business mathematics, trigonometry, analytical geometry, elementary analysis

2. science (105) . . . . . biology, general science, chemistry, physics
3. language arts (161) . . . English, foreign language, journalism, speech

4. social studies (120) . . . American history, Texas history, world history, government, sociology, geography, economics, civics

A minimum of three years' experience in one particular subject area was required of each teacher who contributed data for this study. This was done primarily in order that sufficient time would be allowed for each teacher to have developed a stable preference for the method of instruction he preferred to use. In this respect, Mason and Bain (3) reported that it is normal to assume the beginning teacher must spend several months just fitting into the routines of their particular school. They also stated that before he can competently perform within the classroom, the newly certified teacher must become familiar with the available instructional materials and facilities plus develop a fairly consistent personal philosophy of teaching. In addition, Mason and Bain pointed out that such an adjustment by an individual teacher might be expected to take up to several years to complete.

Also, in this regard, Wagenschein (14) wrote that beginning teachers might not effectively learn their role until they have experienced the "reality shock" of their
first teaching position. Another researcher, Archer (2), reported that educators had devoted many surveys to the determination of problems of beginning teachers and had generally concluded that at least the first year was a particularly critical time in adjustment for the beginning teacher.

Data Collection

In order to encourage each teacher to provide honest answers to the questionnaires, no person was asked to sign his name. Each respondent was assured that the nature of the study was such that emphasis would be on total data instead of individual data. The only identification on each questionnaire consisted of the code number affixed by the researcher. The data sheet (Appendix I), which was included with each questionnaire packet, asked the teacher only to reveal the subject he taught and the length of his teaching experience.

Each of the three data-gathering instruments was designed to be self-administered. However, to take advantage of available groups, the researcher administered 148 of the 184 questionnaires taken from teachers enrolled in graduate classes. The remainder of the sample (318 teachers) was taken from the public schools by allowing each teacher to administer the instruments to himself. To aid in the
self-administration, each questionnaire packet was accompanied by a mimeographed page of instructions.

Description of Instruments

Patterson Instructional Preference Scale

This unpublished instrument was designed by its author (11) to measure attitude toward classroom instructional methods. Each of the 55 items was stated in an affirmative rather than question form to provide more direct and less ambiguous statements. The author stated that this instrument could not be used to determine the actual method of teaching that a teacher was currently practicing. The stated objective of the Patterson instrument was to determine the extent that the subject was favorable or unfavorable in his preference for or subscription to the Group or Lecture method of instruction.

The reliability of this instrument was established by the test-retest method to be 0.966. A critical ratio of 7.29 established the significance of the difference at a point which was greater than the one per cent level of confidence.

The initial form of the Patterson Instructional Preference Scale was developed from a pool of 1,763 items received from 133 college students expressing their "likes"
and "dislikes" with respect to Lecture-oriented and Group-oriented methods of instruction.

The initial form of the Patterson Instructional Preference Scale, composed of 63 items, was first administered in 1959 to graduate students at North Texas State University. In utilizing the technique of logical or construct validity, the instrument (revised to 55 items) was administered to 300 college students from which a final selection was made based upon those making the highest and lowest scores. The high scores, called Group "G", were designated as being Group-oriented while the low scores, called Group "L", were designated as being Lecture-oriented.

In regard to logical validity, Noll (10) has written the following explanation:

This type of validity is employed where curricular or empirical validity cannot be employed or is used to supplement them. Thus this type of validity usually applies where the other kinds are not applicable. As an example, the well-known Seashore Measures of Musical Talents consists of a series of records presenting tasks dealing with pitch discrimination, time intervals, rhythm patterns, etc. These are not generally the subject matter of instruction in music classes, yet by logical analysis the ability to perform well has been resolved, musically speaking, into a few fundamental aptitudes and has been incorporated in the test objective methods of measuring these aptitudes.
In developing the intelligence test, Alfred Binet validated his initial efforts by introspective, logical analysis. He concluded that to "reason well, to comprehend well, and to judge well" were the basic essentials of intelligence. He then devised tests which seemed to measure these abilities.

Again, logical validity is useful with widely spaced groups. Suppose we wish to validate an inventory of some kind. The procedure would be to have a group of persons rated according to certain criteria. The result would produce a spread or distribution from one extreme to the other (high scores vs low scores). Next, the highest quarter (25 per cent) and the lowest quarter would be given the test for which validation is sought. The scores would be compared and we would expect the highest quarter to make a better mean score than the lowest quarter (10, p. 82).

In scoring the Patterson Instructional Preference Scale, the "G" and "L" scores were added to produce a total individual score. Thus, a high score (in the upper third of the total distribution of scores) indicated a preference for the Group method while a low score (in the lower third of the total distribution of scores) indicated a preference for the Lecture method. The scores which fell between these limits were regarded as not showing a clear preference for either method. The highest possible score was 275 and the lowest possible score was 55.

Justification of the Patterson Instructional Preference Scale.—Many attempts have been made to identify consistent patterns of teacher behavior which would be indicative of
one or more preferred methods of instruction. Wallen and Travera (15) stated that investigators have made attempts to check on the extent to which different methods of teaching are utilized by using three main approaches: (1) the teacher was observed while he taught, (2) the teacher was asked to describe what he did either by providing a free discussion of his activities or by filling out a questionnaire, and (3) pupils were often asked to record what happened in a class conducted by a particular teacher.

These same writers also pointed out that each of the described methods had pitfalls to the extent that one wondered to what degree of accuracy the method actually preferred by a teacher could be identified. Wallen and Travers explained that the central difficulty associated with the observation method was the inconsistency associated with both the observed and the observer. Such a view was supported by Ryans (12) who reported that no independent approach to the validity of assessment data obtained by the observation method was possible.

Wallen and Travera concluded that the second described method of identifying a preferred teaching method was faulty with the following statement:

The teachers, like many other persons, probably have only limited insight into what they do and hence will record their concept of how they behave in the classroom rather than what
they actually do. Also, teachers have difficulty in recalling just what they did in the classroom or how much time was devoted to this and that activity (15, p. 468).

The third method of identifying a teaching method was condemned with the following statement:

Since it is a student rating device, the teacher could be in a threatened position. Also, in relation to identifying teaching method via the student rating, students, just like teachers, are apt to have a certain amount of difficulty in recalling or appraising just what type of teacher behavior they witnessed (15, p. 469).

Wallen and Travers also made the following statement which provided added justification for using the Patterson instrument:

The fact that teachers may manifest many separate and incompatible patterns of behavior makes research in this field particularly difficult. Indeed, the researcher may have to work with only those teachers who have an internally consistent system of behavior patterns (15, p. 468).

Biggerstaff (3) showed that a rho of 0.31 existed between the high (Group-oriented) scores on the Patterson Instructional Preference Scale and high (democratic-oriented) scores on the Minnesota Teacher Attitude Inventory. With the same group of subjects, biggerstaff found that no significant relationship existed between teaching preference and intelligence.

Several investigators have demonstrated that the teacher's attitude scale scores are consistent with their
classroom behavior (1). McGee (9) obtained data from 184 teachers (elementary and secondary) from Oakland, California from which he concluded the following:

Evidence is thus furnished which tends to support the major hypothesis that a positive correlation would be found between verbal responses of teachers to statements on an opinion-attitude scale for measuring authoritarianism and measurable aspects of teachers' overt authoritarian behavior in the classroom (9, p. 137).

Personality is a more or less enduring organization of forces within the individual which helps to determine response in various situations. The forces of personality are not responses, but readiness for response, and it is largely to them that consistency of behavior—whether verbal or physical—is attributable. Whether or not readiness will issue in overt expression depends not only upon the situation of the moment but upon what other readinesses stand in opposition to it (9, p. 138).

From the findings in the present study it seems safe to conclude that what a person says on an anonymous questionnaire (ideology in words) and what he does (ideology in action), are essentially the same. The distinction between what a person says and what he does, it is asserted, is to be seen only as a matter of convenience; both are essentially behavior samples. The important question, for most practical purposes, is not whether behavior is verbal or nonverbal, but whether the situation of the moment—something that is best described in socio-psychological terms—calls for a verbal or a physical response (9, p. 144).

McGee further reported that whether a person was classified as exhibiting behavior that was predominately one type or the other depended on where the arbitrary cutting
points were applied to the distribution of scores on a predictor test. He also stated that the further away from the population mean the cut-off points for selecting the sample were located, the more correctly could each person's future behavior be predicted.

**Gordon Personal Inventory**

This instrument yielded quick measures of four personality traits which included Cautiousness (C), Original Thinking (O), Personal Relations (P), and Vigor (V). This instrument was designed to be used with high school, college, industrial, or adult populations. The forced-choice technique was introduced in an effort to preclude the faking of responses. The instrument consisted of 20 sets of four descriptive phrases, called "tetrads". Each of the four traits or factors (C, O, P, V) was represented by one of the phrases in each tetrad. Every tetrad included two phrases or items considered to be of similar high preference value and two items considered to be equally of low preference value. The respondent was asked to mark one descriptive phrase in each tetrad that he felt was most like himself and one phrase he felt was least like himself. Thus, only two responses were within each tetrad.
The twenty items on which the measurement of each trait was based constituted the scale for that trait. The four traits were separately scored with each item marked most contributing two points, each unmarked item one point, and each item marked least no points. With this scoring system the maximum possible score on each personality trait was 40 points.

According to the test manual (6), factor analysis of items, internal consistency analysis, and judgments of item social desirability were used in building the instrument. Inter-correlations among the traits were reported to be generally lower than for the Gordon Personal Profile. None of the correlations exceeded 0.47.

The following excerpts were taken from a review of the Gordon Personal Inventory by Charles F. Dicken (4):

The reliabilities of the scales are satisfactory, ranging from 0.77 to 0.84. There are a variety of norms. Validity studies in several different settings are cited. There is considerable evidence of validity, although it is somewhat less satisfactory than for the Profile. Empirical item selection was apparently not used in the Inventory. The manual is of high quality. The Inventory seems generally as satisfactory a measure of traits of this type as other self-report devices which are available, although the external validities reported are frequently quite modest (4, p. 228).
Definitions of the traits measured by the Gordon Personal Inventory were printed in the manual as follows:

1. **Cautiousness (C)** - Individuals who are highly cautious, who consider matters very carefully before making decisions, and do not like to take chances or run risks, score high on this scale. Those who are impulsive, act on the spur of the moment, make hurried or snap decisions, enjoy taking chances, and seek excitement, score low on this scale.

2. **Original Thinking (O)** - High scoring individuals like to work on difficult problems, are intellectually curious, enjoy thought-provoking questions and discussions, and like to think about new ideas. Low scoring individuals dislike working on difficult or complicated problems, do not care about acquiring knowledge, and are not interested in thought-provoking questions or discussions.

3. **Personal Relations (P)** - High scores are made by those individuals who have great faith and trust in people, and are tolerant, patient, and understanding. Low scores reflect a lack of trust or confidence in people, and a tendency to be critical of others and to become annoyed or irritated by what others do.

4. **Vigor (V)** - High scores on this scale characterize individuals who are vigorous and energetic, who like to work and move rapidly, and who are able to accomplish more than the average person. Low scores are associated with low vitality or energy level, a preference for setting a slow pace, and a tendency to tire easily and be below average in terms of sheer output of productivity.

**Gordon Personal Profile**

This instrument, as a companion to the Gordon Personal Inventory, was also designed to measure four different
personality traits (7): Ascendancy (A), Responsibility (R), Emotional Stability (E), and Sociability (S). The manual explained that these two instruments could be used together to provide measures of eight personality traits. With the exception that the Gordon Personal Profile had 18 instead of 20 tetrads, the instruments were identical in respect to administration and scoring procedures. Dicken reviewed the Gordon Personal Profile with the following statements:

Validity correlations with peer ratings of college students are especially impressive, ranging from 0.47 to 0.73. Except for the peer data, external validation rarely exceeded 0.30 or 0.35, although there are some outstanding exceptions. This level of validity is probably typical of the better inventories of normal personality traits, with the criteria available.

The Profile was constructed on the basis of an extensive series of investigations. Traits were initially selected on the basis of personality factors obtained by Cattell and Mosier. Items devised for the traits were factored to derive scales. Item social desirability values were established by ratings in a large subject pool and used to determine the pairings in the tetrads. Peer rating criteria were used to further refine the items, as was internal consistency analysis.

In summary, the Profile is a brief forced-choice inventory for four normal personality traits. The Inventory was carefully constructed and standardized, and a variety of norms are furnished. Validity data are thoroughly and conscientiously presented. The problem of distortion is considered in detail, and evidence is presented which indicates it is minimal in typical operational settings. Generally, the validity of the Gordon Personal Profile seems as good as usually found in the better inventories of this type (4, p. 229).
Alfred B. Heilbrun, Jr. (4) reviewed the Gordon Personal Profile and made the following statements:

Generally speaking, the 1963 revised manual is a commendable product. The empirical groundwork necessary to satisfy the basic requirements of a published test has been satisfactorily completed and presented in the manual in a clear, orderly fashion.

Reliability figures suggest that the GPP scales are both internally consistent and stable over time. Although the scales are only slightly correlated with measures of intelligence, there are some surprisingly high intercorrelations between some of the scales considering that the traits were derived from a factor analysis. Scales showing the greatest intercorrelation are A and S (r is 0.64 to 0.71) and R and E (r is 0.51 to 0.61). The fact that the GPP measures but four traits and a moderate correlation exists between some of these would indicate a rather restricted range of inferences which the test user can make from the test. This restriction can be alleviated to some extent by presenting the Gordon Personal Inventory in tandem with the Gordon Personal Profile, thereby adding four more personality dimensions and increasing testing time by only somewhere between 15 and 30 minutes.

The validity data bear testimony to the usefulness of the Gordon Personal Profile scales. Moderate correlations between them and both counselor and peer ratings of behavior have been demonstrated.

If there is interest in a short, convenient measure of a limited number of salient personality traits, the Gordon Personal Profile is about as good as you can do. It is carefully conceived, reliable, adequately normed, and has received at least suggestive validation (4, p. 231).
Definitions of the four traits which are measured by the **Gordon Personal Profile** were printed in the test manual as follows:

1. **Ascendancy (A)** - Includes those individuals who are verbally ascendant, who adopt an active role in the group, who are self-assured and assertive in relationships with others, and who tend to make independent decisions, score high on this scale. Those who play a passive role in the group, who listen rather than talk, who lack self-confidence, who let others take the lead, and who tend to be overly dependent on others for advice, normally make low scores.

2. **Responsibility (R)** - Individuals who are able to stick to any job assigned them, who are persevering and determined, and who can be relied on, score high on this scale. Individuals who are unable to stick to tasks that do not interest them, and who tend to be flighty or irresponsible, usually make low scores.

3. **Emotional Stability (E)** - High scores on this scale are generally made by individuals who are well-balanced, emotionally stable, and relatively free from anxieties and nervous tension. Low scores are associated with excessive anxiety, hypersensitivity, nervousness, and a low frustration tolerance. Generally, a very low score reflects poor emotional balance.

4. **Sociability (S)** - High scores are made by individuals who like to be with and work with people, and who are gregarious and sociable. Low scores reflect a lack of gregariousness, a general restriction in social contacts, and in the extreme, an actual avoidance of social relationships.
Procedures for Treating Data

The data for each subject was entered on cards and all computations of a statistical nature made in this study were completed by the Computer Center at North Texas State University, Denton, Texas. In all instances, significant differences meant a statistical result which was at least equal to or greater than that required to reach the 0.05 level of confidence.

Methods for Testing Hypotheses

The tenability of each of the hypotheses was determined in the following manner:

To test Hypothesis 1a, 1b, 1c, and 1d, the mean score for teachers in the four subject areas was found for the Patterson Instructional Preference Scale. If the group of teachers being considered showed a definite preference for the Group method of teaching, their mean score was required to equal or exceed the 67th percentile of the total sample, which represented a raw score of 184. On the other hand, if the mean score for any subject area group was equal to or below the 33rd percentile (equal to a score of 160), that group was considered to definitely prefer the Lecture method of instruction. However, if the mean score of one of the four subject areas was between the stated percentiles, the
teachers in that group were considered to have demonstrated no definite preference for either method of teaching.

Hypotheses 2, 3, and 4 were tested by use of Fisher's $t$. The mean scores on the Patterson Instructional Preference Scale were computed for each subject-area group, and the $t$ value was determined. A table of $t$ distribution was used to determine if each derived $t$ was indicative of a significant difference between the means.

Hypothesis 5 was tested by use of simple analysis of variance. In this case the mean scores on the eight personality traits were computed for the total population sample, and the variance ratio ($F$) was used to indicate the presence of a significant difference between the groups.

Hypothesis 6 was tested by use of simple analysis of variance. In this case the mean scores on the Patterson Instructional Preference Scale were computed for each of the subject areas and the variance ratio ($F$) was used to indicate if a significant difference existed between the groups.

Hypothesis 7 was tested by using Fisher's $t$. Only the upper one-third and the lower one-third of the distribution of scores within each subject area were retained from the Patterson Instructional Preference Scale. Within each subject area two groups were formed and classified
as being either Group-oriented or Lecture-oriented. This technique was used in order to assure that teachers would exist within each subject area who could be assumed to prefer either the Group or Lecture method of instruction. Those classified as Group-oriented had scores on the Patterson Instructional Preference Scale that were equal to or above the 67th percentile in relation to the total distribution of scores for their particular subject area. In a similar manner, those classified as Lecture-oriented had scored at or below the 33rd percentile in their respective subject areas. A table of t distribution was used to determine whether significant differences in personality scores existed within each subject area between the teachers classified as being Group-oriented and the teachers classified as being Lecture-oriented.

To justify the use of such a technique, Stern et al. (13), described a study in which two instruments were formulated to measure attitude and motives associated with ten different teaching roles. Stern explained the technique for treating his data as follows:

They were constructed by acquiring a basic pool of items from teachers which revealed, in their own words, their opinions concerning ten areas of concern. Each teacher was also asked to classify his response on a six-point scale. Then, after the two instru-
ments were initially formed, they were administered to three groups of subjects (total of 245) from which the final form was developed after comparing the upper and lower 27 percent of distributions on each scale (13, p. 15).

Ghiselli (5) demonstrated that the validity coefficients for various degrees of selection on two predictability scales indicated that the lower the selection ratio on the predictability scales, the higher would be the validity of the predictor test for those persons selected. He included line graphs in his report, which indicated that the upper third and the lower third of the total scores might be considered to be a true means of classification to the extent that the validity coefficient would be in the vicinity of 0.50. Ghiselli concluded the report of his study by making the following statement:

This investigation provides further confirmation of the fact that the exactness with which an individual's criterion score can be predicted from a test itself can be predicted. Hence it is possible on the basis of another test to select individuals whose predictability is substantially higher than that of the group as a whole (5, p. 7).

Hypothesis 8 was tested by using Fisher's $t$ to determine if the high and low groups, classified by subject area for each personality trait, had mean scores on the Patterson Instructional Preference Scale that were significantly different.
To facilitate the testing of Hypothesis 8, the scores on each of the eight personality traits were separated by subject area and classified into high or low groups according to the following criteria:

- **High group**: included all scores which were at or above one standard deviation from the mean score for that particular trait.

- **Low group**: included all scores which were at or below one standard deviation from the mean score for that particular trait.

Hypothesis 9 was tested by the use of simple analysis of variance to determine the significance of the scores made by teachers on the eight personality traits in each of the four subject areas. This test was made without regard for the two levels of scores used in hypotheses 7 and 8. After the value of F was computed, a table of variance ratios (distribution of F) was used to indicate if a significant difference existed between the groups.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The data of this study are analyzed and interpreted in this chapter. With these data and their interpretation the tenability of the hypotheses of this study could be tested. The statistical results in this chapter have been presented in tabular form with, when appropriate, the 0.05, 0.02, or the 0.001 levels of probability (P) indicated. The text of the chapter was used primarily to interpret and emphasize the data presented in the tables.

Hypothesis 1

Hypothesis 1 stated that when teachers were classified by subject area into four groups, each group would have a mean score on the Patterson Instructional Preference Scale (J) which indicated a significant preference for either the Group or Lecture method of instruction. Table I contains data showing the mean scores on the Patterson Instructional Preference Scale for four groups composed of teachers of mathematics, science, language arts, and social studies. These data indicated that no one of the four subject area groups could be considered to prefer to teach by either the Group or Lecture methods.
TABLE I

THE MEAN SCORES AND STANDARD DEVIATIONS ON THE PATTERTSON INSTRUCTIONAL PREFERENCE SCALE FOR GROUPS CLASSIFIED BY SUBJECT

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>n</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Percentile 67th</th>
<th>Percentile 33rd</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>116</td>
<td>96-217</td>
<td>167.86</td>
<td>24.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>105</td>
<td>62-235</td>
<td>172.11</td>
<td>28.93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language Arts</td>
<td>161</td>
<td>80-269</td>
<td>173.55</td>
<td>28.66</td>
<td>184</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td>120</td>
<td>96-243</td>
<td>173.08</td>
<td>29.97</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table reads as follows: within the group of mathematics teachers, which was composed of 116 persons, the scores on the Patterson Instructional Preference Scale ranged from a low of 96 to a high of 217. The mean score for the group of mathematics teachers was 167.86 and the standard deviation was 24.46. The score for the top third of the total group of 502 teachers started at the 67th percentile, which was 184. The point at which the lower third of the total scores began was the 33rd percentile, or a score of 160. No significant differences were noted.

The data presented in Table I revealed that in order for any one group of teachers to be considered as preferring to teach by the Group method, their mean score on the Patterson Instructional Preference Scale would have to be equal to or greater than 184. This particular score,
which represented the 67th percentile for the entire sample of 502 teachers, was not achieved by any of the groups. In fact, the mean score of each group was at least 10 units below the required level (184) to signify a preference for the Group method of instruction. The two groups hypothesized as preferring the Group method, language arts and social studies, had mean scores of 173.55 and 173.08, respectively. Although these two groups did not have mean scores which were significantly indicative of a preference for the Group method of instruction, their means exceeded those of the mathematics and science groups, which were 167.86 and 172.11, respectively.

The mathematics and science teachers, hypothesized (Hypothesis 1a and 1b) to show a significant preference for the Lecture method of instruction, had mean scores on the Patterson Instructional Preference Scale which were well above the 33rd percentile score of 160. Therefore, because of the data presented in Table I, no portions of the first hypothesis were accepted.

**Hypotheses 2, 3, 4**

Hypotheses 2, 3, and 4 stated that the mean scores on each subject area group on the Patterson Instructional Preference Scale would be significantly different.
TABLE II

TABLE OF $t$ VALUES REPRESENTING THE DIFFERENCE BETWEEN THE MEANS OF SCORES ON THE PATTERSON INSTRUCTIONAL PREFERENCE SCALE FOR GROUPS CLASSIFIED BY SUBJECT AREA

<table>
<thead>
<tr>
<th></th>
<th>Mathematics</th>
<th>Science</th>
<th>Language Arts</th>
<th>Social Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td></td>
<td>-1.12</td>
<td>1.65</td>
<td>-1.42</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td>0.41</td>
<td></td>
<td>-0.26</td>
</tr>
<tr>
<td>Language Arts</td>
<td></td>
<td></td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>$n$</td>
<td>116</td>
<td>105</td>
<td>161</td>
<td>120</td>
</tr>
<tr>
<td>Mean</td>
<td>172.10</td>
<td>167.86</td>
<td>173.55</td>
<td>173.08</td>
</tr>
<tr>
<td>S. D.</td>
<td>24.46</td>
<td>28.93</td>
<td>28.66</td>
<td>29.97</td>
</tr>
</tbody>
</table>

This table reads as follows: the value of $t$ representing the difference between the means for the mathematics and science groups was -1.12. The $t$ value for the mathematics and language arts teachers was 1.65 and for the mathematics and social studies groups it was -1.42. The data from which the $t$ values were computed is presented in the lower section of the table. The 116 mathematics teachers had a mean score of 172.10 with a standard deviation of 24.46, etc. No significant differences were noted between the means.

In providing the data presenting interpretations in Table II, it was necessary to calculate $t$ values between
the means of (1) mathematics and science, (2) mathematics and language arts, (3) mathematics and social studies, (4) language arts and science, (5) language arts and social studies, and (6) science and social studies.

An inspection of Table II discloses that none of the t values are equal to or in excess of 1.94, the required point for the 0.05 level of significance. The subject groups having means and standard deviations which most closely approached the 0.05 level of significance were the teachers of mathematics and language arts which had a calculated t of 1.65. The t values for the other groups were considerably lower. Therefore, the difference between the means shown in Table II were considered to be attributed to chance fluctuations, and it was concluded that there were no significant differences existing between the subject area groups. Thus, because of the data reported in Table II, each of the three hypotheses tested was rejected.

Hypothesis 5

Hypothesis 5 stated that significant differences would be found between the groups classified by subject area on each of the eight personality traits. Sources from which the data in Table III were calculated included
TABLE III
THE ANALYSIS OF VARIANCE INCLUDING F RATIOS ON EACH OF EIGHT PERSONALITY TRAITS FOR GROUPS CLASSIFIED BY SUBJECT AREA

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Source</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td>3</td>
<td>31.36</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>30.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>40.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>20.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>117.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>12.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>47.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>34.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>43.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>32.65</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>73.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>32.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>44.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>35.91</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Between</td>
<td>3</td>
<td>60.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Within</td>
<td>498</td>
<td>33.52</td>
</tr>
</tbody>
</table>

This table reads as follows: on the Ascendancy (A) trait of the Gordon Personal Profile the between group variance estimate with three degrees of freedom was 31.36; the within group variance estimate with 498 degrees of freedom was 30.55 and the resulting F ratio was 1.03, which was insufficient to reach the 0.05 level of significance.
the Gordon Personal Inventory (1) and the Gordon Personal Profile (2).

Table III contains data of the analysis of variance between four groups on each of eight personality traits. The t ratios for this analysis of variance are presented in tables 13 through 16. The personality traits referred to in Table III include the following personality traits: Ascendancy (A), Responsibility (R), Emotional Stability (E), Sociability (S), Cautiousness (C), Original Thinking (O), Personal Relations (P), and Vigor (V). The four subject area groups for which F ratios were determined included the following: mathematics, science, language arts, and social studies.

A study of Table III reveals that the F ratios for all personality traits except one were not significant. The differences between the means of the four groups on trait E (emotional stability) produced the only F ratio that was significant. The value of 9.04 showed that the differences between the groups on this trait were significant beyond the 0.001 level. One interpretation of the differences of the four subject area groups with respect to Emotional Stability (E) could be that the group differences were large enough that they could hardly be attributed to chance variation.
The F ratios reported in Table III, depicting results of the differences among the four groups concerning emotional stability, indicated that the differences between the means of some individual groups could be expected less than one time in a thousand due to chance fluctuation.

The one other F ratio to approach a significant value was for trait O (original thinking), which had an F value of 2.29. With three degrees of freedom for the "between" sum of squares and 398 degrees of freedom for the "within" sum of squares, the value of F necessary for an 0.05 level of significance was 2.60. None of the remaining variables had an F ratio as high as 2.0, which meant the possibility of such differences occurring by chance were much more likely than five chances out of a hundred. Therefore, because of the data presented in Table III, the only portion of Hypothesis 5 to be accepted was that the differences between the subject area groups in relation to Emotional Stability (E) would be significant. Differences between the groups concerning the other personality traits were not proven significant.

**Hypothesis 6**

Hypothesis 6 stated that there would be significant differences in the mean scores on the Patterson Instruct-
The data presented in Table IV indicated that with an F ratio of only 1.04, no significant differences existed between any of the subject area groups on the basis of scores received on the Patterson Instructional Preference Scale.

**TABLE IV**

THE ANALYSIS OF VARIANCE INCLUDING F RATIO FOR MEAN SCORES ON THE PATTERSON INSTRUCTIONAL PREFERENCE SCALE FOR GROUPS CLASSIFIED BY SUBJECT AREA

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>3</td>
<td>832.00</td>
<td>1.04</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>498</td>
<td>797.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table reads as follows: for the mean scores received by the four subject areas on the Patterson Instructional Preference Scale, the between group variance estimate with three degrees of freedom was 832.00, the within group variance estimate with 498 degrees of freedom was 797.79 and the resulting F ratio was 1.04, which was insufficient to reach the 0.05 level of significance.

An interpretation of the differences between the four subject area groups could be that the differences between individual group means were so small that they could easily
be attributed to chance variation. Not only was the value of $F$ depressed, but the difference in the variance estimates was also unusually small. The "between" value of the variance estimate was 832.00 while the "within" value was 797.79. The $F$ ratio was further confirmed to be under the level required for the 0.05 point of significance by the $t$ values presented in Table II, which depicted differences between individual means. Therefore, because of the data presented in Table IV, Hypothesis 6 was not accepted.

**Hypothesis 7**

Hypothesis 7 stated that the teachers designated as Group-oriented would have a mean score on each personality trait that was significantly different from the mean score received by the group of teachers who were designated as Lecture-oriented. The portion of each subject area group designated as Group-oriented or Lecture-oriented consisted of teachers with scores in the top third or bottom third of their particular subject area group on the Patterson Instructional Preference Scale. For example, in Table V the top third of the total 116 mathematics teachers consisted of 39 scores, while the bottom third (also composed of 39 total scores) was considered to be Lecture-oriented.
TABLE V

TABLE OF MEANS, STANDARD DEVIATIONS, t VALUES, AND LEVELS OF SIGNIFICANCE OF THE UPPER ONE THIRD OF THE GROUP OF MATHEMATICS TEACHERS VERSUS THE LOWER ONE THIRD OF THE GROUP OF MATHEMATICS TEACHERS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Upper Third (n = 39)</th>
<th>Lower Third (n = 39)</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>A</td>
<td>21.26</td>
<td>6.2</td>
<td>22.05</td>
<td>5.3</td>
</tr>
<tr>
<td>R</td>
<td>26.87</td>
<td>4.6</td>
<td>28.03</td>
<td>3.6</td>
</tr>
<tr>
<td>E</td>
<td>22.54</td>
<td>3.8</td>
<td>23.46</td>
<td>2.8</td>
</tr>
<tr>
<td>S</td>
<td>20.54</td>
<td>6.0</td>
<td>18.74</td>
<td>4.9</td>
</tr>
<tr>
<td>C</td>
<td>26.72</td>
<td>5.4</td>
<td>27.92</td>
<td>6.6</td>
</tr>
<tr>
<td>O</td>
<td>26.28</td>
<td>6.4</td>
<td>26.36</td>
<td>4.5</td>
</tr>
<tr>
<td>F</td>
<td>25.90</td>
<td>5.8</td>
<td>25.15</td>
<td>5.5</td>
</tr>
<tr>
<td>V</td>
<td>25.54</td>
<td>5.1</td>
<td>25.69</td>
<td>5.1</td>
</tr>
</tbody>
</table>

This table reads as follows: on personality trait A (ascendancy), the mean score for the 39 mathematics teachers who scored in the top third on the Patterson Instructional Preference Scale was 21.26 with a standard deviation of 6.2. The mean of the lower third of mathematics teachers was 22.05 with a standard deviation of 5.3. The resulting t value was -0.60 which was not significant. The data for testing Hypothesis 6 are presented in Tables V, VI, VII, and VIII. Within each table is presented
data which illustrate how the high and low segments of each subject area group differ on the eight personality traits. For each of the subject areas, the $t$ value and the appropriate level of significance are presented relative to each of the eight personality traits.

A study of Table V reveals that no significant differences were detected between the means of the high and low segments of the 116 mathematics teachers. A possible interpretation of the data of Table V would be that the differences between all the individual means are so slight the indicated differences could occur by chance.

Table VI presents data which reveal that science teachers who are Group-oriented will have a mean score on Ascendancy ($A$) which is significantly higher than the science teachers who are considered to be Lecture-oriented. The high group (upper one third), with a mean score of 25.60, differed from the low group (lower one third), with a mean of 20.51, to the extent that a $t$ value of 3.82 was calculated. This difference in the two means was found to be significant at the 0.001 level, indicating that such a result would occur by chance less than one time in a thousand. Such a $t$ value might be interpreted to mean that science teachers who make high scores on the Patterson
TABLE VI

TABLE OF MEANS, STANDARD DEVIATIONS, t VALUES, AND LEVELS OF SIGNIFICANCE OF THE UPPER ONE THIRD OF THE GROUP OF SCIENCE TEACHERS VERSUS THE LOWER ONE THIRD OF THE GROUP OF SCIENCE TEACHERS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Upper Third (n = 35)</th>
<th>Lower Third (n = 35)</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>A</td>
<td>25.60</td>
<td>4.9</td>
<td>20.51</td>
<td>6.0</td>
</tr>
<tr>
<td>B</td>
<td>25.37</td>
<td>4.4</td>
<td>26.97</td>
<td>4.0</td>
</tr>
<tr>
<td>C</td>
<td>22.17</td>
<td>3.4</td>
<td>22.43</td>
<td>3.5</td>
</tr>
<tr>
<td>D</td>
<td>23.77</td>
<td>5.1</td>
<td>19.71</td>
<td>5.9</td>
</tr>
<tr>
<td>E</td>
<td>26.69</td>
<td>5.3</td>
<td>26.49</td>
<td>6.2</td>
</tr>
<tr>
<td>F</td>
<td>27.00</td>
<td>5.2</td>
<td>23.94</td>
<td>6.9</td>
</tr>
<tr>
<td>G</td>
<td>25.54</td>
<td>6.3</td>
<td>22.86</td>
<td>6.2</td>
</tr>
<tr>
<td>H</td>
<td>25.51</td>
<td>6.8</td>
<td>25.69</td>
<td>5.9</td>
</tr>
</tbody>
</table>

This table reads as follows: on personality trait A (ascendancy), the mean score for the 35 science teachers who scored in the top third on the Patterson Instructional Preference Scale was 25.60 with a standard deviation of 4.9. The mean of the lower third of science teachers was 20.51 with a standard deviation of 6.0. The resulting t value was 3.82, which was significant to the 0.001 level.

Instructional Preference Scale (above a score of 183) can be expected to exhibit characteristics associated with high
scores on Ascendancy (A). Thus, a science teacher who prefers the Group method would be expected to take an active role in a group, to be self assured, or assertive and to make independent decisions. On the other hand, the data indicate that the Lecture-oriented science teachers (with a score below 160) would prefer a passive role, lack self confidence, allow others to take the lead, and to depend on others for advice.

The data in Table VI also indicated that a significant difference existed between the means of the high and low groups on Sociability (S). In this case the value of t was 2.28, which was significant at the 0.05 level. This could be interpreted as indicating that differences in the means of the high and low groups of science teachers would occur by chance less than five times out of a hundred. Such a result might be interpreted as indicating that science teachers who score above 183 on the Patterson Instructional Preference Scale will not only prefer to teach by the Group method, but are more likely to enjoy being among or working with other people. The data also can be interpreted to mean that science teachers who score lower than the level of 161 are likely to be much more restrictive in their social contact.
It was also indicated by the data of Table VI that the high and low groups differed significantly (at the 0.05 level) in their mean scores on Original Thinking (O). The value of the mean for the high group was 27.00 while the similar value for the low group was 23.94. The calculated value of $t$ was 2.01, which was acceptable at the 0.05 level.

The data in this case indicated that a science teacher who scores above 183 on the Patterson Instructional Preference Scale will most likely prefer to work on difficult problems, is intellectually curious, and enjoys thought-provoking questions and discussions. On the other hand, the science teacher scoring below 161 might be expected to dislike working on complicated problems, to care little about acquiring new knowledge and to have little interest in participating in thought-provoking discussions.

The data presented in Table VII indicate that significant differences existed between the means of the high and low groups of language arts teachers on five of the eight traits: Ascendancy (A), Sociability (S), Original Thinking (O), Personal Relations (P), and Vigor (V). Each of the $t$ values for these traits indicated a significant difference at the 0.001 level, except Sociability (S), which was significant at the 0.01 level. In the latter
This table reads as follows: on personality trait A (ascendancy), the mean score for the 54 language arts teachers who scores in the top third on the Patterson Instructional Preference Scale was 22.93 with a standard deviation of 5.2. The mean of the lower third of language arts teachers was 19.57 with a standard deviation of 5.7. The resulting t value was 3.16, which was significant to the 0.001 level.

instance, the means of the two groups could be expected to occur by chance only one time out of a hundred.
In addition to the five listed traits which had significant differences, the t values for the other three traits were also close to the level of significance. However, since this particular subject area group contained many more teachers than any of the other subject areas, the possibility was more prevalent that a wider disparity of personality types was included in the sample. Such a suspicion was only partly confirmed by reference to Table I, which showed that the language arts group did have the widest range of scores on the Patterson Instructional Preference Scale. The range of the scores (difference between high and low scores) for the language arts group extended over 189 score points. The group of science teachers was closest to such a difference with 173 points separating the top and bottom scores. The ranges of the mathematics and social studies groups were 121 and 147 score points, respectively.

The possible interpretations of the data presented in Table VII, with regard to significant t scores on personality traits such as Ascendancy (A), Sociability (S), and Original Thinking (O), were discussed in relation to the data observed in Table VI. However, the t values of 3.66 for Personal Relations (R) and 3.91 for Vigor (V) indicate that only
TABLE VIII

TABLE OF MEANS, STANDARD DEVIATIONS, t VALUES, AND LEVELS OF SIGNIFICANCE OF THE UPPER ONE THIRD OF THE GROUP OF SOCIAL STUDIES TEACHERS VERSUS THE LOWER ONE THIRD OF THE GROUP OF SOCIAL STUDIES TEACHERS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Upper Third (n = 40)</th>
<th>Lower Third (n = 40)</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S. D.</td>
<td>Mean</td>
<td>S. D.</td>
</tr>
<tr>
<td>A</td>
<td>24.10</td>
<td>5.0</td>
<td>20.57</td>
<td>4.6</td>
</tr>
<tr>
<td>R</td>
<td>25.52</td>
<td>4.6</td>
<td>25.47</td>
<td>4.2</td>
</tr>
<tr>
<td>E</td>
<td>22.07</td>
<td>3.3</td>
<td>20.77</td>
<td>3.3</td>
</tr>
<tr>
<td>S</td>
<td>21.67</td>
<td>5.8</td>
<td>20.02</td>
<td>5.7</td>
</tr>
<tr>
<td>C</td>
<td>28.02</td>
<td>4.9</td>
<td>25.50</td>
<td>5.5</td>
</tr>
<tr>
<td>O</td>
<td>27.02</td>
<td>5.5</td>
<td>24.50</td>
<td>5.5</td>
</tr>
<tr>
<td>P</td>
<td>26.55</td>
<td>5.7</td>
<td>22.27</td>
<td>6.1</td>
</tr>
<tr>
<td>V</td>
<td>24.78</td>
<td>5.5</td>
<td>24.60</td>
<td>5.9</td>
</tr>
</tbody>
</table>

This table reads as follows: on personality trait A (ascendancy), the mean score for the 40 social studies teachers who scored in the top third on the Patterson Instructional Preference Scale was 24.10 with a standard deviation of 5.0. The mean of the lower third of social studies teachers was 20.57 with a standard deviation of 4.6. The resulting t value was 3.28, which was significant to the 0.001 level.

Once out of a thousand times would one expect to have such different means to occur by chance alone.
Such values of t would indicate that the language arts teacher who scores above 183 on the Patterson Instructional Preference Scale would be expected to have great faith and trust in people, and be tolerant, patient and understanding. The same language arts teacher would be expected to be both vigorous and energetic in his work, to enjoy working fast and be able to accomplish more than would be expected of the average person.

On the other hand, if the language arts teacher scored below 161 on the Patterson Instructional Preference Scale he would be more prone to show a lack of trust or confidence in others, with a tendency to be critical and become easily annoyed. This low-scoring teacher would also operate at a low vitality or energy level, prefer to set a slow pace with a tendency to tire easily, and be below average in work productivity.

Table VIII presents data which show that significant differences existed between the means of the high and low groups of social studies teachers on Ascendancy (A), Cautiousness (C), Original Thinking (O), and Personal Relations (P). The t values for traits A and P (3.28 and 3.33, respectively) indicated differences existing between the means at the 0.001 level. The other two traits,
Cautiousness (C) and Original Thinking (O), had \( t \) values which were significant at the 0.05 level.

Therefore, because of data presented in Tables V, VI, VII, and VIII, only a portion of Hypothesis 7 was found to be statistically significant.

In this respect, it was found that no significant differences existed in the means of personality traits for mathematics teachers.

The data indicated that in the case of science teachers significant differences existed at the 0.05 level in Sociability (S) and Original Thinking (O). It was also found that the significant difference between the means on Ascendancy (A) existed at the 0.001 level.

It was found that significant differences existed for language arts teachers at the 0.05 level in Emotional Stability (E); at the 0.01 level in Sociability (S); and at the 0.001 level in Ascendancy (A), Original Thinking (O), Personal Relations (P), and Vigor (V).

Significant differences were found for social studies teachers at the 0.05 level in Cautiousness (C) and Original Thinking (O), and at the 0.001 level in Ascendancy (A) and Personal Relations (P).

**Hypothesis 8**

Hypothesis 8 stated that within each subject area, the teachers who had high scores on any one of the eight
personality traits would in turn have a mean score on the Patterson Instructional Preference Scale that was significantly different from the mean scores received by those with low scores on any personality trait.

The data presented in Tables IX, X, XI, and XII provided the basis on which the tenability of Hypothesis 8 was tested. As shown in Table IX, the only significant $t$ value for mathematics teachers was on Responsibility ($R$). The differences in the mean scores on the Patterson Instructional Preference Scale for mathematics teachers produced a $t$ value of $-2.46$, which was significant to the 0.02 level. This result might be interpreted to mean that the reported differences would occur by chance in only two times out of a hundred. The negative value of $t$ can be taken to mean that a mathematics teacher who scores at or above the critical level of 32 on the Responsibility ($R$) trait will probably make a low score on the Patterson Instructional Preference Scale. Such a score would indicate that the teacher would most likely be Lecture-oriented in his choice of teaching method. On the other hand, the mathematics teacher who scores low on the same personality trait can be reliably predicted to prefer the Group method of instruction.

The data presented in Table X reveal that significant values of $t$ for science teachers were calculated on three
### Table IX

**RATIOS AND LEVELS OF SIGNIFICANCE OF SCORES ON THE PATTERSON INSTRUCTIONAL PREFERENCE SCALE FOR MATHEMATICS TEACHERS CLASSIFIED INTO HIGH AND LOW GROUPS**

<table>
<thead>
<tr>
<th>Pers. Trait</th>
<th>Upper and Lower Limits</th>
<th>High</th>
<th>Low</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>S. D.</td>
<td>n</td>
<td>Mean</td>
</tr>
<tr>
<td>A</td>
<td>27-15</td>
<td>20</td>
<td>168.60</td>
<td>28.45</td>
<td>19</td>
</tr>
<tr>
<td>R</td>
<td>32-23</td>
<td>16</td>
<td>163.31</td>
<td>22.49</td>
<td>18</td>
</tr>
<tr>
<td>E</td>
<td>27-19</td>
<td>15</td>
<td>165.20</td>
<td>22.30</td>
<td>23</td>
</tr>
<tr>
<td>S</td>
<td>26-14</td>
<td>24</td>
<td>180.29</td>
<td>14.84</td>
<td>21</td>
</tr>
<tr>
<td>C</td>
<td>34-21</td>
<td>19</td>
<td>163.74</td>
<td>20.39</td>
<td>20</td>
</tr>
<tr>
<td>O</td>
<td>32-20</td>
<td>22</td>
<td>173.73</td>
<td>22.86</td>
<td>17</td>
</tr>
<tr>
<td>P</td>
<td>32-19</td>
<td>17</td>
<td>178.88</td>
<td>17.84</td>
<td>16</td>
</tr>
<tr>
<td>V</td>
<td>31-20</td>
<td>19</td>
<td>169.84</td>
<td>27.74</td>
<td>17</td>
</tr>
</tbody>
</table>

This table reads as follows: each of the twenty mathematics teachers within the high group had scored at or above 27 on Ascendancy (A), which was the critical score point for one standard deviation above the mean. The mean score of the high group on the Patterson Instructional Preference Scale was 168.60 with a standard deviation of 28.45. The 19 members of the low group, having scored at or below the lower limit of 15, had a mean of 173.42 and a standard deviation of 21.37. The resulting t value was -0.94, which was not of sufficient size to be significant.
personality traits. The differences in the means on the Patterson Instructional Preference Scale for the high and low groups in Ascendancy (A) were significant to the 0.001 level. This would indicate that a science teacher who scored at 28 or above on Ascendancy (A) could be predicted to prefer the Group method of teaching. On the other hand, the science teacher who scores at 17 or below on the same personality trait could be predicted to prefer the Lecture method.

The same type of prediction could be made in relation to a high and low score in Originality (O). In this case the value of $t$ was 2.46, which gave a prediction reliability at the 0.02 level. The upper and lower critical scores for this trait were 31 and 19, respectively. This data could be interpreted to mean that a science teacher who scored above 30 on this trait could reliably be predicted to prefer the Group method of instruction. Also, should a science teacher score below 20, he would almost certainly choose to teach by the Lecture method.

A $t$ value of 2.24, significant to the 0.05 level, was also noted in Table 1 for science teachers on the trait of Personal Relations (P). The science teacher with a score above 31 would most likely teach by the Group method while
TABLE I

**T RATIOS AND LEVELS OF SIGNIFICANCE OF SCORES ON THE PATTERSON INSTRUCTIONAL PREFERENCE SCALE FOR SCIENCE TEACHERS CLASSIFIED INTO HIGH AND LOW GROUPS**

<table>
<thead>
<tr>
<th>Pers. Trait</th>
<th>Upper and Lower Limits</th>
<th>High</th>
<th>Low</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>Mean</td>
<td>S. D.</td>
<td>n</td>
</tr>
<tr>
<td>A</td>
<td>28-17</td>
<td>22</td>
<td>188.50</td>
<td>27.65</td>
<td>17</td>
</tr>
<tr>
<td>R</td>
<td>32-22</td>
<td>13</td>
<td>173.08</td>
<td>22.60</td>
<td>20</td>
</tr>
<tr>
<td>E</td>
<td>26-19</td>
<td>23</td>
<td>168.91</td>
<td>19.98</td>
<td>20</td>
</tr>
<tr>
<td>S</td>
<td>27-15</td>
<td>19</td>
<td>181.95</td>
<td>37.77</td>
<td>19</td>
</tr>
<tr>
<td>C</td>
<td>34-21</td>
<td>20</td>
<td>169.70</td>
<td>16.62</td>
<td>21</td>
</tr>
<tr>
<td>O</td>
<td>31-19</td>
<td>21</td>
<td>184.76</td>
<td>25.20</td>
<td>15</td>
</tr>
<tr>
<td>P</td>
<td>31-18</td>
<td>17</td>
<td>186.94</td>
<td>20.82</td>
<td>20</td>
</tr>
<tr>
<td>V</td>
<td>32-18</td>
<td>13</td>
<td>184.08</td>
<td>24.56</td>
<td>17</td>
</tr>
</tbody>
</table>

This table reads as follows: each of the 22 science teachers within the high group had a score equal to or greater than 28 on Ascendancy (A), which was the critical score for one standard deviation above the mean. The mean score of the high group on the Patterson Instructional Preference Scale was 188.50 with a standard deviation of 27.65. The 17 members of the low group, having scored at or below the lower limit of 21, had a mean of 158.24 and a standard deviation of 27.52. The resulting t value was 3.32, which was significant to the 0.001 level.
a science teacher who scored less than 19 would be expected to use the Lecture method.

The t values recorded in Table XI indicated that language arts teachers could be predicted to prefer the Group or Lecture method according to high or low scores on three personality traits. A t value of 2.25 indicated that the means on Original Thinking (O) were significantly different at the 0.05 level.

Such a result could be interpreted to mean that the language arts teacher who scored above 32 or below 21 on trait 0 would prefer either the Group or the Lecture method of teaching.

In the same manner, Table XI reported a t value of 2.98 for the Personal Relations (P) trait. This could be taken to mean that the differences between the means on the Patterson Instructional Preference Scale were significant at the 0.01 level, and that scores above or below the critical points (31 and 18, respectively) would indicate a preference for the Group or Lecture methods.

Data were also included to the effect that with a t of 3.24, the differences in the means on Vigor (V) were significant at the 0.01 level. In this case, the upper and lower critical values on the personality trait were 31 and 19.
### TABLE XI

**t Ratios and Levels of Significance of Scores on the Patterson Instructional Preference Scale for Language Arts Teachers Classified into High and Low Groups**

<table>
<thead>
<tr>
<th>Pers. Trait</th>
<th>Upper and Lower Limits</th>
<th>High</th>
<th>Low</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>Mean</td>
<td>S. D.</td>
<td>n</td>
</tr>
<tr>
<td>A</td>
<td>26-15</td>
<td>28</td>
<td>178.25</td>
<td>19.52</td>
<td>23</td>
</tr>
<tr>
<td>R</td>
<td>32-21</td>
<td>13</td>
<td>189.08</td>
<td>21.77</td>
<td>26</td>
</tr>
<tr>
<td>E</td>
<td>25-16</td>
<td>29</td>
<td>175.72</td>
<td>25.02</td>
<td>22</td>
</tr>
<tr>
<td>S</td>
<td>28-14</td>
<td>24</td>
<td>174.96</td>
<td>24.20</td>
<td>24</td>
</tr>
<tr>
<td>C</td>
<td>32-20</td>
<td>28</td>
<td>178.04</td>
<td>29.34</td>
<td>27</td>
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<td>O</td>
<td>33-20</td>
<td>25</td>
<td>185.44</td>
<td>34.33</td>
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<tr>
<td>P</td>
<td>31-18</td>
<td>26</td>
<td>181.35</td>
<td>32.61</td>
<td>28</td>
</tr>
<tr>
<td>V</td>
<td>30-18</td>
<td>26</td>
<td>181.00</td>
<td>27.58</td>
<td>32</td>
</tr>
</tbody>
</table>

This table reads as follows: each of the 28 language arts teachers within the high group had a score equal to or greater than 28 on Ascendancy (A), which was the critical score for one standard deviation above the mean. The mean score of the high group on the Patterson Instructional Preference Scale was 178.25 with a standard deviation of 19.52. The 23 members of the low group, having scored at or below the lower limit of 15, had a mean score of 170.43 and a standard deviation of 32.23. The resulting t value was 0.99, which was of insufficient size to be considered significant.
The data reported in Table XII indicated significant differences in the means for social studies teachers relative to three personality traits: Ascendancy (A), Sociability (S), and Personal Relations (P).

With a $t$ score of 2.78, the difference in the means of the two groups, composed of those with high and low scores on Ascendancy (A), on the Patterson Instructional Preference Scale was significant to the 0.01 level. The 23 social studies teachers in the high group had a score on Trait A that was equal to or above 28 while the 17 teachers composing the low group had scores on the same trait that were equal to or below 16. Thus, if a social studies teacher scored above 27 on Ascendancy (A) he would be expected to prefer the Group method; or the Lecture method if his score was below 17.

A difference in the means at the 0.05 level was found on Sociability (S) with a $t$ score of 2.22. Such a result might be interpreted to mean that a social studies teacher would prefer the Group or the Lecture method depending on whether his score on Sociability (S) was above 26 or below 16.

The data presented in Table XII also revealed that a difference in the means was significant at the 0.01 level on Personal Relations (P). With a $t$ value of 2.68, the
TABLE XII

* RATIOS AND LEVELS OF SIGNIFICANCE OF SCORES ON THE
PATTERSON INSTRUCTIONAL PREFERENCE SCALE
FOR SOCIAL STUDIES TEACHERS CLASSIFIED
INTO HIGH AND LOW GROUPS

<table>
<thead>
<tr>
<th>Pers. Trait</th>
<th>Upper and Lower Limits</th>
<th>High n</th>
<th>Mean</th>
<th>S. D.</th>
<th>Low n</th>
<th>Mean</th>
<th>S. D.</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>28-16</td>
<td>23</td>
<td>189.78</td>
<td>31.77</td>
<td>17</td>
<td>164.59</td>
<td>23.49</td>
<td>2.78</td>
<td>.01</td>
</tr>
<tr>
<td>R</td>
<td>31-21</td>
<td>19</td>
<td>174.05</td>
<td>22.27</td>
<td>17</td>
<td>174.00</td>
<td>22.15</td>
<td>0.01</td>
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<td>E</td>
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<td>26.07</td>
<td>24</td>
<td>168.00</td>
<td>23.30</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>27-15</td>
<td>23</td>
<td>183.22</td>
<td>29.15</td>
<td>21</td>
<td>163.71</td>
<td>27.76</td>
<td>2.22</td>
<td>.05</td>
</tr>
<tr>
<td>C</td>
<td>32-21</td>
<td>17</td>
<td>180.18</td>
<td>22.41</td>
<td>16</td>
<td>171.44</td>
<td>32.57</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>32-20</td>
<td>11</td>
<td>183.27</td>
<td>28.40</td>
<td>24</td>
<td>166.50</td>
<td>23.82</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>32-18</td>
<td>17</td>
<td>188.35</td>
<td>22.09</td>
<td>19</td>
<td>164.47</td>
<td>29.71</td>
<td>2.68</td>
<td>.01</td>
</tr>
<tr>
<td>V</td>
<td>31-19</td>
<td>15</td>
<td>174.73</td>
<td>37.17</td>
<td>17</td>
<td>174.53</td>
<td>22.31</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

This table reads as follows: each of the 23 social studies teachers within the high group had a score equal to or above 28 on Ascendancy (A), which was the critical score for one standard deviation above the mean. The mean score of the high group on the Patterson Instructional Preference Scale was 189.78 with a standard deviation of 31.77. The 17 members of the low group, having scored at or below the lower limit of 16, had a mean of 164.59 and a standard deviation of 23.49. The resulting t value was 2.78, which was significant to the 0.01 level.
critical points of 32 and 18 could be used to predict whether a social studies teacher would prefer the Group or Lecture method of instruction.

Thus, because of the data presented in Tables IX, X, XI, and XII, only a portion of Hypothesis 8 was found to be statistically acceptable.

Specifically, it was found that mathematics teachers, when formed into high and low groups according to the personality trait of Responsibility (R), had significant differences at the 0.02 level in their mean scores on the Patterson Instructional Preference Scale.

Also, in this respect, science teachers had significant differences at the 0.05 level in Personal Relations (P), at the 0.02 level in Original Thinking (O), and at the 0.001 level in Ascendancy (A).

The data showed that language arts teachers had significant differences at the 0.05 level in Original Thinking (O), and at the 0.01 level there were significant differences in Personal Relations (P) and Vigor (V).

There were significant differences in the scores of social studies teachers in Sociability (S) at the 0.05 level, and in Ascendancy (A) and Personal Relations (P) at the 0.01 level.
Hypothesis 2

Hypothesis 2 stated that the mean scores on each of the eight personality traits will be significantly different for teachers within each of the subject areas.

The data presented in Tables XIII through XVIII were used to test this hypothesis. A study of the data in Table XIII revealed that the difference in the mean scores of mathematics and science teachers was significantly different on one personality trait, Original Thinking (0). With a $t$ value of 1.97, the means on this trait were significantly different at the 0.05 level. An interpretation of this value of $t$ could be taken to mean that although the differences in personality on seven traits are not significant, mathematics and science teachers can be expected to differ in regard to their scores on Original Thinking (0). The data indicate that experienced mathematics teachers will most consistently score high on trait 0 and possess the characteristics attributed to such higher scores than will be expected of science teachers.

Table XIV presents data which indicated that the difference in the means of mathematics and language arts teachers were significant to the 0.001 level on Emotional Stability ($E$) and to the 0.05 level for Vigor ($V$). With a $t$ value of -4.56 for the difference in the means for...
### TABLE XIII

**t** RATIOS AND LEVELS OF SIGNIFICANCE OF MATHEMATICS TEACHERS VERSUS SCIENCE TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Mathematics (n = 116)</th>
<th>Science (n = 105)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>A</td>
<td>21.37</td>
<td>5.66</td>
<td>22.55</td>
<td>5.41</td>
</tr>
<tr>
<td>R</td>
<td>27.24</td>
<td>3.90</td>
<td>26.80</td>
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<td>V</td>
<td>25.34</td>
<td>5.12</td>
<td>25.15</td>
<td>6.38</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 116 mathematics teachers on Ascendancy (A) is 21.37 with a standard deviation of 5.66. The mean score for the sample of 105 science teachers on the same trait is 22.50 with a standard deviation of 5.41. The calculated \( t \) value was -1.59, which was of insufficient size to be significant.

Emotional Stability (E), it can be reliably concluded that the likelihood of such differences occurring by chance are possible only one time in a thousand. This particular \( t \)
TABLE XIV

t RATIOs AND LEVELS OF SIGNIFICANCE OF MATHEMATICS TEACHERS VERSUS LANGUAGE ARTS TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Mathematics (n = 116)</th>
<th>Language Arts (n = 161)</th>
<th>t</th>
<th>P</th>
</tr>
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<tbody>
<tr>
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<td>Mean</td>
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<td>5.66</td>
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<td>P</td>
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<tr>
<td>V</td>
<td>25.34</td>
<td>5.12</td>
<td>23.88</td>
<td>5.79</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 116 mathematics teachers on Ascendancy (A) is 21.37 with a standard deviation of 5.66. The mean score for the sample of 161 language arts teachers on the same trait is 21.66 with a standard deviation of 5.66. The calculated t value was 0.43, which was of insufficient size to be significant.

value could be interpreted to mean that mathematics teachers will possess the characteristics that are normally attributed to high scorers on trait A more often than language arts teachers.
Also, with a \( t \) value of -2.07, mathematics teachers can be expected to display the characteristics which are associated with high scores on trait V.

In Table XV, significant differences between the means of mathematics and social studies teachers were found for two personality traits: Responsibility (\( R \)) and Emotional Stability (\( E \)). The \( t \) value of 2.35 was sufficient to make the difference between the means for Responsibility (\( R \)) significant at the 0.02 level, and a \( t \) of 2.96 made the difference on Emotional Stability (\( E \)) significant at the 0.01 level. These data could be interpreted to indicate that mathematics teachers are more likely to have high scores on traits \( R \) and \( E \) than are the teachers of social studies.

Within Table XVI data are presented which indicate the presence of significant differences in the means of personality trait scores for science and language arts teachers on traits \( R \) and \( O \). The \( t \) value of -3.85 indicates that science teachers will, to the 0.001 level of significance, have higher scores on Emotional Stability (\( E \)) than will language arts teachers. In the other case, a \( t \) value of 2.45 can be interpreted as reliable to the 0.02 level that language arts teachers will score higher on Original Thinking (\( O \)) than will science teachers.
### Table XV

**t** RATIOS AND LEVELS OF SIGNIFICANCE OF MATHEMATICS TEACHERS VERSUS SOCIAL STUDIES TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Mathematics (n = 116)</th>
<th>Social Studies (n = 120)</th>
<th>t</th>
<th>P</th>
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<td>5.66</td>
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<td>5.21</td>
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<tr>
<td>R</td>
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<td>3.90</td>
<td>25.84</td>
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<td>5.12</td>
<td>24.87</td>
<td>5.76</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 116 mathematics teachers on Ascendancy (A) is 21.37 with a standard deviation of 5.66. The mean score for the sample of 120 social studies teachers on the same trait is 22.15 with a standard deviation of 5.21. The calculated t value was -1.08, which was of insufficient size to be significant.

The data which compare the means on personality traits for science teachers and social studies teachers are recorded in Table XVII. With a reported t value of 2.34 for trait...
### TABLE XVI

**t** RATIOS AND LEVELS OF SIGNIFICANCE OF SCIENCE TEACHERS VERSUS LANGUAGE ARTS TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Science (n = 105)</th>
<th>Lang. Arts (n = 161)</th>
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<th>P</th>
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<td>Mean</td>
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<tr>
<td>R</td>
<td>26.80</td>
<td>4.37</td>
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<td>E</td>
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<td>V</td>
<td>25.15</td>
<td>6.38</td>
<td>23.88</td>
<td>5.79</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 105 science teachers on Ascendancy (A) is 22.55 with a standard deviation of 5.41. The mean score for the sample of 161 language arts teachers on the same trait is 21.66 with a standard deviation of 5.66. The calculated t value was -1.29, which was of insufficient size to be significant.

It can be interpreted to mean that at the 0.02 level of reliability the scores of science teachers will exceed those of social studies teachers on Emotional Stability (E).
### TABLE XVII

**t** RATIOS AND LEVELS OF SIGNIFICANCE OF SCIENCE TEACHERS VERSUS SOCIAL STUDIES TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Science (n =105)</th>
<th>Social Studies (n =120)</th>
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<th>P</th>
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<td>O</td>
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<td>F</td>
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<td>6.35</td>
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<tr>
<td>V</td>
<td>25.15</td>
<td>6.36</td>
<td>24.87</td>
<td>5.76</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 105 science teachers on Ascendancy (A) is 22.55 with a standard deviation of 5.41. The mean score for the sample of 120 social studies teachers on the same trait is 22.15 with a standard deviation of 5.21. The calculated *t* value was 0.54, which was of insufficient size to be significant.

The data in Table XVIII revealed that no *t* values were of sufficient size to indicate a significant difference in the mean scores on personality traits between language arts and social studies teachers.
TABLE XVIII

T RATIOS AND LEVELS OF SIGNIFICANCE OF LANGUAGE ARTS TEACHERS VERSUS SOCIAL STUDIES TEACHERS FOR SCORES ON PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>Personality Trait</th>
<th>Language Arts (n = 161)</th>
<th>Social Studies (n = 120)</th>
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<th>P</th>
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<td>6.35</td>
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<tr>
<td>V</td>
<td>23.88</td>
<td>5.79</td>
<td>24.87</td>
<td>5.76</td>
</tr>
</tbody>
</table>

This table reads as follows: the mean score for the sample of 161 language arts teachers on Ascendancy (A) is 21.66 with a standard deviation of 5.66. The mean score for the sample of 120 social studies teachers on the same trait is 22.15 with a standard deviation of 5.21. The calculated t value was -0.74, which was of insufficient size to be significant.

Thus, the data reported in Tables XIII through XVIII resulted in Hypothesis 9 being only partly accepted. The data revealed that when a comparison was made between
mathematics and science teachers, a significant difference at the 0.05 level was found in Original Thinking (O).

It was also found that in comparing mathematics and language arts teachers significant differences occurred in Vigor (V) at the 0.05 level and in Emotional Stability (E) at the 0.001 level.

When mathematics teachers were compared with social studies teachers, differences at the 0.02 level were found for Responsibility (R) and at the 0.01 level for Emotional Stability (E).

The comparison of science and language arts teachers revealed a significant difference at the 0.02 level in Original Thinking (O) and at the 0.001 level in Emotional Stability (E).

It was also shown by the data that the science and social studies teachers had a significant difference at the 0.02 level in Emotional Stability (E).
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to determine if experienced secondary teachers who preferred the Group or Lecture method of teaching could be identified by scores received on selected personality traits. The basic approach toward investigation of this problem was to administer and compare the results of a teaching-method preference instrument with scores received on selected personality traits.

The subjects for this study consisted of 502 teachers who had at least three years teaching experience within one of four academic areas: mathematics, science, language arts, and social studies.

The selected instruments used in this study were the Patterson Instructional Preference Scale (3), the Gordon Personal Inventory (1), and the Gordon Personal Profile (2).

In order to achieve the basic purposes of this study, nine hypotheses were developed. The statistical results were presented within eighteen tables, which, when approp-
riate, indicated the 0.05, 0.02, 0.01, or the 0.001 levels of probability. Analysis of variance and Fisher's $t$ were used, when appropriate, to analyze the obtained data.

In testing Hypothesis 1, it was found that none of the four subject area groups could be considered to prefer teaching by either the Group or Lecture methods. As a result of the data collected, no part of the first hypothesis was accepted.

Hypotheses 2, 3, and 4, because of their similarity, were treated as a group. It was found that no significant difference existed in the preference for the Group or Lecture method between any two of the four subject areas.

In testing Hypothesis 5, it was found that a significant difference existed between the scores of the four subject area groups with regard to Emotional Stability (E). This was the only personality trait within which a significant difference was noted between the groups.

In testing Hypothesis 6, it was found that there were no significant differences in the preference for either the Group or Lecture method between the subject area groups.

In testing Hypothesis 7, it was found that Group-oriented science, language arts and social studies teachers had scores that were significantly different on certain personality traits from teachers of the same subject area.
who were Lecture-oriented. The data also revealed that Group-oriented mathematics teachers would not have scores on personality traits that were significantly different from mathematics teachers who were Lecture-oriented.

It was found that significant differences between Group-oriented science teachers and Lecture-oriented science teachers existed relative to the following traits: Ascendancy (A), Sociability (S), and Original Thinking (O).

The data indicated that the Group-oriented and the Lecture-oriented language arts teachers would have significantly different scores on the following personality traits: Ascendancy (A), Emotional Stability (E), Sociability (S), Original Thinking (O), Personal Relations (P), and Vigor (V).

It was also found in testing Hypothesis 7 that Group-oriented social studies teachers had scores that were significantly different from Lecture-oriented social studies teachers on the following personality traits: Ascendancy (A), Cautiousness (C), Original Thinking (O), and Personal Relations (P).

After testing Hypothesis 8, it was found that some significant differences did exist in the preference of teachers for one of the two methods of instruction relative to their scores on the personality traits.
It was found that mathematics teachers with high scores on Responsibility (R) would prefer the Group method, while the mathematics teachers with low scores on Responsibility (R) would rather use the Lecture method of instruction.

This same type of relationship was investigated for teachers within the other subject areas. For example, the data revealed that science teachers with high scores in Ascendancy (A), Original Thinking (O), and Personal Relations (P), would prefer to teach by the Group method whereas their low-scoring colleagues tended to choose the Lecture method.

Similar results were found for language arts teachers. The high scorers in Original Thinking (O), Personal Relations (P), and Vigor (V) were found to prefer to teach by the Group method. Those teachers who were found to prefer the Lecture method made low scores on the cited traits.

Within the subject area of social studies, it was found that those preferring the Group method had high scores on Ascendancy (A), Sociability (S), and Personal Relations (P). The social studies teachers with low scores on these traits preferred the Lecture method of instruction.
It was found after testing Hypothesis 9 that when teachers in one subject area were compared with teachers in another subject area, there were several subject comparisons in which significantly different personality trait scores were recorded.

For instance, it was found that mathematics teachers had a significantly higher score on Original Thinking (O) than did the teachers of science.

Then, when mathematics teachers were compared to language arts teachers, the data showed that mathematics teachers made significantly higher scores on Emotional Stability (E) and Vigor (V). It was also found that mathematics teachers had significantly higher scores than social studies teachers on Responsibility (R) and Emotional Stability (E).

It was also revealed that when science teachers were compared to language arts teachers, the science group had significantly higher scores on Emotional Stability (E) and Original Thinking (O).

The only other significant data showed that science teachers could be expected to score higher on Emotional Stability (E) than teachers of social studies.
Conclusions

Based on the data presented in this study and within the limitations of this study, the following conclusions were formulated:

1. The preference of an experienced teacher of mathematics, science, language arts, or social studies, to use either the Group or Lecture method of instruction cannot be reliably identified or inferred from knowing only the subject area for that teacher.

2. Mathematics and science teachers are more emotionally stable than are teachers of language arts and social studies in relation to personal characteristics associated with Emotional Stability (E).

3. Science, language arts, and social studies teachers who indicate a preference for the Group method of instruction possess to a higher degree the personal traits of Ascendancy (A), Sociability (S), and Original Thinking (O) than will their Lecture-oriented counterparts.

4. An aid in identifying the method of instruction preferred by teachers within any one of the four subject areas is that the Group-oriented teachers will have abnormally high scores on Ascendancy (A), Personal Relations (P), Responsibility (R), and Originality (O), while the Lecture-oriented teachers will have low scores on the same traits.
5. Teachers of mathematics can be expected to have a significantly higher score on Original Thinking (O) than teachers of science. Also, when compared with language arts teachers, mathematics teachers will have to a higher degree the characteristics associated with Emotional Stability (E) and Vigor (V). When compared with social studies teachers, mathematics teachers will possess to a larger degree the characteristics of Responsibility (R) and Emotional Stability (E). When science teachers are compared with language arts teachers, significantly higher scores on Emotional Stability (E) and Original Thinking (O) will be possessed by science teachers.

Educational Implications

The results reported in this study indicated that teachers of certain subject areas possessed some personal characteristics which could be significantly correlated with their preference to teach by either the Group or Lecture method of instruction. While this study did not specifically determine the factors responsible for the significant differences in personality and preference for teaching method, there are several educational implications to be made from the data and conclusions of this study. These implications are as follows:
1. It was reported by Wallen and Travers (4) that in many studies of teaching the researcher often arbitrarily assigned the method of teaching to be used by each participating teacher. However, the results of the present study indicate that henceforth such assignment of teaching method could possibly be in closer agreement with the individual teacher's personal qualities and his preference of teaching method.

2. Wallen and Travers also stated that it was not uncommon for a public school to establish a curriculum innovation or policy for which a particular method of teacher behavior was sought. The results of the present study could possibly provide a means whereby teachers in certain subject areas could be secured whose personal qualities and preference for teaching method could be reliably predicted. Thus, by permitting public school officials to make personnel selections and/or assignments based on the results of this study, an increase in teaching effectiveness and teacher morale could be achieved.

3. Also, in the area of teacher assignment, the results of this study should provide a certain amount of choice in controlling the type of atmosphere deemed advisable within a classroom. For example, Conclusion No. 4 would indicate that the social studies teacher classified as Group-oriented
by the Patterson Instructional Preference Scale would be more likely to have democratic, permissive classrooms. On the other hand, if a more teacher-centered environment was desired, the school official should consider a social studies teacher who was classified as lecture-oriented.

4. The data and conclusions presented in this study could also be used by teacher training institutions to provide more effective counseling of prospective teachers in relation to the method of instruction which would be best suited to their personality. For example, it was found that mathematics teachers with high scores on Responsibility (R) would prefer the Group method, while mathematics teachers with low scores on Responsibility (R) would rather use the Lecture method of instruction.

Recommendations for Further Study

The results of this study, upon which the conclusions were based, were not entirely expected. Thus, several possibilities for further research are suggested by the results of this study.

1. Because of the large number of comparisons of subject area with personality traits and teaching method preference that resulted in significant differences, the present study should be replicated using a more represent-
ative sample of teachers in each subject area. In other words, extra effort should be employed to offset any possible bias which could result from a population composed mainly of volunteers.

2. In order to gain insight into the origin of some of the significant differences recorded when subject area, personality traits, and teaching method preference were compared, it is suggested that a similar study be conducted wherein teachers with just one year of experience be compared with more experienced teachers (those having three or more years' experience).

3. It is also suggested that a similar study be conducted wherein comparisons (subject area, personality traits, teaching method preference) be made between student teachers and experienced teachers. The results of such a study might provide insight into the origins for personality differences between teachers. The question needing an answer in this case concerns whether such personality differences noted in the present study developed because of the teaching experience, or if the original choice of subject area was a function of the individual's pre-teaching personal traits.

4. Since a significant difference was noted in the levels of Emotional Stability (E) inherent in mathematics
and/or science teachers when compared with the language arts and/or social studies teachers, further study should be conducted which would explore such a relationship more carefully.
CHAPTER BIBLIOGRAPHY


APPENDIX I

DATA SHEET

Test No.

_____ Male  _____ Years Experience  Female _____

Subject Area (please check one)

_____ mathematics

_____ science

_____ language arts

_____ social studies
APPENDIX II

PATTERSON INSTRUCTIONAL PREFERENCE SCALE

Instructions

In this scale you will find a number of statements designed to sample attitudes about classroom instructional procedures. There is considerable disagreement as to what constitutes the best procedure; therefore there are no "right" or "wrong" answers in the usual sense of a high score being necessarily the best. The purpose of this scale will be best served if you indicate your preference as accurately as possible. What is wanted is your own attitude about the statements. Read each statement and decide how YOU feel about it. Then mark your answer in the space provided on the answer sheet.

1) If you strongly agree, blacken space under "1"
2) If you agree, blacken space under "2"
3) If you are uncertain, blacken space under "3"
4) If you disagree, blacken space under "4"
5) If you strongly disagree, blacken space under "5"

The Lecture and Group-oriented instructional methods are defined as follows:

Group-Oriented Instructional Method:

Group-oriented instruction may include one or more of the following: panel discussions, committee and individual reports, student-centered method, and the question and answer technique. Group-oriented instruction methods allow for student participation, the class decides upon its own activities, students are encouraged to contribute personal experiences, the instructor accepts student contributions, goals are determined by the class, students evaluate each other with emphasis upon affective and attitudinal change, and there is a de-emphasis of tests and grades as goals in themselves.
Lecture-Oriented Instruction Method:

In the Lecture method there is mainly instructor participation, the instructor determines the activities, discussion is kept on course materials, there is regular use of tests and grades, student contribution is evaluated by the instructor, goals are determined by the instructor, and student participation is encouraged only for the purpose of seeking information from the instructor.

1. Lecture-oriented instruction is better because too much time is spent on unimportant details in Group-oriented instruction.

2. More content can be presented in Lecture-oriented instruction than in Group-oriented instruction.

3. Group-oriented instruction is better than Lecture-oriented instruction for the presentation of new material.

4. The Lecture-oriented instruction method is better because it is more difficult to formulate ideas from Group-oriented instruction.

5. It is easier to maintain interest for course content in the Lecture-oriented class than in the Group-oriented class.

6. More knowledge can be gained from Lecture-oriented classes than from Group-oriented classes.

7. Personal judgment is utilized more in determining content significance in Group-oriented instruction than in Lecture-oriented instruction.

8. Group-oriented instruction demands more responsibility from the student in the learning situation than does Lecture-oriented instruction.

9. More practical questions are raised in Lecture-oriented instruction than in Group-oriented instruction.

10. As a method of instruction, Group-oriented instruction does not compare favorably with Lecture-oriented instruction because it is too narrow in scope.
11. Group-oriented instruction is better because Lecture-oriented instruction includes a lot of non-essential material.

12. Lecture-oriented instruction is better than Group-oriented instruction because students cannot learn much from each other.

13. Group-oriented instruction is more likely to create a division between the aggressive and shy individuals than is Lecture-oriented instruction.


15. The opportunity to learn is greater in Group-oriented classes than in Lecture-oriented classes.

16. Domination by a few occurs more often in Group-oriented classes than in Lecture-oriented classes.

17. Lecture-oriented instruction depends less on the skill of the instructor than does Group-oriented instruction.

18. Group-oriented instruction is better than Lecture-oriented instruction because students need to learn to evaluate themselves.

19. Lecture-oriented instruction provides for a greater systematized coverage of material than is afforded in Group-oriented instruction.

20. Attention is better maintained in Lecture-oriented instruction than in Group-oriented instruction.

21. Lecture-oriented instruction is better than Group-oriented instruction because the student knows what is important.

22. More content can be presented in Group-oriented instruction than in Lecture-oriented instruction.

23. Lecture-oriented instruction is preferable to Group-oriented instruction because a few students dominate the Group-oriented class.
New concepts are presented more efficiently in Lecture-oriented instruction than in Group-oriented instruction.

Interest loss is greater in Lecture-oriented instruction than in Group-oriented instruction.

There is a greater temptation to bluff in Group-oriented instruction than in Lecture-oriented instruction.

Self-responsibility for learning is manifested more in Lecture-oriented instruction than in Group-oriented instruction because the student must learn to pick out what is important.

Group-oriented instruction is more conducive to the small class than Lecture-oriented instruction.

The more mature student benefits more from Lecture-oriented instruction than from Group-oriented instruction.

More subject detail is presented in Group-oriented classes than in Lecture-oriented classes.

Critical thinking is better stimulated in Lecture-oriented instruction than in Group-oriented instruction.

A greater degree of independence in the learning situation is provided in Lecture-oriented instruction than in Group-oriented instruction because the student is not held back by the group.

Less time is wasted in Lecture-oriented instruction as compared to Group-oriented instruction.

Lecture-oriented instruction challenges one's judgment in the dissemination of content more than Group-oriented instruction.

New materials are better presented in Lecture-oriented instruction than in Group-oriented instruction.

More factual information can be presented in Lecture-oriented instruction than in Group-oriented instruction.

Group-oriented instruction provides greater scope of content than does Lecture-oriented instruction.
38. Lecture-oriented instruction is better than Group-oriented instruction for covering material not in the text.

39. Group-oriented instruction is better than Lecture-oriented instruction because the student knows his own personal needs better than the instructor.

40. Group-oriented instruction is more confusing to the learner than Lecture-oriented instruction.

41. As compared to the Lecture, Group-oriented instruction is dull and does not add materially to one's knowledge of the course of study.

42. Group-oriented instruction stimulates thinking more than Lecture-oriented instruction.

43. Lecture-oriented instruction is better than Group-oriented instruction because more significant points are covered.

44. Group-oriented instruction eliminates confusion and makes for better learning than Lecture-oriented instruction.

45. Lecture-oriented instruction is better because in Group-oriented instruction individuals get off the subject.

46. The small class benefits more from Lecture-oriented instruction than from Group-oriented instruction.

47. Group-oriented instruction is less confusing to the student than Lecture-oriented instruction.

48. Lecture-oriented instruction is more applicable to the teaching of difficult material than Group-oriented instruction.

49. Students pay closer attention to Lecture-oriented instruction than they do to Group-oriented instruction.

50. General concepts are developed better in Lecture-oriented instruction than in Group-oriented instruction.

51. Lecture-oriented instruction is "spoon feeding" as compared to Group-oriented instruction.
52. Lecture-oriented instruction is better than Group-oriented instruction because it facilitates communication within the class.

53. The student knows better what is expected of him in Lecture-oriented instruction than in Group-oriented instruction.

54. Group-oriented instruction is better than Lecture-oriented instruction because students get more different points of view.

55. Lecture-oriented instruction is more informative than Group-oriented instruction.
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