RELATIONSHIPS BETWEEN THREE FACILITATIVE CHARACTERISTICS—

EMPATHY, WARMTH, GENUINENESS—AND SELECTED FACTORS

ASSOCIATED WITH THE SECONDARY TEACHER

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Research in recent years has been concerned with ways to improve the morale, efficiency, or effectiveness of the educational staff. These studies have been concerned with various aspects of the relationships between the student and teacher. These investigations include the self-concept of the teachers, self-concept of students, achievement of students, achievement of students and levels of human nourishment of the teacher, self-concept and occupational choice, occupational choice and job satisfaction, and job satisfaction and output.

This study was concerned with the relationships that exist between the students' perceptions of their teachers in the areas of empathy, warmth, genuineness, and total facilitative triad, and the job satisfaction of the teacher. The study was extended to include variables associated with the secondary teacher in the areas of total years teaching experience; and hours completed in (1) education, (2) present
teaching field, and (3) other areas since receiving the bachelor degree.

This study investigated the relationships that exist between each of the three measures of the facilitative triad, a total measure of the facilitative triad, and other factors associated with the secondary teacher.

The population for this study included 803 students and 38 faculty members from a public school system in North Central Texas. The students and teachers were from grades nine through twelve, and primarily the subject areas were those where the principal method of teaching could be classified as lecture or lecture-discussion.

The hypotheses investigated the positive relationships between the facilitative dimensions of the teachers as perceived by their students and the following variables pertaining to the teachers: (1) job satisfaction, (2) total years teaching experience, and (3) hours completed beyond the bachelor's degree in education, present teaching field, and other areas.

The students' perceptions of their teachers as facilitative agents was obtained by the Truax Relationship Questionnaire (Modified). This raw score was converted to a scale score along the dimensions of the Carkhuff and Berenson Five Point Scale.
The job satisfaction of the teachers was measured by the Job Description Index. Other information was collected by a data sheet completed by the teachers.

The analysis of data was extended to include multiple correlations to investigate the joint action of the independent variables. Regression equations were calculated whereby a projection of the facilitative dimensions of other faculty members might be investigated making use of data from the independent variables.

There was determined to be a positive relationship between the criteria variables of empathy, genuineness, and total facilitative triad and the independent variable, job satisfaction. The highest multiple correlation (R) for the criterion variable total facilitative triad was obtained by the joint action of the independent variables, job satisfaction, total experience, and hours completed beyond the bachelor's degree in education.

The findings from this study suggest that (1) students are a valid source by which to determine the facilitation levels of teachers, (2) level of total facilitation and job satisfaction are related positively, but low, and (3) the joint action of total years teaching experience, job satisfaction, and hours completed beyond the bachelor's degree in education correlate significantly with total facilitation.
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ASSOCIATED WITH THE SECONDARY TEACHER

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CHAPTER I

INTRODUCTION

Background of the Present Study

Research in recent years has been concerned with ways to improve the morale, efficiency, or effectiveness of the educational staff (17, 18). Most of the research concerning the improvement of instructions and/or teacher effectiveness has been based upon expert ratings either from professional educators or from outside sources (1, 2, 3, 6, 10, 15).

These studies have been concerned with the following; (1) self-concept of students, (2) self-concept of teachers, (3) achievement of students, achievement of students and levels of human nourishment of the teacher, (4) self-concept and occupational choices, (5) occupational choices and job satisfaction, and (6) job satisfaction and output (3, 6, 9, 10, 15, 16).

While there is extensive research dealing with a variety of facets of education based upon various ratings and combinations, there is no evidence in the literature that the students' perceptions of the teacher, as related to the level of human nourishment, and the teachers' satisfaction with the education profession have undergone serious investigation.
There have been no detailed studies attempting to correlate the levels of human nourishment of the teacher, as perceived by the students, and the job satisfaction of the teacher. Other variables selected to pertain to the present study are total years of teaching experience, hours completed beyond the bachelor's degree, and courses completed. The present study was undertaken in order to investigate relationships that may exist between variables previously mentioned.

Significance of the Present Study

The teacher is of paramount importance in establishing the proper learning climate within the classroom. Research tends to indicate that the ability of the classroom teacher to relate to the students in a positive manner is of utmost importance when the criterion is the achievement of the students (2). The classroom atmosphere has been studied making use of a variety of criteria. One of these criteria is the relationship that exists between a student's self-concept and performance in class (4, 7, 14). Other studies have investigated the relationship between the teacher's self-concept and the student's self-concept, the teacher's self-concept and the student's achievement, the levels of human nourishment projected by the teacher and the achievement of the students, job satisfaction and various
personal characteristics, and job satisfaction and output
(1, 2, 7, 11, 12, 13, 16, 20, 23).

The effect of the teacher's self-concept upon the self-concept of students has been studied by Davidson and Lang (13), Combs (11), and McCallon (16).

The correlation between the teacher's self-concept and the achievement of the students was investigated by Aspy (2). Aspy (1) investigated the effects of varying degrees of human nourishment and the achievement of students in the elementary grades.

Many theorists in the area of vocational-occupational choice have investigated the relationships which exist between self-concept and occupational choice (20, 22, 24, 25). Relationships between occupational choice and job satisfaction have been investigated by Hoppock (14) and Smith (20). Job satisfaction and personal attitudes have been investigated by Smith (20), and the satisfaction of the job and the humanitarian value was investigated by Smith (20). Super (21) and Berg (5) state that the satisfaction with work and life for an individual depend upon the outlets for a person's abilities, interest, personality traits, and values that can be achieved through the work situation.

Ryan (19) stresses some basic qualities which he believes to be important among teachers who are successful.
These qualities may be classified as being in the realm of human relations and are based upon observations and assessment of the teachers' classroom behavior.

Barrett-Lennard, Truax and Carkhuff, and Carkhuff and Berenson have done extensive research related to the interaction of teachers and counselors with their students and clients. Through this research, various versions of instruments have been designed and validated to evaluate the way that helpers interact with helpees in the areas of empathy, warmth, and genuineness (4, 9, 10).

The Carkhuff and Berenson Scale of Human Nourishment was an outgrowth of this research. The scale is constructed in such a manner as to have five positions, ranging from the less helpful at level 1 to the most helpful at level 5. The scale consists of five separate dimensions; empathic understanding, respect or positive regard, facilitative genuineness, communication, and confrontation. However, for the present study only three of the five dimensions have been deemed appropriate. Aspy (2) utilized the three scales of empathic understanding, respect or positive regard, and facilitative genuineness in a study concerned with teachers. These same three scales were utilized in the present study in order to test the hypotheses to be established and are described in the section titled "Statement of the Hypotheses."
The three scales from the Carkhuff and Berenson studies, as related to this study, along with all other evaluative instruments used in the present research, will be discussed at length in Chapter III.

The other evaluative instruments which will be used in the study are the Truax Relationship Questionnaire (Modified) and the Job Description Index. The Truax Relationship Questionnaire (Modified) is based upon the original work by Charles B. Truax. Those items dealing with empathy, warmth, and genuineness have been isolated and a proportional number have been randomly selected to remain in a scale more appropriate in length to the amount of time a secondary student might be expected to have available for completion. This time is often limited to a homeroom or an activity period. For a description of the pilot study conducted in determining the reliability of the modified scale of the Truax Relationship Questionnaire, see Appendix D.

The Job Description Index is a questionnaire developed by Patricia Smith, senior author, of the Cornell Studies of Satisfaction. The respondent is allowed to answer a variety of statements related to job satisfaction by responding "YES," "NO," OR "?." These groups include statements from the areas of work, pay, promotion, supervision, and co-workers.
Research indicated that various persons—counselors, psychotherapists, teachers, and parents—can either enhance or retard the cognitive growth of the person or persons with which they interact. There is further evidence that once the low-functioning helper—counselor, psychotherapist, teacher, or layman—has been identified, the level of functioning can be improved through training in as few as twenty-five hours (2, 3, 9).

The identification and categorizing of low and high level functioning helpers has been researched by Carkhuff and Berenson. One of the limitations which is present in the use of the Carkhuff and Berenson Scale of Human Nourishment is the amount of subjectivity which is used in rating the various helpers (9). By making use of the student's ratings of the various teachers, it was anticipated that a more accurate assessment could be gained than if a few expert raters were used to assess the relative function-level of the helpers. By making use of the results of the present study, it is assumed that the low-functioning teacher can be identified through the relationship between the level of functioning of the teachers as measured by the Carkhuff and Berenson Scale of Human Nourishment and the other variables involved in the study.
The research indicates a relationship between the levels of functioning for the helpers and the helpees. This indicates a need for identification and training of helpers, including teachers functioning at ineffective levels, and also for identification and reward of effective teachers.

Statement of the Problem

The problem with which this investigation was concerned was the relationship between selected facilitative characteristics of human interaction and other factors associated with the secondary teacher. These factors included job satisfaction and courses completed beyond the bachelor's degree.

Purpose of the Present Study

The purpose of this study was to determine the relationships that exist between each of three measures of the facilitative triad, a total measure of the facilitative triad, and other factors associated with the secondary teacher. The facilitative triad is composed of empathy, warmth, and genuineness. The other factors include the measures of job satisfaction with the teaching profession, total years teaching experience, and number of hours completed in various areas beyond the bachelor's degree. These areas include courses from education, present teaching fields, and other courses.
Statement of the Hypotheses

The present study tested the hypotheses that there were significant positive relationships between levels of the facilitative factors, empathy, warmth, genuineness, and total facilitative triad and selected factors associated with the secondary teacher. The levels of the facilitative factors were measured on the Carkhuff and Berenson Scale of Human Nourishment. The level of the teachers' functioning was determined by a conversion from the students' responses as made on the Truax Relationship Questionnaire (Modified) to a scaled score on the Carkhuff and Berenson scale. The other variables investigated were ascertained from the teachers. These included their job satisfaction and other selected variables which are stated in the hypotheses.

Specifically, the following hypotheses were tested:

1. In reference to the students' perceptions of their teacher, there will be a significant positive relationship between a measure of the facilitative factor, empathy ($Y_1$), as measured on the Carkhuff and Berenson Scale of Human Nourishment, and each of the following factors associated with the secondary teacher:
   a. level of job satisfaction ($X_1$),
   b. total years teaching experience ($X_2$),
   c. number of hours completed beyond the bachelor's degree in education courses ($X_3$),
d. number of hours completed beyond the bachelor's degree in present teaching field \((X_4)\), and 
e. number of hours completed beyond the bachelor's degree in other areas \((X_5)\).

2. In reference to the students' perceptions of their teacher, there will be a significant positive relationship between a measure of the facilitative factor, warmth \((Y_2)\), as measured on the Carkhuff and Berenson Scale of Human Nourishment and each of the following factors associated with the secondary teacher:

a. level of job satisfaction \((X_1)\),  
b. total years teaching experience \((X_2)\),  
c. number of hours completed beyond the bachelor's degree in education courses \((X_3)\),  
d. number of hours completed beyond the bachelor's degree in present teaching field \((X_4)\), and  
e. number of hours completed beyond the bachelor's degree in other areas \((X_5)\).

3. In reference to the students' perceptions of their teacher, there will be a significant positive relationship between a measure of the facilitative factor, genuineness \((Y_3)\), as measured on the Carkhuff and Berenson Scale of Human Nourishment and each of the following factors associated with the secondary teacher:
a. level of job satisfaction ($X_1$),

b. total years teaching experience ($X_2$),

c. number of hours completed beyond the bachelor’s degree in education courses ($X_3$),

d. number of hours completed beyond the bachelor’s degree in present teaching field ($X_4$), and

e. number of hours completed beyond the bachelor’s degree in other areas ($X_5$).

4. In reference to the students’ perceptions of their teacher, there will be a significant positive relationship between a measure of the facilitative factor, total facilitative triad ($Y_4$) as measured on the Carkhuff and Berenson Scale of Human Nourishment and each of the following factors associated with the secondary teacher:

a. level of job satisfaction ($X_1$),

b. total years teaching experience ($X_2$),

c. number of hours completed beyond the bachelor’s degree in education courses ($X_3$),

d. number of hours completed beyond the bachelor’s degree in present teaching field ($X_4$), and

e. number of hours completed beyond the bachelor’s degree in other areas ($X_5$).
Definition of Terms

The following definitions apply to terms used throughout the study:

1. **Accurate empathy.**---The teacher’s response to current feelings of his student in conjunction with his verbal facility to communicate this understanding in a language attuned to the student’s current feelings. At a high level of accurate empathy the understanding “I know how you presently feel” is unmistakably clear. The criterion for ascertaining the levels of accurate empathy is the twenty-three items dealing with same from the Truax Relationship Questionnaire (Modified).

2. **Nonpossessive warmth.**---The acceptance of the student as a person with human potentialities. This acceptance involves a nonpossessive caring for the student as an individual along with a willingness to share equally his joys and aspirations or his depressions and failures. In addition, the student is valued as a person without contamination from an evaluation of his behavior or thoughts. The teacher’s response to the student’s thoughts or behavior is a search for their meaning or value within the student rather than an expression of approval or disapproval. The criterion for ascertaining the levels of nonpossessive warmth is the thirty-six items dealing with same from the Truax Relationship Questionnaire (Modified).
3. **Genuineness.**—At the moment, the teacher is really whatever his response denotes him to be as perceived by the student. Genuineness does not mean that the teacher must disclose his total self, but only that whatever he does show is a real aspect of himself. Thus the teacher's response must be sincere, not one that grows out of defensiveness; nor is it a merely "professional" response that has been learned and repeated. In essence, to be "genuine" is to lack defensiveness. The criterion for ascertaining levels of genuineness is the twenty-nine items dealing with same from the Truax Relationship Questionnaire (Modified).

4. **Level of human nourishment.**—A core of interactive dimensions between the teacher and his students which include empathic understanding, respect or warmth, and genuineness ranging from a low of 1 to a high of 5 as determined on the Scale of Human Nourishment.

5. **Facilitative triad.**—Accurate empathy, non-possessive warmth, and genuineness as defined in this study.

6. **Satisfactory retirement.**—Satisfactory profit sharing has been defined as meaning satisfactory retirement.

In this chapter the background, significance, general statement of the problem including the purpose, statement of the hypotheses, and the definition of terms used were presented. The following brief preview of chapter organization
is presented as an aid to those who may want to refer to a particular section of this study for specific information.

Preview of the Organization of the Study

Chapter II reviews the research in the development of the facilitative triad and the relationship between the variables of empathy, warmth, and genuineness and the successful teacher through student achievement, student self-concept, teacher self-concept, and the personal characteristics of the teacher and contentment with the teaching profession. Included in Chapter III are limitations, basic assumptions, description of the sample, description of the measures employed, research design, procedures for collection of data, and the procedures for analysis of data. The findings of the present research relevant to each hypothesis are found in Chapter IV. A review and summary of the findings are found in Chapter V with resultant conclusions, implications, and recommendations for further study.
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CHAPTER XI

REVIEW OF RELATED RESEARCH

There are numerous articles in the current literature related to various aspects of teacher effectiveness and teacher evaluation. The purpose of this review is to present the research related to the present study.

This chapter will be divided into six areas of research which are pertinent to the present study: Basic Theories of Self-Concept and Importance to Teachers; Related Research in the Areas of Student Self-Concept, Teacher Self-Concept, and Student Achievement; Self-Concept, Occupational Choice, and Job Satisfaction; Student Achievement and Teacher Expertise in Human Relations; The Movement to Humanize Instructions; and The Relationships of the Background Materials to the Present Study.

Basic Theories of Self-Concepts and Importance to Teachers

The successful adjustment of the individual in the academic situation is based largely upon the self-concept he holds for himself (13). This self-concept starts to emerge very early in an individual's life and determines to a large
degree such feelings as (1) what he believes he can do, (2) what he thinks he looks like, and (3) what he thinks other people think of him. These attitudes and perceptions are established in a large measure by the parents of the individual and his teachers (8).

The individual establishes a concept of self based on thoughts, feelings, and emotional experiences. It is often difficult for the person to coordinate the objective and subjective concepts; as a result he sometimes thinks of himself as a dual personality with a specific appearance and with a specific personality make-up. These concepts gradually dissipate as the person reaches adolescence. This dissipation is brought about by fusing the dual concept in a more meaningful self-concept that the adolescent holds for himself (42).

It is vital for the individual to develop this positive self-concept and see himself as being good, intelligent, and happy; therefore, he needs all of the assistance and guidance possible from his parents and significant others. This is further supported by Gillham (29), who expresses the belief that a person's efficiency as a learning individual is reduced or enhanced depending on his self-perception. A person's feelings about himself will have an influence on the way he learns to read or develop other academic skills (1, 2).
An individual sets high standards for himself when he makes up his mind to do something. The teacher must help him to face the self-ideal adjustment problem. The teacher must take time to understand the individual and to help him learn in a way that makes sense to him. The teacher can foster the accepting attitude of the other persons in the group. Changes in self-concept occur slowly and gradually so that the person is hardly aware of changes taking place. Time alone can tell whether a person is able to accept the new definition of himself without the support of warm and friendly people such as teachers (13).

The teacher can help or hinder the process of helping the individual find "himself" and to accept what he finds. Rasey suggests "Learn to listen with your eyes and see with the reinforcement of your ears" (48, p. 115).

A teacher must be able to see the need of each individual to feel worthy and respected. The need of each person to appreciate and find value within his own immediate world is crucial. This means that the teacher needs to be sensitive to the emotional as well as the intellectual needs of students (33).

Havighurst, Robinson, and Dorr (33) assert that there is a great deal of evidence that the ideal self-concept is deeply influenced by association with people who are in
positions of prestige, including teachers, because they are older, more powerful, and better able to get the desirable things of life than the adolescent who may observe them. Students combine qualities of their parents with qualities of attractive, successful young adults into a composite ego-ideal. The inference is clear that schools influence the ideals of youth as much or more through the presence and behavior of teachers as through their verbal teachings (33).

Related Research in the Area of Student Self-Concept, Teacher Self-Concept, and Student Achievement

The importance of the classroom teacher's verbal behavior has long been investigated; and, without question, research indicates the importance of the teacher to initiate cognitive growth, elevate the student's self-concept, and contribute to the general success or failure of activities which may happen within the classroom (1, 3, 30, 34).

Various studies support the hypothesis that there is a direct, positive relationship between the self-concept of students and student achievement (2, 16, 23, 41, 43, 44, 49). McCallon (41) studied the relationship between discrepancies in perception and self-ideal perception and student achievement. From an original sample of 1,135 fifth and sixth grade students a 22-item rating scale was used to determine the self and self-ideal perception of the students. The three
groups, high, medium, and low discrepancy, were generated from these findings. The Stanford Achievement Test Battery Level II was used to evaluate the achievement of the three groups. The findings support the hypothesis that the more congruency that exists between the self and self-ideal perception, the higher the achievement. These findings were significant at the p < .05 level in the areas of social studies and science and p < .10 for paragraph meanings, language, and applied arithmetic.

The effect of the teacher's self-concept upon the self-concept of students has been studied by Davidson and Lang (24) and Combs (22). The general conclusion that there is a positive relationship between the self-concept of teachers and the self-concept of their students was supported by these studies. More specifically the Davidson and Lang study resulted in the development of an evaluative instrument with the purpose of measuring attitudes and self-concepts. In the development of the Davidson and Lang Objective Checklist, there was found a correlation of .82 when using a sample of 93 students to determine the relationship that exists between the student's self-concept and classmate's perception of the teacher's feelings toward the individual students.

Combs (22) states that basically good teachers see themselves as adequate rather than inadequate.
Raeder (49) found that children achieve lower in terms of their potential if they have a low self-concept.

The correlation between the teacher's self-concept and the achievement of the students was also investigated by Aspy (1). There was found to be a positive relationship between the self-concept of the teacher and the cognitive growth of the students. In particular, the Aspy study points up the need of assessing teachers on other than intellectual indices.

The teachers were divided into two groups depending upon the teacher's self-concept. These groups were further defined as high and low functioning. The achievement of the students was evaluated by the Stanford Achievement Test based upon total gain. The only area measured by the Stanford Achievement Test which did not reach significance at the $p < .05$ level was spelling. Those areas that were significant at the $p < .05$ level were paragraph meaning, language, word meaning, and word study skills. These areas of evaluation differ from those by McCallon (41) in that McCallon used fifth and sixth grade students, while Aspy (1) used third grade students.

In studying the relationship between the child's concept of the teacher and the differences among teachers, Gregersen and Travers found a significant relationship between
the two. These differences among teachers were identified as a result of the students' perception of the teacher and classroom as projected through drawings by a total sample of 1,592 students in grades one through four. The drawings were classified into three broad categories: positive interaction, negative interaction, and unclassified. These categories were used to determine differences among those teachers engaged in the study (30).

Research Related to Student Achievement and Teacher's Expertise in Human Relations

The classroom teacher is involved in the development of relationships with his students. These relationships are factors in determining the teacher's effect upon the student's achievement. The following collection of studies indicates how the interpersonal relations, or facilitative factors, between the teacher and student are related and the affects these facilitative factors have upon the learning atmosphere.

Hawkes and Egbert (34) found that empathy was a significant factor in students' ratings of teacher competence. This study was conducted using eighty teaching fellows of Educational Psychology at Iowa State University and Utah State University. The instruments used in the study were Dymond's Rating Test and Egbert's Study of Choices, Form VII.
In a study conducted by Diskin (25), the relationship between empathy and the ability to maintain harmonious interpersonal relations in the classroom was studied. The study involved the pupils of sixteen separate student teachers rating themselves, their peers, and their fellow student teachers on the Detached Observer Scale and the Participant Observer Scale. In addition each student teacher predicted for five pupils selected at random how these pupils would rate themselves and how the students would rate the student teacher. The findings of the study supported the hypothesis that those student teachers who were high in individual empathy were best able to maintain harmonious interpersonal relations in the individual classroom.

Christensen (21) studied the relationship between school learning or achievement and the degree of teacher warmth. This was accomplished by studying the relationship between the student's achievement of vocabulary and arithmetic and the level of teacher's warmth.

In a study by Sapolsky (51), the effects of a compatible relationship versus an incompatible relationship between experimenter and subject measuring response acquisition or learning were studied. There were two separate experiments in this particular study. The first used a sample of thirty female college freshmen from the field of education.
This sample had graduated from high school the previous semester and were living as a group on campus. This study varied attractiveness and unattractiveness of the experimenter. The second experiment within the study used the **Fundamental Interpersonal Relations Orientation–Behavioral Scale (FIBER-O)** to select a final sample of thirty females from an original sample in excess of 300. The researchers then divided the sample into two groups, those judged compatible with the experimenters and those judged incompatible with the experimenters. The results indicated that when the experimenter had an incompatible relationship with the subject, there was virtually no response acquisition or learning. When the relationship between experimenter and subject was judged compatible, there was a significant gain in response acquisition or learning.

Isaacson, McKeachie, and Milholland (36) reported positive relationships between teacher's personality and student ratings. The sample in this study was composed of teaching fellows.

Aspy (2) studied the relationship between the facilitative conditions of empathy, warmth, and genuineness with a sample of six teachers of third grade pupils and the relationship of the facilitative conditions as projected by the teachers and the gain in the student's reading.
achievement levels. He found that there was a positive relationship between the level of facilitation offered by the teacher and the reading achievement of the students. The experiment used a balanced design and 120 pupils. Half the students in each class had tested relatively high and half relatively low in IQ and the classes were half male and female. The instrument used was the Stanford Reading Achievement Test and the significance was \( p < .01 \) between the two groups of students, as taught by the high level teachers as opposed to the low level teachers.

The findings of a joint study by Aspy and Hadlock (3) indicated gains in third to fifth grade reading achievement. The findings agree with the findings from the early study by Aspy. The students of the teachers rated high in accurate empathy, nonpossessive warmth, and genuineness gained in reading achievement 2.5 years during the five-month study as opposed to 0.7 years gain by those students taught by the teachers who were determined to be functioning at a low level.

The earlier study by Aspy (1) reached the general conclusion that there was a positive relationship between teacher's self-concept and their ability to function at a high level of facilitation.
Truax (56) probably best defines the position and relationship between the teacher's level of functioning and the behavioral change of the students in the following statement,

... the person (whether a counselor, therapist, or teacher) who is better able to communicate warmth, genuineness, and accurate empathy is more effective in interpersonal relationships no matter what the goal of the interaction (56, pp. 116-117).

Based upon the extensive body of evidence available in the area of counseling, therapy, and teaching, those persons determined to be more knowing and less knowing may have either facilitative or retardation effects upon those persons with whom they have interpersonal relations. This seems to be true regardless of the relationship, whether it be between teacher-student, parent-child, counselor-client, or therapist-patient (19).

Studies by Carkhuff and Truax (20) and Berenson, Mitchell, and Maravec (6) have indicated the difference in therapeutic gains by clients of high level functioning counselors as opposed to clients of low level functioning counselors.

Aspy (2) investigated the effects of varying degrees of human nourishment and the achievement of students in the elementary grades. His conclusion was that the teacher self-concept is positively related to the student achievement.
He further determined a positive relationship between the teacher's level of functioning in the area of human nourishment and student achievement in the elementary grades.

Through the need for a scale which would measure the interpersonal relationships, Barrett-Lennard (5), Truax and Carkhuff (56), and Carkhuff and Berenson (19) have designed evaluative instruments. These instruments are for the purpose of determining the level of functioning by the helpers in a helper-helpee relationship. Those instruments designed by Barrett-Lennard (5) and Truax and Carkhuff (56) are of the questionnaire type and have been used in such a manner that the helpee may rate the helper. The instrument designed by Carkhuff and Berenson (19) is so constructed that experts determine the level of functioning of the helper from tapes.

Research Related to the Movement of Humanizing Instructions

As briefly mentioned in the previous section, there is evidence that the student's achievement is related to the level at which the teacher is capable of functioning in the areas of empathy, warmth, and genuineness.

The early research in the area of teacher effectiveness was primarily a disappointment. Barr (4) states the forty years of research in the area mentioned which was
conducted under the title of the Wisconsin Studies had produced very little useful information. Other researchers over the years 1940 to 1960 maintain that if all of the research were wiped out overnight, the general results would be found in the hypothesis, "nothing makes any difference" (4, p. 32).

During the 1960's, the nature and findings of research have produced some positive changes in determining the relationship between the interaction or interpersonal relationships between teacher and student. This was probably first noticed in the reports by Flanders (27) where he determined a positive relationship between the teacher's behavior and the student's achievement and attitude. These studies used the observation system and rated the verbal responses of the teacher-pupil interaction.

LaShier (40) reported a highly significant relationship between the indirectiveness of teacher style and pupil achievement as measured by gains in a Biological Sciences Curriculum Study.

In a study by Furst (28) applying the Flanders system of Interaction Analysis to tape recordings from the Bellack Study, there was determined to be a significant relationship to pupil growth in achievement.
Perkins (47) compared the relations of a number of dimensions of teacher-pupil behavior in the classroom to achievement for pupils. There was determined to exist a positive relationship for all students in achievement, regardless of whether classified as high or low achievers; however, the findings seem to suggest that the underachievers may need more structure since the gain was greater in the high achiever group.

Soar (8) did extensive research with upper elementary school children in the areas of pupil growth in achievement, creativity, and personality. The study supports the hypothesis that the supportive behaviors by the teacher produce the greater amount of gain in achievement by the student. Another factor is that there is a direct relationship between teacher indirectiveness and pupil creativity. The third factor investigated, that of personality, was found to relate to the basic classroom atmosphere in that the more highly anxious students did not seem to use the freedom of the movement associated with the indirect classroom as did the low anxious pupils.

When the three factors, gain in pupil achievement, creativity, and personality, are considered together, there seems to be an optimum degree of indirectiveness which will vary with the relationship the individual student has in the
classroom, that being level of achievement and degree of anxiousness.

There is a growing body of research which indicates that teacher-pupil relationships may have either facilitative or retardation consequences (18). Carkhuff (17) states that the effective teacher is not just a knowledgeable person performing a task, but is an individual who permits his experiences to become directly involved in action-oriented dimensions.

Each classroom is unique to the extent that it has its own emotional climate. This climate may be one of acceptance, goodwill, tolerance, and belongingness, or it may have the traits of being dominated by prejudice, cliques, rivalries, and rejection. There may be a general atmosphere of a group situation with the helping relations prominent, or else there may be a domineering, antagonistic, lethargic atmosphere (45).

Peck and Mitchell (46) show that the two broad categories of classrooms are characterized either by the well-adjusted teacher who is child-oriented or by the teacher-oriented teacher. In the first the teacher is "free" to explore this attack because the teacher is not laboring under the burden of personal needs. The teacher with tensions is likely to be more defensive and frustrated. The problems encountered in the classroom may be seen as a personal threat and the feelings of insecurity are often communicated to the students during the teaching day.
Self-Concept, Occupational Choice, and Job Satisfaction

Smith (52), Super (53, 54), Tageson (55), and Tyler (57) have all done research in the area of vocational-occupational choice and the relationships that exist between the individual's self-concept and the choice of occupation. Each of these investigators found a correlation in the positive direction between the self-concept of the individual and the vocational-occupational choice made by the individual. According to Zytowski (60) a relationship should not be construed as meaning that a measure of vocational interest is a measure of self-concept, but rather is an evaluation which involves self-report and self-description.

Bordin (11) and Bordin and Wilson (12) have suggested that a score on an interest inventory is not a measure of the self-concept, but a conceptualization of a person by outside sources. This conceptualization is based on the individual's lower-level of self-concept which stems from the nature of the construction of interest inventories which are actually viewed as outside agents.

Tyler (57) made use of the self-concept theory to explain the findings from a study of children where she found a relationship between aptitude and interest for the boys in the study but not for the girls. This study was
conducted making use of a sample of sixty-one girls and fifty-five boys from the first grade. The instrument she utilized was the SRA Primary Ability Test.

Warren (58) investigated the relationship between self-concept, occupational role expectation, and change in college major. The sample for this study was 525 male, National Merit Scholarship winners. The basic hypothesis was that the greater the discrepancy between self-concept and occupational role expectation, the greater would be the changes of major among the students. This original hypothesis failed to be supported at the $p < .05$ level, although the trend established in the number of students who changed major enabled an extension of the original hypothesis to be made. This extended hypothesis was that the greater the discrepancy between the self-concept and occupational role expectation, the greater would be the number of changes in college majors made by those individuals. Using the Mann-Whitney U Test, this extended hypothesis was rejected at the $p < .05$ level.

Making use of a sample of 135 senior boys, Blocker and Schutz (9) investigated the hypothesis that a relationship exists between an individual's self-description or vocational self-concept and the stereotype of a typical member of an occupation in which the individual student expressed a high interest. The Descriptive Check List was used to collect
data in order to establish trait clusters for both the individual's real and ideal self. Another measure came by choosing the most interesting and least interesting occupations from the forty-five occupations found on the Strong Vocational Interest Blank. A week later the same students were asked to describe their perception of a typical member (stereotype) from each of two occupations, these being the same occupations that each student had described the previous week as most interesting and least interesting. There was found to exist a significant positive relationship between self-concept and the most interesting occupation with the significance at the p <.01 level. Blocker and Schutz state that "one direct interpretation of these findings could be that claimed vocational interests are an outgrowth of attempts to develop and implement satisfying concepts of self in relation to the world of work" (9, p. 316).

Brophy (14) studied nurses by making use of an adjective checklist in order to ascertain the discrepancies between self, ideal self, and kind of person their job would demand. The hypothesis that there was a relationship between the self-concept as measured by the adjective check list and job satisfaction as measured by a questionnaire was sustained.
In a study involving 538 beginning nursing majors, Kibrick and Tiedeman (38) found a relationship to exist between those variables involving self-concept and the perception of role in nursing. The areas studied were knowledge, activities, attributes, and relationships. The student nurse's self-concept score, and the faculty role concept score was compared with the student nurse's self-concept score and the role attribute concept score. The point-biserial statistic was utilized in this investigation. The Kibrick and Tiedeman study reveals that the importance of the faculty (supervisors) in establishing the mold or responsibility for establishing the role of nurses is apparently held in low valence by both the students and the faculty.

Englander (26) found significance at the p < .01 level when studying students from education and other fields on the variables of self-concept and concept of occupational role. The general hypothesis was that the congruency would be greater between the self-concept of students and concept of role expectations of elementary school teachers for those individuals preparing to enter the elementary field than would be the level of congruency on the same two variables for those individuals planning to enter other fields.
Tageson (55) studied self-concept and occupational role concept. By making use of the Q-sort technique, he determined the discrepancies between self-concept, ideal self-concept, the average seminarian, and the ideal seminarian. The sample for this study was drawn from 120 seminary students and was rated by both peers and faculty members on the variable of realism of occupational choice. A positive significant relationship was found between compatibility of self and occupational role concept in the areas of real and ideal self and also on the realism of vocational choice as determined by the ratings as reflected by peers and faculty.

Super (53, 54) and Berg (7) both maintain that the self-concept of the individual plays an important role in the occupational choice made by the individual. Super (54) further maintains that the vocational development is essentially a process whereby the individual integrates the self-concept along with a compromise made between his inherited aptitudes, neural and endocrine make-up, opportunity to express himself in various roles, and his constant evaluation. The process of compromise may take on any one of several outlets which include role playing, counseling sessions, school classes, memberships in various clubs, part-time work, and entry jobs. Berg (7) states that during the high school years an individual is faced
with making a major decision in that he must decide whether he is to enter the active labor market or else to continue his education. These decisions are based largely upon the individual's self-concept and the experimental background that the individual has had a chance to explore. Both Super (54) and Berg (7) state that satisfaction in an occupation is dependent upon the extent that the individual finds adequate outlets for his abilities, interests, personality traits, and values. According to Berg "the kinds of things the individual values most highly will be particularly significant to his eventual satisfaction in an occupational field" (7, p. 30).

Super (54) believes that work satisfaction is based upon the kind of role which will afford the most opportunity for personal growth and exploration which the individual considers compatible with his personality traits.

Groves, Rossi, and Grafstein (31), in a preliminary report of a study sponsored by John Hopkins University, found that "Preparing for a Career" ranked second among a list of four choices, being outranked only by "Finding a purpose and meaning in life." When students were asked questions concerning the future, "The Career and Occupation Choice" ranked second among a list of six choices. These findings are based on responses from 7,948 college students who were
freshmen and juniors in four-year colleges and universities during the fall of 1969.

In attempting to determine the importance of various factors to both workers and foremen, a list of ten factors was made and presented to the workers and foremen in twenty-four industrial plants. The foremen were to rank the factors in relationship to importance to the workers and the workers were to rank the factors in order of importance to themselves. The findings produced a discrepancy between the views of the two groups, workers and foremen. The foremen listed the factors of good wages, job security, and promotion as important to the workers. The workers listed as most important those factors concerning communications of "feeling in on things," help on personal problems, and appreciation for work accomplished (59).

Hoppock (35) and Smith (52) have investigated the relationships between occupational choice and job satisfaction. These investigations support the hypothesis that there is a positive relationship between occupational choice and the satisfaction achieved from the occupation.

Hoppock (35) states that "the degree of satisfaction is determined by the ratio between what we have and what we want" (35, p. 111).
Relationship of the Background Materials to the Present Study

In the previous sections of this chapter an attempt has been made to investigate and report pertinent research concerning various aspects of the individual, ranging from the self-concept of students, self-concept of teachers, achievement by students, occupational choice, job satisfactions, and various factors concerning interpersonal relationships.

There are several studies available that will provide a closer look at the significance of the previously mentioned research to the present study.

Ryan (50) stresses some basic qualities which he believes to be important among teachers who are successful. These qualities include warmth; understanding and friendliness; responsible, businesslike, and systematic approaches; stimulation; imagination; and surgency. These findings are based on observations and assessments of the teacher's classroom behavior.

In a study concerning the qualities of good and poor teachers, Jones (37) found that one of the many characteristics which the good teacher had was an interest in pupil responses.

Barr (4) found that good teachers attended carefully to the responses made by pupils. The pupils' responses were
reinforced by the teachers' smiling, being patient, open to taking advantage of the students' experiences, and engaging in the joys and sorrows of the students at times. The teachers demonstrated several ways to reflect upon the pupils' responses.

Brookover (15) found that those teachers with a high degree of person-to-person interaction with their students rated higher as instructors by their pupils with an $r = .64$. These same evaluations rated only $r = .08$ with those ratings made by administrators using the same subjects and criteria.

Barr (4) reports a study by Knox where he found a low positive relationship when efficiency ratings were used as the criterion variable and satisfaction of the teacher was used as the predictor variable. In another study, Barr (4) reports where Kline concluded that the satisfaction which teachers gain from teaching is related to the effectiveness of the teacher.

Biddle (8) maintains that among those characteristics which are essential to the competent teacher are warmth, firmness, democracy, and empathy. While Barr states that these qualities cannot be measured directly, their absence can be ascertained in various ways. One of the aims of education should be that of attempting to ascertain those qualities which the teacher possesses that lead to
differences in the lives of pupils. These differences may be reflected in one of many ways, or even in a combination of the ways. Some of the ways that teachers may influence the lives of pupils are professional achievement, adjustment to life, attitudes toward others, or financial success.

Ryan states that the method employed in the teacher's classroom will be reflected by the pupils. In the secondary school the pupils' behavior appears to be related to the stimulating-imaginative behavior of the teacher, while in the elementary grades there is a correlation between various aspects of the teacher-pupil relationship. Some of these relationships are understanding-friendliness, systematic-businesslike, favorable teacher attitude toward pupils, favorable teacher attitude toward democratic processes, and teacher emotional adjustment (8). Flanders states that among the qualities found to be essential elements for teaching are the capacity to be sensitive, objective, and observant. The importance lies in the ability of the teacher to make adequate summations of those conditions present at any given time, and to take appropriate actions (8).

Bonney (10) states that a warm, responsive attitude displayed by the teacher is of some value in promoting a positive self-concept among students. It is especially
important for those students coming from an environment where there has been a lack of love.

The determining of the effectiveness of teachers is not found in and of the teachers themselves, but rather in the relationships that exist at any given moment in the learning-teaching process (8). These are basically the findings of Aspy (1), in that he concluded there exist a relationship between self-concept of teachers and student achievement, and also a relationship exist between the ability of the teacher to function at a high level of facilitation and the self-concept of the teacher.

Summary

The literature reveals no investigation of the various aspects of teacher effectiveness as a relationship between the perception of the student and the level of facilitation projected by the teacher. There have been several studies conducted that have indicated a relationship between the individual's self-concept, occupational choice, and job satisfaction (7, 9, 26, 35, 53, 54).

Aspy (1) has suggested that there is a relationship between the self-concept of the teacher and his ability to function as a facilitator; however, there have been no studies conducted in this area to determine the relationship
between the facilitative level of teachers as perceived by students and the teacher's job satisfaction as perceived by himself when combined with other variables including courses completed in education, teaching field, and other areas.
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CHAPTER III

PROCEDURES FOR COLLECTION OF DATA

This chapter is concerned with procedures centered around the collection of data pertaining to this study. It will be divided into five areas related to the subjects of limitations, basic assumptions, instruments, procedures for collection of data, and procedures for analysis of data.

Limitations

This study was limited to 803 students in grades 9 through 12 and included 38 faculty members from the selected areas of teaching as indicated in Table I. The areas and the number of teachers from each area are listed in Table I. Table I shows that this study made use of only those teachers who were not primarily engaged in the "Activity" type of subject areas. For the majority, those teachers from areas where the principal method of teaching was lecture, discussion, or a combination of lecture-discussion were included in this study.
### TABLE I

**DISTRIBUTION OF TEACHER POPULATION**
**BY GRADE AND SUBJECT AREA**

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Grade 9</th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Natural Science</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Business</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Chorus</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Language</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>15</strong></td>
<td><strong>7</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

The distribution of the student population included in the study is given in Table II. The entire population for this study was from an independent school district in North Central Texas.
TABLE II

DISTRIBUTION OF STUDENT POPULATION
BY GRADE AND SUBJECT AREA

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Number of Students by Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade 9</td>
</tr>
<tr>
<td>English</td>
<td>57</td>
</tr>
<tr>
<td>Mathematics</td>
<td>69</td>
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<tr>
<td>Natural Science</td>
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</tr>
<tr>
<td>Social Science</td>
<td>29</td>
</tr>
<tr>
<td>Business</td>
<td>0</td>
</tr>
<tr>
<td>Chorus</td>
<td>0</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>11</td>
</tr>
<tr>
<td>Language</td>
<td>0</td>
</tr>
<tr>
<td>Health</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

Basic Assumptions

It is assumed that all persons involved in this study responded honestly and openly to the various items on the instruments and questionnaires. It is further assumed that the measuring instruments employed in this study were measuring adequately and accurately those factors related to the study.
Instruments

The Truax Relationship Questionnaire is a true-false type instrument, which was developed by Charles B. Truax and his associates at the Arkansas Rehabilitation Research and Training Center in 1963. The instrument was designed to measure a person's perception of interpersonal relationships in the areas of empathy, warmth, and genuineness. The Truax Relationship Questionnaire was patterned after the questionnaire developed by G. T. Barrett-Lennard in 1962 (3). The basic theory of measuring interpersonal relationships is supported by many studies (3, 13, 16). Although there may still exist some uncertainty concerning the final effectiveness of a measurement for interpersonal relations, Barrett-Lennard maintains that "a very substantial pattern of supporting evidence now surrounds the principle that the discriminating relationship variables represent or reflect dimensions of fundamental importance in human interaction and its effects" (4, p. 5).

Emmerling (7) employed the dimensions of interpersonal relations in a study concerned with the effectiveness and ineffectiveness of teachers. These interpersonal dimensions as reflected by students in the assessment of their teachers were correlated with Q-sort data from the teachers. The more "open" teachers were described by their students with
more positive ratings among the interpersonal dimensions, the higher was the correlation with the Q-sort data. These findings imply that the ratings on variables of empathy, warmth, and genuineness were sensitive to differences projected among teachers when these ratings are projections of students' perceptions. The purpose underlying the development of the Truax Relationship Questionnaire was an attempt to measure the central therapeutic conditions existing between individuals and any other persons involved in the helping relations. The available evidence indicates acceptable reliability when used with non-hospitalized populations. In a study involving juvenile delinquents, the reliabilities correlated between .53 and .56 with the ratings made from objective tape recordings. When the instrument was used with hospitalized populations, there were virtually no correlations with other ratings (16).

In a study by Buckner in establishing reliability on a test-retest design using 36 college freshmen and sophomores, the reliability was found to be .83 (5).

In a pilot study conducted concomitant with the present study involving sixty college freshmen, the reliability of the Truax Relationship Questionnaire (Modified), was found to range between .77 and .81 on two separate administrations seven days apart. (See Appendix D.)
Since the reliability was greater than .70 on both test and re-test, which according to Garrett (9) is a very high correlation, the modified version was deemed as an appropriate instrument for the present study. (See Appendix A.)

In addition to the Pearson Product Moment Correlation which yielded the reliabilities of .77 and .81, the Spearman-Brown formula was used in order to ascertain the reliability of the modified form due to the shortening of the original form by 50 per cent. The $r_{nn}$ obtained by this method reached .78. This calculation made use of the test-re-test reliability obtained from the correlation of the two long forms for the value of $r_1$. (See Appendix G.)

The formula utilized was:

$$ r_{nn} = \frac{(n)(r)}{1 + (n-1) r_1} $$

where $r_{nn}$ is equal to the correlation between the two forms in question, $r_1$ is equal to the reliability of the original test, and $n$ is equal to the ratio of lengths of the modified form to the original form.

The question concerning the face validity raises another question, which is best answered by Truax:

The reader can assess the face validity of the scales themselves as he reads them. Beyond that, we know from the evidence that these scales are significantly related to a variety of client
therapeutic outcomes. From this we might say that whatever they are measuring is what we believe the theory should say constitutes central therapeutic ingredients. Moreover, what the scales do indeed measure is what the fields of counseling and therapy should make central aspects of training and practices (16, p. 44).

The Barrett-Lennard study indicated a reliability of .86 (split halves). The population was forty-two clients who reported their perceptions of the therapist on three variables, empathy, warmth, and genuineness (3, p. 8). A study by Hollenbeck (10) used the questionnaire developed by Barrett-Lennard in assessing the level of facilitative conditions present in the parents of college students. Those areas investigated were related to the students' adjustment and achievement in college. The findings seemed relatively consistent in that the higher the students rated their parents on the factors of empathy, warmth, and genuineness, the higher the correlations were between the students' self-concept and ideal self-concept.

The validity, when accepting the items of empathy, warmth, and genuineness as portrayed by Rogers (13), received almost perfect agreement from a panel of five judges when the items were assessed into positive and negative meanings.
The Job Description Index is a questionnaire developed by Patricia Smith at the Cornell Studies of Satisfaction for the assessing of satisfaction with the job of the individual in the areas of work, pay, promotions, supervision, and co-workers (15).

The reliability of the Job Description Index has been established on various groups of persons and by various methods. In a study involving 168 Cornell University students, the split-half reliability was found to be .74. When the same technique was applied to 80 electrical plant workers the reliability was found to be .79. The individual scales have been found to have a consistency ranging from .67 to .78 when random split halves were used. When the Spearman-Brown formula was applied in other studies, the reliability ranged from .80 to .88 (15).

Many types of ratings and scales have been utilized in an attempt to determine the personality and ability traits of individuals. Maas (11) states that few methods produce high reliability and/or validity with the exception of restrictive questionnaire type interviews. It was in making use of such a procedure that the Job Description Index was developed primarily for use in business and industry. The senior author has expressed a need and desire for research
to be conducted in the area of education making use of the scale (15, p. 167).

The questionnaire is scored yes, no, or uncertain for each of the items listed. The rationale for the triad scoring of yes, no, or uncertain is rooted in numerous studies. Locke (15) found no lawful relationship between satisfaction and importance, and it appears that there does not exist an effective means of combining information on importance of the job with measures of satisfaction (15). Ewen (8) found a correlation of .99 when using an eight point scale to rate the Job Description Index and the unweighted total score which was used in the present study. (See Appendix B.)

Carkhuff and Berenson (6) have done extensive research in the area of human nourishment and many investigators have made use of this information in assessing the effectiveness of counselors in a helping relationship. The Carkhuff and Berenson Scale of Human Nourishment was an outgrowth of this research. The scale is constructed in such a manner as to have five positions ranging from the less helpful at level 1 to the most helpful at level 5. The scale consists of five separate dimensions: empathic understanding, respect or positive regard, facilitative genuineness, communication, and confrontation. However, for the present study only three of the five dimensions were determined appropriate. Aspy (1) utilized
the three scales consisting of empathic understanding, respect or positive regard, and facilitative genuineness in a study of teachers. These same three scales will be utilized in the present study in order to determine a measure for each of the facilitative conditions as well as a total measure for the facilitative triad consisting of empathy, warmth, and genuineness. In order to acquire a more meaningful understanding of their appropriateness for the present study, the scales will be discussed.

The first dimension, empathic understanding, is characterized as follows:

Level 1—the teacher's responses either do not attend to or detract significantly from the expressions of the student, in that the responses by the teacher communicate significantly less of the student's thoughts than the student communicated himself.

Level 2—the teacher responds to the expressed feelings of the student but the teacher does so in such a way that he subtracts noticeably from the effective communication of the student.

Level 3—the responses, both verbal and behavioral expressions of the teacher in response to the behavioral or verbal expressions of the student, are essentially interchangeable with those of the student in that these expressions convey essentially the same affect and meaning.

Level 4—the responses of the teacher add noticeably to the expressions of the student in such a way as to convey feelings a level deeper than the student was able to express himself.
Level 5-characterizes the responses from teachers which add significantly to the feelings and meaning of the student in such a way as to express accurately feelings at levels deeper than what the student himself was able to express or, in the event of ongoing deep self-exploration on the part of the student, the teacher is able to be fully with the student in his deepest moments.

Respect or positive regard in interpersonal relationships is the second dimension. It is characterized as follows:

Level 1—there is a communication of a clear lack of respect or negative regard for the student as expressed by the teacher.

Level 2—the teacher responds to the student in such a way as to communicate little respect and concern for the feelings and experiences of the student.

Level 3—characterizes responses by the teacher toward the student that neither add to nor distract from the respect that the student holds for himself.

Level 4—describes the teacher’s communications carrying a deep respect and concern for the student.

Level 5—at this level the communications from the teacher portray a very deep respect for the student’s worth as a person and his potential as a free individual.

Another dimension is that of facilitative genuineness. This dimension is characterized as follows:

Level 1—the teacher’s expressions are clearly unrelated to what other cues indicate the teacher is feeling at the moment, and/or the teacher’s only genuine responses are negative in regard to the student and appear to have a totally destructive effect upon the student.
Level 2—there are indications that the teacher's responses are slightly unrelated to what other cues indicate the teacher is feeling at the moment, or when the teacher's responses are genuine, they are negative in regard to the student. The teacher does not employ his negative reactions constructively as a basis for further inquiry.

Level 3—is the minimally facilitative level by the teacher providing no discrepancies between what the teacher verbalizes and what other cues indicate the teacher is feeling. There are no positive cues to indicate really genuine responses to the student.

Level 4—characterizes the teacher when he presents positive cues indicating genuine responses, whether these responses are positive or negative, in a non-destructive manner to the student.

Level 5—the teacher's expressions indicate that he is freely and deeply himself in the relationship with the student, the teacher is completely spontaneous in his interaction and open to experiences of all types both positive and negative.

The Carlhuff and Berenson Levels of Human Nourishment is a five point scale ranging from 1 to 5, with the theoretical mean being 3. (See Appendix C.) Studies by Aspy (1) and Aspy and Hadlock (2) found the mean for the three scales of empathy, warmth, and genuineness to be 2.1 for teachers. Making use of this information and the information from the Barrett-Lennard study (3), it has been calculated that 56 per cent of the distribution lies to the left of level 2, 27 per cent between level 2 and level 3,
16 per cent between level 3 and level 4, and 1 per cent between level 4 and level 5. The reliability of the Carkhuff and Berenson scale has been found to be .90 or better when various raters have made use of the scale in rating clients (6).

Procedures for Collecting Data

The total population for this study was composed of students and faculty from an Independent School District located in North Central Texas. On the first class period of the first day of the final nine weeks period of the spring semester, all of the teachers involved in the study had their students complete the Truax Relationship Questionnaire (Modified). This instrument consists of sixty-four items which are answered true or false on a separate IBM answer sheet. The total possible number of responses for the scale is eighty-eight. This increase in total score over total number of responses is made possible since some of the items are counted on more than a single facilitative factor. There were no provisions made for any form of residual testing for those students who did not complete the instruments in the period allotted. At the time the students were responding to the Truax Relationship Questionnaire (Modified), the teachers were completing the Job Description Index and
Data Sheet. In order to maintain complete anonymity, each teacher collected the Truax Relationship Questionnaire (Modified) from the students and enclosed these along with the Job Description Index and Data Sheet in envelopes provided for the purpose. The total number of teachers involved in the study was 38 and the student population totaled 803. The same instructions were given to all of the pupils involved in the study by their respective teachers, and all teachers had the same instructions available to them concerning the completion of their measuring instrument.

Procedures for Analysis of Data

Sources of data were scores from (1) the Truax Relationship Questionnaire (Modified); from the raw scores of this instrument a conversion was made to the Carkhuff and Berenson Scale of Human Nourishment. (See Appendix H.) These scaled scores ranged from a low of 1 to a high of 5 and are reported in the form of four variables, these being empathy ($Y_1$), warmth ($Y_2$), genuineness ($Y_3$), and total facilitative triad ($Y_4$); (2) the total job satisfaction as measured by the Job Description Index ($X_1$), total years teaching experience ($X_2$), hours completed beyond the bachelor's degree in education ($X_3$), hours completed beyond the bachelor's degree in present teaching field ($X_4$) and hours completed beyond the bachelor's degree in other areas ($X_5$).
The null hypotheses tested were that no correlations existed between the strength of the X and Y variables at the .05 level of significance. A significant correlation is one that differs by more than a chance amount from a postulated "true" population value of zero. The value of $r$ measures the gain in precision of an estimate of an unknown $Y$ from a known $X$ (9, p. 158). It should be remembered that correlation implies relationships and not causation.

In testing the null hypotheses the following computations were utilized:

1. Product moment coefficients of correlation as illustrated in Table III. In addition to the Pearson Product Moment Correlations used to test the hypotheses numbered one through four, the following computations were made:

2. Coefficients of multiple correlation ($R$) to ascertain the joint action of the measure of the X and Y variables.

3. The shrinkage formula was used in order to obtain an unbiased estimate of $r'$. The formula for obtaining an unbiased $r'$ is:

$$ r'_{1.23...n} = \sqrt{1 - \left(1 - r^2_{1.23...m}\right) \frac{N-1}{N-n}} $$

where $N$ = number of cases and $n$ = number of variables (12, p. 184).
TABLE III
ZERO-ORDER COEFFICIENTS OF CORRELATIONS

<table>
<thead>
<tr>
<th></th>
<th>X₁</th>
<th>X₂</th>
<th>X₃</th>
<th>X₄</th>
<th>X₅</th>
<th>Y₁</th>
<th>Y₂</th>
<th>Y₃</th>
<th>Y₄</th>
</tr>
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<tr>
<td>X₁</td>
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</tr>
<tr>
<td>Y₄</td>
<td>--</td>
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<td>xx</td>
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<td>xx</td>
<td>xx</td>
<td>xx</td>
<td>xx</td>
<td>xx</td>
</tr>
</tbody>
</table>

4. The increase in $R^2$ expressed in terms of raw or decimal units in order to indicate the relative strength of the variance accounted for by the various combinations of the variables.

5. Partial regression coefficients to form regression equations from which a $\hat{Y}_4$ score was able to be described for the particular situation by using raw scores of the $X_1 \ldots X_5$ variables.
6. The Standard Error of the Estimate, \( SE(\text{est. } Y) \) was computed with each regression equation, and is reported to indicate the degree of confidence which can be placed in each description of the \( Y_4 \) variable.

Summary

Chapter III has presented a description of the limitations, basic assumptions, instruments used in the study, procedures for the collection of data, and procedures for the analysis of data. The findings will be reported in Chapter IV.


CHAPTER IV

STATISTICAL TREATMENT AND ANALYSIS OF DATA

Statistical Treatment

The current investigation tested twenty hypotheses generated from four basic hypotheses. These were formulated to answer questions centered around relationships that exist between the students' perceptions of their teacher on various dimensions of facilitation. These dimensions include empathy, warmth, genuineness, and total facilitative triad, combined with the teacher's satisfaction with the teaching profession as a career occupation. The investigation was extended to include data from the areas of total years teaching experience and total hours completed in various areas of study since having received the bachelor's degree.

The findings reported in this chapter include the following: (1) correlations of the variables as stated in the hypotheses, (2) the multiple R in order to investigate the joint action of the variables when combined, (3) the $R^2$ in order to determine the variance for each combination of the variables, (4) the regression equation in order to describe the population from which this study was taken,
and (5) the shrinkage in order to determine the reliability when accounting for the size of the sample. The levels of significance at the \( p < .05 \) level will be reported where appropriate, either by critical values or F ratios. The means, standard deviations, and ranges for each of the variables pertaining to this study are given in Table IV.

**TABLE IV**

**MEAN, STANDARD DEVIATION, AND RANGE FOR PERTINENT VARIABLES**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Job Satisfaction ((x_1))</td>
<td>159.026</td>
<td>38.315</td>
<td>90 to 216</td>
</tr>
<tr>
<td>Total Years Teaching Experience ((x_2))</td>
<td>8.053</td>
<td>6.400</td>
<td>0 to 24</td>
</tr>
<tr>
<td>Hours Completed in Education ((x_3))</td>
<td>9.316</td>
<td>10.387</td>
<td>0 to 27</td>
</tr>
<tr>
<td>Hours Completed in Current Teaching Area ((x_4))</td>
<td>10.895</td>
<td>12.069</td>
<td>0 to 27</td>
</tr>
<tr>
<td>Hours Completed in Other Areas ((x_5))</td>
<td>4.737</td>
<td>8.301</td>
<td>0 to 27</td>
</tr>
<tr>
<td>Level of Empathy ((Y_1))</td>
<td>1.789</td>
<td>0.460</td>
<td>1.0 to 2.5</td>
</tr>
<tr>
<td>Level of Warmth ((Y_2))</td>
<td>2.368</td>
<td>0.489</td>
<td>1.0 to 3.0</td>
</tr>
<tr>
<td>Level of Genuineness ((Y_3))</td>
<td>1.526</td>
<td>0.348</td>
<td>1.0 to 2.0</td>
</tr>
<tr>
<td>Level of Total Triad ((Y_4))</td>
<td>1.921</td>
<td>0.411</td>
<td>1.0 to 2.5</td>
</tr>
</tbody>
</table>
From Table IV it can be determined that the wide range of measures on the variables—including the variables total hours completed in education beyond the bachelor's degree, total hours completed in present teaching field beyond the bachelor's degree, and total hours completed in other areas beyond the bachelor's degree—indicate a heterogenous group. The other variables utilized in the present study had smaller ranges; therefore, from a criterion of facilitation variables, a more homogenous group is indicated.

The Pearson Product Moment Coefficient of Correlation (r) was utilized in order to test hypotheses 1, 2, 3, and 4. These hypotheses tested the relationships between the variables and were not to indicate causation. The reliability of an obtained r may be tested against the hypothesis that the difference between the obtained r and the population is in fact zero (2, p. 200). Also utilized were the descriptive labels as given by Garrett (2) which indicate that the coefficients of correlation ranging from .00 to +.20 denote "indifferent or negligible" relationships; from +.20 to +.40 denote "low" relationships; from +.40 to +.70 denote "substantial or marked" relationships; and from +.70 to +1.00 "high to very high" relationships.

All statistical computations for this research were performed by the North Texas State University Computer
Center. The .05 level of significance was set as the minimum for significance between various correlations as stipulated in the hypotheses.

The correlations between all variables pertaining to this study are given in Table V.

**TABLE V**

**CORRELATIONS BETWEEN THE MEASURES OF EMPATHY, WARMTH, GENUINENESS, TOTAL FACILITATIVE TRIAD, AND INDEPENDENT VARIABLES**

<table>
<thead>
<tr>
<th>Variables*</th>
<th>X_1</th>
<th>X_2</th>
<th>X_3</th>
<th>X_4</th>
<th>X_5</th>
<th>Y_1</th>
<th>Y_2</th>
<th>Y_3</th>
<th>Y_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>X_1</td>
<td>1.00</td>
<td>.127</td>
<td>.149</td>
<td>-.222</td>
<td>-.031</td>
<td>.323</td>
<td>.213</td>
<td>.271</td>
<td>.332</td>
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<tr>
<td>X_2</td>
<td>1.000</td>
<td>.569</td>
<td>.504</td>
<td>.476</td>
<td>.220</td>
<td>.266</td>
<td>****</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>X_3</td>
<td>1.000</td>
<td>.164</td>
<td>.041</td>
<td>-.173</td>
<td>.040</td>
<td>-.036</td>
<td>-.108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X_4</td>
<td>1.000</td>
<td>.311</td>
<td>.213</td>
<td>.133</td>
<td>.249</td>
<td>.260</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X_5</td>
<td>1.000</td>
<td>.237</td>
<td>.208</td>
<td>.110</td>
<td>.172</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y_1</td>
<td>1.000</td>
<td>.836</td>
<td>.839</td>
<td>.874</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Y_2</td>
<td>1.000</td>
<td>.816</td>
<td>.820</td>
<td></td>
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</tr>
<tr>
<td>Y_3</td>
<td>1.000</td>
<td>.865</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Y_4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Variables: (X_1) Job Satisfaction, (X_2) Total teaching experience, (X_3) hours in education, (X_4) hours in present teaching field, (X_5) hours in other areas, (Y_1) Level of empathy, (Y_2) Level of warmth, (Y_3) Level of genuineness, (Y_4) Level of total facilitation triad.

**Significant at .05 level.**
Using 38 subjects, which was the total number of teachers in the sample, the tabled value for significance at the p<.05 level was calculated to be .271 when making use of the directional or one tail test and using 36 degrees of freedom.

Analysis of Data

It may be ascertained from Table V that two of the three factors related to facilitation and the total facilitation triad level, as determined on the Carkhuff and Berenson Scale of Human Nourishment, correlated significantly, but low, with the total job satisfaction as measured on the Job Description Index. The one facilitative factor which did not correlate significantly with total job satisfaction was the level of warmth.

The first hypothesis tested was that in reference to the students' perceptions of their teacher, there will not be a significant positive relationship between a measure of the facilitative factor, empathy (Y₁), as measured on the Carkhuff and Berenson Scale of Human Nourishment and each of the following factors associated with the secondary teacher:

a. level of job satisfaction (X₁);

b. total years teaching experience (X₂);

c. number of hours completed beyond the bachelor's degree in education courses (X₃),
d. number of hours completed beyond the bachelor's degree in present teaching field ($X_4$), and
e. number of hours completed beyond the bachelor's degree in other areas ($X_5$).

The null hypothesis that there is no significant positive relationship between the facilitative factor, empathy, and level of job satisfaction was rejected with an $r$ value of .323 at the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, empathy, and the total years teaching experience was retained with an $r$ value of .220 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, empathy, and number of hours completed in education courses was retained with an $r$ value of -.173 which was in the negative direction and did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, empathy, and the number of hours completed in teaching field was retained with an $r$ value of .213 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, empathy, and the number of hours completed in other areas
was retained with an $r$ value of .237 which did not reach the .05 level of significance.

The second hypothesis tested was that, in reference to the students' perceptions of their teacher, there will not be a significant positive relationship between a measure of the facilitative factor, warmth ($Y_2$), as measured on the Carkhuff and Berenson Scale of Human Nourishment and each of the following factors associated with the secondary teacher:

a. level of job satisfaction ($X_1$),

b. total years of teaching experience ($X_2$),

c. number of hours completed beyond the bachelor's degree in education courses ($X_3$),

d. number of hours completed beyond the bachelor's degree in present teaching field ($X_4$), and

e. number of hours completed beyond the bachelor's degree in other areas ($X_5$).

The null hypothesis that there is no significant positive relationship between the facilitative factor, warmth, and the level of job satisfaction was retained with an $r$ value of .213 which did not reach the .05 level of significance.

The null hypothesis that there is no significant positive relationship between the facilitative factor, warmth, and the total years teaching experience was retained with an $r$
value of .256 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, warmth, and number of hours completed in education courses was retained with an r value of .040 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, warmth, and the number of hours completed in teaching field was retained with an r value of .133 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, warmth, and the number of hours completed in other areas was retained with an r value of .208 which did not reach the .05 level of significance.

The third hypothesis tested was that, in reference to the students' perceptions of their teacher, there will not be a significant positive relationship between a measure of the facilitative factor, genuineness ($Y_3$), as measured on the Carkhuff and Berenson *Scale of Human Nourishment* and each of the following factors associated with the secondary teacher:

a. level of job satisfaction ($X_1$),

b. total years teaching experience ($X_2$),

c. number of hours completed beyond the bachelor's degree in education courses ($X_3$),
d. number of hours completed beyond the bachelor's degree in present teaching field \((X_4)\), and
e. number of hours completed beyond the bachelor's degree in other areas \((X_5)\).

The null hypothesis that there is no significant positive relationship between the facilitative factor, genuineness, and the level of job satisfaction was rejected with an \(r\) value of \(.271\) at the \(.05\) level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, genuineness, and the total years of teaching experience was retained with an \(r\) value of \(.230\) which did not reach the \(.05\) level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, genuineness, and number of hours completed in education courses was retained with an \(r\) value of \(-.036\) which was in the negative direction and did not reach the \(.05\) level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, genuineness, and the number of hours completed in teaching field was retained with an \(r\) value of \(.249\) which did not reach the \(.05\) level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, genuineness, and the number of hours
completed in other areas was retained with an r value of 0.110 which did not reach the 0.05 level of significance.

The fourth hypothesis tested was that, in reference to the students' perceptions of their teacher, there will not be a significant positive relationship between a measure of the facilitative factor, total facilitative triad \( Y_4 \), as measured on the Carkhuff and Berenson *Scale of Human Nourishment* and each of the following factors associated with the secondary teacher:

a. level of job satisfaction \( X_1 \),

b. total years teaching experience \( X_2 \),

c. number of hours completed beyond the bachelor's degree in education courses \( X_3 \),

d. number of hours completed beyond the bachelor's degree in present teaching field \( X_4 \), and

e. number of hours completed beyond the bachelor's degree in other areas \( X_5 \).

The null hypothesis that there is no significant positive relationship between the facilitative factor, total facilitative triad, and the level of job satisfaction was rejected with an r value of 0.332 at the 0.05 level of significance.

The null hypothesis that there is no significant positive relationship between the facilitative factor, total facilitative triad, and the total years of teaching experience...
was retained with an $r$ value of .191 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, total facilitative triad, and the number of hours completed in education courses was retained with an $r$ value of -.108 which was in the negative direction and did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, total facilitative triad, and the number of hours completed in teaching field was retained with an $r$ value of .260 which did not reach the .05 level of significance. The null hypothesis that there is no significant positive relationship between the facilitative factor, total facilitative triad, and the number of hours completed in other areas was retained with an $r$ value of .172 which did not reach the .05 level of significance.

Of the possible twenty null hypotheses tested in the present study, only three could be rejected at the .05 level of significance for a one tail test, and the remaining seventeen null hypotheses were retained. A further investigation of the multiple correlations and regression equations permits a comprehensive interpretation of the data gathered from this research.
The extent to which the combined action of the independent variables were related to each of the dependent variables, empathy, warmth, genuineness, and total facilitative triad, was determined by selecting the statistical procedure which would provide coefficients of multiple correlation in terms of beta coefficients ($R^2$). The coefficients of correlation ($R$) were then derived by extracting the square root of $R^2$. This procedure was used by Martin (3, p. 43) in predicting learning achievement in various languages and by Adkisson (1, p. 100) in predicting total achievement among first and second grade students. Walker and Lev (5, p. 326) presents the basic formula and procedure in the following:

\[ R^2_{y.123} = r_{y1} b_{y1.23} + r_{y2} b_{y2.13} + r_{y3} b_{y3.12} \]

where

- $r_{y1}$ = coefficient of correlation between the first independent variable and the criterion variable.
- $b_{y1.23}$ = relative weight which the first independent variable contributes to the criterion variable.
- $r_{y2}$ = coefficient of correlation between the second independent variable and the criterion variable.
- $b_{y2.13}$ = relative weight which the second independent variable contributes to the criterion variable.
- $r_{y3}$ = the coefficient of correlation between the third independent variable and the criterion variable.
- $b_{y3.12}$ = relative weight which the third independent variable contributes to the criterion variable.
In Table VI the multiple correlations for the dependent or criterion variable, empathy \( (Y_1) \), and the independent variables are given. Those multiple correlations with F ratios large enough to be significant at the \( p < .05 \) level for the study are indicated in Table VI.

**TABLE VI**

**MULTIPLE CORRELATIONS, VARIANCE, CONTRIBUTIONS OF VARIABLES AND F VALUES FOR THE CRITERION VARIABLE, EMPATHY, AND THE INDEPENDENT VARIABLES**

<table>
<thead>
<tr>
<th>Variable*</th>
<th>( R )</th>
<th>( R^2 )</th>
<th>Contribution to Variance</th>
<th>F Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Y_1 ) 12.345</td>
<td>.4162</td>
<td>.1/32</td>
<td>.0691</td>
<td>3.666**</td>
</tr>
<tr>
<td>( Y_1 ) 123.45</td>
<td>.5312</td>
<td>.2822</td>
<td>.1090</td>
<td>4.455**</td>
</tr>
<tr>
<td>( Y_1 ) 1234.5</td>
<td>.5335</td>
<td>.2847</td>
<td>.0025</td>
<td>3.283**</td>
</tr>
<tr>
<td>( Y_1 ) 12345</td>
<td>.5337</td>
<td>.2848</td>
<td>.0002</td>
<td>3.549**</td>
</tr>
</tbody>
</table>

*Variables are 1-Total Job Satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

**Significant at the .05 level.**

Using degrees of freedom as 2 between and 35 within, the tabled F ratio must reach 3.28 in order to be significant at the \( p < .05 \) level. The obtained F ratio for the combination
of the independent variables—total job satisfaction \( (X_1) \) and total years teaching experience \( (X_2) \)—was 3.67 which reached the .05 level of significance. Using degrees of freedom as 3 between and 34 within, the tabled F ratio must reach 2.88 in order to be significant at the \( p < .05 \) level. The obtained F ratio for the combination of the independent variables—total job satisfaction \( (X_1) \), total years teaching experience \( (X_2) \), and hours completed beyond the bachelor's degree in education \( (X_3) \)—was 4.45 which reached the .05 level of significance. The remaining two variables—hours completed beyond the bachelor's degree in present teaching field \( (X_4) \) and hours completed beyond the bachelor's degree in other areas \( (X_5) \)—did not contribute significantly to the total volume.

The coefficient of multiple correlation between the measures obtained on the criterion variable, empathy \( (Y_1) \), and the combined action of the independent variables—total job satisfaction \( (X_1) \) and total years teaching experience \( (X_2) \)—was .416. The proportion of the variance of the criterion variable assigned to the joint action of the two independent variables was 17.0 per cent. Of this amount 10.4 per cent of the total variance to empathy was the independent contribution of total job satisfaction \( (X_1) \), and 6.9 per cent was the independent contribution of total years teaching experience \( (X_2) \). The remaining 83.0 per cent of the variance was
the result of other factors not measured by the instruments nor available from the collected data.

The coefficient of multiple correlation between the measures obtained on the criterion variable, empathy \( (Y_1) \), and the combined action of the independent variables—total job satisfaction \( (X_1) \), total years teaching experience \( (X_2) \), and hours completed beyond the bachelor's degree in education \( (X_3) \)—was 0.530. The proportion of the variance of the criterion variable attributed to the joint action of the three independent variables was 28.2 per cent. Of this amount 10.4 per cent of the total variance to empathy \( (Y_1) \) was the independent contribution of total job satisfaction \( (X_1) \), while the independent contribution of total years teaching experience \( (X_2) \) was 6.9 per cent, and 10.9 per cent was the independent contribution of hours completed beyond the bachelor's degree in education \( (X_3) \). The remaining 71.8 per cent of the variance was due to other factors not measured by the instruments nor available from the collected data.

In Table VII, the multiple correlations for the dependent or criterion variable, warmth \( (Y_2) \), and the independent variables are given. Those multiple correlations with \( F \) ratios large enough to reach the \( p<.05 \) level of significance are indicated in Table VII. Using degrees of freedom as 2 between and 35 within, the tabled \( F \) ratio must reach 3.28 in order to
reach the p < .05 level of significance. The obtained F ratio for the combination of the independent variables, total years teaching experience ($X_2$) and total job satisfaction ($X_1$), was 2.67 which did not reach the .05 level of significance.

**TABLE VII**

MULTIPLE CORRELATIONS, VARIANCE, CONTRIBUTION OF VARIABLES, AND F VALUES FOR THE CRITERION VARIABLE, WARMTH, AND THE INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variable*</th>
<th>R</th>
<th>$R^2$</th>
<th>Contribution to Variance</th>
<th>F Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_2$</td>
<td>.3637</td>
<td>.1323</td>
<td>.0617</td>
<td>2.667</td>
</tr>
<tr>
<td>$R_2$</td>
<td>.3805</td>
<td>.1448</td>
<td>.0125</td>
<td>1.919</td>
</tr>
<tr>
<td>$R_2$</td>
<td>.3953</td>
<td>.1563</td>
<td>.0115</td>
<td>1.528</td>
</tr>
<tr>
<td>$R_2$</td>
<td>.3969</td>
<td>.1575</td>
<td>.0013</td>
<td>1.197</td>
</tr>
</tbody>
</table>

*Variables are 1-Total job satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

**Significant at the .05 level.

Using degrees of freedom as 3 between 34 within, the tabled F ratio must reach 2.88 in order to be significant at the p < .05 level. The obtained F ratio for the combination of the independent variables—total years teaching experience ($X_2$), total job satisfaction ($X_1$), and hours completed beyond
the bachelor's degree in education ($X_3$)--was 1.91. The remaining two variables, hours completed beyond the bachelor's degree in present teaching field ($X_4$) and hours completed beyond the bachelor's degree in other areas ($X_5$), did not contribute significantly to the total variance.

The coefficients of multiple correlation between the measures obtained on the criterion variable, warmth ($Y_2$), and the combined action of the independent variables--total years teaching experience ($X_2$) and total job satisfaction ($X_1$)--was .364. The proportion of the variance of the criterion variable assigned to the joint action of the two independent variables was 13.2 per cent. Of this amount 7.0 per cent of the total variance to warmth ($Y_2$) was the independent contribution of total years teaching experience ($X_2$), and 6.2 per cent was the independent contribution of total job satisfaction ($X_1$). The remaining 86.8 per cent of the variance was a result of other factors not measured by the instrument nor available from the collected data.

The coefficient of multiple correlation between the measures obtained on the criterion variable, warmth ($Y_2$), and the combined action of the independent variables--total years teaching experience ($X_2$), total job satisfaction ($X_1$), and hours completed beyond the bachelor's degree in education ($X_3$)--
was .380. The proportion of the variance of the criterion variable attributed to the joint action of the three independent variables was 14.5 per cent. Of this amount 7.0 per cent of the total variance to warmth \(Y_2\) was the independent contribution of total years teaching experience \(X_2\), while the independent contribution of total job satisfaction \(X_1\) was 6.2 per cent, and 1.3 per cent was the independent contribution of hours completed beyond the bachelor's degree in education \(X_3\). The remaining 85.5 per cent of the variance was due to other factors not measured by the instrument nor available from the collected data.

In Table VIII the multiple correlations for the dependent or criterion variable, genuineness \(Y_3\), and the independent variables are given. Those multiple correlations with F ratios large enough to reach the \(p < .05\) level of significance are indicated in Table VIII. Using degrees of freedom as 2 between and 35 within, the tabled F ratio must reach 3.28 in order to be significant at the \(p < .05\) level. The obtained F ratio for the combination of the independent variables, total job satisfaction \(X_1\) and total years teaching experience \(X_2\), was 2.95 which did not reach the \(p < .05\) level of significance. Using degrees of freedom as 3 between and 34 within, the tabled F ratio must reach 2.88 in order to be significant at the \(p < .05\) level.
### Table VIII
MULTIPLE CORRELATIONS, VARIANCE, CONTRIBUTIONS OF VARIABLES, AND F VALUES FOR THE CRITERION VARIABLE, GENUINENESS, AND THE INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variable*</th>
<th>R</th>
<th>R²</th>
<th>Contribution to Variance</th>
<th>F Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>R_{Y_1}</td>
<td>12.354</td>
<td>.3800</td>
<td>.1444</td>
<td>.0711</td>
</tr>
<tr>
<td>R_{Y_2}</td>
<td>123.54</td>
<td>.4185</td>
<td>.1752</td>
<td>.0308</td>
</tr>
<tr>
<td>R_{Y_3}</td>
<td>1235.4</td>
<td>.4281</td>
<td>.1833</td>
<td>.0081</td>
</tr>
<tr>
<td>R_{Y_4}</td>
<td>12354.</td>
<td>.4293</td>
<td>.1843</td>
<td>.0010</td>
</tr>
</tbody>
</table>

*Variables are 1-Total job satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

The obtained F ratio for the combination of the independent variables, total job satisfaction \((X_1)\), total years teaching experience \((X_2)\) and hours completed beyond the bachelor's degree in education \((X_3)\), was 2.41, which did not reach the \(p < .05\) level of significance. The remaining two variables, hours completed beyond the bachelor's degree in other areas \((X_3)\) and hours completed beyond the bachelor's degree in present teaching field \((X_4)\), did not contribute significantly to the total variance.

The coefficient of multiple correlation between the measures obtained on the criterion variable, genuineness \((Y_3)\),
and the combined action of the independent variables—total job satisfaction \((X_1)\) and total years teaching experience \((X_2)\)—was .380. The proportion of the variance of the criterion variable assigned to the joint action of the two independent variables was 14.4 per cent. Of this amount 7.3 per cent of the total variance to genuineness \((Y_3)\) was the independent contribution of total job satisfaction \((X_1)\), and 7.1 per cent was the independent contribution of total years teaching experience \((X_2)\). The remaining 85.6 per cent of the variance was the result of other factors not measured by the instruments nor available from the collected data.

The coefficient of multiple correlation between the measures obtained on the criterion variable, genuineness \((Y_3)\), and the combined action of the independent variables—total job satisfaction \((X_1)\), total years teaching experience \((X_2)\), and hours completed beyond the bachelor's degree in education \((X_3)\)—was .416. The proportion of the variance of the criterion variable attributed to the joint action of the three independent variables was 17.4 per cent. Of this amount 7.3 per cent of the total variance to genuineness \((Y_3)\) was the independent contribution of total job satisfaction \((X_1)\), while the independent contribution of total years teaching experience \((X_2)\) was 7.1 per cent, and 3.0 per cent was the independent contribution of hours completed beyond the bachelor's degree
in education \((X_3)\). The remaining 82.6 per cent of the variance was due to other factors not measured by the instruments nor available from the collected data.

In Table IX the multiple correlations for the dependent or criterion variable, total facilitative triad \((Y_4)\), and the independent variables are given. Those multiple correlations with F ratios large enough to reach the \(p < .05\) level of significance are indicated in Table IX.

**TABLE IX**

MULTIPLE CORRELATIONS, VARIANCE, CONTRIBUTIONS OF VARIABLES, AND F VALUES FOR THE CRITERION VARIABLE, TOTAL FACILITATIVE TRIAD, AND THE INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variables*</th>
<th>(R)</th>
<th>(R^2)</th>
<th>Contribution to Variance</th>
<th>F Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R_{Y_4}) 12.345</td>
<td>.4067</td>
<td>.1654</td>
<td>.0554</td>
<td>3.468**</td>
</tr>
<tr>
<td>(R_{Y_4}) 123.45</td>
<td>.4677</td>
<td>.2187</td>
<td>.0533</td>
<td>3.173**</td>
</tr>
<tr>
<td>(R_{Y_4}) 1234.5</td>
<td>.4693</td>
<td>.2202</td>
<td>.0015</td>
<td>2.330</td>
</tr>
<tr>
<td>(R_{Y_4}) 12345</td>
<td>.4697</td>
<td>.2206</td>
<td>.0004</td>
<td>1.811</td>
</tr>
</tbody>
</table>

*Variables are 1-Total job satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

**Significant at the \(p < .05\) level.

Using degrees of freedom as 2 between and 35 within, the tabled F ratio must reach 3.28 in order to be significant
at the $p < .05$ level. The obtained $F$ ratio for the combination of the independent variables, total job satisfaction ($X_1$) and total years teaching experience ($X_2$), was 3.47, which reached the $p < .05$ level of significance. Using degrees of freedom as 3 between and 34 within, the tabled $F$ ratio must reach 2.88 in order to be significant at the $p < .05$ level. The obtained $F$ ratio for the combination of the independent variables, total job satisfaction ($X_1$), total years teaching experience ($X_2$), and hours completed beyond the bachelor's degree in education ($X_3$), was 3.17, which reached the $p < .05$ level of significance. The remaining two variables, hours completed beyond the bachelor's degree in other areas ($X_3$) and hours completed beyond the bachelor's degree in present teaching field ($X_4$), did not contribute significantly to the total variance.

The coefficient of multiple correlation between the measures obtained on the criterion variable, total facilitative triad ($Y_4$), and the combined action of the independent variables—total job satisfaction ($X_1$) and total years teaching experience ($X_2$)—was .407. The proportion of the variance of the criterion variable assigned to the joint action of the two independent variables was 16.5 per cent. Of this amount, 11.0 per cent of the total variance to total facilitative triad ($Y_4$) was the independent contribution of total job satisfaction ($X_1$), and 5.5 per cent was the independent
contribution of total years teaching experience ($X_2$). The remaining 83.5 per cent of the variance was the result of other factors not measured by the instrument nor available from the collected data.

The coefficient of multiple correlation between the measures obtained on the criterion variable, total facilitative triad ($Y_4$), and the combined action of the independent variables—total job satisfaction ($X_1$), total years teaching experience ($X_2$), and hours completed beyond the bachelor's degree in education ($X_3$)—was .468. The proportion of the variance of the criterion variable attributed to the joint action of the three independent variables was 21.9 per cent. Of this amount 11.0 per cent of the total variance to facilitative triad ($Y_4$) was the independent contribution of total job satisfaction ($X_1$), while the independent contribution of total years teaching experience ($X_2$) was 5.5 per cent, and 5.4 per cent was the independent contribution of hours completed beyond the bachelor's degree in education ($X_3$). The remaining 79.1 per cent of the variance was due to other factors not measured by the instruments nor available from the collected data.

All of the variables pertaining to this study were used by the North Texas State University Computer Center in order to form stepwise regression formulas for computation of the
multiple coefficients of correlation. The procedures involved in the computation of multiple coefficients of correlation served to maximize the descriptive power of independent variables by the assignment of optimal weights to these variables. The procedure for accomplishing this maximization is discussed by Walker and Lev (5, p. 234) and involves the following formula:

\[
\hat{Y}_{123} = A_{y.123} + b_{y1.23}X_1 + b_{y2.13}X_2 + b_{y3.12}X_3,
\]

where

- \(\hat{Y}_{123}\) = projected score of criterion measure.
- \(A_{y.123}\) = a constant.
- \(b_{y1.23}\) = partial regression coefficient giving the weight of the measure attached to the first independent variable with the second and third independent variables held constant.
- \(X_1\) = measure of first independent variable.
- \(b_{y2.13}\) = partial regression coefficient giving the weight of the measure attached to the second independent variable with the first and third independent variables held constant.
- \(X_2\) = measure of second independent variable.
- \(b_{y3.12}\) = partial regression coefficient giving the weight of the measure attached to the third independent variable with the first and second independent variables held constant.
- \(X_3\) = measure of third independent variable.

The application of the above formula in determining the score weights of total job satisfaction (\(X_1\)) and total years teaching experience (\(X_2\)) in projecting level of total
facilitation triad \( (Y_4) \) results in the following:

\[
\hat{Y} = 2.416 + (-0.004X_1) + (0.015X_2)
\]

The weights of \(-0.004\) and \(0.015\) indicate the amount by which the measures in variables, total job satisfaction \((X_1)\) and total years teaching experience \((X_2)\), must be multiplied in order to give the projection of \(Y_4\). This means that a projection of a total facilitative triad measure \((Y_4)\) may be made by substituting in the regression equation the known values of \(X_1\) and \(X_2\). The standard error of estimate of any total facilitative triad measure \((Y_4)\) from the above formula is \(\pm 0.386\) as shown in Table X.

### TABLE X

**COEFFICIENTS OF MULTIPLE CORRELATIONS, CONSTANTS, AND STANDARD ERROR OF MEASURES FOR THE COMBINED ACTION OF THE INDEPENDENT VARIABLES**

<table>
<thead>
<tr>
<th>Variables*</th>
<th>Multiple Correlations</th>
<th>Constants</th>
<th>SE (\text{est. } y))</th>
</tr>
</thead>
<tbody>
<tr>
<td>(X_{1.2345})</td>
<td>0.332</td>
<td>2.487</td>
<td>0.394</td>
</tr>
<tr>
<td>(X_{12.345})</td>
<td>0.407</td>
<td>2.416</td>
<td>0.386</td>
</tr>
<tr>
<td>(X_{123.45})</td>
<td>0.468</td>
<td>2.401</td>
<td>0.379</td>
</tr>
<tr>
<td>(X_{1234.5})</td>
<td>0.469</td>
<td>2.372</td>
<td>0.385</td>
</tr>
<tr>
<td>(X_{12345.})</td>
<td>0.470</td>
<td>2.375</td>
<td>0.391</td>
</tr>
</tbody>
</table>

*Variables are \(X_1\)-total job satisfaction, \(X_2\)-total years teaching experience, \(X_3\)-Hours completed in education, \(X_4\)-Hours completed in present teaching field, and \(X_5\)-Hours completed in other areas.*
This value means that the chances are about two in three that the projected measure of the total facilitative triad will not miss the actual level of total facilitation on the criterion measure by more than ±.386 points.

The application of the basic formula in determining the score weights of \( X_1 \), \( X_2 \), and \( X_3 \) in projecting level of total facilitation (\( Y_4 \)) results in the following:

\[
\hat{Y} = 2.401 + (-.004X_1) + (.025X_2) + (-.011X_3)
\]

The weights of -.004, .025, and -.011 indicate the amount by which the measures of variables, total job satisfaction (\( X_1 \)), total years teaching experience (\( X_2 \)), and hours completed beyond the bachelor's degree in education (\( X_3 \)) must be multiplied in order to give the projection of \( Y_4 \).

This value means that a projection of a total facilitative triad measure (\( Y_4 \)) may be made by substituting in the regression equation the known values of \( X_1 \), \( X_2 \), and \( X_3 \).

The standard error of estimate of any total facilitative triad measure (\( Y_4 \)) from the above formula is ±.379 as shown in Table X. This means that the chances are about two in three that the projected measure of the total facilitative triad will not miss the actual level of total facilitation on the criterion measure by more than ±.379 points.

A further investigation of the calculations centered around the multiple regression equation results in the
information found in Tables XI, XII, and XIII. These tables contain the information needed to determine the significance of any projections made concerning the interaction of the dependent and independent variables.

TABLE XI

ANALYSIS OF REGRESSION FOR THE VARIABLES, TOTAL FACILITATIVE TRIAD AND JOB SATISFACTION

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between ((Y_{4}))</td>
<td>0.689</td>
<td>1</td>
<td>0.689</td>
<td>4.448*</td>
</tr>
<tr>
<td>Within ((X_{1}))</td>
<td>5.574</td>
<td>36</td>
<td>0.155</td>
<td>. . .</td>
</tr>
<tr>
<td>Total</td>
<td>6.263</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .05 level.

The between the sum of squares was 0.689 with 1 degree of freedom which gave a mean-square of 0.689. The within sum of squares was 5.574 with 36 degrees of freedom which yielded a mean-square of 0.155. In the comparison of the interaction between the variables, total facilitative triad \((Y_{4})\) and total job satisfaction \((X_{1})\), a F ratio of 4.11 is required in order to reach the \(p < .05\) level of significance.

The obtained F ratio of 4.448 is sufficient in order to reach the \(p < .05\) level of significance for the two variables investigated.
In Table XII the data for the analysis of regression for the criterion variable \( Y_4 \) and independent variables consisting of total job satisfaction \( X_1 \) and total years teaching experience \( X_2 \) are given.

**TABLE XII**

ANALYSIS OF REGRESSION FOR THE VARIABLES, TOTAL FACILITATIVE TRIAD AND JOB SATISFACTION, COMBINED WITH TEACHING EXPERIENCE

<table>
<thead>
<tr>
<th>Source</th>
<th>S</th>
<th>DF</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between ( Y_4 )</td>
<td>1.036</td>
<td>2</td>
<td>0.518</td>
<td>3.468*</td>
</tr>
<tr>
<td>Within ( X_1, X_2 )</td>
<td>5.227</td>
<td>35</td>
<td>0.149</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6.263</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .05 level.

The between the sum of squares was 1.036 with 2 degrees of freedom which gave a mean-square of 0.518. The within sum of squares was 5.227 with 35 degrees of freedom which yielded a mean-square of 0.149. In the comparison of the interaction between the variables, total facilitative triad \( Y_4 \), and the two variables, total job satisfaction \( X_1 \) and the total years teaching experience \( X_2 \), a F ratio of 3.28 is required in order to reach the \( p < .05 \) level of significance.
The obtained F ratio of 3.468 is sufficient in order to reach the $p < .05$ level of significance for the two independent variables investigated.

In Table XIII the data for the analysis of regression for the criterion variable ($Y_4$) and the independent variables consisting of total job satisfaction ($X_1$), total years teaching experience ($X_2$), and total hours completed above bachelor degree in education ($X_3$) are given.

**TABLE XIII**

ANALYSIS OF REGRESSION FOR THE VARIABLES, TOTAL FACILITATIVE TRIAD, JOB SATISFACTION, TEACHING EXPERIENCE, AND HOURS COMPLETED IN EDUCATION

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between ($Y_4$)</td>
<td>1.370</td>
<td>3</td>
<td>0.457</td>
<td>3.173*</td>
</tr>
<tr>
<td>Within ($X_1$), ($X_2$), ($X_3$)</td>
<td>4.893</td>
<td>34</td>
<td>0.144</td>
<td>...</td>
</tr>
<tr>
<td>Total</td>
<td>6.263</td>
<td>37</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

*Significant at the .05 level.

The between the sum of squares was 1.370 with 3 degrees of freedom which gave a mean-square of 0.457. The within sum of squares was 4.893 with 34 degrees of freedom which yielded a mean-square of 0.144. In the comparison of the interaction between the variables, total facilitative triad ($Y_4$) and the
three variables—total job satisfaction ($X_1$), total years teaching experience ($X_2$), and total hours completed beyond the bachelor's degree in education ($X_3$)—a F ratio of 2.88 is required in order to reach the $p < .05$ level of significance.

The obtained F ratio of 3.173 is sufficient in order to reach the $p < .05$ level of significance.

The other variables used in the study, total hours completed beyond the bachelor's degree in present teaching field ($X_4$) and total hours completed beyond the bachelor's degree in other areas ($X_5$), did not contribute significantly to the overall description or projection of the criterion variable ($Y_4$). The contributions of variable ($X_4$) to the total $Y$ was .0015 and the variable ($X_5$) contributed .004.

The formula for shrinkage as given by McNemar (4, p. 184) was utilized in order to determine the significance of the multiple correlation coefficients when compensation for the sample of thirty-eight subjects was taken into account. The formula for shrinkage is:

$$ r'_{1.23...n} = \sqrt{1 - \left(1 - \frac{r^2_{1.23...n}}{N-1}\right)\left(\frac{N-1}{N-n}\right)} $$

where $N$ = number of cases and $n$ = number of variables.

The $r'$, after shrinkage, is given in Table XIV. Only the criterion variable total facilitative triad ($Y_4$) was made use of in this shrinkage since this is the criterion variable for which the multiple regression equations were calculated.
TABLE XIV

MULTIPLE CORRELATIONS AND SHRINKAGE FOR THE VARIABLE, TOTAL FACILITATIVE TRIAD, AND THE INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variables*</th>
<th>Multiple Correlations</th>
<th>Correlations after Shrinkage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Y_4 \ 1.2345$</td>
<td>.332**</td>
<td>.332**</td>
</tr>
<tr>
<td>$Y_4 \ 12.345$</td>
<td>.407**</td>
<td>.376</td>
</tr>
<tr>
<td>$Y_4 \ 123.45$</td>
<td>.468**</td>
<td>.418</td>
</tr>
<tr>
<td>$Y_4 \ 1234.5$</td>
<td>.469</td>
<td>.389</td>
</tr>
<tr>
<td>$Y_4 \ 12345.$</td>
<td>.470</td>
<td>.355</td>
</tr>
</tbody>
</table>

*Variables are 1-Total job satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

**Significant at the .05 level.

It may be ascertained from Table XIV that both of the combinations of independent variables 12.345 and 123.45 are significant when the criteria was the multiple correlation; however, when the shrinkage was accounted for by use of the appropriate formula, both of these combinations lost significance. The only combination of independent variables that remained significant after accounting for shrinkage was the combination of variables 1.2345.

The data necessary for computing the shrinkage for the $Y_4$ variable may be found in Table XV. This data includes the
listing of multiple variables, the multiple correlations, the multiple correlations squared, and one minus the multiple correlation squared.

TABLE XV

TABLED VALUES OF PERTINENT DATA FOR CALCULATING SHRINKAGE DUE TO SMALL SAMPLE

<table>
<thead>
<tr>
<th>Variable*</th>
<th>R</th>
<th>R^2</th>
<th>1-R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y_4 1.2345</td>
<td>.332</td>
<td>.110</td>
<td>.890</td>
</tr>
<tr>
<td>Y_4 12.345</td>
<td>.407</td>
<td>.165</td>
<td>.835</td>
</tr>
<tr>
<td>Y_4 123.45</td>
<td>.468</td>
<td>.219</td>
<td>.781</td>
</tr>
<tr>
<td>Y_4 1234.5</td>
<td>.469</td>
<td>.220</td>
<td>.780</td>
</tr>
<tr>
<td>Y_4 12345.</td>
<td>.470</td>
<td>.220</td>
<td>.780</td>
</tr>
</tbody>
</table>

*Variables are 1-Total job satisfaction, 2-Total years teaching experience, 3-Hours completed in education, 4-Hours completed in present teaching field, 5-Hours completed in other areas.

Included in Appendix E is a sample calculation for the shrinkage. The sample contains the calculations for the variables Y_4 12.345. The data from Table XV is made use of in the previously mentioned examples.
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS
AND RECOMMENDATIONS

Based upon the research completed during the course of this study, the following discussion of the findings, report on the conclusions, implications, and recommendations will be made, all of which may be found in this chapter.

Summary

The study investigated relationships that exist between the level of facilitation as described on various interpersonal dimensions of teachers as perceived by their students, and other selected variables associated with the secondary teacher. These factors included the teacher's satisfaction with the work of education as a profession, the teacher's experience, and other factors centered around areas of advance study completed by the teachers. It was hypothesized that there would exist a positive relationship between the students' perceptions of their teacher's level of facilitation on various dimensions of facilitation—empathy, warmth, genuineness, and total facilitative triad—and each of the other variables included in the study.
The population for the study consisted of 803 high school students in grades 9 through 12, and 38 faculty members from an independent school district in North Central Texas. The teachers were from subject areas where the principal method of teaching was either lecture, discussion, or a combination of the two methods. All persons taking part in the study were from the areas of English, mathematics, natural science, social science, business, chorus, industrial arts, language, or health. The teachers and students completed the evaluative instruments and data sheets during the same period and the same day. Complete anonymity was assured each participant taking part in the study.

The instruments used consisted of the Truax Relationship Questionnaire (Modified), the Job Description Index, and a personal data sheet. Copies of each of these instruments may be found in the appendices, A and B.

The Pearson Product Moment Correlation was calculated between each variable and those correlations which reached the significant level of p < .05 with critical values of .271 are indicated. Table XVI includes these findings along with the multiple correlation R, and the description labels as given by Garrett for various combinations of the independent variables.
## TABLE XVI

### SUMMARY OF FINDINGS RELATED TO FACILITATIVE FACTORS COMBINED WITH INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>Variables*</th>
<th>Method of Correlation</th>
<th>Correlation Values</th>
<th>Garretts Descriptive Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Y_1 - X_1$</td>
<td>$r$</td>
<td>.323**</td>
<td>Low</td>
</tr>
<tr>
<td>$Y_3 - X_1$</td>
<td>$r$</td>
<td>.271**</td>
<td>Low</td>
</tr>
<tr>
<td>$Y_4 - X_1$</td>
<td>$r$</td>
<td>.332**</td>
<td>Low</td>
</tr>
<tr>
<td>$R_{Y_1}$</td>
<td>$R$</td>
<td>.416**</td>
<td>Marked</td>
</tr>
<tr>
<td>$R_{Y_1}$</td>
<td>$R$</td>
<td>.531**</td>
<td>Marked</td>
</tr>
<tr>
<td>$R_{Y_4}$</td>
<td>$R$</td>
<td>.407**</td>
<td>Marked</td>
</tr>
<tr>
<td>$R_{Y_4}$</td>
<td>$R$</td>
<td>.468**</td>
<td>Marked</td>
</tr>
</tbody>
</table>

*Variables: $(X_1)$-Job satisfaction, $(X_2)$-Total teaching experience, $(X_3)$-Hours in education, $(X_4)$-Hours in present teaching field, $(X_5)$-Hours in other areas, $(Y_1)$-Level of empathy, $(Y_2)$-Level of warmth, $(Y_3)$-Level of Genuineness, $(Y_4)$-Level of total facilitation triad.

**Significant at .05 level.

**Findings**

The findings from this research are limited to the school system in which the data was obtained. It is not intended that generalization for individuals found in other school districts dissimilar to the one used in the present study can be made.

Hypothesis number one investigated the relationships that exist between the dependent variable, empathy, and
independent variables associated with the teaching profession. The findings indicated a significant positive, but low, correlation between empathy and total job satisfaction. The obtained r for this combination was .323. The other independent variables investigated did not correlate significantly with the criterion variable empathy.

Hypothesis number two investigated the relationships that exist between the dependent variable, warmth, and various independent variables associated with the teaching profession. The findings failed to indicate a significant relationship between the criterion variable and any of the independent variables.

Hypothesis number three investigated the relationships that exist between the dependent variable, genuineness, and various independent variables associated with the teaching profession. The findings indicated a significant positive, but low, correlation between genuineness and total job satisfaction. The obtained r for this combination was .271. The other independent variables investigated did not correlate significantly with the criterion variable genuineness.

Hypothesis number four investigated the relationships that exist between the dependent variable, total facilitative triad, and various independent variables
associated with the teaching profession. The findings indicated a significant positive, but low, correlation between total facilitative triad and total job satisfaction. The obtained $r$ for this combination was $0.323$. The other independent variables investigated did not correlate significantly with the criterion variable, total facilitative triad.

The highest multiple correlation between each of the dependent variables—empathy and total facilitative triad—and combinations of two independent variables exist between the joint action of the variables, job satisfaction $(X_1)$ and total years teaching experience $(X_2)$. The significant multiple $R$'s for the combination of the independent variables $(X_1)$ and $(X_2)$ ranged from a low of $0.407$ to a high of $0.416$.

The highest multiple correlation between each of the dependent variables—empathy and total facilitative triad—and combinations of three independent variables exist between the joint action of the variables, job satisfaction $(X_1)$, total years teaching experience $(X_2)$, and hours completed beyond the bachelor's degree in education $(X_3)$. The significant multiple $R$ for the combination of three independent variables $(X_1)$, $(X_2)$, and $(X_3)$ ranged from a low of $0.468$ to a high of $0.531$. 
The combining of the additional variables, hours completed beyond the bachelor's degree in present teaching field \(X_4\) and hours completed beyond the bachelor's degree in other areas \(X_5\), did not contribute significantly to the total variance. These variables contributed to the total variance from a low of 0.04 per cent to a high of 0.8 per cent.

Conclusions

In relation to the purpose of the study and within the limitations established, the following conclusions appear to be valid:

1. Results of the research indicate that the student's perceptions of the level of functioning of their teachers as facilitative agents are within close approximation of the mean scores established by previous studies for teachers. These previous studies have made use of expert raters in place of student raters.

2. Results of the research indicate that of the independent variables studied, job satisfaction consistently produced the highest significant correlation with the facilitative dimensions of empathy, genuineness, and total facilitative triad; however, the multiple \(R\), making use of the joint action of job satisfaction, years teaching
experience, and hours completed in education courses beyond the bachelor's degree, produced even a greater correlation on two of the dimensions—empathy and total facilitative triad.

3. Since the total variance accounted for by the combinations of the variables ranged from 15.7 per cent to 28.5 per cent, there are other factors operating that were not investigated in this study which are related to the level of facilitation being projected by an individual teacher as perceived by the students.

Implications

1. While the findings and conclusions of this study apply specifically to the school district from which the population for this study was drawn, it appears that the findings and conclusions would also be valid and relevant to other settings that are comparable in organizational structure.

2. It appears from this study that the students are a valid source by which ratings on the facilitative dimensions may be obtained.

3. It appears that the independent variables of hours completed in present teaching field and hours completed
in other areas beyond the bachelor's degree do not contribute to the facilitative dimensions as perceived by the students.

4. It appears that of those dependent variables investigated, the total facilitative triad should be used in order to gain the highest correlations with the independent variables.

Recommendations

As a result of this study, the following recommendations were made:

1. This study should be repeated so that the variables having standard deviations greater than the means can be eliminated, thereby, insuring greater homogeneity with the group.

2. A similar study should be conducted incorporating some type of measurement of self-actualization status of the participants in conjunction with the Job Description Index in an attempt to account for a greater portion of the total variance.

3. A study should be conducted using a larger sample of teachers from each of the various disciplines in order to ascertain the intercorrelations among the disciplines in relationship to the independent variable studies.
4. A study should be conducted correlating the level of facilitation of teachers as perceived by the students and independent variables concerned with teacher effectiveness as ascertained by sources designed to determine effective versus ineffective teachers.

5. A study should be conducted in order to test the feasibility of treating the levels of facilitation as a dichotomy of "helpful" or "harmful" when combined with other variables. The present study treated the levels of facilitation as continuous data for correlation purposes.
APPENDIX A

INSTRUCTIONS FOR COMPLETING THE TRUAX RELATIONSHIP QUESTIONNAIRE (Modified)

1. Do not place your name or other identifying marks on the questionnaire or answer sheet.

2. Only a number two (No. 2) lead pencil is to be used. The questionnaires will be machine scored.

3. After reading each item, decide whether it is mostly true or mostly false regarding the way you see the present relationship between you and your teacher. Then mark your answer sheet accurately.

4. Read the instructions at the top of the next page very carefully before proceeding with marking your responses.
RELATIONSHIP QUESTIONNAIRE

People feel different about some people than they do about others. There are a number of statements below that describe a variety of ways that one person may feel about another person, or ways that one person may act toward another person. Consider each statement carefully and decide whether it is true or false when applied to your present relationship with your instructor. If the statement seems to be mostly true, then mark it true; if it is mostly not true, then mark it false.

1. He understands exactly how I see things.
2. He is often disappointed in me.
3. He is impatient with me.
4. He is a person you can really trust.
5. Sometimes he will argue with me just to prove he is right.
6. Sometimes he seems to be uncomfortable with me, but we go on and pay no attention to it.
7. Some things I say seem to upset him.
8. I am just another student to him.
9. He likes to see me.
10. He knows more about me than I do about myself.
11. He appreciates me.
12. I feel that he is being genuine with me.
13. He seems like a very cold person.
14. He must understand me, but I often think he is wrong.
15. I feel that he really thinks I am worthwhile.
16. He likes me better when I agree with him.
17. He seems to follow almost every feeling I have while I am with him.

18. He pretends that he likes me more than he really does.

19. He really listens to everything I say.

20. Sometimes he seems to be putting up a professional front.

21. I feel safer with him than I do with almost any other person.

22. I often cannot understand what he is trying to tell me.

23. Sometimes he sort of "pulls back" and examines me.

24. I am afraid of him.

25. He sometimes seems more interested in what he himself says than in what I say.

26. He often does not seem to be genuinely himself.

27. He accepts me the way I am even though he wants me to be better.

28. Whether I am talking about "good" or "bad" feelings seems to make no real difference in the way he feels toward me.

29. He seems like a real person, instead of just a teacher.

30. I can learn a lot about myself from talking with him.

31. He is a phony.

32. I sometimes get the feeling that for him the most important thing is that I should really like him.

33. He gives me so much advice I sometimes think he's trying to live my life for me.

34. He frequently acts so restless that I get the feeling he can hardly wait for the day to end.
35. There are lots of things I could tell him, but I am not sure how he would react to them, so I keep them to myself.

36. He constantly reminds me that we are friends though I have a feeling that he drags this into the conversation.

37. Sometimes he seems to be playing "cat and mouse" with me.

38. He often points out what a lot of help he is giving me even though it doesn't feel like it to me.

39. If I had a chance to study under a different instructor, I would.

40. He is always the same.

41. I would like to be like him.

42. He makes me feel like a guinea pig or some kind of animal.

43. He uses the same words over and over again, till I'm bored.

44. Usually I can lie to him and he never knows the difference.

45. He may like me, but he doesn't like the things I talk about.

46. He never says anything that makes him sound like a real person.

47. He is all right, but I really don't trust him.

48. He lets me talk about anything.

49. He probably laughs about the things that I have said to him.

50. I don't think he knows what is the matter with me.

51. He is really a cold fish.

52. There are times when I don't have to speak, he knows how I feel.
53. If I am happy or if I am sad, it makes no difference, he is always the same.

54. He knows what it feels like to be ill.

55. He must think he is God, the way he talks about things.

56. He interrupts me whenever I am talking about something that really means a lot to me.

57. There are a lot of things that I would like to talk about, but he won't let me.

58. He really likes me and shows it.

59. Often he makes me feel stupid the way he uses strange or big words.

60. He must think life is easy the way he talks about my problem.

61. You can never tell how he feels about things.

62. He seems to be bored by a good deal of what I talk about.

63. He will talk to me, but otherwise he seems pretty far away from me.

64. Even though he pays attention to me, he seems to be just another person to talk with, an outsider.
APPENDIX B

INSTRUCTIONS FOR COMPLETING THE JOB DESCRIPTION INDEX
AND DATA SHEET

1. Do not place your name or other identifying marks on the questionnaire or data sheet.

2. After reading each item on the questionnaire, decide whether you should answer yes, no, or cannot decide and mark as instructed in example.

3. Please complete the data sheet by checking the appropriate space under each of the items.

4. Complete anonymity is assured each person taking part in the current research.

5. When the students have finished the Truax Relationship Questionnaire (Modified) please collect the answer sheets and the questionnaire from the students. Enclose ONLY the student answer sheets and the forms you have completed in the envelope provided. Since this is a correlational study the student answer sheets and the teacher forms MUST remain together.

6. On page 2 of the Job Description Index, second item, you will notice "Satisfactory Profit Sharing." This phrase has been defined for this study to mean "Satisfactory Retirement."

7. Thank you for your time and cooperation.
Job Description Index
from the
Cornell Studies of Satisfaction

Data Sheet

Please complete the following in order that the correlational study can be completed. Circle the appropriate responses.

1. Sex: M F

2. Total years teaching experience:

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
   16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

3. Total years teaching experience this system:

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
   16 17 18 19 20 21 22 23 24 25 25 plus

4. Number of semester hours beyond Bachelor Degree in:

   Education 3 6 9 12 15 18 21 24 24 plus
   Psychology 3 6 9 12 15 18 21 24 24 plus

   Present Teaching Field 3 6 9 12 15 18 21 24 24 plus
   Other areas 3 6 9 12 15 18 21 24 24 plus
Think of your present work. What is it like most of the time? In the blank beside each work given below, write

<table>
<thead>
<tr>
<th>WORK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fascinating</td>
<td>Y</td>
</tr>
<tr>
<td>Routine</td>
<td>N</td>
</tr>
<tr>
<td>Satisfying</td>
<td>N</td>
</tr>
<tr>
<td>Boring</td>
<td>N</td>
</tr>
<tr>
<td>Good</td>
<td>N</td>
</tr>
<tr>
<td>Creative</td>
<td>N</td>
</tr>
<tr>
<td>Respected</td>
<td>N</td>
</tr>
<tr>
<td>Hot</td>
<td>N</td>
</tr>
<tr>
<td>Pleasant</td>
<td>N</td>
</tr>
<tr>
<td>Useful</td>
<td>N</td>
</tr>
<tr>
<td>Tiresome</td>
<td>N</td>
</tr>
<tr>
<td>Healthful</td>
<td>N</td>
</tr>
<tr>
<td>Challenging</td>
<td>N</td>
</tr>
<tr>
<td>On your feet</td>
<td>N</td>
</tr>
<tr>
<td>Frustrating</td>
<td>N</td>
</tr>
<tr>
<td>Simple</td>
<td>N</td>
</tr>
<tr>
<td>Endless</td>
<td>N</td>
</tr>
<tr>
<td>Gives sense of</td>
<td>Y</td>
</tr>
<tr>
<td>accomplishment</td>
<td>Y</td>
</tr>
</tbody>
</table>

Y for "Yes" if it describes your work
N for "No" if it does NOT describe it
? if you cannot decide
Think of the pay you get now. How well does each of the following words describe your present pay? In the blank beside each word, put

- Y if it describes your pay
- N if it does NOT describe it
- ? if you cannot decide

PAY

- Income adequate for normal expenses
- Satisfactory profit sharing
- Barely live on income
- Bad
- Income provides luxuries
- Insecure
- Less than I deserve
- Highly paid
- Underpaid
Think of the opportunities for promotion that you have now. How well does each of the following words describe these? In the blank beside each word, put

- **Y** for "Yes" if it describes your opportunities for promotion
- **N** for "No" if it does NOT describe them
- **?** if you cannot decide

<table>
<thead>
<tr>
<th>PROMOTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Good opportunities for advancement</td>
</tr>
<tr>
<td>_____ Opportunity somewhat limited</td>
</tr>
<tr>
<td>_____ Promotion on ability</td>
</tr>
<tr>
<td>_____ Dead-end job</td>
</tr>
<tr>
<td>_____ Good chance for promotion</td>
</tr>
<tr>
<td>_____ Unfair promotion policy</td>
</tr>
<tr>
<td>_____ Infrequent promotions</td>
</tr>
<tr>
<td>_____ Regular promotions</td>
</tr>
<tr>
<td>_____ Tally good chance for promotion</td>
</tr>
</tbody>
</table>
Think of the kind of supervision that you get on your job. How well does each of the following words describe this supervision? In the blank beside each word below, put

_Y_ if it describes the supervision you get on your job

_N_ if it does NOT describe it

_?_ if you cannot decide

SUPERVISION

_____ Asks my advice
_____ Hard to please
_____ Impolite
_____ Praises good work
_____ Tactful
_____ Influential
_____ Up-to-date
_____ Doesn't supervise enough
_____ Quick tempered
_____ Tells me where I stand
_____ Annoying
_____ Stubborn
_____ Knows job well
_____ Bad
_____ Intelligent
_____ Leaves me on my own
_____ Lazy
_____ Around when needed
Think of the majority of the people that you work with now or the people you meet in connection with your work. How well does each of the following words describe these people? In the blank beside each word below, put

- **Y** if it describes the people
- **N** if it does NOT describe them
- **?** if you cannot decide

**CO-WORKERS**

- [ ] Stimulating
- [ ] Boring
- [ ] Slow
- [ ] Ambitious
- [ ] Stupid
- [ ] Responsible
- [ ] Fast
- [ ] Intelligent
- [ ] Easy to make enemies
- [ ] Talk too much
- [ ] Smart
- [ ] Lazy
- [ ] Unpleasant
- [ ] No privacy
- [ ] Active
- [ ] Narrow interests
- [ ] Loyal
- [ ] Hard to meet
### CARKHUFF AND BERENSON FIVE POINT SCALE*

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>None of the conditions are present to any noticeable degree in the person (teacher)</td>
</tr>
<tr>
<td>1.5</td>
<td>Some of the conditions are present and some are not in the person (teacher)</td>
</tr>
<tr>
<td>2.0</td>
<td>All of the conditions are present at a minimally facilitative level in the person (teacher)</td>
</tr>
<tr>
<td>2.5</td>
<td>All of the conditions are present and some are exemplified by the person (teacher)</td>
</tr>
<tr>
<td>3.0</td>
<td>All of the conditions are fully present simultaneously and continually by the person (teacher)</td>
</tr>
</tbody>
</table>

APPENDIX D

Pilot Study

A pilot study was undertaken concomitant in order to determine the reliability of the Truax Relationship Questionnaire when the total number of items were reduced to 64 in place of the original 132 items which measured the areas of empathy, warmth, and genuineness.

The method of selection for the items to remain in the Truax Relationship Questionnaire (Modified) was as follows:

1. All of the items in the original scale measuring empathy, warmth, and genuineness, or any combination of these categories were identified and placed in their respective groups. A scoring key was utilized in order to determine the group to which each item related.

2. After grouping all the items as explained in Number 1 above, a proportional number from each category of empathy, warmth, and genuineness were selected to remain in the modified scale by making use of the Table of Random Numbers.

The Truax Relationship Questionnaire and the Truax Relationship Questionnaire (Modified) were administered to 60 freshmen college students. This administration was
separated by three days, with the original form being administered on Monday, and the modified form administered on Friday. One week later the same procedure was duplicated.

The Pearson Product Moment Correlation was calculated between the total scores obtained from each of the administrations of the long forms, between the administrations of the modified forms, and between each administration of the long and modified forms of the questionnaires.

In addition to the Pearson Product Moment Correlation run between the various combinations of the Truax Relationship Questionnaire, the Spearman-Brown formula was utilized in order to ascertain the relative effects on homogeneity by shortening the original scale.

The reliabilities for the various combinations of the forms used for the pilot study are given in Table I.

**TABLE I**

<table>
<thead>
<tr>
<th>Test Administration*</th>
<th>Reliability</th>
<th>Spearman-Brown</th>
</tr>
</thead>
<tbody>
<tr>
<td>$L_1 - L_2$</td>
<td>.88</td>
<td>.78</td>
</tr>
<tr>
<td>$M_1 - M_2$</td>
<td>.75</td>
<td>. .</td>
</tr>
<tr>
<td>$L_1 - M_1$</td>
<td>.77</td>
<td>. .</td>
</tr>
<tr>
<td>$L_2 - M_2$</td>
<td>.81</td>
<td>. .</td>
</tr>
</tbody>
</table>

* $L_1$-Long form of Truax Relationship Questionnaire, first administration; $L_2$-Long form of Truax Relationship Questionnaire, second administration; $M_1$-Modified form of Truax Relationship Questionnaire, first administration; $M_2$-Modified form of Truax Relationship Questionnaire, second administration.
The Pearson Product Moment Correlations between the long form at the first administration and the second administration was found to be .88. The correlation between the modified form at the first administration and second administration was found to be .75. The correlation between the long form at the first administration and the modified form at the first administration was found to be .77. The correlation between the long form at the second administration and the modified form at the second administration was found to be .81.

The Spearman-Brown formula was used, applying the reliability as ascertained between test-retest of the two long forms, and this reliability coefficient was calculated to be .78.

Since all of the correlations were found to be .70 or better, which Garrett* has indicated reflects a very high correlation and also having obtained a Spearman-Brown coefficient of negligible difference than those coefficients obtained from other sources, it was determined to make use of the Truax Relationship Questionnaire (Modified) for the current study.

CORRELATION BETWEEN THE TRUAX RELATIONSHIP QUESTIONNAIRE AND THE TRUAX RELATIONSHIP QUESTIONNAIRE (MODIFIED) (1ST TEST - RETEST)

\[
r = \frac{N \xi_{xy} - (\xi_x)(\xi_y)}{\sqrt{[N \xi_x^2 - \xi(x)^2][N \xi_y^2 - \xi(y)^2]}}
\]

\[
r = \frac{60(303.75) - (142.50)(121.50)}{\sqrt{[60(363.00) - (142.50)^2][60(261.75) - (121.50)^2]}}
\]

\[
r = \frac{18225.000 - 17313.923}{\sqrt{[2178.000 - 20306.250][15705.00 - 14762.25]}}
\]

\[
r = \frac{911.077}{\sqrt{389377.812500}}
\]

\[
r = \frac{911.077}{1178.718}
\]

\[
r = .7729
\]

\[
r = .77
\]
CORRELATION BETWEEN THE TRUAX RELATIONSHIP QUESTIONNAIRE AND THE TRUAX RELATIONSHIP QUESTIONNAIRE (MODIFIED) (2ND TEST - RETEST)

\[
r = \frac{N\bar{X}\bar{Y} - (\bar{X})(\bar{Y})}{\sqrt{[N\bar{X}^2 - \bar{X}^2][N\bar{Y}^2 - \bar{Y}^2]}}
\]

\[
r = \frac{60(315.75) - (147.00)(126.00)}{\sqrt{60(374.25) - (147.00)^2}[60(270.00) - (126.00)^2]}
\]

\[
r = \frac{18945.00 - 18522}{\sqrt{[22455.00) - (21609)][(16200.00) - (15870)]}}
\]

\[
r = \frac{423}{\sqrt{(846)(324)}}
\]

\[
r = \frac{423}{\sqrt{(846)(324)}}
\]

\[
r = \frac{423}{\sqrt{274104}}
\]

\[
r = \frac{423.000}{523.558}
\]

\[
r = .8079
\]

\[
r = .81
\]
CORRELATION BETWEEN THE FIRST AND SECOND ADMINISTRATION OF THE TRUAX RELATIONSHIP QUESTIONNAIRE (MODIFIED) (TEST - RETEST)

\[ r = \frac{N\bar{X}\bar{Y} - \bar{X}(\bar{X}) \bar{Y}}{\sqrt{\left[ N\bar{X}^2 - (\bar{X})^2 \right] \left[ N\bar{Y}^2 - (\bar{Y})^2 \right]}} \]

\[ r = \frac{60(353) - (126.00)(121.50)}{\sqrt{\left[ 60(363) - (126.00)^2 \right] \left[ 60(374.25) - (121.50)^2 \right]}} \]

\[ r = \frac{21180.00 - 15349.00}{\sqrt{[21780 - 15876][22455.00 - 14762.25]}} \]

\[ r = \frac{5831.00}{\sqrt{[5904.00)(7692.75)]}} \]

\[ r = \frac{5831.00}{\sqrt{45417996.0000}} \]

\[ r = \frac{5831.00}{6739.73} \]

\[ r = .8503 \]

\[ r = .85 \]
CORRELATION BETWEEN THE TRUAX RELATIONSHIP QUESTIONNAIRE AND THE TRUAX RELATIONSHIP QUESTIONNAIRE (LONG FORM) (TEST - RETEST)

\[ r = \frac{N \bar{X} \bar{Y} - (\bar{X})(\bar{Y})}{\sqrt{[N \bar{X}^2 - (\bar{X})^2][N \bar{Y}^2 - (\bar{Y})^2]} \]

\[ r = \frac{60(263.25) - (121.50)(126.00)}{\sqrt{[60(261.75) - (121.50)^2][60(270) - (126.00)^2]} \]

\[ r = \frac{15795.00 - 15309.00}{\sqrt{[1570.500 - 1476.225][1620.000 - 1587.600]} \]

\[ r = \frac{486.00}{\sqrt{(93.775)(32.400)}} \]

\[ r = \frac{486.00}{551.20} \]

\[ r = .8817 \]

\[ r = .88 \]
Appendix E

Correlation Coefficient for the Variable Total Facilitative Triad and the Joint Action of the Independent Variables Total Job Satisfaction and Total Years Teaching Experience after Shrinkage

Formula:

\[ r'_{1.23...n} = \sqrt{1 - \left(1 - r^2_{1.23...n}\right) \frac{N-1}{N-n}} \]

where \( N \) = number of cases and \( n \) = number of variables.

\[ r' = \sqrt{1 - (1 - .165) \left(\frac{37}{36}\right)} \]

\[ r' = \sqrt{1 - (1 - .165 \times 1.028)} \]

\[ r' = \sqrt{1 - (.835 \times 1.028)} \]

\[ r' = \sqrt{1 - .858} \]

\[ r' = .142 \]

\[ r' = .376 \]
Dear Mr. Close:

Thank you for your interest in the Job Descriptive Index and the related papers. A book summarizing the same material and subsequent work, entitled The Measurement of Satisfaction in Work and Retirement: A Strategy for the Measurement of Attitudes, by Patricia Cain Smith, Lorrie H. Kendall, and Charles L. Hulin, has recently been released by Brad McNally.

The copyright on the JDI is intended only to prevent misuse. It is not for sale. Permission is granted to duplicate and to use it for research purposes only. We also require that you send us the following information (for revision of norms):

- Code number of each participant
- Sex of each participant
- Age of each participant
- Annual salary or earnings
- Community name (city or county)
- Size of plant
- Size of parent company
- Tenure with company of each subject

A few words of advice. Print each scale on a separate page. Set up the scales so that you print write in each Y, P, or N in the same column of blanks following the descriptive scale. Double the scores on the Pay & Promotions scales if you are interested in comparison with the U.S. norms.

We wish you well in your research.

Sincerely,

Patricia Cain Smith, Ph.D.
APPENDIX G


\[ r_{nn} = \frac{nr_{11}}{1 + (n-1) r_{11}} \]

where \( r_{11} \) = the original reliability.
\( n \) = the ratio of the length of the second instrument to the length of the first instrument.

\[ r_{nn} = \frac{64}{132} (.88) \]
\[ 1 + \frac{64}{132} - 1.000 \cdot .88 \]

\[ r_{nn} = .4848 (.88) \]
\[ 1 + (.4848 - 1.00) \cdot .88 \]

\[ r_{nn} = .426624 \]
\[ 1 + (-.5152) \cdot .88 \]

\[ r_{nn} = .426624 \]
\[ 1 + (-.453376) \]

\[ r_{nn} = .426624 \]
\[ .556624 \]

\[ r_{nn} = .7804 \]

\[ r_{nn} = .78 \]
## APPENDIX H

**CONVERSION TABLE FOR RAW SCORES FROM TRUAX RELATIONSHIP QUESTIONNAIRE (MODIFIED) TO CARKHUFF AND BERENSON FIVE LEVELS OF FACILITATION**

<table>
<thead>
<tr>
<th>C&amp;B Level</th>
<th>Empathy</th>
<th>Warmth</th>
<th>Genuineness</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>≤ 10</td>
<td>≤ 16</td>
<td>≤ 13</td>
<td>≤ 38</td>
</tr>
<tr>
<td>1.5</td>
<td>≤ 12</td>
<td>≤ 18</td>
<td>≤ 15</td>
<td>≤ 43</td>
</tr>
<tr>
<td>2.0</td>
<td>≤ 13</td>
<td>≤ 20</td>
<td>≤ 16</td>
<td>≤ 47</td>
</tr>
<tr>
<td>2.5</td>
<td>≤ 16</td>
<td>≤ 25</td>
<td>≤ 20</td>
<td>≤ 60</td>
</tr>
<tr>
<td>3.0</td>
<td>≤ 19</td>
<td>≤ 30</td>
<td>≤ 24</td>
<td>≤ 73</td>
</tr>
<tr>
<td>3.5</td>
<td>≤ 21</td>
<td>≤ 33</td>
<td>≤ 26</td>
<td>≤ 80</td>
</tr>
<tr>
<td>4.0</td>
<td>≤ 22</td>
<td>≤ 35</td>
<td>≤ 28</td>
<td>≤ 86</td>
</tr>
<tr>
<td>4.5</td>
<td>≤ 23</td>
<td>≤ 36</td>
<td>≤ 29</td>
<td>≤ 87</td>
</tr>
<tr>
<td>5.0</td>
<td>≤ 23</td>
<td>≤ 36</td>
<td>≤ 29</td>
<td>≤ 99</td>
</tr>
</tbody>
</table>
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