

INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

- 1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.**
- 2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.**
- 3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.**
- 4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.**
- 5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.**

Xerox University Microfilms

300 North Zeeb Road
Ann Arbor, Michigan 48106

75-21,840

WINCHESTER, Elwood Odie, 1918-
DIFFERENCES ON AN INTERACTIVE COMBINATION OF
DEGREE OF DEMOCRATIC ORIENTATION AND POSITIVE
SELF-EVALUATION AMONG TEACHERS WITH VARYING
LEVELS OF TEACHING EXPERIENCE.

The University of Oklahoma, Ed.D., 1975
Education, general

Xerox University Microfilms, Ann Arbor, Michigan 48106

THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

DIFFERENCES ON AN INTERACTIVE COMBINATION OF DEGREE OF
DEMOCRATIC ORIENTATION AND POSITIVE SELF-EVALUATION
AMONG TEACHERS WITH VARYING LEVELS OF
TEACHING EXPERIENCE

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF EDUCATION

BY
ELWOOD ODIE WINCHESTER

Norman, Oklahoma

1975

DIFFERENCES ON AN INTERACTIVE COMBINATION OF DEGREE OF
DEMOCRATIC ORIENTATION AND POSITIVE SELF-EVALUATION
AMONG TEACHERS WITH VARYING LEVELS OF
TEACHING EXPERIENCE

APPROVED BY

O. J. Dupuis
Charles R. Hickey
Mary Clare Petty
William H. Hume

DISSERTATION COMMITTEE

ACKNOWLEDGMENTS

This dissertation represents the efforts of several people. The author is grateful to Dr. Omer J. Rupiper, major professor and committee chairman, for his continual guidance throughout the period of the doctoral program and for his expert advice and suggestions on this research problem. Additionally, the writer is indebted to Dr. Mary Petty, Dr. Charlyce King, and Dr. William Graves, the other members of the committee, for their kind assistance.

Appreciation is also expressed to Dr. Wendell Altmiller and his staff in the School of Education and Psychology at East Central University for their assistance in the gathering of data. A special expression of gratitude is due my friends, Dr. Roy Maxwell, Dr. Ray Stout, Dr. Joe Parsons, Dr. Gerald Boggs, Dr. Reubin Wigdor, and Mr. Bruce Harrison for their interest and encouragement throughout this study.

Last, but not least, the pursuit of the doctoral degree would have been impossible without the faith and encouragement of my wife, Nannie Lee. Her secretarial assistance was also a great support in attaining this goal.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
 Chapter	
I. INTRODUCTION	1
Review of Relevant Literature on the History of Self-Acceptance	2
Review of Relevant Literature on the Measurement of Self-Acceptance	4
Other Related Research	7
Summary of Literature	10
II. THE PROBLEM AND PROCEDURES	11
Statement of the Problem	11
Operational Definitions	12
Statement of the Purpose	13
Limitations of the Study	14
Hypotheses	14
General Statement of the Procedures	15
Instruments	17
Subjects	20
III. DESIGN AND STATISTICAL ANALYSIS	21
Design	21
Statistical Analysis	23
Results	27
IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	36
Summary	36
Conclusions	38
Recommendations	39
REFERENCES	41
APPENDIX A	45

LIST OF TABLES

Table	Page
1. Raw Scores for Three Groups on Two Scales . . .	25
2. Subjects With Largest Probability and Square of Distance from and Posterior Probability for the Student Teacher Group	46
3. Subjects With Largest Probability and Square of Distance from and Posterior Probability for the Less Experienced Group	48
4. Subject With Largest Probability and Square of Distance from and Posterior Probability for the More Experienced Group	50
5. Means and Standard Deviations for the Three Levels of Teaching Experience on Two Measurement Instruments	29
6. Discriminant Function Centroids for the Three Levels of Teaching Experience	32
7. Results of the Scheffé Multiple-Comparison Tests	35

LIST OF FIGURES

	Page
Figure	
1. Scatter Diagram Representing a Distribution of Two Variables X_1 and X_2	28
2. The Three Group Centroids in the Discriminant-Function Space	33

DIFFERENCES ON AN INTERACTIVE COMBINATION OF DEGREE OF
DEMOCRATIC ORIENTATION AND POSITIVE SELF-EVALUATION
AMONG TEACHERS WITH VARYING LEVELS OF
TEACHING EXPERIENCE

CHAPTER I

Introduction

Phenomenonological psychologists have theorized that the basis for personality and behavior lies in the individual's perceptual field. This perceptual field is constituted by the individual's image of himself and his perception of the things he experiences in the world around him. The self-concept seems to be the primary determiner of behavior as a positive view of self gives its owner a tremendous advantage in dealing with life. It provides the basis for great personal strength. In feeling positive about oneself, an adequate person can meet life expecting to be successful. Because he expects success, he behaved in ways that tend to bring it about (Dumas, 1969).

The implications of this premise have for years been advocated and sometimes applied by teachers in working with children in the classrooms. It is important for teachers to arrange an experience for each child in which some degree

of success is attained and the child perceives himself as successful. The same premise may well be applied to the student teacher. The student teacher has, by the time he enters the classroom as a teacher, developed a way of viewing himself along a continuum of plus or minus. He is faced now with an entirely different context within which he must see himself. This is a new and different world, a new environment, in which he has little or no assurance that his past perceptions of himself will remain compatible. As the other half of the student teacher's perceptual field changes, it is anticipated that the self-concept will also undergo change in many instances (Bem, 1967).

Bem's theory of self-perception also predicts that behavior should influence attitudes. According to this theory a person infers his attitudes by observing his own behavior.

Relevant Literature on the History of Self-Acceptance

Self-report techniques have constituted one of the principal methods by psychologists to assess a person's self-acceptance ever since Rogers developed it into a major theoretical system. A person's expressed self-evaluation was a significant determinant of his behavior as well as his tendency to act in a socially desirable fashion (Crowne, Stephens, & Kelly, 1961).

Wylie (1973) in a review of the literature regarding self-concept encountered an area which was profuse, disorganized, and prohibitive of meaningful synthesis. The common errors in the studies she reviewed were insufficient numbers of different control groups and the tendency of researchers to overgeneralize the conclusions and implications of their studies.

Omwake (1954) stated that psychiatrists and clinical psychologists had observed a relationship between the attitude toward the self shown by the patient and his attitude toward other people. For that reason, the person who accepted himself would have better interpersonal relations with other patients as well as with members of the clinical staff.

Several attempts were made to see to what extent those observations made by clinicians held true for the larger, more normal population, as well as in those who had undergone therapy. Attitudes toward the self appeared to be reflected in attitudes toward other people; the lower the opinion of the self, the lower the opinion of others. Only when the self was regarded with a fairly high degree of acceptance was it possible to relate effectively to others, to understand them, and to regard them as persons of worth.

Lantz (1964) described the term self as those attitudes and feelings a person held about himself. The self-theorist stated that individuals displayed a basic need for a consistent self-organization by their constant compulsion to unify and harmonize their own system of ideas.

Gage (1965) considered why researchers continued to search for relationships between teacher characteristics and pupil growth when their rewards were so meager. His tentative answer was that the need for knowledge in this area was pressing. He suggested that the upsurge in the amount and quality of research on teaching in the past ten years may have made the results of research done prior to that time obsolete. He concluded that a review of literature at that time allowed for the selection of five global characteristics which seemed to be components of effective teaching. The five he selected were (a) warmth, (b) cognitive organization, (c) orderliness, (d) indirectness, and (e) problem-solving ability.

Medley and Mitzel (1963) also concluded that much of the work on teacher effectiveness had to be discarded as irrelevant because no objective measures of teacher behavior had been used. After discussing assumptions underlying collections of classroom observational data and limitations of studies utilizing rating scales they noted that more powerful statistical methods helped to identify differences between teaching behaviors and their effects.

Relevant Literature on the Measurement of Self-Acceptance

The concept of self-acceptance had achieved prominence in current personality research and with its popularity there

had been a corresponding interest in the development of measurement techniques. Raimy's (1948) classic measure of self-acceptance, involving the categorization of self-reference statements in client-centered therapy as positive, negative, or ambivalent, was followed by the Chicago Q sort (Butler & Haigh, 1954) introducing the now widely used model of a discrepancy between the self-concept and the concept of the ideal self as an index of self-acceptance.

A variety of other self-acceptance tests had been developed, which employed different models and variants of the self-ideal discrepancy measure: a "positive self-concept" minus "negative self-concept" (Brownfain, 1952); adjective check lists (Buss & Gerjuoy, 1957; Gough, 1955); and self-rating scales using item weights (Berger, 1952).

Gewinner (1968) used the Minnesota Teacher Attitude Inventory (MTAI) and found that student teachers tended to change strongly in the direction of more authoritarian attitudes when they began student teaching. Muuss (1969) found a pattern that was repeated frequently in other studies. During a period of academic courses in education on the college campus, he found that MTAI scores increased significantly among fifty-two students in a fifth-year graduate program. During a following internship, however, their attitudes declined strongly.

Osmon (1959) found a significant loss in the MTAI score during student teaching among 222 secondary student

teachers. Many of those who declined in their scores decided not to seek a teaching position the following year. Jacobs (1967) studied the attitude changes of one thousand education students during their initial academic preparation and during the student teaching phase of their training. In the initial phase the students changed away from more rigid and formal types of responses to more informal and personal styles. In the student-teaching phase, however, the changes were exactly the opposite: toward a more rigid and impersonal style of response. In contrast, Hoover and Schultz (1968) found changes in the student-teacher phase to be toward a less rigid and impersonal style of response.

Matthew (1967) applied interaction analysis to the measurement of fifty-two student teachers over a period of three years. He found that by the end of the student-teaching experience the student teachers became more restrictive of student behavior, showed less acceptance of student ideas, and that the frequency and length of student response to their questions decreased. When this study was put alongside the group of MTAI studies, it suggested that the negative changes in student teachers' attitudes toward their students could have been quite real.

Perrodin (1969) found that student teachers made significant improvements in professional attitudes, as measured by the MTAI, when they were placed with cooperating teachers who had received a special preparation program in supervising

student teachers. According to Perrodin's study, one way to improve student teachers' professional attitudes was to make improvements in teacher training programs.

Callis (1950) concluded that Minnesota Teacher Attitude Inventory scores had sufficient stability to warrant further investigation as to their efficiency in predicting teacher-pupil relations and in pre-training selection of teachers. Significant differences in teacher-pupil attitudes among subjects classified by their major curriculum were also noted. These differences were present in about the same magnitude at the beginning of professional training as at the end of it, with the early childhood education majors ranking highest in positive teacher-pupil relations and the special field majors ranking lowest as a group.

Other Related Research

Soderbergh (1964) concluded from his experience and observation that some experienced public school teachers were resistant to change, could not easily tolerate ambiguity, and tended to compartmentalize their attitudes toward an authoritarian style of behavior. Contrary to Soderbergh's conclusions, Rabkin (1966) concluded that experienced teachers were no more authoritarian, resistant to change, or intolerant toward ambiguity than less experienced teachers or student teachers. Frumkin (1961) found that as students advanced in college, they became less resistant to change and that juniors

and seniors displayed a more democratic orientation toward life in general than freshmen or sophomores.

The particular value of the Adjective Check List (ACL) approach was that it could offer words and ideas commonly used for description in everyday life in a format which was systematic and standardized. The approach tended to be idio-graphically oriented in that one thought only of the person or event being described, and non-technical in that no special knowledge or competence was presumed (Gough and Heilbrun, 1965).

Wrenn (1958) noted an increase in studies of the self-concept in its various expressions and stated that self-theories were operational in nature and subjective to hypothesis testing. Wrenn felt that excellent and serious research had been consummated which presented new vistas for study and for the application of the self-concept phenomenon.

The terms "self" and "self-concept" are often used interchangeably. Hall and Lindzey (1970) stated that among self theorists the term "self" has come to have two distinct meanings:

The first meaning may be called the self-as-object definition since it denotes the person's attitudes, feelings, perceptions, and evaluations of himself as an object. In this sense, the self is what the person thinks of himself. The second meaning may be called the self-as process definition. The self is a doer, in the sense that it consists of an active group of processes such as thinking, remembering, and perceiving (p. 468).

The self-as-object concept, which was used in this study, may be regarded as a developmental formation in the psychological make-up of the individual consisting of inter-related attitudes. These attitudes are acquired in relation to one's own body, to objects, family, persons, groups, social values, and institutions which define and regulate his relatedness to them in concrete situation, therefore self-attitudes may be studied as readily as are other attitudes (Kinch, 1963).

While caution was taken in guarding against an over-generalized picture of the good or effective teacher, or the opposite exemplified by the inferior, or ineffective teacher, the results of a variety of investigations did point to certain recurring descriptions which may have had some validity in so far as contemporary culture in the United States was concerned. The evidence suggested leads and clues which provided starting points for thinking about teaching competencies and for more intensive investigations which opened the way for more adequate conceptualizing about teacher performance (Ryans, 1960).

Taylor (1964) stated that the concept of self was relatively stable and that changes in the external environment, other than traumatic or euphoric experiences, did not usually alter the self-concept markedly. Many different methods of assessing self-acceptance have been used in the past and they were moderately positively correlated. If the subjects were consistent in their self-evaluation, then the question arose

as to why so many diversities appeared in previous research.

Summary of Literature

1. A major problem and handicap in the study of self-concept has been the lack of harmony in research findings. This situation obviously produces confusion in interpreting various studies.

2. The appearance of attitude and self-concept scales, especially the Minnesota Teacher Attitude Inventory and the Adjective Check List, spurred a great number of researchers to investigate the self-concept. This type of measurement put emphasis on the subjective viewpoint of self-perception rather than on the objective viewpoint of how he feels others perceive him.

3. The most recent views differentiated between inexperienced and experienced teachers and concluded that some experienced public school teachers were highly resistant to change, unable to tolerate ambiguity, and tended to compartmentalize their attitudes. Contrary to this viewpoint, other researchers concluded that more experienced teachers were no more authoritarian or resistant to change than less experienced teachers or student teachers.

4. This diversity of evidence concerning the attitudes and self-concept of both experienced and inexperienced teachers demonstrated the need for further research.

CHAPTER II

THE PROBLEM AND PROCEDURES

Statement of the Problem

The problem of this study was to investigate whether differentiation among three groups of teachers was possible according to their performance on the ACL and MTAI and subsequently, to reduce the size of the space in which it is necessary to cognize regions of classification through analysis by the use of discriminant function. This study was also concerned with the variability in the discriminant space which was relevant to group differentiation in hopes that it might serve as a measure of the total discriminatory power residing in the discriminant functions or in the predictor battery as a whole.

The theoretical framework used in developing the statement of the problem was that developed by Dumas (1969) and Bem (1967) who viewed the self as something which had a development; it was not initially there at birth, but it arose in the process of social experience and activity, that is, it developed in the given individual as a result of his relations to that process as a whole and to other individuals

within that process. . The problem of the study, then, is expressed in the following question: Do teachers of varying levels of teaching experience differ significantly on an interactive combination of degree of democratic orientation toward teaching and positiveness of self-evaluation?

Operational Definitions

For purposes of this investigation, significant terms to be used are defined in the following statements:

1. Democratic Orientation of Teachers - the scores obtained from the MTAI. Cook, Leeds & Callis (1951) stated that a teacher ranking high on this scale should be able to maintain a state of harmonious relations with his pupils characterized by mutual affection and sympathetic understanding.
2. Self-Evaluation of Teachers - the number of most favorable adjectives checked divided by the total number of adjectives checked on the ACL. The ACL Manual (1965) stated that higher scores on this scale are assumed to be indicative of a more positive self-evaluation.
3. Teaching Experience - the number of school years a person has spent in a classroom teaching students in grades kindergarten through twelve. Student teaching was not considered teaching experience. Teaching experience was divided into the following categories:

(a) Student teachers - students who were in their last semester of teaching training with no teaching experience.

(b) Less Experienced Teachers - graduate students with four years or less of teaching experience and employed at the time as teachers.

(c) More Experienced Teachers - graduate students with five years or more of teaching experience and employed at the time as teachers.

Statement of the Purpose

Self-attitudes have all the dimensions of other attitudes, i.e., content, direction, intensity, importance, salience, consistency, stability, and clarity. In addition, self-attitudes have properties that are different from other attitudes, i.e., any study dealing with a number of subjects is dealing with as many objects of attitudes as there are subjects, there is motivation for everyone to hold positive attitudes, and self-attitudes are of universal importance to the subjects, thus emphasizing the motivational-affective components of self-attitudes.

Although many studies have been conducted in the area of interpersonal perception, few have used teachers as subjects. Interpersonal perception has been an important factor influencing behavior as the interpersonal perceptions held by a teacher influenced the nature and direction of the

instruction in the social milieu of the classroom. An increased understanding of the interpersonal perceptions of teachers might prove beneficial in further understanding the teacher-learning process.

Limitations of the Study

The following limitations were applicable to this study:

1. This study was limited to resident undergraduate students and commuter graduate students in the School of Education at East Central University.
2. The self-evaluating data was limited to the MTAI and ACL scales.
3. No treatment of sex was dealt with as female subjects outnumbered male subjects almost two to one.
4. No treatment of teaching level was dealt with as elementary teachers outnumbered secondary teachers considerably.
5. Subjects were not asked to report their exact number of teaching experience years, but responded to only one of three possible choices: more experienced teacher, less experienced teacher or student teacher.

Hypotheses

For the purpose of the present study, the following scientific hypothesis was tested:

H₁: In a discriminant analysis a linear combination of degree of democratic orientation toward teaching and positiveness

of teacher self-evaluation will significantly discriminate among more experienced teachers, less experienced teachers, and student teachers.

In order to test this scientific hypothesis, the following null hypothesis was developed:

H_0 : In a discriminant analysis, a linear combination of degree of democratic orientation toward teaching and positiveness of teacher self-evaluation will show no significant difference among more experienced teachers, less experienced teachers, and student teachers.

General Statement of Procedures

The study began by defining the problem as a concern for information concerning the possible differentiation of three groups of teachers with varying amounts of teaching experience on an interactive combination of degree of democratic orientation toward teaching and positive self-evaluation. Since the three groups of subjects were defined a priori by amount of teaching experience, the problem was examined by the discriminant model in order to maximize the differences among criterion groups.

Nunnally (1967) stated that there are three related problems in discriminant analysis: (a) determining whether or not differences in score profiles for two or more groups are statistically significant, (b) maximizing the discrimination among groups by combining the variables in some manner,

and (c) establishing rules for the placement of new individuals into one of the groups. All three functions of discriminant analysis were dealt with in this study.

Permission was obtained to administer the Adjective Check List and the Minnesota Teacher Attitude Inventory to all undergraduate East Central University students in the fall 1974 block and to all graduate students who were teachers and members of East Central University's evening or night classes. The subjects were given an answer sheet to the ACL containing 300 adjectives and asked to read them quickly and blacken the circle beside each one they considered to be self-descriptive. There was no time limit on this instrument, but the subjects were encouraged not to spend too much time on any one adjective and to be frank by marking only the adjectives which were most self-descriptive as they felt they really were, and not as they would like to be.

The Minnesota Teacher Attitude Inventory was the second instrument administered. The subjects read the directions on the front page of the booklet then proceeded to answer each of the 150 items. There was no time limit but the subjects were encouraged to work rapidly and indicate first impressions rather than to deliberate over any one item. Subjects were reminded to make their response according to the most generally occurring situations rather than to specific or unusual situations. No questions concerning the interpretation of items were answered by the examiner in

order to maintain the subject's interpretation. Total scores on both the ACL and MTAI for each of the three groups were used in a discriminant model in order to extract orthogonal factors. The independent variable of the study was the amount of teaching experience and the dependent variable was the interactive combination of ACL and MTAI scores for each of the three groups expressed as centroids.

Instruments

Since time is an important consideration for both the university teacher and student, inventories with relatively short administration time are especially useful. The two inventories described in this study did not require an inordinate amount of administration time.

The MTAI was developed to measure attitudes toward teacher-pupil relationships. It was developed by administering over 700 items to 100 teachers nominated by their principals as superior in pupil-teacher relations and 100 nominated by their principals as inferior. Cross validation of the resulting 150 item inventory in different groups yielded concurrent validity coefficients of .46 to .60 with a composite criterion derived from principals' estimates, pupils' ratings, and evaluation by a visiting expert. Split-half reliability for the MTAI is .92 (Teigland, 1966).

According to investigations carried on by the MTAI authors over the past ten years, attitudes of teachers toward students and school work can be measured with high

reliability and they are significantly correlated with the teacher-pupil relations found in the teachers' classrooms. The MTAI was designed to measure those attitudes of a teacher which predict how well he will get along with pupils in interpersonal relationships, and indirectly how well satisfied he will be with teaching as a vocation. The authors suggested that the higher the score of an individual, the greater the probability that this person will conduct a democratic classroom.

The ACL was chosen for use because of its extensive employment in past research. Included in the ACL are 300 behavioral adjectives from which a person is requested to choose those which are most self-descriptive. Although the printed instructions call for self-reports, many studies using this instrument have varied the instructions widely. In fact, the manual claims that the ACL can be administered to persons to elicit characterizations of anyone with whom they are familiar, or by raters and judges to record the personality attributes of subjects being evaluated.

Three types of reliability studies have been reported in the ACL Manual: reliability of the scales; test-retest reliability concerning the list of words; and agreement among judges. Regarding reliability of scales, experimental samples of undergraduate college students, high school students, adult males, and medical school students have been used for subjects. Test-retest intervals have varied from ten weeks to five and

one-half years. Most of the scales were found to possess moderate reliability over the ten-week interval. A few scales, such as Dominance, Self-Confidence, and Exhibition showed high reliability over the five and one-half year interval.

With respect to agreement between judges on reliability, Gough had ten observers describe each assessee on the ACL. The inter-group reliability coefficients ranged from .61 to .75. The ACL Manual states that these values are high enough to suggest that the ACL can be used by trained observers.

The ACL Manual also cited a large number of investigations on the validity of the ACL. In one of them (Heilbrun, 1958) the need scales of the ACL were compared to their counterparts on the Edwards Personal Preference Schedule. Analysis of the data yielded significance beyond the .01 level of confidence in ten of the fifteen coefficients.

The origin of the ACL was found in the grammar of language, in the involvement of a particular class of words (adjectives) for description and specification. Seventy-five of the adjectives had been classified as "most favorable." A total self-evaluation score on the ACL was obtained by counting the number of most favorable adjectives checked divided by the total number of adjectives checked (Pedersen, 1969). Each ACL score was then multiplied by 100 in order to produce a whole number score.

Sarbin and Rosenberg (1955) suggested that:

Preliminary analysis indicated a satisfactory consistency of the test with a split-half reliability of .81. No argument is advanced that the ACL is the only appropriate method, but the conclusion is warranted that the method is suitable for getting at meaningful self-attributes quickly and with a minimum of effort. From our theoretical position, the ACL appears to meet the criterion of relevance. In addition, the adjective checking method possesses rational or logical validity (p. 71).

Subjects

Two hundred and six students served as subjects in this study, all of whom were enrolled in either day, evening, or night classes at East Central University, Ada, Oklahoma. The number of subjects in each of the three groups were eighty-six student teachers, seventy less experienced teachers and fifty more experienced teachers. Only student teachers who planned to teach and graduate students, whose amount of teaching experience exceeded their amount of experience as a counselor or administrator, were asked to participate.

For inclusion in the subsequent experimental procedure it was necessary that each individual identify himself only by social security number and amount of teaching experience expressed as either student teacher, less experienced teacher, or more experienced teacher. The subjects who had started teaching in the fall of 1974 were placed in the less-experienced group.

CHAPTER III

DESIGN AND STATISTICAL ANALYSIS

Design

According to Kerlinger (1974), the two most important forms of statistical analysis, especially at the present stage of development of the behavioral sciences and education, are multivariate analysis and factor analysis. Multivariate analysis is a general term used to categorize a family of analytic methods whose chief characteristic is the simultaneous analysis of "k" independent variables and "m" dependent variables. When dealing with two groups, the discriminant function is nothing more than a multiple regression equation with the dependent variable a nominal variable (coded 0,1) representing group membership. When dealing with three groups, as was done in the present study, discriminant analysis goes beyond multiple regression methods. The multiple discriminant function is based on a linear combination of variables, so in that sense, a linear discriminant function is a factor. Linear discriminant functions, then, are special types of factors, those that serve to discriminate among a priori groups of subjects.

The discriminant model may be interpreted as a special type of factor analysis that extracts orthogonal factors of the measurement battery for the specific task of displaying and capitalizing upon differences among criterion groups. The model derives the components which best separate the cells or groups of a taxonomy in the measurement space.

A large value for any P_i does not necessarily mean that the battery as a whole has a large discriminatory power. It simply indicates that a certain per cent of whatever discriminatory power the battery possesses is accounted for by the first discriminant function, and the remaining per cent of the power resides in the remaining discriminant function. Thus, P_i is merely a measure of how the total discriminatory power of the entire set of predictors is apportioned or "parcelled out" to each discriminant function and is not an index of the discriminatory power of the whole battery (Tatsuoka, 1970).

The sample of the several populations, in the use of discriminant analysis, may be viewed as the dependent criterion and the discriminant functions viewed as the best prediction functions of the independent predictor vector variable defining the measurement space, or the groups may be viewed as the independent "treatment" variable and the discriminant functions viewed as the most predictable functions of the dependent vector variable. The taxonomic variable is more likely to be the criterion variable in survey

science, whereas it is almost certain to be the independent treatment variable in experimental research.

Statistical Analysis

Cooley and Lohnes (1971) contended that the best reduced-rank model for effectively describing the measured differences of groups can be made in research studies involving several samples from different populations. It must also be assumed that the populations located at different places in a multivariate measurement space were samples from populations having common dispersion. In multiple discriminant analysis the samples were projected from their places in the complete measurement space into a suitable subspace. The results of multiple discriminant analysis were phrased in terms of:

1. The number of discriminant functions retained (the rank of the discriminant model) and the relative importance of each discriminant function.
2. The location of each discriminant function as a reference vector spanning a dimension of the selected subspace of the full space, expressed in terms of structure correlation coefficients.
3. The mappings of the groups into the discriminant space, the means and standard deviations of the groups on the functions.

Computations for the statistical analysis in this study were done with the use of a BMD load module, educational statistical package and the conversational statistical package Scheffé multiple-comparison tests, which were supplied by the University of Oklahoma Computer Center. The sets of raw score measurements for each individual in the three separate selected groups are shown in Table 1.

Subjects with largest probability and square of distance from the posterior probability for the student teachers, less experienced teachers, and more experienced teachers are shown in Tables 2, 3, and 4, respectively, Appendix A. Data presented in Table 2 indicates 63 student teachers, 12 less experienced teachers and 11 more experienced teachers scored nearer the student teacher centroid. Table 3 indicates 33 student teachers, 28 less experienced teachers, and 9 more experienced teachers scored nearer the less experienced centroid. Table 4 indicates 21 student teachers, 21 less experienced teachers, and 8 more experienced teachers scored nearer the more experienced centroid.

A point in a two dimensional space defined by the two variables is shown in Figure 1 where different symbols $\square$, $\bigcirc$, and $\triangle$ were used to plot the points of the individuals in each of the different groups to determine whether or not each symbol tended to be separated from the other two. Raw scores were used on both instruments. High scores on the MTAI were interpreted as a high level of agreement with

TABLE 1

THE SETS OF RAW SCORE MEASUREMENTS FOR
EACH INDIVIDUAL IN THE THREE
SEPARATE SELECTED GROUPS

Group 1 (n ₁ =86) Student Teacher		Group 2 (n ₂ =70) Less Experienced Teacher		Group 3 (n ₃ = 50) More Experienced Teacher	
X ₁ MTAI	X ₂ ACL	X ₁ MTAI	X ₂ ACL	X ₁ MTAI	X ₂ ACL
24	41	12	52	40	46
00	65	20	60	78	51
12	61	61	40	58	52
35	43	35	55	39	70
20	54	47	46	74	47
12	47	81	67	66	57
38	48	52	42	85	58
20	47	80	52	50	43
10	54	52	55	37	40
00	50	45	47	35	51
10	43	52	51	47	55
00	30	72	52	87	66
35	30	24	56	91	67
64	40	58	34	61	54
72	53	53	49	35	53
39	41	29	38	94	59
35	37	31	52	67	66
16	47	13	58	49	62
10	39	56	57	37	44
19	36	93	51	44	50
50	53	00	62	42	35
65	60	49	43	56	45
52	50	35	54	48	60
53	58	00	45	50	25
10	59	15	23	59	63
12	57	25	41	57	56
59	34	18	44	37	15
06	45	49	44	65	44
08	67	43	54	39	58
00	37	11	56	44	40
11	52	55	47	34	46
40	53	55	47	00	55
07	53	46	54	09	75

TABLE 1
(continued)

Group 1 ($n_1=86$) Student Teacher		Group 2 ($n_2=70$) Less Experienced Teacher		Group 3 ($n_3=50$) More Experienced Teacher	
X ₁ MTAI	X ₂ ACL	X ₁ MTAI	X ₂ ACL	X ₁ MTAI	X ₂ ACL
61	44	25	50	11	58
08	42	35	68	46	49
61	40	25	58	70	52
00	37	46	68	54	50
12	64	42	60	00	58
11	56	00	36	34	49
09	52	04	67	09	52
76	49	66	41	69	67
47	40	86	47	33	45
12	64	90	55	44	46
07	32	63	30	72	57
04	47	47	64	67	46
07	44	58	41	35	48
11	53	52	61	66	50
79	55	25	45	43	48
19	32	35	53	47	53
47	61	37	66	58	18
15	30	11	52		
38	41	40	38		
37	55	25	73		
79	46	40	58		
24	46	36	60		
79	44	32	69		
45	49	29	73		
17	47	18	57		
56	53	25	49		
24	60	75	42		
09	40	39	55		
65	44	35	50		
24	50	56	60		
07	47	20	72		
15	50	61	58		
06	35	47	80		
47	62	49	42		
12	60	83	54		
00	46	65	64		
30	56	52	77		

TABLE 1
(continued)

Group 1 (n ₁ =86) Student Teacher		Group 2 (n ₂ =70) Less Experienced Teacher		Group 3 (n ₃ =50) More Experienced Teacher	
X1 MTAI	X2 ACL	X1 MTAI	X2 ACL	X1 MTAI	X2 ACL
00	47				
00	46				
61	60				
15	45				
38	43				
35	54				
61	45				
75	50				
43	53				
00	50				
24	50				
37	30				
49	50				
35	33				
00	50				
10	40				

specified attitude statements and a high probability that this person will conduct a democratic classroom. High scores on the ACL were interpreted as a high level of agreement with 75 specified adjectives that best characterize positive personality characteristics of persons being evaluated.

Results

As shown in Table 5, student teachers had the lowest mean raw score on the Minnesota Teacher Attitude Inventory while the more experienced teachers had the highest mean raw score. The student teachers also had the lowest mean raw

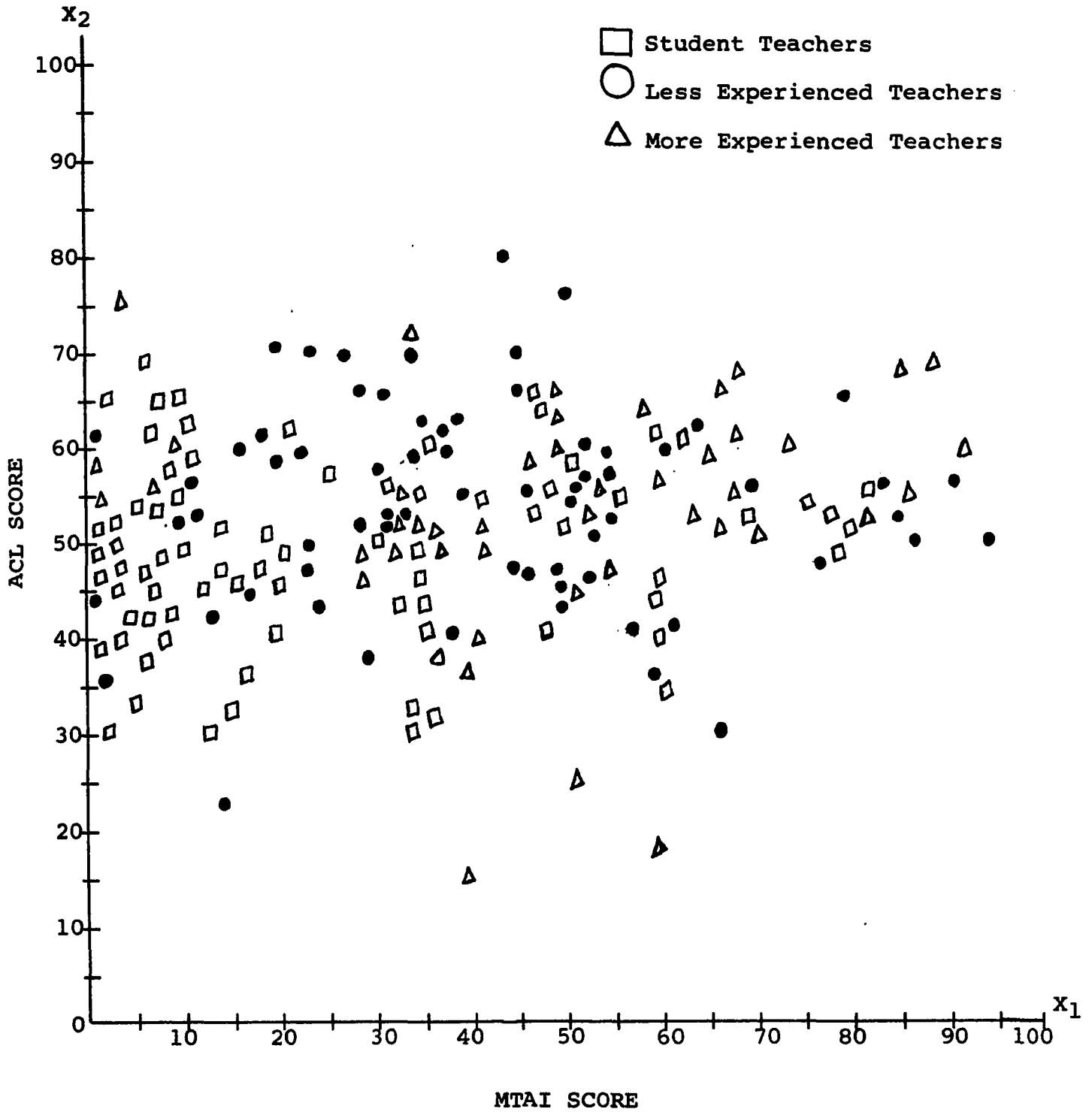


Fig. 1. Scatter Diagram Representing a Distribution of Two Variables, X_1 and X_2 .

TABLE 5

MEANS AND STANDARD DEVIATIONS FOR THE THREE
LEVELS OF TEACHING EXPERIENCE ON
TWO MEASUREMENT INSTRUMENTS

Group	MTAI		ACL	
	M	S.D.	M	S.D.
Student Teacher	28.220	23.493	47.709	8.960
Less Experienced Teacher	42.014	22.217	53.157	11.179
More Experienced Teacher	49.239	21.646	51.080	11.598

score on the Adjective Check List while the less experienced teachers had the highest. The standard deviation for each group was high as the range of scores for each group was also high. The student teachers had a range of zero to 79 on the MTAI and 30 to 67 on the ACL. The less experienced teachers had a range of zero to 93 on the MTAI and 23 to 80 on the ACL. The more experienced teachers had a range of zero to 94 on the MTAI and 15 to 75 on the ACL.

Table 5 also indicated that as amount of teaching experience increased for the three groups on the MTAI, the raw score means also tended to increase while the standard deviations tended to decrease. As the amount of teaching experience increased for the three groups on the ACL, the

raw score means remained more stable while the standard deviations tended to increase.

In summary, more experienced teachers surpassed less experienced teachers and student teachers in amount of democratic orientation toward teaching as measured by the MTAI. The two experienced groups surpassed the student teacher group in positiveness of self-evaluation but differed little from each other on this trait as measured by the ACL. Sufficient evidence was revealed that warranted the use of the MTAI and ACL to differentiate teachers with varying levels of teaching experience on democratic orientation toward teaching and positiveness of self-evaluation.

Discriminant-function centroids for the three levels of teaching experience were mapped in the discriminant plane as shown in Table 6. The method of multiple-discriminant analysis resulted in the reduction of the multiple measurements to a weighted combination having maximum potential for distinguishing among members of the different groups. The first canonical variate, or discriminant function, as shown in Figure 2, was the single weighted composite which provided maximum average separation between the groups relative to variability within the groups (Thomas and Chissom, 1973).

In the case of only two groups, a single optimal combination of the multiple measure would account for all differences; however, in the case of several groups, one weighted combination of the scores would distinguish well

between certain groups but not between others. In such instance, a second or even a third composite would be required to distinguish between groups that were not well separated by the first discriminant function (Overall and Klett, 1972).

The second canonical variate, or discriminant function, as shown in Figure 2, was the weighted composite which all possible weighted composites uncorrelated with the first (within groups) provided for maximum average separation among the groups. The maximum number of potential discriminant functions in this study was two since the maximum number of potential discriminant functions in any problem is equal to the number of variables p or to one less than the number of groups, $k-1$, whichever is smaller. In this study, ninety-two per cent of the total discriminatory power of the entire set of predictors was apportioned to the first discriminant function and eight per cent to the second discriminant function.

Tiedeman (1951) concluded that variables in discriminant analysis could be highly correlated and if so, should not be treated as independent. The possibility existed that only a small number of the variables with significant differences in means contributed to discrimination among the groups while other variables which by themselves provided no means of discrimination aided considerably when taken in conjunction with the rest. It was only by study of the entire

TABLE 6
DISCRIMINANT FUNCTION CENTROIDS FOR THE
THREE LEVELS OF TEACHING EXPERIENCE

Group	DF I	DF II
Student Teacher	54	-39
Less Experienced Teacher	67	-41
More Experienced Teacher	70	-38

constellation of points that recognition was made of which variables provided a greater amount of evidence concerning group separation.

From Figure 2, it was concluded that Y_1 served mainly to separate the student teachers from the two experienced groups, while Y_2 set the less experienced teachers off from the student teachers and more experienced teachers. Thus, both discriminant functions played non-trivial roles in separating the three groups from each other.

The results of this study suggested that teachers with varying levels of teaching experience differed in their interpersonal perception of democratic orientation toward teaching and positiveness of self-evaluation. The findings in this report were pertinent only to the population from which the subjects were drawn due to the limitations of the study.

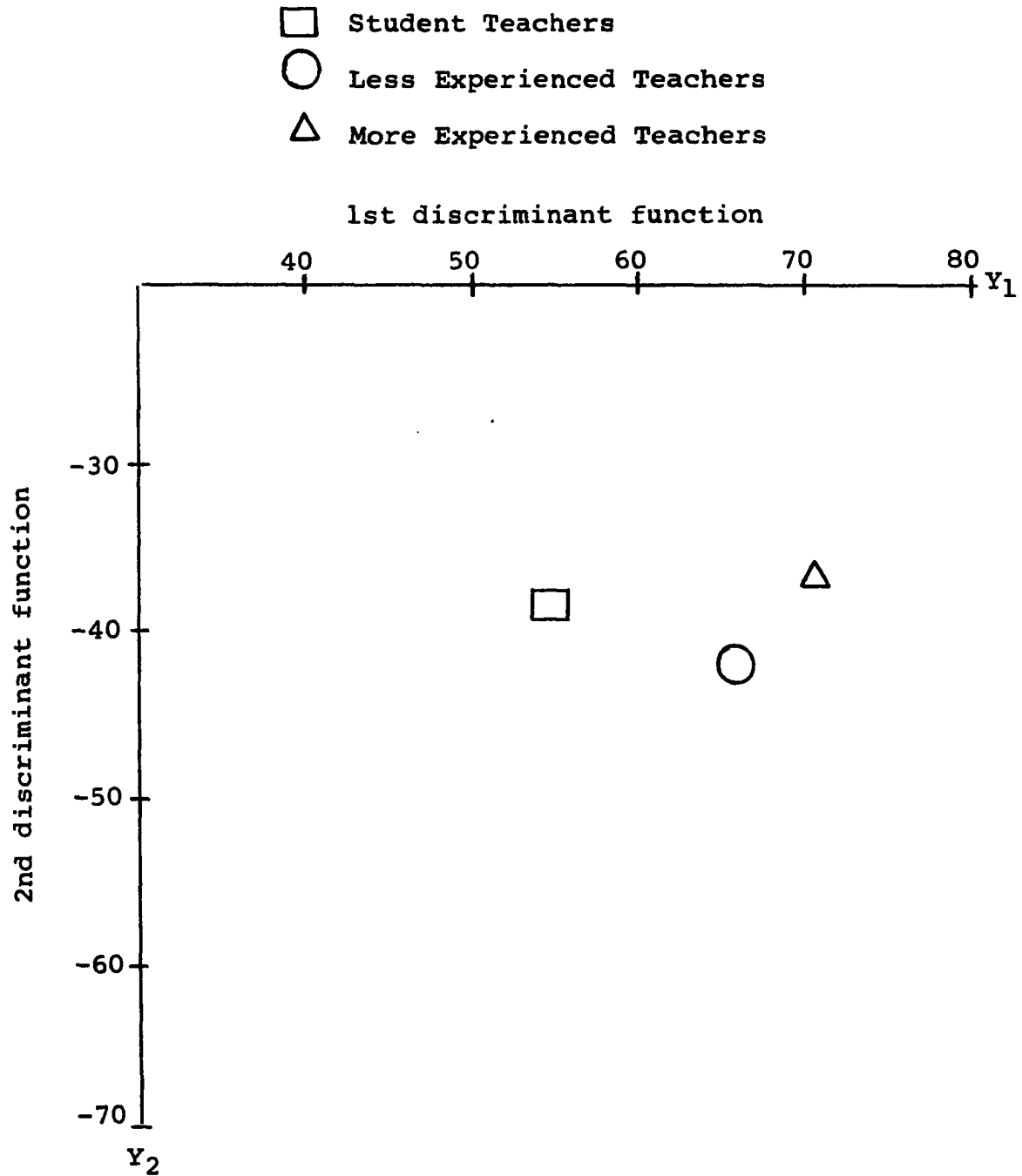


Fig. 2. - The Three Group Centroids in the Discriminant-Function Space.

Discriminant analysis indicated significant differences, both univariate and multivariate, for the three groups of MTAI and ACL scores at the .05 level of significance. No significant differences were found among all groups, only between the student teachers and the more experienced teachers. It was not sure that the less experienced group and the more experienced group were significantly differentiated so Scheffé's multiple-comparison tests were applied to compare group means where a significant F ratio had been obtained.

Hypothesis 1 was supported. The results of statistical analysis indicated that a linear combination of degree of democratic orientation toward teaching and positiveness of self-evaluation did discriminate among the three levels of teaching experience. Discriminant analysis yielded a significant F ratio between student teachers and more experienced teachers while Scheffé's multiple-comparison tests failed to yield a significant F ratio between less experienced teachers and more experienced teachers on both the Minnesota Teacher Attitude Inventory and the Adjective Check List.

The statistical results of Scheffé's multiple-comparison tests presented in Table 7 indicated significant differences on the MTAI between student teachers and less experienced teachers, and between student teachers and more experienced teachers. Table 7 also indicated significant differences on the ACL between student teachers and less experienced

teachers although no significant differences were found on this instrument between student teachers and more experienced teachers.

TABLE 7
RESULTS OF THE SCHEFFE MULTIPLE-
COMPARISON TESTS

Scale	F ratios		
	Groups I-II	Groups II-III	Groups I-III
Minnesota Teacher Attitude Inventory	3.77	ns	5.22
Adjective Check List	3.25	ns	ns

$p < .05$, $F=3.01$.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study purported to investigate the differences among teachers of varying levels of teaching experience on an interactive combination of degree of democratic orientation toward teaching and positiveness of self-evaluation. Two hundred and six students enrolled in day, evening, and night classes at East Central University, Ada, Oklahoma, participated in this study. Only student teachers who planned to teach and graduate students whose amount of teaching experience exceeded their experience as a counselor or administrator served as subjects.

The subjects were divided into three groups according to their number of years spent in a classroom teaching students in grades kindergarten through twelve. Teaching experience was divided into the following categories: student teachers, less experienced teachers, and more experienced teachers.

The Minnesota Teacher Attitude Inventory and the Adjective Check List were administered to all subjects. The independent variable was amount of teaching experience and

the dependent variable was the interactive combination of Minnesota Teacher Attitude Inventory score and Adjective Check List score for each of the three groups. Means and standard deviations for the three levels of teaching experience were obtained on the two measurement instruments. Discriminant function centroids for each of the three experience groups were plotted in the discriminant plane by the use of discriminant analysis. The three group centroids in the discriminant function space indicated a significant difference between the student teachers and the more experienced group on the first discriminant function and no significant differences between groups on the second discriminant function.

Results of the Scheffé multiple-comparison tests significantly differentiated the student teacher group from the two experienced groups on the MTAI but failed to significantly differentiate the two experienced groups from each other. The Scheffé multiple-comparison tests also failed to differentiate the two experienced groups from each other and the student teachers from the more experienced teachers on the ACL, but a significant difference between the student teachers and less experienced teachers was found with this instrument. Hypothesis 1 was supported. An interactive combination of MTAI and ACL scores did discriminate among the three levels of teaching experience although not all differentiations were significant.

Conclusions

The following conclusions are presented subject to the limitations of the study as to sample groups and the population from which the sample groups were drawn.

1. The Minnesota Teacher Attitude Inventory and Adjective Check List were suitable instruments for measurement of self-attributes and attitudes.

2. Amount of teaching experience appeared to influence attitude scores on the MTAI. The greater the amount of teaching experience the higher the probability of a teacher expressing a democratic orientation toward teaching.

3. Amount of teaching experience beyond student teaching appeared to have little influence on positive self-concept as measured by the ACL; however, student teachers appeared to be more likely to express less positive self-concepts than teachers with some amount of teaching experience.

4. Positive results were not devoid of theoretical explanation. Since teachers of varying levels of teaching experience did differ on positive self-attributes and democratic attitudes, it was concluded that the self had a development; it was not initially there at birth, but arose in the process of social experience and activity, that is, it developed in the given individual as a result of his relations to that process as a whole and to other individuals within that process.

Recommendations

No attempt was made in the present study to discriminate between sex or grade level taught due to the disproportionate number of males and females, high school teachers and elementary school teachers, and small number of subjects. Further investigations which would incorporate these descriptive areas might help provide additional evidence relative to democratic orientation and positive self-evaluation of teachers.

Upon the basis of the findings of this study, the following recommendations for future research are suggested:

1. The present study should be replicated to ascertain if the significant finding concerning the amount of teaching experience and attitude toward teaching can be repeated.
2. The present study should be replicated with other populations, for example, other college and university populations, to see whether the findings are generalizable to those populations. In so doing the parameters of external validity would be correspondingly broadened.
3. Perhaps the area of research which should receive the most attention in the immediate future would be to determine differences between job success (defined in measurable terms) of teachers and their scores on attitude and self-concept scales. Job success could be defined in terms of a number of variables such as; (1) evaluation by students,

(2) evaluation by administrators, (3) evaluation by other teachers, etc. Information from such a study would certainly help educators in the area of teacher education arrive at defensible solutions to the problems associated with admission of students to teaching education.

REFERENCES

- Bem, K. J. "An Experimental Analysis of Self-Persuasion." Journal of Experimental Social Psychology, 1967, 1, 199-218.
- Berger, E. M. "The Relation Between Expressed Acceptance of Self and Expressed Acceptance of Others." Journal of Abnormal and Social Psychology, 1952, 47, 778-782.
- Brownfain, J. J. "Stability of the Self Concept As a Dimension of Personality." Journal of Abnormal and Social Psychology, 1952, 47, 597-606.
- Buss, A. H., & Gerjuoy, H. "The Scaling of Terms Used to Describe Personality." Journal of Consulting Psychology, 1957, 21, 361-369.
- Butler, J. M., & Haigh, G. V. "Changes in the Relation Between Self-Concepts and Ideal Concepts." Psychotherapy and Personality Change. Chicago: University of Chicago Press, 1954.
- Callis, R. "Change in Teacher-Pupil Attitudes Related to Training and Experience." Educational and Psychological Measurement, 1950, 10, 718-727.
- Cook, W., Leeds, C., & Callis, R. Manual for the Minnesota Teacher Inventory. New York: The Psychological Corporation, 1951.
- Cooley, W., & Lohnes, P. Multivariate Data Analysis (2nd ed.). New York: John Wiley & Sons, 1971.
- Crowne, D. P., Stephens, Mark W., & Kelly, Richard. "The Validity and Equivalence of Tests of Self-Acceptance." Journal of Psychology, 1961, 51, 101-112.
- Dumas, W. "Factors Associated With Self-Concept Change in Student Teachers." Journal of Educational Research, 1969, 62, 275-278.

- Frumkin, Robert M. "Dogmatism, Social Class, Values, and Academic Achievement in Sociology." Journal of Educational Sociology, 1961, 34, 398-403.
- Gage, N. L. "Desirable Behaviors of Teachers." Urban Education, 1965, 1, 85-95.
- Gewinner, M. N. "A Study of the Results of the Interaction of Student Teachers With Their Supervising Teachers During the Student Teaching Period." (Doctoral dissertation, Mississippi State University) Ann Arbor, Mich.: University Microfilm, 1968. No. 68-9413.
- Gough, H. G., & Heilbrun, A. B. The Adjective Check List Manual. Palo Alto, California: Consulting Psychologists Press, 1965.
- Hall, C. S. & Lindzey, G. Theories of Personality, (2nd ed.) New York: Wiley, 1970.
- Heilbrun, A. B. "Validation of a Need Scaling Technique for the Adjective Check List." Journal of Consulting Psychology, 1959, 23, 347-351.
- Hoover, K. H., & Schultz, R. E. "Student Attitude Change in an Introductory Education Course." Journal of Educational Research, 1968, 61, 300-303.
- Jacobs, E. G. "Personal and Instructional Variables as Related to Changes in Educational Attitudes of Prospective Elementary School Teachers During Two Phases of the Teacher Education Program, 1965-1966. (Doctoral dissertation, Northern Illinois University) Ann Arbor, Mich.: University Microfilms, 1967. No. 67-12898.
- Kerlinger, F. Foundations of Behavioral Research, (2nd ed.) New York: Holt, Rinehart and Winston, 1973.
- Kinch, J. W. "A Formalized Theory of Self-Concept." American Journal of Sociology, 1963, 68, 481-486.
- Lantz, D. L. "Changes in Student Teachers' Concepts of Self and Others." Journal of Teacher Education, 1964, 15, 200-203.
- Matthew, C. C. "The Classroom Verbal Behavior of Selected Secondary School Science Student Teachers and Their Cooperating Classroom Teachers." (Doctoral dissertation, Cornell University) Ann Arbor, Mich.: University Microfilms, 1967. No. 67-1394.

- Medley, D. M., & Mitzel, Harold E. "Measuring Classroom Behavior By Systematic Observation." In N. Gage (Ed.), Handbook of Research on Teaching. Rand McNally, 1963.
- Muuss, R. E. "Differential Effect of Studying Versus Teaching on Teachers' Attitudes." Journal of Educational Research, 1969, 63, 185-189.
- Nunnally, J. C. Psychometric Theory. New York: McGraw-Hill Book Company, 1967.
- Onwake, K. "The Relationship Between Acceptance of Self and Acceptance of Others Shown by Three Personality Inventories." Journal of Consulting Psychology, 1954, 18, 443-446.
- Osmon, R. V. "Associative Factors in Changes of Student Teachers' Attitudes During Student Teaching." (Doctoral dissertation, Indiana University) Ann Arbor, Mich.: University Microfilms, 1959, No. 59-4279.
- Overall, J. E. & Klett, C. J. Applied Multivariate Analysis. McGraw-Hill Book Company, 1972.
- Pederson, D. M. "Evaluation of Self and Others and Some Personality Correlates." Journal of Psychology, 1969, 71, 225-244.
- Perrodin, A. F. "In Support of Supervising Teacher Education Programs." Journal of Teacher Education, 1969, 12 36-38.
- Rabkin, Leslie Y. "The Dogmatism of Teachers." Journal of Teacher Education, 1966, 17, 47-49.
- Raimy, V. C. "Self Reference in Counseling Interviews." Journal of Consulting Psychology, 1948, 12, 153-163.
- Ryans, D. G. Characteristics of Teachers. Menasha, Wisconsin: George Banta Company, 1960.
- Sarbin, T. R., & Rosenberg B. G. "Contributions to Role-Taking Theory: IV A Method for Obtaining a Qualitative Estimate of the Self." Journal of Social Psychology, 1955, 42, 71-81.
- Soderbergh, Peter A. "Dogmatism and the Public School Teacher." Journal of Teacher Education, 1964, 15, 245-51.

- Tatsuoka, M. M. Discriminant Analysis. Champaign, Illinois: Institute for Personality and Ability Testing, 1970.
- Taylor, D. M. "Consistency of Self-Concept." Journal of Teacher Education, 1964, 15, 200-202.
- Teigland, J. J. "The Relationship Between Measured Teacher Attitude Change and Certain Personality Characteristics." Journal of Educational Research, 1966, 60, 80-85.
- Thomas, J. R. & Chissom, B. S. "An Investigation of the Combination of a Perceptual-Motor Test and a Cognitive Ability Test for the Purpose of Classifying First-Grade Children Into Reading Groups." Psychology in the Schools, 1973, 10, No. 2, 185-188.
- Tiedeman, D. V. "The Utility of the Discriminant Function in Psychological and Guidance Investigations." Harvard Education Review, 1951, 21, 74-75.
- Wrenn, C. G. "The Self-Concept in Counseling." Journal of Counseling Psychology, 1958, 5, 104-109.
- Wylie, R. The Self-Concept: A Critical Survey of Pertinent Research Literature. Lincoln, Neb.: University of Nebraska Press, 1973.

APPENDIX A

TABLE 2

SUBJECTS WITH LARGEST PROBABILITY AND SQUARE
OF DISTANCE FROM AND POSTERIOR PROBABILITY
FOR THE STUDENT TEACHER GROUP
(N=86)

Group		Student		Less		More	
Student		Teacher		Experienced		Experienced	
Teacher				Teacher		Teacher	
Case							
1. Student teacher		0.298	0.406	1.037	0.285	0.982	0.209
2. Student teacher		0.446	0.614	1.967	0.234	2.147	0.152
3. Student teacher		4.375	0.542	4.806	0.355	6.612	0.103
4. Student teacher		2.107	0.496	2.358	0.368	3.665	0.137
5. Student teacher		0.503	0.510	0.956	0.331	1.760	0.138
6. Student teacher		0.517	0.644	2.085	0.239	2.843	0.117
7. Student teacher		0.187	0.431	0.274	0.336	0.330	0.233
8. Student teacher		0.136	0.584	1.278	0.269	1.808	0.147
9. Student teacher		1.028	0.587	2.012	0.292	3.102	0.121
10. Student teacher		1.613	0.697	3.523	0.218	4.740	0.085
11. Student teacher		0.842	0.695	2.910	0.201	3.568	0.103
12. Student teacher		4.379	0.845	8.261	0.099	8.694	0.057
13. Student teacher		2.995	0.634	5.015	0.188	4.450	0.178
14. More Experienced		3.085	0.305	2.577	0.319	1.578	0.376
15. More Experienced		3.972	0.167	1.757	0.412	1.040	0.421
16. Student teacher		0.651	0.494	1.374	0.280	1.127	0.226
17. Student teacher		1.156	0.567	2.486	0.237	2.196	0.196
18. Student teacher		0.295	0.614	1.650	0.254	2.294	0.132
19. Student teacher		1.326	0.730	3.789	0.173	4.290	0.096
20. Student teacher		1.415	0.697	3.695	0.181	3.821	0.122
21. Less Experienced		1.169	0.294	0.125	0.404	0.035	0.301
22. Less Experienced		3.975	0.161	1.443	0.464	1.200	0.375
23. Less Experienced		1.146	0.306	0.291	0.382	0.026	0.312
24. Less Experienced		2.142	0.236	0.445	0.448	0.465	0.317
25. Student teacher		1.850	0.533	2.342	0.339	3.627	0.127
26. Student teacher		1.329	0.540	1.911	0.328	3.061	0.132
27. Student teacher		3.638	0.396	3.988	0.271	2.896	0.334
28. Student teacher		1.024	0.704	3.108	0.202	3.958	0.094
29. Student teacher		4.279	0.460	4.088	0.412	5.744	0.128
30. Student teacher		2.573	0.810	5.764	0.132	6.472	0.066
31. Student teacher		0.759	0.600	1.887	0.278	2.869	0.122
32. Less Experienced		0.521	0.366	0.008	0.385	0.203	0.249
33. Student teacher		1.153	0.619	2.395	0.271	3.530	0.110
34. More Experienced		2.242	0.293	1.500	0.346	0.743	0.361
35. Student teacher		1.084	0.717	3.357	0.187	4.033	0.095
36. More Experienced		2.680	0.327	2.332	0.316	1.418	0.357
37. Student teacher		2.573	0.801	5.764	0.132	6.478	0.066
38. Student teacher		2.994	0.463	2.886	0.398	4.311	0.139
39. Student teacher		1.232	0.558	1.965	0.315	3.105	0.127
40. Student teacher		0.902	0.615	2.137	0.270	3.176	0.115

TABLE 2--Continued

Group Student Teacher	Student Teacher		Less Experienced Teacher		More Experienced Teacher	
Case						
41. More Experienced	4.467	0.170	2.434	0.382	1.446	0.448
42. Student teacher	1.256	0.438	1.652	0.292	1.138	0.270
43. Student teacher	2.994	0.463	2.886	0.398	4.311	0.139
44. Student teacher	3.109	0.800	6.421	0.124	5.733	0.076
45. Student teacher	1.148	0.699	3.141	0.210	4.127	0.092
46. Student teacher	0.996	0.706	3.125	0.198	3.908	0.096
47. Student teacher	0.849	0.590	1.879	0.287	2.900	0.123
48. More Experienced	5.478	0.128	2.695	0.418	1.856	0.454
49. Student teacher	2.421	0.731	5.094	0.156	5.064	0.113
50. Less Experienced	2.284	0.248	0.610	0.466	0.919	0.285
51. Student teacher	3.200	0.770	6.284	0.134	6.289	0.096
52. Student teacher	0.610	0.502	1.387	0.277	1.168	0.221
53. Less Experienced	0.632	0.369	0.082	0.395	0.441	0.236
54. More Experienced	5.076	0.172	3.179	0.361	1.988	0.468
55. Student teacher	0.061	0.563	1.089	0.274	1.465	0.162
56. More Experienced	5.189	0.183	3.490	0.348	2.220	0.469
57. Student teacher	0.563	0.366	0.178	0.361	0.074	0.272
58. Student teacher	0.250	0.607	1.551	0.258	2.167	0.135
59. Less Experienced	1.746	0.255	0.383	0.411	0.122	0.334
60. Student teacher	1.433	0.415	1.082	0.403	2.007	0.181
61. Student teacher	1.250	0.728	3.667	0.177	4.236	0.095
62. More Experienced	2.787	0.266	1.832	0.349	0.962	0.385
63. Student teacher	0.084	0.522	0.718	0.309	1.252	0.169
64. Student teacher	0.882	0.679	2.716	0.221	3.616	0.101
65. Student teacher	0.394	0.591	1.506	0.276	2.296	0.133
66. Student teacher	2.415	0.784	5.485	0.138	5.943	0.078
67. Less Experienced	2.535	0.240	0.763	0.475	1.112	0.285
68. Student teacher	1.932	0.507	2.218	0.358	3.486	0.136
69. Student teacher	1.576	0.732	3.881	0.188	4.941	0.079
70. Student teacher	0.638	0.412	0.361	0.385	0.959	0.204
71. Student teacher	1.558	0.724	3.764	0.196	4.863	0.081
72. Student teacher	1.576	0.732	3.881	0.188	4.941	0.079
73. Less Experienced	3.438	0.179	1.118	0.466	0.989	0.355
74. Student teacher	0.404	0.642	2.010	0.234	2.603	0.124
75. Student teacher	0.397	0.482	0.977	0.293	0.836	0.225
76. Student teacher	0.449	0.394	0.103	0.381	0.480	0.225
77. More Experienced	2.178	0.285	1.338	0.353	0.620	0.361
78. More Experienced	4.309	0.169	2.231	0.390	1.311	0.441
79. Less Experienced	0.674	0.344	0.002	0.392	0.112	0.265
80. Student teacher	1.613	0.697	3.523	0.218	4.740	0.085
81. Student teacher	0.084	0.522	0.718	0.309	1.252	0.169
82. Student teacher	3.060	0.618	4.974	0.193	4.353	0.188
83. Less Experienced	0.886	0.328	0.190	0.378	0.011	0.295
84. Student teacher	2.096	0.606	3.821	0.208	3.374	0.186
85. Student teacher	1.613	0.697	3.523	0.218	4.740	0.085
86. Student teacher	1.178	0.722	3.541	0.180	4.082	0.098

TABLE 3

SUBJECTS WITH LARGEST PROBABILITY AND SQUARE OF
DISTANCE FROM AND POSTERIOR PROBABILITY FOR
THE LESS EXPERIENCED TEACHER GROUP
(N=70)

Group Less Experienced Teacher	Student, Teacher		Less Experienced Teacher		More Experienced Teacher	
Case						
1. Student teacher	0.693	0.593	1.768	0.282	2.722	0.125
2. Student teacher	1.537	0.446	1.398	0.389	2.438	0.165
3. More Experienced	2.680	0.327	2.332	0.316	1.418	0.357
4. Less Experienced	0.573	0.384	0.129	0.390	0.545	0.226
5. Student teacher	0.720	0.380	0.525	0.341	0.246	0.280
6. Less Experienced	8.736	0.078	4.664	0.489	4.239	0.432
7. Student teacher	1.423	0.378	1.356	0.318	0.778	0.304
8. More Experienced	5.378	0.127	2.837	0.398	1.852	0.465
9. Less Experienced	1.572	0.265	0.224	0.423	0.155	0.313
10. Student teacher	0.556	0.386	0.369	0.345	0.186	0.270
11. Less Experienced	1.194	0.298	0.240	0.390	0.015	0.312
12. More Experienced	3.889	0.173	1.773	0.405	1.017	0.422
13. Student teacher	0.673	0.458	0.715	0.365	1.484	0.177
14. Student teacher	3.518	0.404	3.921	0.269	2.857	0.327
15. Less Experienced	1.211	0.308	0.401	0.376	0.068	0.317
16. Student teacher	0.871	0.605	2.421	0.227	2.342	0.169
17. Student teacher	0.183	0.445	0.248	0.351	0.660	0.204
18. Student teacher	1.449	0.521	1.879	0.342	3.040	0.137
19. Less Experienced	2.269	0.225	0.511	0.442	0.407	0.333
20. More Experienced	8.270	0.095	5.136	0.372	3.742	0.533
21. Student teacher	3.491	0.575	4.218	0.325	5.906	0.100
22. Student teacher	1.061	0.393	1.055	0.320	0.601	0.287
23. Student teacher	0.449	0.394	0.103	0.381	0.480	0.225
24. Student teacher	1.613	0.741	4.016	0.181	5.038	0.078
25. Student teacher	5.923	0.817	9.697	0.101	9.428	0.082
26. Student teacher	0.432	0.606	1.900	0.237	2.052	0.157
27. Student teacher	0.326	0.630	1.870	0.237	2.339	0.134
28. Student teacher	0.980	0.383	0.876	0.328	0.462	0.289
29. Less Experienced	0.779	0.334	0.008	0.400	0.157	0.265
30. Student teacher	1.232	0.558	1.965	0.315	3.105	0.127
31. Less Experienced	1.408	0.311	0.689	0.362	0.221	0.327
32. Less Experienced	1.408	0.311	0.689	0.362	0.221	0.327
33. Less Experienced	0.967	0.313	0.037	0.406	0.100	0.281
34. Student teacher	0.070	0.514	0.650	0.313	1.155	0.174
35. Less Experienced	3.865	0.263	2.140	0.508	3.066	0.228
36. Student teacher	1.000	0.429	0.793	0.387	1.611	0.184
37. Less Experienced	4.363	0.202	2.053	0.523	2.665	0.275
38. Less Experienced	1.740	0.288	0.431	0.451	0.844	0.262
39. Student teacher	2.775	0.808	6.065	0.127	6.734	0.065
40. Student teacher	4.636	0.490	4.658	0.394	6.429	0.116

TABLE 3--Continued

Group Less Experienced Teacher	Student Teacher	Less Experienced Teacher	More Experienced Teacher
Case			
41. More Experienced	3.236 0.282	2.524 0.328	1.507 0.390
42. More Experienced	0.532 0.135	4.165 0.360	2.813 0.505
43. More Experienced	7.887 0.091	4.518 0.400	3.366 0.509
44. Student teacher	5.334 0.399	5.865 0.249	4.502 0.352
45. Less Experienced	3.094 0.225	1.125 0.491	1.552 0.283
46. Student teacher	2.173 0.341	1.886 0.320	1.098 0.339
47. Less Experienced	2.691 0.219	0.751 0.471	0.918 0.310
48. Student teacher	0.087 0.566	1.160 0.269	1.469 0.165
49. Student teacher	0.343 0.404	0.096 0.372	0.434 0.224
50. Less Experienced	3.212 0.268	1.577 0.494	2.368 0.238
51. Student teacher	0.759 0.600	1.887 0.278	2.869 0.122
52. Student teacher	1.155 0.516	2.120 0.259	1.727 0.225
53. Less Experienced	5.924 0.281	4.238 0.531	5.645 0.188
54. Less Experienced	1.231 0.319	0.225 0.429	0.616 0.252
55. Less Experienced	1.497 0.328	0.508 0.438	1.091 0.234
56. Less Experienced	4.194 0.273	2.530 0.511	3.580 0.216
57. Less Experienced	5.892 0.257	3.993 0.541	5.286 0.202
58. Student teacher	1.012 0.494	1.275 0.352	2.254 0.154
59. Student teacher	0.036 0.524	0.715 0.304	1.181 0.172
60. More Experienced	4.611 0.217	3.321 0.337	2.087 0.446
61. Less Experienced	0.706 0.354	0.050 0.400	0.352 0.246
62. Student teacher	0.136 0.434	0.185 0.345	0.405 0.221
63. Less Experienced	2.854 0.205	0.801 0.465	0.814 0.330
64. Less Experienced	5.595 0.322	4.273 0.508	5.783 0.170
65. Less Experienced	3.030 0.192	0.908 0.451	0.701 0.357
66. Less Experienced	10.216 0.128	6.670 0.613	7.724 0.259
67. Student teacher	1.159 0.402	1.252 0.312	0.759 0.286
68. More Experienced	6.181 0.117	3.284 0.406	2.292 0.476
69. Less Experienced	5.009 0.140	2.083 0.493	1.996 0.367
70. Less Experienced	8.917 0.125	5.401 0.591	6.195 0.284

TABLE 4
 SUBJECTS WITH LARGEST PROBABILITY AND SQUARE OF
 DISTANCE FROM AND POSTERIOR PROBABILITY FOR
 THE MORE EXPERIENCED TEACHER GROUP
 (N=50)

Group Less Experienced Teacher	Student Teacher	Less Experienced Teacher	More Experienced Teacher
Case			
1. Student teacher	0.301 0.435	0.478 0.324	0.398 0.241
2. More Experienced	4.919 0.150	2.583 0.394	1.616 0.456
3. Less Experienced	1.885 0.250	0.514 0.404	0.157 0.345
4. Less Experienced	4.773 0.225	2.638 0.532	3.529 0.243
5. More Experienced	4.103 0.192	2.374 0.370	1.364 0.438
6. Less Experienced	3.537 0.173	1.248 0.443	0.859 0.384
7. More Experienced	7.197 0.096	3.798 0.427	2.907 0.477
8. Student teacher	1.144 0.385	1.086 0.322	0.603 0.293
9. Student teacher	0.707 0.520	1.635 0.266	1.406 0.213
10. Student teacher	0.187 0.424	0.137 0.354	0.396 0.222
11. Less Experienced	1.161 0.298	0.079 0.416	0.153 0.286
12. Less Experienced	9.690 0.068	5.397 0.471	4.762 0.462
13. More Experienced	10.968 0.057	6.364 0.467	5.654 0.476
14. Less Experienced	2.436 0.218	0.709 0.421	0.344 0.361
15. Student teacher	0.343 0.404	0.096 0.372	0.434 0.224
16. More Experienced	9.530 0.070	5.554 0.415	4.445 0.516
17. Less Experienced	5.927 0.123	2.697 0.504	2.632 0.372
18. Less Experienced	2.686 0.229	0.808 0.477	1.099 0.294
19. Student teacher	0.282 0.480	0.816 0.299	0.743 0.221
20. Less Experienced	0.530 0.365	0.100 0.368	0.064 0.268
21. Student teacher	1.882 0.529	3.037 0.242	2.469 0.229
22. Less Experienced	1.585 0.321	1.010 0.348	0.435 0.331
23. Less Experienced	2.124 0.250	0.496 0.459	0.738 0.291
24. Student teacher	5.743 0.558	7.459 0.193	6.270 0.249
25. Less Experienced	3.943 0.171	1.434 0.488	1.480 0.341
26. Less Experienced	1.302 0.289	0.121 0.424	0.234 0.287
27. Student teacher	10.045 0.744	13.438 0.111	12.228 0.145
28. More Experienced	2.787 0.266	1.832 0.349	0.962 0.385
29. Less Experienced	1.188 0.326	0.236 0.427	0.655 0.247
30. Student teacher	1.050 0.463	1.606 0.285	1.177 0.252
31. Student teacher	0.093 0.483	0.590 0.307	0.681 0.210
32. Student teacher	2.073 0.649	3.490 0.260	4.904 0.092
33. Less Experienced	7.653 0.366	6.620 0.499	8.562 0.135
34. Student teacher	1.579 0.536	2.115 0.334	3.333 0.130
35. Less Experienced	0.630 0.359	0.192 0.364	0.059 0.278

TABLE 4--Continued

Group Less Experienced Teacher	Student Teacher		Less Experienced Teacher		More Experienced Teacher	
Case						
36. More Experienced	3.556	0.183	1.547	0.406	0.847	0.411
37. Less Experienced	1.339	0.292	0.377	0.385	0.056	0.323
38. Student teacher	2.570	0.618	3.691	0.287	5.223	0.095
39. Student teacher	0.080	0.452	0.280	0.333	0.489	0.214
40. Student teacher	0.902	0.615	2.137	0.270	3.176	0.115
41. Less Experienced	6.574	0.112	3.139	0.509	3.056	0.379
42. Student teacher	0.114	0.502	0.762	0.295	0.843	0.203
43. Student teacher	0.517	0.403	0.481	0.334	0.288	0.263
44. Less Experienced	4.486	0.146	1.877	0.439	1.317	0.415
45. More Experienced	2.973	0.238	1.715	0.364	0.866	0.398
46. Student teacher	0.090	0.455	0.336	0.327	0.478	0.218
47. Less Experienced	2.825	0.217	1.226	0.393	0.562	0.391
48. Student teacher	0.427	0.391	0.248	0.349	0.161	0.260
49. Less Experienced	0.934	0.315	0.049	0.399	0.044	0.286
50. Student teacher	9.981	0.554	11.961	0.168	10.270	0.279