67-15,891

FREDERICKSON, William Andrew, 1934-

A DISGUISED SCALE TO ASSESS ATTITUDES TOWARD EFFECTIVE TEACHING AS REFLECTED THROUGH DESCRIPTIONS OF PUPIL BEHAVIOR.

The University of Oklahoma, Ed.D., 1967
Education, psychology

University Microfilms, Inc., Ann Arbor, Michigan

THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

# A DISGUISED SCALE TO ASSESS ATTITUDES TOWARD EFFECTIVE TEACHING AS REFLECTED THROUGH DESCRIPTIONS OF PUPIL BEHAVIOR

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF EDUCATION

BY

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Norman, Oklahoma

1967

A DISGUISED SCALE TO ASSESS ATTITUDES TOWARD EFFECTIVE TEACHING

AS REFLECTED THROUGH DESCRIPTIONS OF PUPIL BEHAVIOR

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## ACKNOWLEDGMENTS

Indebtedness is acknowledged to Dr. O. J. Rupiper for the valuable guidance and assistance he offered through his capacity of major advisor and committee chairman; and to the following members of the committee for the valuable time and suggestions they contributed to the completion of this study: Dr. Henry Angelino, Dr. Herbert Hengst, and Dr. Robert Curry.

Indebtedness is also acknowledged to Mr. Don Lucas for his assistance in the reproduction of the manuscript and to Mr. Jerome Hill for the use of his programming and electronic data processing skills. The writer is especially appreciative for the patience and understanding of his wife, Patsie, and daughter, Debra, during this study.

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# A DISGUISED SCALE TO ASSESS ATTITUDES TOWARD EFFECTIVE TEACHING AS REFLECTED THROUGH DESCRIPTIONS OF PUPIL BEHAVIOR

## CHAPTER I

## INTRODUCTION

### Background and Problem

Few aspects of education have been of greater concern to educational researchers than the assessment and prediction of teacher effectiveness. As Gage (1960) has noted, not only is the literature on teacher competence overwhelming, but even bibliographies on the subject are becoming unmanageable. Biddle and Ellena (1964) suggest that despite all of the research activity focusing on teacher competence the results have been modest and often contradictory. Few, if any facts have established valid criteria for teacher effectiveness, and many former findings have been repudiated. The available findings offer two answers for the lack of encouragement from teacher effectiveness research: confusion, and the complexity of the problem. Confusion exists because some do not recognize the problem of effectiveness at all; others disagree over the effects a teacher is called upon to produce, and the majority use a variety of terms to describe teacher competence for disparate purposes. The complexity of the problem is evidenced by the difficulty in assessing the long term effects the teacher has on her pupils. The task of isolating these effects are practically

impossible due to the pupil's interaction with other teachers and a multitude of significant others.

The traditional approach to the study of competence has been the selection of general dimensions or traits typical of teacher behavior and to hypothesize that these account for measurable changes in pupil behavior. The changes studied have generally been related to short-term effects for the reason stated above. Allport and Odbert (1936) have pointed out the complexity of selecting "the" key set of teacher behaviors by reporting that there are more than 18,000 adjectives available in the English language to describe behavior directly, and a large proportion of these may be applied to the behavior of the teacher. But, just as teacher behaviors are part of the classroom situation for the pupils, pupil behaviors form part of the classroom situation for the teacher. In this sense, classroom interaction is a total system of interrelated parts; and each act in the system (whether by pupil or teacher) may be seen to have determinants and results in other acts of the system (Biddle and Ellena, 1964, p. 12).

It seems only fair to assume that to be involved effectively in classroom interactions the teacher must be able to discriminate effective from ineffective classroom interactions. In most classrooms the teacher initiates a larger percentage of interactive sequences than do individual pupils. She controls the content of the discussion, operates to keep order and effective response within bounds, and in general, takes charge. This suggests that it is possible to examine the immediate effects of teacher activity in the responses of pupils with some assurance that cause-and-effect moves from teachers to pupils.

Numerous forms of pupil response occur in the classroom setting, but it would be presumptuous to assume that all pupil responses are the effects of teacher activity. The problem of deciding which qualities of pupil response to measure as indicators of teacher effectiveness has been studied by various approaches in various ways. Two viewpoints have prevailed in choosing such pupil indicators:

1. Some investigators have focused upon those qualities of pupil behavior that occur with high frequency and that can be readily observed (Barker and Wright, 1955; Flanders, 1960a; Flanders, 1960b; Flanders, 1960c; Ryans, 1960).

2. Other investigators have choosen pupil qualities that reflect educational goals; measuring pupil properties rather than superficial behaviors. Studies have been made, for example, of pupil learning, attitudes, sociometric preference, and clinical disturbance to name only a few (Christensen, 1960; Heil, Feifer, and Powell, 1960; Rocchio and Kearney, 1956; Yourglich, 1955).

Actually, the two types of studies are complementary; however, relationships between pupil behaviors and properties have yet to be established. It appears desirable to make the assumption at the present time that if teacher effectiveness is bounded by context and situation, then pupil response is unique to these conditions. To date, little attention has been paid to the many varieties of pupil behavior observable in response to teacher behavior. Yet, if the interactions of the teacher and pupil are important in the classroom, then it would be advisable to assess the potential teachers perception of those pupil behaviors judged to reflect effective or ineffective teacher behavior in the

classroom. Judgements of teacher behavior via pupil behavior would suggest research in the area of attitude assessment.

Attitude studies of teacher effectiveness have been numerous but questionable as to general applicability. For the most part, the attitude scales used in the majority of studies were not developed specifically to assess the effective - ineffective dimension. Existing scales focus on such aspects as: attitude toward teaching (Miller, 1934), attitude toward teaching as a career (Merwin and Di Vesta, 1960), attitude toward education (Mitchell, 1941),opinionnaire on attitudes toward education (Lingren and Patton, 1958), educational scale (Kerlinger and Kaya, 1959), the educational scale (Rundquist and Sletto, 1936), attitudes toward education (Glassey, 1945), and an attitude scale for measuring attitude toward any teacher (Hoshaw, 1936). These scales, and others, are examined in detail in a recent publication (Shaw and Wright, 1967).

Probably the most widely used teacher attitude scale has been the Minnesota Teacher Attitude Inventory (Cook, Leeds, and Callis, 1951). It is assumed that when a teacher scores high on this scale he understands students and should be able to work harmoniously with them. At the other extreme is the teacher who tries to dominate the classroom. Attempts to validate the MTAI against ratings of effectiveness indicate that the test measures something fairly stable in teacher behavior, even though a relationship to pupil behavior has not been established (Green, 1964, p. 43). College students instructed to fake either permissive or authoritarian attitudes generally get higher and lower scores, respectively, than students given standard instructions. Another study

(Mitzel and Ostreicher, 1956) found that correlations reported between attitude measures on the MTAI, instead of resulting from underlying relationships, might well be a function of a common response set.

The questionable applicability of attitude studies of teacher effectiveness that have used scales similar to those described above might be a function of two factors: (1) the particular definitional framework adopted to represent the attitude the scale is to reflect; and (2) the technique selected for scale construction. The consequences for each of these factors will be considered briefly.

Variations in the definition of the term attitude range from the operational to the metatheoretical. Shaw and Wright (1967) identify three sources of variation in definitions of the construct attitude: (1) specificity versus generality in the determination of behavior; (2) the tendency to generalize the construct to include any predisposition to respond;(3) the theoretical composition of the attitude, that is, whether it consists of three components or a single component. Despite the variation in definitions they appear to hold one common characteristic: attitude entails an existing predisposition to respond to social objects which, in interaction with situational and other dispositional variables, guides and directs the overt behavior of the individual (Cardno, 1955).

One definition (Sherif, Sherif, and Nebergall, 1965) has incorporated the idea of specific social referents inseparably fused in the social judgments labeled attitude. Sherif, et al., claim that what are called motivational and cognitive, function inseparably when the individual discriminates, compares, categorizes, or evaluates socially

significant objects. Their argument is that most of what is known about social motives (including attitudes) and about cognitive structure (including attitudes) has been derived from data on behavior, much of which pertains to the individual's judgments. A social attitude, therefore, is defined as a set of evaluative categorizations formed toward an object or class of objects as the individual learns, in interaction with others, about his environment, including evaluations of other persons (Sherif, Sherif, and Nebergall, 1965, p. 20).

The most frequently used methods of measuring attitude (Thurstone, 1929; Likert, 1932; and Guttman, 1944) require subjects to indicate their agreement or disagreement with a set of statements about the attitude object. Generally, these statements attribute to the object characteristics that are positively or negatively evaluated and rarely neutral. Sherif (1956, 1960) has developed a perceptive variation from the traditional Thurstone scaling technique by regarding an attitude not as a point on a scale, but as a latitude. Three latitudes are hypothesized along the scale dimension: a latitude of acceptance, a latitude of rejection, and a latitude of noncommitment. Positions on a issue are judged by the individual with regard to the latitude which is most appropriate. Several studies have indicated that the sizes of the three latitudes vary as a function of the individual's ego-involvement with the issue (Hovland and Sherif, 1952; Sherif and Hovland, 1961) and the stronger the commitment to a position the greater the lowering of the threshold of rejection. The consequence of a lowered threshold of rejection is a reduction in the latitude of noncommitment.

In the item pool for a Thurstone type attitude scale several items represent the extremes for each pole. These extreme items serve as the anchors to size up the intermediate items. An anchor that differs slightly from the object of judgment results in displacement toward the anchor - assimilation effect (Sherif, Taub, and Hovland, 1958; Parducci and Marshall, 1962; Helson, 1964). With increasing discrepancies between the anchor and the object of judgment, assimilation ceases and displacement begins to occur away from the anchor; the difference between them is exaggerated - contrast effect. The anchoring items and others near the anchor position are placed with little variability while the intermediate items in such pools typically show more variability in placement (Edwards, 1946). An extreme judge, however, displaces many such items away from his own stand because, ordinarily, his latitude of acceptance does not extend into the intermediate segment (La Fave and Sherif, 1962).

Sherif has concluded that categorizations by respondents who have attitudes favorable and unfavorable toward the object of judgment will show the same characteristics (namely, the use of few categories with disproportionate accumulation of items in the categories opposed to their own stand on the issue) provided that both are equally involved in their own stands. Vaughan (1961) tested this hypothesis by studying the categorizations of four criterion group's stand toward Latins. She found, as predicted, that the two ego-involved groups piled judgments up at each end of the scale and the two uninvolved groups used the eleven categories with near equal frequency.

The approach to attitude assessment utilized by the Sherif-Hovland group holds great possibility for the assessment of abstract attitudes in a disguised manner. An individual's stand concerning the behavior of pupils which reflect the effectiveness or ineffectiveness of the teacher in the classroom appears to qualify as an abstract attitude, considering the lack of agreement as to what dimensions constitute teacher effectiveness. In order to assess such an attitude, it would also be highly desirable to reduce the influence of a social desirability response set as evidenced in responses to the MTAI.

It is argued, therefore, that pupil behavior observable in response to teacher behavior could be scaled by developing an instrument encompassing the properties proposed in the theoretical Sherif-Hovland structure. Such an instrument should as a minimum isolate a number of consensually agreed upon pupil behaviors that are indicative of effective and ineffective teacher behavior in the classroom. The direction of an individual's deviation from the consensually agreed upon effective and ineffective pupil behaviors should especially be reflected in their displacement of the intermediate items on the 11 point scale.

The individual with a favorable attitude toward the behavior of pupils should, for example, judge the consensually agreed upon effective behaviors as more effective than their scale position and the ineffective behaviors as more ineffective than their scale position. The intermediate behaviors should be displaced toward the ineffective pole of the scale. Individuals with unfavorable attitudes toward the behaviors of pupils should show the reverse pattern.

In order to ensure that the reduced item pool is made up of three consensually agreed upon sets, that is, effective, intermediate, and ineffective behaviors, a factor analysis could be performed. The items with substantial loadings on each of the three major factors that emerge should satisfy three properties: (1) have common affective content; (2) have mean values consistent with their content; (3) have smaller standard deviations on the effective and ineffective factors than on the intermediate factor.

The purpose of the present study, therefore, is to report the findings from the development of a Thurstone type attitude instrument incorporating the Sherif-Hovland theoretical structure to assess attitudes toward teacher effectiveness. The development of the scale included the factor-analytic technique described in the previous paragraph.

## Summary of Hypotheses

The major hypotheses of the present study may be summarized as follows:

1. Three principal factors should emerge:
   (a) A factor providing a cluster of items indicative of pupil behaviors which reflect effective teaching.
   (b) A factor providing a cluster of items indicative of pupil behaviors which reflect ineffective teaching.
   (c) A factor providing a cluster of items of indeterminate value with respect to effective or ineffective teaching.
2. The items with significant positive loading on factors 1(a) and 1(b) will have smaller standard deviations than the items with significant positive loadings on factor 1(c).

3. The items with high loadings on:

   (a) Factor 1(a) will have mean values clustering around the effective pole of the 11 point scale.

   (b) Factor 1(b) will have mean values clustering along the middle segment of the 11 point scale.

   (c) Factor 1(c) will have mean values clustering around the ineffective pole of the 11 point scale.

4. Subjects who judge the items loaded on factor 1(a) more effective on the average will judge the items loaded on 1(b) more ineffective (effective teacher attitude).

5. Subjects who judge the items loaded on factor 1(a) more ineffective on the average will judge the items loaded on 1(b) more effective (ineffective teacher attitude).

6. The subjects who fit the effective teacher attitude will displace the items loaded on factor 1(c) toward the ineffective pole.

7. The subjects who fit the ineffective teacher pattern will displace the items loaded on factor 1(c) toward the effective pole.

# CHAPTER II

# METHOD

## Subjects

The subjects used in this study were 259 college students enrolled in their first education course, Introduction to Teaching. This number represented the students present on the day the data were collected in the five sections randomly selected from the eleven sections offered during the Fall semester of the 1966-1967 school year at Central State College, Edmond, Oklahoma. The assumption was made that the random selection of classes for inclusion in the study supported the randomization of instructor and hour variables.

The sample was comprised of 104, or 40.2 per cent, males and 155, or 59.8 per cent, females with a combined mean age of 21.75 and a standard deviation of 5.18. The breakdown by college classification was 30, or 11.58 per cent, freshmen, 155, or 59.85 per cent, sophomores, 67, or 25.87 per cent, juniors, and 7, or 2.70 per cent, seniors. They represented 41 separate majors with only five majors representing more than five per cent of the total sample. Seventy-nine, or 30.5 per cent of the total sample, listed elementary education as their major. A complete tabular presentation of the sample by classification, age, sex, and college major is presented in Appendix A.

Procedure for Attitude Scale Construction

The first step in the construction of the attitude scale was to accumulate a large pool of descriptions of pupil-teacher interactions in the classroom. From existing attitude instruments, descriptions of classroom behavior found in education and educational psychology textbooks, and personal conversations with education professors who had previously taught at the public school level, 101 descriptions of classroom behavior were constructed. This set of behavior descriptions was typed on individual 3" by 5" cards and 14 judges were asked to place them along an 11 category scale relative to the extent they reflected effective or ineffective teacher behavior. The scale value of "one" represented the effective teaching pole and the scale value of "11" represented the ineffective teaching pole.

Feedback from the 14 judges in the first pretesting resulted in two major criticisms of the original item pool: (1) too many of the statements were worded in such a manner as to elicit agreement or disagreement on the basis of social desirability, i.e., the socially acceptable norm of democracy; (2) too many items were clear-cut factual statements and not descriptions of behavior. The items were, therefore, re-written in an attempt to eliminate the social desirability response set and to have each item represent a description of behavior.

A second pre-testing was made on the re-worded items from the original item pool. From the comments of two previously unused judges it became apparent that the disguised property of the re-worded items would be best served if the content of the items were worded in such a manner as to describe only observable pupil behaviors. Several items

were unable to be converted to descriptions of pupil behavior and were therefore, replaced by new descriptions. The converted descriptions o pupil behavior were submitted to 16 new judges for a third pre-testing of the items.

On the basis of the third pre-test, five item subsets were ident fied: (1) those consistently placed in extremely effective teaching categories; (2) those consistently placed in extremely ineffective tea. ing categories; (3) those with moderate variability but a tendency toward effective teaching categories; (4) those with moderate variability but a tendency toward ineffective teaching categories; (5) items with high variability, placed by some toward the ineffective categories and by some toward the effective categories. At this point the original item pool was reduced to 57 items that best satisfied the Sherif-Hovland rationale on a content validity and statistical basis. Subsets 1 and 2 contained four items each, subsets 3 and 4 contained ten items each, and subset 5 contained 29 items. Further examination of the items resulted in eliminating seven more items to arrive at the final pool of 50 descriptions of pupil behavior. The items eliminated were two each from subsets 1 and 2, and three from subset 5.

A fourth pre-testing was administered to 22 previously unused judges utilizing the same individually administered card-sorting procedure as employed in previous pre-testings. The items within the five subsets maintained their positions relatively well on a statistical basis. At this point it was decided to convert the items from cards and to determine whether similar results would occur when presented in paper-and-pencil form and administered in a group situation.

The pool of 50 items was randomly arranged and typed consecutively in a three page test booklet as represented in Appendix B. The three page booklet was then reproduced and administered to 40 members of an educational psychology class and to 27 members of a graduate course in education. The results of this final pre-testing were very similar to the results obtained from the card sorting procedure.

Procedure for Data Collection

Early in the 1966-1967 school year five sections of the first course in education, Introduction to Teaching, were randomly selected from the 11 sections offered for the administration of the teacher effectiveness attitude instrument. The instructors were individually instructed regarding the procedure to be employed for their part in the data collection.

Each instructor was requested to administer the instrument at the beginning of the class period on the day designated for the data collection. They were further asked to offer no explanation regarding the purpose of the instrument other than to assure the students that their performance would in no way effect their grade in the course. The only specific direction given by the instructor was to request each student to place his name on the back of the instrument in the lower right-hand corner. The students were assured that this was for identification purposes only and their individual performance would be kept anonymous by the researcher.

The subjects were then instructed to fill in the identifying information at the top of the instrument (see Appendix B). When the subjects had filled in the identifying information, they were instructed

to read the instructions on the instrument and follow them as closely as possible. No questions were answered by the instructor regarding the purpose of the instrument, the instructions, or the meaning of any of the items. If there were any questions the instructor was to tell the subject to respond in the best way that he could. No time limit was imposed on the completion of the instrument, but the majority completed it within a 20 minute period.

When the subjects completed the instrument, the instructor collected the booklets and returned them to the researcher. After checking the booklets for completeness of information the data were then transferred to IBM cards for data analysis.

Procedure for Analysis

The analysis was performed in eight sequential steps. In the first step the item mean and standard deviation was obtained for the 259 judgments made on each item.

The second step was the determination of the split-half reliability estimate. The scale judgments on the odd and even items were separately summed for each of the 259 subjects and then correlated by the Pearson product-moment correlation procedure. The Spearman-Brown prophecy formula (Spearman, 1910; Brown, 1910) was applied to the obtained correlation to estimate the reliability of the total scale.

The intercorrelations between the 50 items of the instrument employing the Pearson product-moment correlation technique constituted the third step. This procedure produced 1,225 separate correlation coefficients. To be significantly different from a zero correlation,

with 257 degrees of freedom, the obtained correlation had to exceed .124 at the .05 level and .162 at the .01 level.

The fourth, fifth and sixth steps of the analysis were related to the solution of the factor problem. The principal-factor procedure described by Harmon (1960) was used to solve the factor problem. Computation was performed by the use of a 7040 computer.

In the principal-factor solution, as in any other factor solution, the starting point is the estimate of the communalities to be used (the diagonal values in the correlation matrix). Three techniques were employed: (1) the square of the first averoid factor, (2) iteration by refactoring, (3) placing one's in the diagonal. The extraction of factors was accomplished for the three procedures used in estimating the communality. However, it should be pointed out that it has been argued, and substantiated by empirical evidence, that it matters little what values are placed in the principal diagonal of the correlation matrix when the number of variables is larger than 20 (Harmon, 1960, p. 88).

Two criteria were used for ceasing the extraction of factors: (1) when the frequency distribution of the residual correlation matrix evidenced small residuals that were unimodal and leptokurtic; (2) the last factor extracted had few loadings in excess of .20. The matrix of factors extracted by the principal-factor technique was then rotated to the best approximation of simple structure by the varimax method proposed by Kaiser (1956).

The seventh step in the analysis was to identify the effective teaching, ineffective teaching, and indeterminate factors. Once

identified, the ten items with the highest positive loading on each factor were identified. At this stage of the analysis, 50 completed booklets were randomly selected from the original 259 subject sample and scores were obtained separately for each factor.

The procedure for scoring each of the 50 booklets was first to identify the 10 items from the original 50 which had the highest positive factor loadings on each factor. The judgments on the 10 items with the highest positive factor loadings on Factor I, for example, were then summed separately for each booklet. Since judgments on each item could vary from a value of 1 to a value of 11, the scores on Factor I could vary from a score of 10 to a score of 120. The scoring rationale for Factors II and III was identical to the rationale for scoring Factor I. Each booklet then yielded three scores varying from a minimum value of 10 to a maximum value of 120.

The pattern of the three factor scores should reveal the degree of the attitude of an individual completing the booklet toward pupil behaviors which reflect effective teaching. The Sherif-Hovland attitude criteria would suggest that an effective teaching attitude would yield: (1) a very low factor score on the factor representing consensually agreed upon pupil behaviors which reflect effective teaching; (2) a very high factor score on the factor representing consensually agreed upon pupil behaviors which reflect ineffective teaching; and (3) a high score on the factor representing pupil behaviors which neither represent effective or ineffective teaching. An ineffective teaching attitude should yield a pattern of factor scores significantly different from the effective teaching attitude pattern, that is, a high score where a low

score would indicate an effective teaching attitude and a low score where a high score would indicate an effective teaching attitude.

In order to eliminate confusion concerning the directionality of the separate factor scores when comparing effective and ineffective teaching attitudes, it was decided to reverse the directionality of two of the factors. The directionality of the factors representing the ineffective linked pupil behaviors and the indeterminate pupil behaviors was reversed due to the fact that both of these factors would yield high factor scores for the effective teaching attitude. By reversing the directionality the scores reflecting the effective teaching attitude on these factors would be low scores, which is consistent with the directionality of the judgment scale used for each item in the test booklet. The directionality was reversed for the ineffective and indeterminate factor scores by subtracting a value of 120 from each score. This procedure made it possible to compare the optimal effective teaching attitude pattern hypothesized by the Sherif-Hovland attitude criteria with the three factor scores on each test booklet with a minimum of confusion. It was unnecessary to change the score for the factor representing pupil behaviors reflecting effective teaching since a low score already indicated an effective teaching attitude.

The eighth step of the analysis was an attempt to establish the construct validity of the attitude instrument. The three factor scores, reversed in directionality, were summed to yield a total scaled score for each of the 50 randomly selected test booklets. It was argued that if the Sherif-Hovland attitude structure maintained, the 25 booklets with the lowest total scaled scores would have a pattern of factor score

indicative of the effective teaching attitude, and the 25 booklets with the highest total scaled scores would have a pattern more like the ineffective teaching attitude. To test this hypothesis three "t" tests between uncorrelated means were performed. For each "t" test the mean factor score for each of the three factors needed to be significantly larger for the high total scale score group to support the Sherif-Hovland attitude structure.

# CHAPTER III

## RESULTS

The analysis of judgments made by the 259 subjects on each item indicated that the means were fairly well distributed along the scale (see Appendix C). The scale was divided into three categories and the mean values for the items were distributed as follow: (1) ten items with means between 1 and 3; (2) thirty items with means between 4 and 8; (3) ten items with means between 9 and 11. There was also a definite tendency for the standard deviation to increase as the item mean approached the middle categories from either pole.

The correlation obtained between the summation of the judgments separately on the odd and even items for each subject was .62. Since this correlation was actually the correlation between two tests, each of which is one half the length of the original, the Spearman-Brown formula was applied to estimate the reliability of a test twice as long. The corrected Spearman-Brown reliability estimate was .77 for an instrument of 50 items.

The intercorrelations of the 50 items are shown in Table 1. The number of correlation coefficients that exceeded the .05 and .01 significance levels respectively were 381 and 332. This suggested that there was sufficient common factor variance to support a factor analysis of the data.

TABLE 1

INTERCORRELATIONS BETWEEN THE FIFTY ITEMS ON THE TEACHER EFFECTIVENESS ATTITUDE SCALE (N = 259)

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | |
| 2 | 21 | | | | | | | | | | | | | | | | |
| 3 | 00 | 06 | | | | | | | | | | | | | | | |
| 4 | 06 | 14 | 05 | | | | | | | | | | | | | | |
| 5 | 04 | 14 | 05 | 28 | | | | | | | | | | | | | |
| 6 | 25 | 15 | 04 | -06 | 03 | | | | | | | | | | | | |
| 7 | 02 | 04 | -15 | -10 | 00 | 11 | | | | | | | | | | | |
| 8 | 06 | -05 | -12 | -04 | -02 | -04 | 49 | | | | | | | | | | |
| 9 | 18 | 21 | 15 | 35 | 09 | 05 | -26 | -26 | | | | | | | | | |
| 10 | 25 | 17 | 04 | -01 | -05 | 26 | 11 | 08 | 08 | | | | | | | | |
| 11 | -05 | 11 | 07 | 01 | 20 | -01 | 06 | 04 | 07 | -05 | | | | | | | |
| 12 | 07 | 09 | 14 | 16 | 11 | 03 | -17 | -22 | 33 | -01 | 19 | | | | | | |
| 13 | -05 | 14 | 18 | 31 | 26 | -02 | -13 | -11 | 20 | -15 | 26 | 28 | | | | | |
| 14 | 07 | 04 | 01 | 15 | 13 | 15 | -07 | -14 | 22 | -02 | 09 | 22 | 20 | | | | |
| 15 | 16 | 27 | -01 | 08 | 18 | 23 | -04 | -05 | 16 | 16 | 01 | 02 | 08 | 16 | | | |
| 16 | 09 | 00 | -05 | -17 | 01 | 09 | 54 | 50 | -23 | -02 | 08 | -23 | -04 | -05 | 05 | | |
| 17 | 11 | -04 | -16 | -14 | -01 | 08 | 45 | 42 | -18 | 01 | -05 | -24 | -14 | -02 | -03 | 47 | |
| 18 | 04 | 02 | 10 | 19 | 03 | 01 | -11 | -16 | 10 | -04 | 16 | 33 | 21 | 06 | -03 | -15 | -22 |
| 19 | 11 | 19 | 17 | 05 | 08 | 16 | 04 | -03 | 19 | 16 | -07 | 00 | -08 | -09 | 08 | 00 | 04 |
| 20 | 10 | 12 | 06 | 05 | 04 | 12 | -13 | -15 | 12 | 11 | 02 | -01 | 09 | 00 | 34 | -11 | -10 |
| 21 | 13 | 05 | -02 | -10 | -03 | 04 | 21 | 24 | -08 | 16 | -10 | -19 | -15 | -01 | -02 | 25 | 30 |
| 22 | 15 | 16 | 07 | -04 | 10 | 06 | 05 | -04 | 16 | 11 | 00 | 07 | -06 | 07 | 09 | -01 | 01 |
| 23 | 08 | 13 | 05 | 22 | 09 | 08 | -15 | -17 | 23 | 04 | -02 | 20 | 11 | 12 | 06 | -18 | -03 |
| 24 | 13 | 08 | -17 | -09 | -03 | 01 | 41 | 35 | -15 | 06 | -04 | -27 | -12 | -05 | -05 | 48 | 46 |
| 25 | 05 | -05 | -09 | -04 | 01 | -08 | 16 | 17 | -16 | -10 | 10 | -12 | 07 | 02 | -21 | 27 | 25 |
| 26 | 03 | 11 | 12 | 19 | 26 | -05 | 02 | 10 | 08 | 02 | 21 | 07 | 24 | 17 | 20 | 01 | -03 |
| 27 | 09 | 02 | 00 | -11 | -02 | 10 | 43 | 29 | -15 | 10 | -06 | -14 | -10 | -10 | 01 | 36 | 36 |
| 28 | 02 | -06 | -03 | -07 | -01 | 01 | 07 | 07 | -01 | 18 | -08 | 04 | -09 | 04 | 12 | 09 | 05 |
| 29 | 11 | 05 | -16 | -01 | 17 | 14 | 16 | 13 | -07 | 08 | -02 | -21 | -08 | -02 | 11 | 26 | 18 |
| 30 | 00 | 04 | 06 | 01 | 04 | 03 | -02 | 09 | -04 | -03 | 11 | 08 | 06 | 08 | 05 | 09 | 00 |
| 31 | 06 | -07 | -16 | -07 | -03 | 06 | 39 | 41 | -21 | 02 | 00 | -30 | -14 | -01 | -03 | 42 | 34 |
| 32 | -04 | -04 | -03 | -06 | 10 | -20 | 16 | 15 | -14 | -11 | 17 | 05 | 14 | 00 | -03 | 36 | 18 |
| 33 | -01 | 06 | 26 | 30 | 12 | -06 | -20 | -20 | 35 | -01 | 05 | 40 | 28 | 18 | -01 | -25 | -14 |
| 34 | 15 | 18 | -05 | 02 | -06 | 05 | 30 | 33 | -01 | 10 | 07 | -14 | -08 | -02 | 03 | 27 | 30 |
| 35 | 13 | 37 | 18 | 24 | 11 | 00 | 01 | -09 | 26 | 10 | 06 | 08 | 23 | 14 | 27 | 00 | -02 |
| 36 | 24 | 31 | -02 | 12 | 04 | 26 | 06 | -09 | 25 | 21 | -05 | 07 | -04 | 03 | 23 | -01 | 02 |
| 37 | 29 | 13 | -06 | -19 | 05 | 22 | 17 | 16 | 01 | 25 | -04 | -04 | -11 | 08 | 16 | 21 | 25 |
| 38 | 12 | 15 | 02 | 00 | -01 | 25 | -04 | 03 | 10 | 20 | -07 | 04 | -06 | 10 | 20 | -07 | -04 |
| 39 | -01 | 03 | 05 | -10 | 13 | 01 | 15 | 22 | -13 | -03 | 05 | -04 | 04 | -05 | -07 | 23 | 17 |
| 40 | 13 | 36 | 10 | 18 | 10 | 14 | -13 | -04 | 23 | 08 | 01 | 20 | 23 | 03 | 19 | -09 | -13 |
| 41 | 11 | 13 | -09 | -11 | 09 | 11 | 19 | 17 | -04 | 16 | -09 | -07 | -02 | -06 | 20 | 20 | 12 |
| 42 | -03 | 03 | -15 | -14 | -07 | 02 | 40 | 28 | -14 | 00 | -02 | -28 | -18 | 00 | -02 | 33 | 39 |
| 43 | 08 | -01 | -03 | -04 | -02 | 11 | 30 | 33 | -19 | -03 | 00 | -12 | -10 | 03 | -08 | 34 | 34 |
| 44 | -09 | 09 | 10 | 15 | 02 | -03 | -23 | -18 | 21 | -06 | 09 | 43 | 29 | 13 | -19 | -26 | -22 |
| 45 | 00 | -10 | 06 | 07 | 05 | -12 | 01 | 09 | -02 | -12 | 13 | 14 | -01 | -01 | -11 | 12 | 05 |
| 46 | 05 | -03 | -08 | -05 | -01 | 07 | 40 | 44 | -18 | 05 | 10 | -25 | 00 | -10 | 02 | 48 | 33 |
| 47 | 09 | -13 | -07 | -01 | 04 | 00 | 10 | 12 | -08 | -04 | 03 | -04 | 03 | 05 | -12 | 16 | 17 |
| 48 | 01 | -09 | -01 | -03 | 04 | -08 | 15 | 25 | -18 | -11 | 10 | -11 | 05 | -02 | -12 | 31 | 20 |
| 49 | 04 | -02 | -21 | -04 | -09 | -04 | 48 | 32 | -09 | 07 | 04 | -21 | -09 | -06 | -04 | 47 | 43 |
| 50 | -05 | 11 | 17 | 13 | 05 | -03 | -32 | -26 | 34 | 00 | 08 | 31 | 12 | 16 | -07 | -44 | -30 |

TABLE 1--Continued

| Item | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | |
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| 19 | -06 | | | | | | | | | | | | | | | | |
| 20 | 01 | 17 | | | | | | | | | | | | | | | |
| 21 | -18 | 15 | -01 | | | | | | | | | | | | | | |
| 22 | -07 | 30 | 20 | 20 | | | | | | | | | | | | | |
| 23 | 00 | 19 | 22 | 02 | 08 | | | | | | | | | | | | |
| 24 | -19 | 01 | -03 | 24 | 04 | -11 | | | | | | | | | | | |
| 25 | 04 | -05 | -16 | 03 | -07 | -19 | 27 | | | | | | | | | | |
| 26 | 06 | 14 | 22 | -03 | 14 | 17 | -01 | 07 | | | | | | | | | |
| 27 | -18 | 05 | 06 | 09 | 09 | 01 | 34 | 15 | 00 | | | | | | | | |
| 28 | -15 | -08 | 06 | 13 | 10 | -06 | 09 | -08 | 01 | 13 | | | | | | | |
| 29 | -24 | 07 | 07 | 18 | 14 | 04 | 27 | 08 | -01 | 12 | 05 | | | | | | |
| 30 | 19 | -03 | -01 | 03 | 01 | -08 | 01 | 12 | 16 | -04 | 17 | -01 | | | | | |
| 31 | -24 | 01 | -05 | 23 | -04 | -12 | 37 | 18 | -01 | 31 | 10 | 28 | 00 | | | | |
| 32 | -01 | -07 | -14 | 05 | -04 | -03 | 21 | 25 | 01 | 13 | 09 | 06 | 03 | 18 | | | |
| 33 | 24 | 09 | 06 | -13 | -02 | 31 | -27 | -16 | 19 | -14 | -04 | -18 | 03 | -25 | -05 | | |
| 34 | -06 | -01 | -04 | -01 | 01 | -02 | 38 | 18 | -01 | 38 | -01 | 17 | -01 | 33 | 20 | -08 | |
| 35 | 03 | 21 | 24 | -01 | 13 | 27 | 02 | -07 | 21 | 10 | 00 | 07 | 00 | -01 | 01 | 22 | 07 |
| 36 | 00 | 32 | 23 | 08 | 22 | 29 | 06 | -17 | 02 | 16 | 08 | 15 | -07 | 10 | -08 | 08 | 08 |
| 37 | -19 | 17 | 07 | 23 | 13 | -02 | 28 | 08 | 10 | 17 | 08 | 26 | 04 | 26 | 02 | -17 | 15 |
| 38 | -07 | -19 | 24 | 02 | 14 | 08 | 01 | -11 | -03 | 01 | 13 | 07 | 04 | 01 | -08 | 04 | 15 |
| 39 | 05 | -04 | -03 | -01 | 11 | -13 | 13 | 20 | 08 | 13 | -07 | -08 | 25 | 13 | 10 | -03 | 09 |
| 40 | 02 | 25 | 20 | 00 | 03 | 30 | -11 | -20 | 14 | -10 | 00 | -05 | 06 | -12 | 00 | 26 | -03 |
| 41 | 11 | 24 | 07 | 18 | 29 | 07 | 21 | 03 | 11 | 05 | 17 | 12 | 06 | 18 | 01 | -11 | 07 |
| 42 | 22 | 09 | -06 | 22 | 01 | -04 | 42 | 21 | -03 | 36 | 03 | 21 | 05 | 36 | -01 | -16 | 34 |
| 43 | -03 | -06 | -14 | 11 | -06 | -08 | 32 | 33 | 00 | 24 | -04 | 19 | 10 | 32 | 12 | -09 | 37 |
| 44 | 25 | 03 | 07 | -16 | -01 | 28 | -26 | -08 | 05 | -19 | -04 | -15 | 10 | -30 | -01 | 41 | -09 |
| 45 | 09 | -02 | -11 | 05 | -07 | 07 | 00 | 12 | -04 | -03 | 00 | 02 | -01 | -05 | 24 | 08 | 04 |
| 46 | -07 | -08 | -12 | 15 | -03 | -20 | 30 | 22 | -02 | 26 | 04 | 12 | 14 | 28 | 20 | -24 | 37 |
| 47 | 02 | 05 | -12 | 08 | 00 | 01 | 14 | 24 | 03 | 04 | 15 | -01 | 08 | 11 | 17 | -11 | 00 |
| 48 | 05 | -14 | -19 | 03 | -07 | -23 | 13 | 27 | 00 | 12 | 02 | -01 | 13 | 17 | 31 | -13 | 18 |
| 49 | -19 | -04 | -12 | 17 | 00 | -12 | 55 | 33 | -10 | 37 | 02 | 25 | -01 | 38 | 29 | -20 | 46 |
| 50 | 20 | 09 | 08 | -20 | -01 | 24 | -30 | -17 | 02 | -17 | -03 | -26 | 01 | -24 | -08 | 38 | -21 |

TABLE 1--Continued

| Item | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | |
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| 35 | | | | | | | | | | | | | | | | |
| 36 | 26 | | | | | | | | | | | | | | | |
| 37 | 04 | 20 | | | | | | | | | | | | | | |
| 38 | 13 | 15 | 12 | | | | | | | | | | | | | |
| 39 | 01 | -07 | 05 | 03 | | | | | | | | | | | | |
| 40 | 23 | 29 | 06 | 21 | -04 | | | | | | | | | | | |
| 41 | 02 | 14 | 27 | 18 | 14 | 07 | | | | | | | | | | |
| 42 | 03 | 05 | 21 | 08 | 03 | -12 | 18 | | | | | | | | | |
| 43 | 01 | -03 | 15 | -08 | 14 | -20 | 02 | 34 | | | | | | | | |
| 44 | 09 | 10 | -10 | 11 | -03 | 33 | -15 | -17 | -18 | | | | | | | |
| 45 | -02 | -15 | -05 | 05 | -02 | -10 | -17 | -04 | 13 | 12 | | | | | | |
| 46 | -13 | -11 | 08 | -05 | 16 | -20 | 18 | 35 | 32 | -19 | 01 | | | | | |
| 47 | -06 | 05 | 03 | 01 | 10 | -02 | 11 | -02 | 00 | -02 | 10 | 16 | | | | |
| 48 | -11 | -19 | -07 | -06 | 16 | -15 | 06 | 05 | 15 | -01 | 15 | 43 | 34 | | | |
| 49 | 02 | 01 | 17 | -06 | 16 | -21 | 16 | 45 | 36 | -25 | 10 | 53 | 13 | 31 | | |
| 50 | 07 | 08 | -12 | 14 | -11 | 26 | -22 | -21 | -29 | 55 | 01 | 31 | -12 | 21 | -37 | |

Three estimates of communalities were made. The first was a procedure employing the square of the first averoid factor, which proved to be an underestimate of the actual communalities as evidenced by the first factor accounting for 500 per cent of the total estimated communality. When "one's" were placed in the diagonal elements only 42 per cent of the total estimated communality was accounted for after the extraction of eight factors, thus proving to be overestimates of the actual communalities. The iteration by refactoring procedure accounted for 101.5 per cent of the total estimated communality after the extraction of five factors, thus providing the best estimate of the actual communality. Guilford (1954, p. 494) pointed out that a check can be made to see how much the initial guessed communalities differ from the obtained communalities after the factors have been extracted. He further suggested that if the discrepancies are as large as .10, either positive or negative, then it is wise to start the extractions all over again, using new guesses based on the computed communalities found the first time through. The discrepancies between the original communality estimates by iteration in the refactoring procedure and the calculated communalities are shown in Table 2. As inspection of Table 2 indicated that none of the 50 discrepancies exceeded .10, and only one, item 6, was close to that value.

The principal-factor procedure for extracting the principal common factors was programmed to cease the factoring process when there was no residual correlation exceeding a value of .20. A distribution

TABLE 2

DISCREPANCIES BETWEEN ORIGINAL AND CALCULATED COMMUNALITY ESTIMATES (FIRST FIVE FACTORS)

| Item | Original | Calculated | Difference |
|---|---|---|---|
| 1 | .150 | .156 | .006 |
| 2 | .251 | .266 | .015 |
| 3 | .095 | .092 | -.003 |
| 4 | .254 | .277 | .023 |
| 5 | .208 | .213 | .005 |
| 6 | .244 | .175 | -.069 |
| 7 | .439 | .432 | -.007 |
| 8 | .399 | .391 | -.009 |
| 9 | .333 | .337 | .004 |
| 10 | .185 | .199 | .014 |
| 11 | .179 | .173 | -.006 |
| 12 | .367 | .391 | .024 |
| 13 | .384 | .422 | .038 |
| 14 | .096 | .094 | -.002 |
| 15 | .391 | .357 | -.034 |
| 16 | .562 | .564 | .002 |
| 17 | .426 | .424 | -.002 |
| 18 | .211 | .217 | .006 |
| 19 | .244 | .244 | .000 |
| 20 | .246 | .232 | -.014 |
| 21 | .186 | .184 | -.002 |
| 22 | .173 | .175 | .002 |

TABLE 2--Continued

| Item | Original | Calculated | Difference |
|---|---|---|---|
| 23 | .304 | .297 | -.007 |
| 24 | .464 | .461 | -.003 |
| 25 | .261 | .264 | .003 |
| 26 | .238 | .244 | .006 |
| 27 | .300 | .302 | .002 |
| 28 | .107 | .105 | -.002 |
| 29 | .207 | .207 | .000 |
| 30 | .136 | .150 | .014 |
| 31 | .365 | .362 | -.003 |
| 32 | .259 | .240 | -.019 |
| 33 | .396 | .419 | .023 |
| 34 | .352 | .369 | .017 |
| 35 | .325 | .341 | .016 |
| 36 | .319 | .367 | .048 |
| 37 | .268 | .279 | .011 |
| 38 | .185 | .186 | .001 |
| 39 | .157 | .155 | -.002 |
| 40 | .288 | .304 | .016 |
| 41 | .286 | .307 | .021 |
| 42 | .381 | .382 | .001 |
| 43 | .313 | .308 | -.005 |
| 44 | .424 | .459 | .035 |
| 45 | .126 | .128 | .002 |

TABLE 2--Continued

| Item | Original | Calculated | Difference |
|---|---|---|---|
| 46 | .416 | .416 | .000 |
| 47 | .148 | .155 | .007 |
| 48 | .329 | .347 | .018 |
| 49 | .561 | .570 | .009 |
| 50 | .458 | .472 | .014 |

of the residual correlations after the extraction of the fourth factor has been shown in Table 3. The distribution is definitely leptokurtic

TABLE 3

DISTRIBUTION OF RESIDUAL CORRELATIONS AFTER THE EXTRACTION OF THE FOURTH FACTOR

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 4 |
| .12 | 36 |
| .07 | 224 |
| .02 | 1227 |
| -.02 | 761 |
| -.07 | 212 |
| -.12 | 36 |
| -.17 | 0 |
| -.22 | 0 |
| Total | 2500 |

and had no residual correlations that exceeded .20. The suggestion of Guilford (1954, p. 500) was followed and several additional factors were extracted to aid in rotation (see Appendix D). The contribution of the first four factors to the total estimated communality was 94.97 per cent. The unrotated factor matrix for the first four factors is shown in Table 4. An inspection of the loadings on Factor IV indicated that several were large enough to aid in rotation, although the majority were rather small.

TABLE 4

UN-ROTATED PRINCIPAL FACTOR MATRIX
(First Four Factors)

| Item | Factor I | II | III | IV |
|---|---|---|---|---|
| 1 | .080 | .376 | -.025 | .036 |
| 2 | -.089 | .490 | .086 | .003 |
| 3 | -.237 | .090 | .147 | .051 |
| 4 | -.261 | .194 | .318 | -.116 |
| 5 | -.087 | .202 | .281 | .231 |
| 6 | .044 | .367 | -.149 | .081 |
| 7 | .631 | .138 | .094 | -.063 |
| 8 | .594 | .042 | .153 | .041 |
| 9 | -.407 | .361 | .137 | -.146 |
| 10 | .056 | .359 | -.211 | .038 |
| 11 | -.032 | .010 | .389 | .117 |
| 12 | -.460 | .112 | .342 | -.025 |
| 13 | -.274 | .101 | .422 | .142 |
| 14 | -.152 | .170 | .202 | .020 |

TABLE 4--Continued

| Item | Factor I | II | III | IV |
|---|---|---|---|---|
| 15 | -.076 | .461 | -.071 | .262 |
| 16 | .704 | .101 | .215 | .110 |
| 17 | .617 | .121 | .076 | -.128 |
| 18 | -.301 | -.083 | .329 | .058 |
| 19 | -.049 | .449 | -.118 | .012 |
| 20 | -.183 | .391 | -.126 | .097 |
| 21 | .320 | .194 | -.152 | .053 |
| 22 | .002 | .360 | -.102 | .162 |
| 23 | -.295 | .356 | .081 | -.276 |
| 24 | .639 | .181 | .048 | -.127 |
| 25 | .378 | -.146 | .314 | .018 |
| 26 | -.087 | .266 | .274 | .246 |
| 27 | .472 | .209 | .033 | -.017 |
| 28 | .102 | .139 | -.094 | .155 |
| 29 | .326 | .243 | -.122 | -.038 |
| 30 | .039 | .032 | .230 | .262 |
| 31 | .585 | .120 | -.007 | -.059 |
| 32 | .273 | -.074 | .392 | .037 |
| 33 | -.475 | .166 | .340 | -.208 |
| 34 | .458 | .219 | .192 | -.268 |
| 35 | -.136 | .477 | .183 | -.089 |
| 36 | -.065 | .574 | -.121 | -.130 |
| 37 | .295 | .389 | -.137 | .084 |

TABLE 4--Continued

| Item | Factor I | II | III | IV |
|---|---|---|---|---|
| 38 | -.056 | .359 | -.111 | .024 |
| 39 | .221 | -.001 | .219 | .217 |
| 40 | -.311 | .432 | .096 | .004 |
| 41 | .258 | .328 | -.115 | .328 |
| 42 | .542 | .159 | -.032 | -.247 |
| 43 | .490 | .020 | .189 | -.173 |
| 44 | -.480 | .096 | .321 | -.167 |
| 45 | .032 | -.136 | .279 | -.127 |
| 46 | .597 | -.016 | .228 | .089 |
| 47 | .196 | -.032 | .184 | .170 |
| 48 | .360 | -.208 | .355 | .190 |
| 49 | .690 | .074 | .194 | -.218 |
| 50 | -.579 | .078 | .126 | -.212 |

The Varimax procedure was applied to the original factor matrix; rotating five factors on one occasion and eight on another. Simple structure appeared to be more closely approximated for the three main factors when the eight factor matrix was used. The rotated factor matrix by the Varimax reduction for the first three factors is shown in Table 5. The other rotated factors were placed in Appendix E because the last five factors did not appear to have any interpretable meaning and were, therefore, suspected to be specific and error factors.

TABLE 5

ROTATED PRINCIPAL FACTOR MATRIX BY VARIMAX TECHNIQUE
(First Three Factors)

| Item | Factor I | II | III |
|---|---|---|---|
| 1 | .096 | .393 | -.005 |
| 2 | .080 | .394 | .139 |
| 3 | -.131 | .010 | .228 |
| 4 | -.066 | .003 | .218 |
| 5 | -.050 | .007 | -.006 |
| 6 | .053 | .489 | -.032 |
| 7 | .637 | .042 | -.126 |
| 8 | .559 | -.020 | -.119 |
| 9 | -.198 | .251 | .338 |
| 10 | .062 | .452 | -.002 |
| 11 | .035 | -.056 | .083 |
| 12 | -.292 | .093 | .469 |
| 13 | -.129 | -.063 | .193 |
| 14 | -.074 | .100 | .119 |
| 15 | -.070 | .497 | -.179 |
| 16 | .620 | .020 | -.245 |
| 17 | .607 | -.031 | -.104 |
| 18 | -.205 | -.019 | .261 |
| 19 | .034 | .264 | .172 |
| 20 | -.104 | .317 | .019 |
| 21 | .236 | .094 | -.127 |
| 22 | -.005 | .241 | .005 |

TABLE 5--Continued

| Item | Factor I | II | III |
|---|---|---|---|
| 23 | -.053 | .105 | .394 |
| 24 | .628 | .053 | -.178 |
| 25 | .338 | -.231 | -.080 |
| 26 | -.004 | .005 | .043 |
| 27 | .552 | .097 | -.012 |
| 28 | .009 | .190 | -.046 |
| 29 | .283 | .151 | -.241 |
| 30 | .018 | .056 | .047 |
| 31 | .540 | .026 | -.219 |
| 32 | .249 | -.155 | .021 |
| 33 | -.182 | -.041 | .571 |
| 34 | .598 | .179 | .035 |
| 35 | .095 | .210 | .197 |
| 36 | .080 | .465 | .173 |
| 37 | .253 | .342 | -.122 |
| 38 | -.000 | .430 | .141 |
| 39 | .199 | -.042 | -.021 |
| 40 | -.131 | .323 | .347 |
| 41 | .140 | .310 | -.200 |
| 42 | .613 | .012 | -.068 |
| 43 | .543 | -.074 | -.072 |
| 44 | -.235 | .039 | .626 |
| 45 | .073 | -.184 | .171 |

TABLE 5--Continued

| Item | Factor I | II | III |
|---|---|---|---|
| 46 | .529 | .048 | -.216 |
| 47 | .079 | -.033 | -.031 |
| 48 | .238 | -.129 | -.126 |
| 49 | .706 | -.003 | -.151 |
| 50 | -.344 | .039 | .596 |

The first three factors were interpretable in terms of meaningful indicators of the three hypothesized item pools. In the following discussion of the factors, all loadings of .200 or higher are presented along with the means and standard deviations for the items.

Factor I: Ineffective Teaching Behavior

The following item judgments had loadings of .200 or higher on Factor I:

| Item No. | | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 49 | Pupils fail to follow directions | .706 | 8.95 | 1.91 |
| 24 | Pupils having difficulty following directions | .637 | 8.82 | 1.94 |
| 7 | Pupil disinterest in learning | .637 | 9.72 | 2.03 |
| 16 | Unruly children | .620 | 9.80 | 3.12 |
| 42 | The low achiever not working hard enough and applying himself | .613 | 8.70 | 1.94 |
| 17 | Pupils lack productive imagination | .607 | 8.25 | 2.09 |

| Item No. | | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 34 | Inadequate effort on the part of the pupils in preparing their lessons | .598 | 8.23 | 2.09 |
| 8 | Lack of common courtesy toward adults | .559 | 9.23 | 2.06 |
| 27 | Lack of application as one of the most frequent causes for failure | .552 | 8.17 | 2.54 |
| 43 | Pupils not appreciating what the teacher does for them | .543 | 8.14 | 2.12 |
| 31 | Children not usually thinking for themselves | .540 | 9.49 | 2.04 |
| 46 | Misbehavior to annoy the teacher | .529 | 9.54 | 1.82 |
| 25 | Pupils using slang expressions | .338 | 7.56 | 2.33 |
| 29 | Pupils given old fashioned whippings | .283 | 8.00 | 2.93 |
| 37 | Pupils assigned additional school work as punishment | .253 | 7.70 | 3.13 |
| 32 | Pupils whispering | .250 | 8.11 | 2.16 |
| 48 | Pupils having their own way | .238 | 9.08 | 2.20 |
| 21 | The likes and dislikes of children kept to themselves | .236 | 8.22 | 2.72 |
| 18 | Children allowed more freedom in their execution of learning activities | -.205 | 2.86 | 1.97 |
| 44 | Pupils and teacher laughing together in amusing classroom situations | -.235 | 1.61 | 1.25 |
| 12 | Children receiving reasons for restrictions placed upon them | -.292 | 2.05 | 1.75 |

Factor I was characterized by negative or undesirable aspects of pupil behavior that reflect ineffective teacher-pupil classroom interactions. The three descriptions with negative loadings, as will be observed later, have substantial positive loadings on Factor III. The magnitude of the means and standard deviations are consistent with the Sherif-Hovland theoretical structure. The mean judgment for the 18 descriptions with positive loadings larger than .200 was 8.65 with a mean standard deviation of 2.29.

Factor II: Indeterminate teaching behavior

The following item judgments had loadings of .200 or higher on Factor II:

| Item No. | | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 15 | Pupils asking permission to sharpen pencil | .497 | 5.41 | 3.12 |
| 6 | Grading employed to increase competition | .489 | 4.99 | 3.15 |
| 36 | School work done in a uniform manner | .465 | 4.22 | 2.92 |
| 10 | Classroom rules and regulations are considered inviolable | .452 | 6.06 | 3.13 |
| 38 | Children acting more civilized than adults | .430 | 3.69 | 3.13 |
| 2 | Pupils standing when reciting | .394 | 4.21 | 2.97 |
| 1 | Children feeling guilty or ashamed for misbehavior | .393 | 5.24 | 3.18 |
| 37 | Pupils assigned additional school work as punishment | .342 | 7.70 | 3.14 |

| Item No. | | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 40 | Pupils working in workbooks | .323 | 3.36 | 2.13 |
| 20 | No pupils chewing gum | .317 | 4.75 | 2.79 |
| 41 | Children seen and not heard | .310 | 8.30 | 3.05 |
| 19 | Respecting the teacher because he is a teacher | .264 | 3.97 | 3.04 |
| 9 | Pupils giving talks or reports | .251 | 2.69 | 2.10 |
| 22 | Children not expecting talking privileges when adults wish to speak | .241 | 5.59 | 3.31 |
| 35 | Pupils reading aloud | .210 | 4.22 | 2.74 |
| 25 | Pupils using slang expressions | -.231 | 7.55 | 2.33 |

Factor II appeared to represent fairly well those aspects of teaching behavior, as reflected through pupil behavior, which many potential teachers would not feel secure in judging the behavior situations as effective or ineffective. It was also reasonable to expect some individuals to judge the descriptions with substantial positive loadings on Factor II as effective or ineffective depending on their bias. The mean of the positively loaded items on this factor was 4.96 and the mean of their standard deviations was 2.93. The items loaded positively on Factor II, therefore, represented categories more to the center of the scale than Factor I and their standard deviations were larger as hypothesized. The one substantial negative loading had a substantial positive loading on Factor I, which suggests the content of this item was partially interpreted by the subjects as a reverse statement of the content reflected by Factor II.

Factor III: Effective Teaching Behavior

The following item judgments had loadings of .200 or higher on Factor III:

| Item No. | | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 44 | Pupils and teacher laughing together in amusing classroom situations | .626 | 1.61 | 1.25 |
| 50 | Class engaged in discussion | .596 | 1.53 | 1.33 |
| 33 | Pupils discussing current events | .571 | 1.71 | 1.39 |
| 12 | Children receiving reasons for restrictions placed upon them | .469 | 2.05 | 1.75 |
| 23 | Pupils taking test | .394 | 3.02 | 2.21 |
| 40 | Pupils working in workbook | .347 | 3.36 | 2.13 |
| 9 | Pupils giving talks | .338 | 2.69 | 2.10 |
| 18 | Children allowed more freedom in their execution of learning activities | .261 | 2.86 | 1.97 |
| 3 | Pupils reacting more favorably to success than failure | .228 | 2.63 | 2.11 |
| 4 | Pupils viewing a film | .218 | 3.42 | 2.12 |
| 41 | Children seen and not heard | -.200 | 8.31 | 3.05 |
| 46 | Misbehavior to annoy the teacher | -.217 | 9.54 | 1.82 |
| 31 | Children usually not thinking for themselves | -.219 | 9.49 | 2.04 |
| 29 | Pupils given old fashioned whippings | -.241 | 8.00 | 2.93 |
| 16 | Unruly children | -.245 | 9.80 | 1.87 |

Factor III was characterized by favorable or desirable aspects of pupil behavior that reflected effective teacher-pupil classroom interactions. Four of the five descriptions with substantial negative loadings on Factor III had substantial loadings on Factor I. The remaining description with a negative loading (-.200) had a positive loading on Factor II. The mean judgment for the ten descriptions with a positive loading greater than .200 on Factor III was 2.49 with a mean standard deviation of 1.84.

The items with substantial positive loadings on Factors I, II, and III appear to have satisfied the three properties required to insure that the item pool is made up of three consensually agreed upon sets. The item content of the descriptions of pupil behavior with substantial positive loadings on each factor have a definite intra-factor consistency from a "face validity" standpoint. The positively loaded items on Factors I and III, for example, appear to reflect pupil behavior associated with ineffective and effective teaching practices, respectively, while the positively loaded items on Factor II appear to be less clear cut with respect to whether the pupil behavior accompanies effective or ineffective teaching. The mean judgments and standard deviations support the intra-factor clustering of positively loaded items. For, if the item content consistency from a pure "face validity" frame of reference has any merit, the mean item judgments for the positively loaded items on Factors I, II, and III should cluster around the ineffective, middle, and effective segments of the 11 point scale. The mean judgments of 8.65, 4.96, and 2.49 for the items with positive loadings greater than .200 for factors I, II, and III provide empirical substantiation for

this property. The requirement that the two factors representing behaviors associated with ineffective and effective pupil behaviors (Factors I and III) should have smaller standard deviations than the factor representing indeterminate pupil behaviors (Factor II) was satisfied by the obtained mean standard deviations for the positively loaded items of 1.84, 2.29, and 2.93 for Factors III, I and II respectively. It was concluded, therefore, that the Sherif-Hovland scaling criteria with respect to item content and underlying statistical properties have been met.

As a check on the attitudinal properties of the scale, 50 subjects were randomly selected from the original sample. Their judgments on the ten items selected from those with loadings greater than a positive .200, which best met the mean and standard deviation requirements of the Sherif-Hovland theoretical structure, were individually summed for each factor. Since a high total score on Factors I and II was hypothesized to represent a favorable attitude toward effective teaching and a low total score on Factor III to represent a favorable attitude toward effective teaching, it was decided to reverse the directionality of the scores on Factors I and II in order that they would be consistent with the directionality of the original scale and Factor III. This was accomplished by subtracting the score for each individual on Factors I and II, respectively, from 120 since the maximum score on each factor was 110 and the minimum score was 10. For example, if an individual had a raw score of 110 on Factor I his scaled score would be 120 minus 110, or 10. The scores for each of the 50 subjects were converted in this manner for Factors I and II. The three factors scores were then

summed to provide a total scaled score. The distribution of the total scaled scores for the random sample of 50 subjects, as shown in Table 6, approximates the normal distribution very well.

TABLE 6

DISTRIBUTION OF TOTAL SCALED SCORES (N = 50)

| Midpoint of Class Interval | Frequency |
|---|---|
| 189.5 | 1 |
| 169.5 | 0 |
| 149.5 | 5 |
| 129.5 | 10 |
| 109.5 | 14 |
| 89.5 | 12 |
| 69.5 | 6 |
| 49.5 | 2 |
| Total | 50 |

The totaled scaled scores for the 50 subjects were then placed in rank-order from highest to lowest and the pattern on the three sub-scales for the 25 subjects with the highest total scaled scores was compared to the pattern on the three sub-scales for the 25 subjects with the lowest total scaled scores. The high total scaled score group was defined as the ineffective teacher attitude group and the low total scaled score group was defined as the effective teacher attitude group. The result of the comparisons between the ineffective and the effective

teacher attitude group's scaled scores for the three sub-scales has been shown in Table 7. Statistically significant differences were found between the two groups on each sub-scale. The hypothesized pattern was

TABLE 7

COMPARISON OF THE MEAN SCALED SCORES BETWEEN THE EFFECTIVE AND INEFFECTIVE TEACHER ATTITUDE GROUPS ON THE THREE FACTORS

| | | Factor | | |
|---|---|---|---|---|
| Group | N | I | II | III |
| Ineffective teaching attitude | 25 | 39.24 | 79.84 | 28.48 |
| Effective teaching attitude | 25 | 20.76 | 63.36 | 22.24 |
| | t | 5.68** | 4.29** | 2.36* |

* p less than .05
** p less than .01

that the effective teacher attitude group would have lower scaled scores for each of the three factors than the ineffective teacher attitude group. The results of the three "t" tests shown in Table 7 verify that hypothesis.

# CHAPTER IV

## DISCUSSION

A discussion of the findings for the present study will be more meaningful if the focus is directed toward an evaluation of the teacher effectiveness attitude instrument on the basis of reliability, validity, and disguised purpose. With the possible exception of reliability, widely used teacher attitude instruments such as the Minnesota Teacher Attitude Inventory have been seriously questioned on the latter two measurement characteristics.

An inspection of the survey of suitable teacher attitude instruments reported by Shaw and Wright (1967) revealed that the most frequently used technique for measuring the reliability of the instrument was a split-half internal consistency measure. The split-half reliabilities for these scales ranged from the low .50's to the low .80's. The split-half reliability estimate obtained for the teacher effectiveness attitude instrument of .77 falls toward the upper limit of the range typical for this type of instrument. It is also noted that complete comparability of halves is assumed when the Spearman-Brown formula is used, and since this assumption is probably never satisfied, the estimate tends to be conservative.

The evidence for the validity of the teacher effectiveness attitude instrument is classified as construct validity. The concept of construct validity is more complex than other types of validity and probably

is more meaningful for theoretical purposes (Shaw and Wright, 1967, p. 18). For example, if it were argued that the underlying attitude reflected by the instrument would lead us to expect that two or more groups hold different attitudes toward an object, then a valid scale to measure the attitude in question should yield different scores for these groups. This was essentially the logic that was employed to demonstrate the construct validity of the Sherif-Hovland theoretical structure for attitude assessment found in Table 7.

The Sherif-Hovland argument holds that if a scale was constructed to represent a set of statements agreed to be favorable toward the issue, another set unfavorable toward the issue, and a third set of indeterminate value with respect to the issue, then those individuals holding extreme positions would displace the indeterminate statements away from their position. The constructs they developed to account for this phenomenon were assimilation and contrast effects, as well as latitudes of acceptance, rejection, and noncommitment. The extremely strong advocate of a particular position would have a small latitude of acceptance (finding only extremely pro statements acceptable) and a large latitude of rejection (finding all statements not extremely pro unacceptable), he would have no latitude of noncommitment because a statement would be either acceptable or unacceptable to him. In this situation the individual would not assimilate any of the statements near his own position, but push them into his latitude of rejection (contrast effect). Those individuals holding a position on the issue at varying points between the two pole positions would either assimilate or contrast a greater number of the indeterminate statements, thus revealing the degree of their bias toward one pole or the other.

The judgment behavior of the 259 subjects who responded to the teacher effectiveness attitude instrument behaved with regard to the three sets of behavioral descriptions (Factors I, II and III) as predicted by the Sherif-Hovland theoretical structure. The empirical test results were very conservative since the comparisons were made on the upper and lower 50 per cent of the 50 subjects selected at random from the total population of 259. If a comparison had been made between the upper 27 per cent and the lower 27 per cent of the entire population, even more dramatic results would have been obtained.

The conclusion of Campbell (1950), based on a review of the literature on disguised methods of attitude assessment, that there is no evidence that the disguised is more valid than the more direct approaches was probably correct for the instruments he reviewed. It is argued, however, that the teacher effectiveness attitude instrument is the first of its kind. Although several have been developed by application of the Sherif-Hovland structure, none have been factor analyzed to obtain consensually agreed upon latitudes of acceptance, rejection, and noncommitment for the sample studied (personal conversations with W. R. Hood). The teacher effectiveness attitude instrument in some respects has properties similar to many of the projective techniques used in personality assessment; there are no right or wrong answers. It is true that items belong in certain clusters along the scale, but the particular scale value within that range is open to discussion. Further, the items were assigned to a particular sub-scale on the basis of the factor structure of the entire set, not on a "face" validity basis by a panel of subject matter experts. It would appear that the only way in which the instru-

ment could be faked would be by random marking or knowledge of the scoring rationale. Such a criticism could be made of most psychometric instruments.

The conclusion is made, therefore, that a reliable, valid, and disguised instrument has been developed to assess attitudes toward effective teaching. The instrument further incorporates attitudinal evaluations toward the very complicated interactive process of teacher and pupil in a classroom setting.

The relationship between attitude toward effective teaching and pupil productivity is an entirely different and tremendously complex research project. To assume that the teacher is the sole catalyst necessary to convert pupil failure into pupil success is extremely presumptuous. The effective teacher should, however, contribute to a greater proportion of pupil successes than the ineffective teacher.

# CHAPTER V

## IMPLICATIONS AND RECOMMENDATIONS FOR EDUCATIONAL PRACTICE

A possible explanation for the confusion found in the literature concerning the relationship between scores on teacher attitude instruments and other indicators of teacher effectiveness could be related to the definitional framework for the construct of attitude and the technique used for attitude scale construction. There has been uncertainty as to whether the particular instrument failed to measure what it claimed to measure or whether the particular pupil accomplishments selected as indicators of teacher competence with which the attitude scores were compared were inappropriate. The teacher effectiveness attitude instrument developed in this study should correct the first aspect of the confusion. The instrument was developed on the basis of descriptions of pupil behavior, not teacher behaviors, and, therefore, provides a perceptual link between teacher-pupil interactions in the classroom setting. Evidence has, also, been presented supporting the construct validity of the instrument and a strong argument has been provided for its disguised property. It is concluded, therefore, that the teacher effectiveness attitude instrument measures effective and ineffective attitudes toward what potential teachers perceive to be the kinds of pupil behavior that are indicative of effective and ineffective teachers. To the extent that the teacher effectiveness attitude score relates to other indicators of teacher competence has yet to be determined. It is

assumed, however, unlike the Minnesota Teacher Attitude Inventory, that the teacher effectiveness attitude instrument bears a relationship to pupil behavior. The basis for this assumption was the belief that the immediate effects of teacher activity (including attitudes) can be examined in the responses of pupils with some assurance that cause-and-effect moves from teachers to pupils.

The assessment of attitudes toward teacher effectiveness by the teacher effectiveness attitude scale would provide educational researchers, teacher education faculties, and school administrators with information apart from the traditional teacher competence data. The relationship between academic performance in teacher education courses, accumulated knowledge, and personal habits has taken a less important role in recent years. The reason for this reduced research emphasis has not been due to a lessening of their importance, but has been the result of raised standards for the admission to teacher preparation programs. Teachers today have been exposed to more carefully structured programs and have accumulated more general knowledge than the teacher of several decades ago. There has been increased pressures for today's teacher to upgrade continually teaching credentials and pursue advanced degrees. Yet, there has not been a suitable device to assess the competence of the teacher with respect to the assimilation of attitudes toward the kinds of pupil behavior that occur as a result of having an effective teacher in the classroom. The assumption that increased preparation and high level academic achievement produce teacher effectiveness in the classroom has operated for too long. The "correct" answers that teachers provide on tests in formal college classroom settings are

frequently left in that setting and not transferred to their own classroom practices. It is for this reason, therefore, that an assessment instrument like the teacher effectiveness attitude scale is important. The "correct" or "typical" classroom solution for judging the descriptions of pupil behavior as reflections of teacher effectiveness have been disguised by the instrument. It is highly improbable, therefore, that the most favorable attitude toward teacher-pupil classroom interaction would show up on the teacher effectiveness attitude instrument unless the individual truly held that position.

The position taken in this study is not to replace existing teacher selection procedures with results obtained from the teacher effectiveness attitude scale. It is argued that the existing selection procedures are basically sound, but incomplete. The proposed instrument would, therefore, complement procedures already in practice and yield additional pertinent information in a more refined screening process. There would be more assurance that individuals who have strong academic credentials and favorable standards of personal conduct would also have favorable attitudes toward the forms of pupil behavior indicative of teacher effectiveness. A selection battery which included the teacher effectiveness attitude scale should hold more promise than existing procedures typically used for predicting teacher success.

It must be emphasized that the teacher effectiveness attitude scale is not presently recommended for use as a completed operational device. Several additional developmental phases need to be completed before it should be utilized for anything but research. The remainder of the present section is devoted to a consideration of the long-range

research program recommended prior to and after the instrument becomes operational.

The first step would be to administer the reduced form of the teacher effectiveness attitude scale to a large sample made up of widely divergent sub-samples with respect to involvement in teaching. Recommended sub-samples would include non-teacher education undergraduate students, undergraduate students entering teacher education programs, teacher education students immediately prior to their student teaching experience, teacher education students immediately after completing student teaching, teachers with less than two years teaching experience, teachers with two to five years teaching experience, teachers with over five years of teaching experience, and professors of education. Each sub-sample should be selected from a population representing a wide geographic area. Norms would be developed for the sub-samples separately and for the total sample. Approximately one month after the initial data collection the instrument should be readministered to as many of the original sample as possible to determine the test-retest reliability estimate. An internal consistency reliability estimate could be reestablished with the norm group.

A series of studies could then be conducted to determine the influence of the sequence of teacher preparation courses, student teaching, and actual teaching experience on attitude change. Such studies should necessarily be of a longitudinal nature. The length of these studies would depend on the phase of the sequential chain adopted as the baseline for comparison. Naturally, a large portion of the longitudinal studies would be conducted after the instrument became operational.

The purpose of such studies would never be completely accomplished because a perpetual process of curriculum alteration and refinement would need to be compared with attitudinal changes.

Another research phase, which would overlap the period prior to the instrument becoming operational and after it became operational, would be the accumulation of predictive validity studies. Evidence has already been presented supporting the construct validity of the instrument. Relationships between the many teacher competence indicators and teacher effectiveness attitude scores are sure to be reported. It is also expected that correlations between ratings by superiors, peers, and pupils of teacher effectiveness and the teacher effectiveness attitude scale will be reported. Studies could also be conducted to determine the effect various response sets have on an individual's score; especially the social desirability response set.

The instrument would be judged ready for operational use when suitable norms had been developed, several independent findings to support the relationship between teacher effectiveness attitude scores and effectiveness of pupil behavior, and the resistence of the scale to faking have been empirically substantiated. The manner in which the scale would be recommended for most effective usage would be to administer it early in the student's first formal course in the teacher education sequence. The purpose for administering the instrument at this time would be to identify the student's attitude toward effective teacher-pupil interactions. Once identified, those students with unfavorable attitudes should be carefully observed and counseled. If their progress appears unsatisfactory the faculty screening committee

on admission to the teacher education program, in combination with other information, could consider the possibility of counseling them out of a major in teacher education. Early identification of poor teacher potential, it is argued, is the most fair procedure for the student, since it allows him to explore another major without an unnecessary loss of college credit hours. Besides a responsibility to the student, the faculty of a teacher education program has a responsibility to the profession and the society which it serves. By placing a stamp of approval on a potentially ineffective teacher the faculty of a teacher education program would have failed to discharge this responsibility. The incorporation of the operational form of the teacher effectiveness attitude scale with existing screening criteria for admission to programs of teacher preparation would, then, add an additional element of certainty. Selection with perfect certainty, it is understood, will probably never be attained. The problem, however, is to refine continually the selection process in an attempt to approach the perfect selection scheme.

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# APPENDIX A

## Descriptive Breakdown of Sample by College Classification, Age, and College Major

1. Breakdown by Classification

| Class | Male Total | Male Per Cent | Female Total | Female Per Cent | Total Total | Total Per Cent |
|---|---|---|---|---|---|---|
| Freshman | 6 | 2.32 | 24 | 9.27 | 30 | 11.58 |
| Sophomore | 54 | 20.85 | 101 | 39.00 | 155 | 59.85 |
| Junior | 40 | 15.44 | 27 | 10.42 | 67 | 25.87 |
| Senior | 4 | 1.54 | 3 | 1.16 | 7 | 2.70 |

2. Breakdown by Age Group

| Age Group | Male Total | Male Per Cent | Female Total | Female Per Cent | Total Total | Total Per Cent |
|---|---|---|---|---|---|---|
| 18 or Less | 0 | 0.00 | 15 | 5.79 | 15 | 5.79 |
| 19 Years | 42 | 16.22 | 70 | 27.03 | 112 | 43.24 |
| 20 Years | 21 | 8.11 | 21 | 8.11 | 42 | 16.22 |
| 21 Years | 9 | 3.48 | 12 | 4.63 | 21 | 8.11 |
| 22 Years | 11 | 4.25 | 3 | 1.16 | 14 | 5.41 |
| 23 or Over | 21 | 8.11 | 34 | 13.13 | 55 | 21.24 |

3. Breakdown by Majors

| Major Name | Male Total | Male Per Cent | Female Total | Female Per Cent | Total Total | Total Per Cent |
|---|---|---|---|---|---|---|
| Accounting | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |
| Art | 2 | 0.77 | 2 | 0.77 | 4 | 1.54 |
| Art Education | 3 | 1.16 | 3 | 1.16 | 6 | 2.32 |
| Biology | 4 | 1.54 | 2 | 0.77 | 6 | 2.32 |
| Business Education | 3 | 1.16 | 12 | 4.63 | 15 | 5.79 |
| Drama | 0 | 0.00 | 2 | 0.77 | 2 | 0.77 |

3. Breakdown by Majors (continued)

| Major Name | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| | Total | Per Cent | Total | Per Cent | Total | Per Cent |
| Education | 2 | 0.77 | 0 | 0.00 | 2 | 0.77 |
| Elementary Education | 6 | 2.32 | 73 | 28.19 | 79 | 30.50 |
| English | 3 | 1.16 | 14 | 5.41 | 17 | 6.56 |
| English Education | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Funeral Service Ed. | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |
| Geography | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Government | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| History | 19 | 7.34 | 9 | 3.48 | 28 | 10.81 |
| History Education | 1 | 0.39 | 2 | 0.77 | 3 | 1.16 |
| Home Economics | 0 | 0.00 | 7 | 2.70 | 7 | 2.70 |
| Industrial Arts | 6 | 2.32 | 0 | 0.00 | 6 | 2.32 |
| Industrial Arts Ed. | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Journalism | 2 | 0.77 | 0 | 0.00 | 2 | 0.77 |
| Library Science | 0 | 0.00 | 3 | 1.16 | 3 | 1.16 |
| Mathematics | 3 | 1.16 | 1 | 0.39 | 4 | 1.54 |
| Music | 1 | 0.39 | 3 | 1.16 | 4 | 1.54 |
| Music Education | 2 | 0.77 | 0 | 0.00 | 2 | 0.77 |
| Natural Science | 1 | 0.39 | 1 | 0.39 | 2 | 0.77 |
| Physical Education | 20 | 7.72 | 1 | 0.39 | 21 | 8.11 |
| Pre-Law | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Psychology | 1 | 0.39 | 2 | 0.77 | 3 | 1.16 |
| Secondary Education | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Social Studies | 9 | 3.48 | 2 | 0.77 | 11 | 4.25 |
| Spanish | 2 | 0.77 | 0 | 0.00 | 2 | 0.77 |

3. Breakdown by Majors (continued)

| Major Name | Male Total | Male Per Cent | Female Total | Female Per Cent | Total Total | Total Per Cent |
|---|---|---|---|---|---|---|
| Special Education | 1 | 0.39 | 8 | 3.09 | 9 | 3.48 |
| Special Therapy | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |
| Speech | 3 | 1.16 | 0 | 0.00 | 3 | 1.16 |
| Speech Therapy | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |
| Biology-Education | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |
| Business Ed.-Elem. Ed. | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| English-Physics | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Health-Physical Ed. | 0 | 0.00 | 2 | 0.77 | 2 | 0.77 |
| Physical Ed.-History | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Sec. Ed.-Soc. Studies | 1 | 0.39 | 0 | 0.00 | 1 | 0.39 |
| Speech-Drama | 0 | 0.00 | 1 | 0.39 | 1 | 0.39 |

# APPENDIX B

Age_____ Classification _____

Sex_____ Major_____

The descriptions of behavior presented below represent a collection of observations obtained in a variety of classrooms. Scan through these descriptions before making any marks after the statements. In scanning these descriptions, imagine that you are viewing the classroom activity undetected and attempt to visualize the effectiveness of the teacher these activities would reflect.

Notice that after each description are numbers from 1 to 11. Above the column of 1's are the words "effective teaching" and above the column of 11's are the words "ineffective teaching". Would you please judge the degree of teacher effectiveness by circling the number after each description of classroom behavior. Remember you are judging the effectiveness of the teacher reflected by the activity, not the activity. The middle number is 6.

| Observed Behavior | effective teaching | | | | | | | | | | ineffective teaching |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Children feeling guilty or ashamed for misbehavior. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 2. Pupils standing when reciting. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 3. Pupils reacting more favorably to success than failure. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 4. Pupils viewing a film. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 5. Pupils reading books at seat. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 6. Grading employed to increase competition. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 7. Pupil disinterest in learning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 8. Lack of common courtesy toward adults. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 9. Pupils giving talks or reports. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 10. Classroom rules and regulations are considered inviolable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 11. Pupils studying materials other than text at seat. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12. Children receiving reasons for restrictions placed upon them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 13. Pupils drawing or painting. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 14. An oral quiz. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 15. Pupil asking permission to sharpen pencil. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 16. Unruly children. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

| | | effective teaching | | | | | | | | | | ineffective teaching |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17. | Pupils lack productive imagination. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 18. | Children allowed more freedom in their execution of learning activities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 19. | Respecting the teacher because he is a teacher. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 20. | No pupils chewing gum. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 21. | The likes and dislikes of children kept to themselves. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 22. | Children not expecting talking privileges when adults wish to speak. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 23. | Pupils taking test. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 24. | Pupils having difficulty following instructions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 25. | Pupils using slang expressions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 26. | Pupil's mother visiting in the classroom. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 27. | Lack of application as one of the most frequent cause for failure. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 28. | Universal promotion of pupils. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 29. | Pupils given old fashioned whippings. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 30. | Children experiencing more freedom in the classroom than in most situations. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 31. | Children not usually thinking for themselves. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 32. | Pupils whispering. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 33. | Pupils discussing current events. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 34. | Inadequate effort on the part of the pupil in preparing their lessons. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 35. | Pupils reading aloud. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 36. | School work done in a uniform manner. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 37. | Pupils assigned additional school work as punishment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 38. | Children acting more civilized than adults. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

| | | effective teaching | | | | | | | | | | ineffective teaching |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39. | Children are carefree. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 40. | Pupils working in workbooks. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 41. | Children seen and not heard. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 42. | The low achiever not working hard enough and applying himself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 43. | Pupils not appreciating what the teacher does for them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 44. | Pupils and teacher laughing together in amusing class room situations. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 45. | A pupil openly disagreeing with the teacher. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 46. | Misbehavior to annoy the teacher. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 47. | Attention given to the whims and impulsive desires of children. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 48. | Pupils having their own way. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 49. | Pupils fail to follow directions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 50. | Class engaged in discussion. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

# APPENDIX C

Means and Standard Deviations for the Fifty Descriptions of Pupil Behavior (N = 259)

| Item | Mean | Standard Deviation | Item | Mean | Standard Deviation |
|---|---|---|---|---|---|
| 1 | 5.24 | 3.18 | 23 | 3.02 | 2.22 |
| 2 | 4.21 | 2.97 | 24 | 8.82 | 1.94 |
| 3 | 2.63 | 2.11 | 25 | 7.56 | 2.33 |
| 4 | 3.42 | 2.12 | 26 | 4.89 | 3.00 |
| 5 | 4.53 | 2.68 | 27 | 8.17 | 2.54 |
| 6 | 4.99 | 3.15 | 28 | 5.84 | 3.21 |
| 7 | 9.72 | 2.03 | 29 | 8.00 | 2.93 |
| 8 | 9.22 | 2.06 | 30 | 5.34 | 3.13 |
| 9 | 2.69 | 2.10 | 31 | 9.49 | 2.03 |
| 10 | 6.06 | 3.13 | 32 | 8.11 | 2.16 |
| 11 | 5.79 | 3.51 | 33 | 1.71 | 1.39 |
| 12 | 2.05 | 1.75 | 34 | 8.23 | 2.09 |
| 13 | 3.42 | 2.54 | 35 | 4.22 | 2.74 |
| 14 | 4.15 | 2.75 | 36 | 4.22 | 2.92 |
| 15 | 5.40 | 3.12 | 37 | 7.70 | 3.13 |
| 16 | 9.80 | 1.87 | 38 | 3.69 | 3.13 |
| 17 | 8.25 | 2.09 | 39 | 5.80 | 2.69 |
| 18 | 2.86 | 1.97 | 40 | 3.35 | 2.13 |
| 19 | 3.97 | 3.04 | 41 | 8.31 | 3.05 |
| 20 | 4.75 | 2.79 | 42 | 8.70 | 1.94 |
| 21 | 8.22 | 2.72 | 43 | 8.14 | 2.12 |
| 22 | 5.59 | 3.32 | 44 | 1.61 | 1.25 |

Means and Standard Deviations for the Fifty Descriptions of Pupil Behavior (N = 259) (Continued)

| Item | Mean | Standard Deviation | Item | Mean | Standard Deviation |
|---|---|---|---|---|---|
| 45 | 3.39 | 2.65 | 48 | 9.08 | 2.20 |
| 46 | 9.54 | 1.82 | 49 | 8.95 | 1.91 |
| 47 | 7.61 | 3.20 | 50 | 1.52 | 1.33 |

# APPENDIX D

Unrotated Principal Factors
(Five through Eight)

| Item | Factor V | VI | VII | VIII |
|---|---|---|---|---|
| 1 | .082 | .155 | .244 | .092 |
| 2 | -.101 | .131 | -.066 | -.059 |
| 3 | .059 | -.001 | -.167 | .069 |
| 4 | -.239 | -.055 | .105 | -.025 |
| 5 | -.178 | -.137 | .033 | .098 |
| 6 | .102 | .338 | .084 | .096 |
| 7 | .040 | .011 | -.159 | -.013 |
| 8 | .105 | -.016 | -.188 | -.055 |
| 9 | -.035 | .031 | .180 | .017 |
| 10 | .145 | .179 | .029 | -.039 |
| 11 | -.082 | .077 | -.022 | .016 |
| 12 | .233 | .098 | .120 | .016 |
| 13 | -.209 | -.028 | -.001 | -.049 |
| 14 | -.031 | .080 | .190 | .171 |
| 15 | -.255 | .164 | .052 | -.179 |
| 16 | .022 | -.050 | -.004 | -.064 |
| 17 | .084 | -.105 | .003 | .116 |
| 18 | .089 | .238 | -.008 | .067 |
| 19 | .161 | -.228 | -.087 | .056 |
| 20 | -.142 | -.016 | -.118 | -.090 |
| 21 | .136 | -.206 | .048 | .107 |
| 22 | .094 | -.151 | -.013 | .108 |

Unrotated Principal Factors
(Five through Eight)
(Continued)

| Item | Factor V | VI | VII | VIII |
|---|---|---|---|---|
| 23 | .002 | -.212 | .033 | .018 |
| 24 | -.021 | -.063 | .053 | .024 |
| 25 | .029 | -.003 | .086 | .202 |
| 26 | -.173 | -.148 | -.163 | .165 |
| 27 | .017 | .007 | -.161 | -.055 |
| 28 | .206 | -.107 | .071 | -.139 |
| 29 | -.157 | -.079 | .192 | .044 |
| 30 | .158 | .123 | -.122 | .096 |
| 31 | -.031 | -.064 | -.005 | .012 |
| 32 | .070 | -.189 | .151 | -.193 |
| 33 | .082 | -.064 | -.107 | .079 |
| 34 | -.049 | .230 | -.030 | -.123 |
| 35 | -.231 | -.085 | -.077 | -.029 |
| 36 | .044 | -.023 | .089 | -.063 |
| 37 | .118 | .041 | .121 | .199 |
| 38 | .204 | .123 | -.019 | -.141 |
| 39 | .104 | .058 | -.227 | .111 |
| 40 | .105 | -.071 | -.092 | -.172 |
| 41 | .107 | -.081 | -.039 | -.028 |
| 42 | -.026 | -.001 | -.171 | .087 |
| 43 | -.046 | .169 | -.014 | .248 |
| 44 | .298 | .007 | -.084 | -.084 |

Unrotated Principal Factors
(Five through Eight)
(Continued)

| Item | Factor V | VI | VII | VIII |
|---|---|---|---|---|
| 45 | .121 | -.086 | .159 | -.018 |
| 46 | .005 | .171 | -.043 | -.165 |
| 47 | .230 | -.169 | .217 | -.050 |
| 48 | .109 | .013 | .114 | -.179 |
| 49 | -.062 | .026 | .110 | -.111 |
| 50 | .263 | .002 | -.113 | -.020 |

# APPENDIX E

Rotation of Factors Four through Eight
by Varimax Procedure

| Item | Factor IV | V | VI | VII | VIII |
|---|---|---|---|---|---|
| 1 | -.037 | -.055 | -.085 | .059 | .263 |
| 2 | -.016 | -.304 | -.008 | -.128 | -.026 |
| 3 | .159 | -.145 | -.035 | -.083 | -.027 |
| 4 | -.171 | -.435 | .122 | .013 | .079 |
| 5 | .102 | -.455 | -.107 | .078 | .071 |
| 6 | .091 | .049 | -.017 | -.115 | .196 |
| 7 | .127 | .048 | -.084 | .062 | -.070 |
| 8 | .232 | .058 | -.075 | .153 | -.129 |
| 9 | -.212 | -.281 | .020 | -.039 | .170 |
| 10 | -.001 | .097 | -.106 | -.066 | .021 |
| 11 | .202 | -.292 | .161 | .114 | .057 |
| 12 | .101 | -.162 | .101 | .129 | .207 |
| 13 | .120 | -.552 | .174 | .131 | .006 |
| 14 | .012 | -.223 | .030 | .039 | .290 |
| 15 | -.034 | -.346 | .023 | -.068 | -.093 |
| 16 | .170 | -.053 | -.083 | .293 | -.035 |
| 17 | .018 | .079 | -.195 | .119 | .097 |
| 18 | .248 | -.118 | .262 | .043 | .145 |
| 19 | -.055 | -.086 | -.434 | -.064 | -.061 |
| 20 | -.069 | -.240 | -.130 | -.191 | -.162 |
| 21 | -.023 | .089 | -.378 | .078 | .045 |
| 22 | .038 | -.111 | -.371 | -.021 | .021 |

Rotation of Factors Four through Eight
by Varimax Procedure (continued)

| Item | Factor IV | V | VI | VII | VIII |
|---|---|---|---|---|---|
| 23 | -.293 | -.226 | -.174 | -.081 | .030 |
| 24 | -.064 | .022 | -.129 | .120 | .062 |
| 25 | .190 | -.037 | .031 | .205 | .240 |
| 26 | .209 | -.485 | -.186 | -.062 | .003 |
| 27 | -.009 | .039 | -.068 | -.029 | -.100 |
| 28 | .018 | .084 | -.201 | .211 | -.102 |
| 29 | -.215 | -.074 | -.157 | .023 | .116 |
| 30 | .402 | -.082 | -.005 | .097 | .051 |
| 31 | -.018 | .045 | -.132 | .080 | .001 |
| 32 | .022 | -.134 | .037 | .476 | -.049 |
| 33 | -.007 | -.265 | .021 | -.078 | .055 |
| 34 | -.040 | -.026 | .207 | .030 | .011 |
| 35 | -.143 | -.464 | -.077 | -.135 | -.049 |
| 36 | -.246 | -.128 | -.212 | -.071 | .019 |
| 37 | .038 | .024 | -.295 | -.003 | .224 |
| 38 | .008 | .050 | -.188 | .001 | -.080 |
| 39 | .414 | -.064 | -.050 | .046 | -.023 |
| 40 | -.043 | -.241 | -.128 | .003 | -.168 |
| 41 | .166 | -.056 | -.330 | .103 | -.095 |
| 42 | -.028 | .092 | -.108 | -.132 | -.008 |
| 43 | .117 | .019 | .081 | -.044 | .264 |
| 44 | .059 | -.084 | .081 | .081 | -.033 |

Rotation of Factors Four through Eight
by Varimax Procedure (continued)

| Item | Factor IV | V | VI | VII | VIII |
|---|---|---|---|---|---|
| 45 | -.035 | -.003 | .080 | .270 | .112 |
| 46 | .223 | .012 | .172 | .245 | -.079 |
| 47 | .090 | .015 | -.138 | .439 | .068 |
| 48 | .228 | -.015 | .159 | .474 | -.032 |
| 49 | -.102 | .015 | .095 | .229 | .043 |
| 50 | -.020 | .000 | .030 | -.085 | -.030 |

# APPENDIX F

Distribution of Residual Correlations After the Extraction of Each of the First Eight Factors

1. After the Extraction of Factor I

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 115 |
| .17 | 141 |
| .12 | 288 |
| .07 | 509 |
| .03 | 823 |
| -.03 | 414 |
| -.07 | 154 |
| -.12 | 46 |
| -.17 | 8 |
| -.22 | 2 |

2. After the Extraction of Factor II

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 21 |
| .17 | 48 |
| .12 | 154 |
| .07 | 402 |
| .03 | 908 |
| -.03 | 653 |
| -.07 | 248 |
| -.12 | 54 |
| -.17 | 12 |
| -.22 | 0 |

3. After the Extraction of Factor III

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 2 |
| .17 | 7 |
| .12 | 46 |
| .07 | 270 |
| .03 | 1128 |
| -.03 | 745 |
| -.07 | 250 |
| -.12 | 50 |
| -.17 | 2 |
| -.22 | 0 |

4. After the Extraction of Factor IV

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 4 |
| .12 | 36 |
| .07 | 224 |
| .03 | 1227 |
| -.03 | 761 |
| -.07 | 212 |
| -.12 | 36 |
| -.17 | 0 |
| -.22 | 0 |

5. After the Extraction of Factor V

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 0 |
| .12 | 24 |
| .07 | 211 |
| .03 | 1249 |
| -.03 | 796 |
| -.07 | 202 |
| -.12 | 18 |
| -.17 | 0 |
| -.22 | 0 |

6. After the Extraction of Factor VI

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 0 |
| .12 | 18 |
| .07 | 186 |
| .03 | 1275 |
| -.03 | 845 |
| -.07 | 164 |
| -.12 | 12 |
| -.17 | 0 |
| -.22 | 0 |

7. After the Extraction of Factor VII

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 0 |
| .12 | 12 |
| .07 | 168 |
| .03 | 1303 |
| -.03 | 873 |
| -.07 | 136 |
| -.12 | 8 |
| -.17 | 0 |
| -.22 | 0 |

8. After the Extraction of Factor VIII

| Midpoint of Class Interval | Frequency |
|---|---|
| .22 | 0 |
| .17 | 0 |
| .12 | 6 |
| .07 | 136 |
| .03 | 1371 |
| -.03 | 859 |
| -.07 | 120 |
| -.12 | 8 |
| -.17 | 0 |
| -.22 | 0 |

# APPENDIX G

Thirty Item Teacher Effective Attitude
Scale Based on Factor Analysis

Factor I: Ineffective Pupil Behaviors

| | Item | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 49 | Pupils fail to follow directions | .706 | 8.95 | 1.91 |
| 24 | Pupils having difficulty following directions | .637 | 8.82 | 1.94 |
| 7 | Pupil disinterest in learning | .637 | 9.72 | 2.03 |
| 16 | Unruly children | .620 | 9.80 | 3.12 |
| 42 | The low achiever not working hard enough and applying himself | .613 | 8.70 | 1.94 |
| 17 | Pupils lack productive imagination | .607 | 8.25 | 2.09 |
| 27 | Lack of application as one of the most frequent causes for failure | .552 | 8.17 | 2.54 |
| 43 | Pupils not appreciating what the teacher does for them | .543 | 8.14 | 2.12 |
| 31 | Children not usually thinking for themselves | .540 | 9.49 | 2.04 |
| 46 | Misbehavior to annoy the teacher | .529 | 9.54 | 1.82 |
| | | | 8.96 | 2.16 |

Thirty Item Teacher Effective Attitude
Scale Based on Factor Analysis
(Continued)

Factor II: Intederminate Pupil Behaviors

| | Item | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 15 | Pupil asking permission to sharpen pencil | .497 | 5.41 | 3.12 |
| 6 | Grading employed to increase competition | .489 | 4.99 | 3.15 |
| 36 | School work done in a uniform manner | .465 | 4.22 | 2.92 |
| 10 | Classroom rules and regulations are considered inviolable | .452 | 6.06 | 3.13 |
| 38 | Children acting more civilized than adults | .430 | 3.69 | 3.13 |
| 2 | Pupils standing when reciting | .394 | 4.21 | 2.97 |
| 1 | Children feeling guilty or ashamed for misbehavior | .393 | 5.24 | 3.18 |
| 20 | No pupils chewing gum | .317 | 4.75 | 2.79 |
| 41 | Children seen and not heard | .310 | 8.30 | 3.05 |
| 22 | Children not expecting talking privileges when adults wish to speak | .241 | 5.59 | 3.31 |
| | | | 5.25 | 3.06 |

Thirty Item Teacher Effective Attitude
Scale Based on Factor Analysis
(Continued)

Factor III: Effective Pupil Behaviors

| | Item | Loading | Mean | Standard Deviation |
|---|---|---|---|---|
| 44 | Pupils and teacher laughing together in amusing classroom situations | .626 | 1.61 | 1.25 |
| 50 | Class engaged in discussion | .596 | 1.53 | 1.33 |
| 33 | Pupils discussing current events | .571 | 1.71 | 1.39 |
| 12 | Children receiving reasons for restrictions placed upon them | .469 | 2.05 | 1.75 |
| 23 | Pupils taking test | .394 | 3.02 | 2.21 |
| 9 | Pupils giving talks or reports | .338 | 2.69 | 2.10 |
| 18 | Children allowed more freedom in their execution of learning activities | .261 | 2.86 | 1.97 |
| 3 | Pupils reacting more favorably to success than failure | .228 | 3.42 | 2.12 |
| 4 | Pupils viewing a film | .218 | 3.42 | 2.12 |
| 13 | Pupils drawing or painting | .193 | 3.42 | 2.54 |
| | | | 2.92 | 1.88 |