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An analysis of attitude for success in teaching as measured by the Minnesota Teacher Attitude Inventory

Alfred John Murray
The University of Montana

AN ANALYSIS OF ATTITUDE FOR SUCCESS IN TEACHING AS MEASURED BY THE MINNESOTA TEACHER ATTITUDE INVENTORY

by

ALFRED JOHN MURRAY

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Approved by:

James E. Short Vernon Sletten
Chairman, Board of Examiners

G. D. Castle
Dean, Graduate School

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TABLE OF CONTENTS

LIST OF TABLES

TABLE PAGE

CHAPTER I

INTRODUCTION

I. SIGNIFICANCE OF THE PROBLEM

Present-day interest in teaching has focused attention upon personal characteristics which seem to play a vital part in the selection of teachers. Marks in college courses, amount of education, and intelligence ratings have been correlated with teaching success, but the elusive quality of teacher attitude had been an unexplored area regarding its relationship to teaching success.

Finding the best kinds of people for the teaching profession has become an increasingly important task for those who must prepare personnel for the vocation as well as for those who must select the teacher who will best adjust to a particular communal society.

II. PURPOSE OF THIS STUDY

It was the purpose of this study to use the Minnesota Teacher Attitude Inventory to determine what differences, if any, existed in the attitude patterns of members of an under-graduate group taking an introductory course in education and in a graduate group of experienced teachers. This particular under-graduate group was chosen on the

assumption that bias would be least evident in such a group since Education 20, Introduction to Education, is a required under-graduate course for students who wish to qualify for either an elementary or secondary teaching certificate.

The graduate students enrolled in Education 285, Methods of Research, were used as the graduate group. Since this course is required of all graduate students in education it was also assumed that bias would be least evident. The attitude patterns were based on: (1) the scores received by both groups as a whole and (2) scores received by the sexes in both groups. The graduate group was further analyzed to determine what differences, if any, existed in attitude based on: (1) sexes within the group, (2) age, (3) marital status, (4) amount of graduate work, (5) classroom and administrative work, (6) levels of teaching, (7) experience, and (8) size of system. The under-graduate group was singly analyzed with regard to the scores received by the sexes within the group, since other information concerning the under-graduate group did not exist.

III. DEFINITION OF TERMS USED

Attitude. Since the Minnesota Teacher Attitude Inventory[1] was used exclusively in this study, the description of

[1]A sample of the Minnesota Teacher Attitude Inventory appears in Appendix A.

attitude given by the authors was used.

> However it can be assumed that the attitudes of a teacher are the result of the inter-action of this multitude of factors (i.e., academic and social intelligence, general knowledge and abilities, social skills, personality traits, energy, values, and teaching techniques) and, therefore, that attitudes afford a key to the prediction of the type of social atmosphere a teacher will maintain in the classroom.[2]

Graduate group. Throughout this study, graduate group was defined as students enrolled in Methods of Research at Montana State University for the summer quarter of 1956.

Under-graduate group. The under-graduate group was drawn from students enrolled in the Introduction to Education class at Montana State University for 1955 and 1956 all of whom had taken the Minnesota Teacher Attitude Inventory. From the total class membership a sample was selected to conform to the graduate group by sex. This sample was then defined as the under-graduate group for this study.

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[2]Walter W. Cook, Carroll H. Leeds, and Robert Callis, Minnesota Teacher Attitude Inventory Manual (New York: The Psychological Corporation, 1951), pp. 3-4.

CHAPTER II

PROCEDURES

I. USE OF RELATED LITERATURE

Literature in the field of teacher attitudes as related to success or non-success in teaching was scarce. The Minnesota Teacher Attitude Inventory appeared to be the only well organized and current attempt to measure success by this criterion.

In 1929, Elizabeth Hunt Morris used a trait index in comparison with other kinds of data to attempt to estimate what would appropriately be designated as significant factors of the "teaching personality." In the findings of this study the following was cited:

> Attitudes may be considered as the active aspects of traits. Attitudes as complex reaction-tendencies are perhaps the most important measures to get of individuals because: (a) they include his various characteristics, the blend of his traits; (b) they are actual response-tendencies not relatively passive potentialities; and (c) in their blending they include essentially the important feeling aspects of the individual.[1]

Acceptance of attitudes as a basic premise for success in teaching is evident, but the problem of measurement of

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[1]Elizabeth Hunt Morris, Personal Traits and Success in Teaching (New York: Bureau of Publications, Teachers College, Columbia University, 1929), pp. 60-61.

attitudes must include the manner in which these attitudes affect the students.

Bernice Baxter derived a scale whereby a rater could observe the teacher while in direct contact with the children, and afforded means for recording observable evidence of the way in which the children reacted to the teacher whose work was being evaluated.[2]

From the evidence presented, a test of teacher success would include a measure of teacher attitudes and the effect these attitudes had upon students. The Minnesota Teacher Attitude Inventory was the only test in present use which fulfilled this requirement.

II. COLLECTION OF DATA

Delimitations. The study was confined to two groups composed of graduate and under-graduate students at Montana State University. Each group totaled fifty-five students, and included twenty-one females and thirty-four males. The under-graduate group had been in attendence during the school year 1955-1956, and the graduate group during the summer quarter of 1956.

Administration of The Minnesota Teacher Attitude Inventory. The Minnesota Teacher Attitude Inventory was

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[2]Bernice Baxter, "Rating Teacher's Personal Effectiveness," The National Education Association Journal XXVII (August, 1938), p. 81.

administered following the directions included in the manual accompanying the Inventory booklets. In addition to the score sheet for the Inventory, the graduate group was requested to fill out a questionnaire form which furnished further information to identify the group for this study.[3] This is a systematic sample from a random start.

Numbers were written in consecutive order from G one to G sixty and placed in a box from which each graduate student drew. The number drawn was written on the Inventory answer sheet and on the questionnaire form to identify the score received on the Inventory with pertinent questionnaire information.

Score sheets of one hundred sixty under-graduates were available for this study. To facilitate and expedite the study, it was decided to choose the under-graduate group to conform by sex to the graduate group. The under-graduate score sheets were separated by sex and it was found that the total group was composed of eighty-five male under-graduate score sheets and seventy-five female under-graduate score sheets. Each under-graduate score sheet was assigned a separate coded number. These numbers ran from one to eighty-five in the male under-graduate subdivision and from one to seventy-five in the under-graduate female subdivision.

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[3] A sample of the questionnaire which the graduates filled out appears in Appendix B.

It was further decided to select the particular score sheets to be used in this study by employing a random sample technique to both the male and female score sheets separately.

The numbers one to five were arbitrarily chosen to serve as a basis from which to begin the selection. For the male score sheets the number three was drawn and selection of the male score sheets for this study was started with the score sheet which bore coded number three, and was continued through score sheet eighty-five with every fifth score sheet removed for this study. The procedure was continued on the second drawing, starting with score sheet five and was continued through score sheet eighty at which point a total of thirty-four under-graduate male score sheets had been selected. This number of under-graduate male Minnesota Teacher Attitude Inventory score sheets was then equal to the number of graduate male Minnesota Teacher Attitude Inventory score sheets.

The under-graduate female score sheets were selected in a similar manner. For the female score sheets the number two was drawn and selection of the female score sheets for this study was started with the score sheet which bore coded number two and was continued through score sheet seventy-two with every fifth score sheet removed for this study. The procedure was continued on the second drawing

starting with score sheet three and was continued through score sheet twenty-seven at which point a total of twenty-one under-graduate female score sheets had been selected. This number of under-graduate female Minnesota Teacher Attitude Inventory score sheets was then equal to the number of graduate female Minnesota Teacher Attitude Inventory score sheets.

Limitations and assumptions. The limitations of this study were due to two factors: (1) the small number of cases available for consideration and (2) the necessity of this information becoming part of an extended study. The reliability (.92) and validity (.60) of the Minnesota Teacher Attitude Inventory as listed by the authors were assumed to be correct.[4]

Carroll H. Leeds,[5] retested the validity of the Minnesota Teacher Attitude Inventory by selecting one hundred teachers and obtaining ratings on these teachers from each of three sources: (1) principals under whom the teachers were serving, (2) classroom observation on the part of an investigator, and (3) attitudes of pupils toward each individual teacher. After combining the three ratings

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[4]Walter W. Cook, Carroll H. Leeds, and Robert Callis, Minnesota Teacher Attitude Inventory Manual (New York: The Psychological Corporation, 1951), pp. 3-4.

[5]Carroll H. Leeds, "A Scale for Measuring Teacher-Pupil Attitudes and Teacher-Pupil Rapport," Psychological Monographs, LXIV (November, 1951), p. 312.

multiple correlation of .595 between the Inventory and the three criteria was obtained. Determined by use of the Spearman-Brown formula, the reliability coefficient for the entire instrument was found to be .885.

Background information on the development of the Minnesota Teacher Attitude Inventory. In constructing the Minnesota Teacher Attitude Inventory the authors deemed it necessary to define the extremes of the scale. The characteristics of desirable teacher-pupil relations were defined as well as the undesirable relations between teachers and pupils.

> It is assumed that a teacher ranking at the high end of the scale should be able to maintain a state of harmonious relations with his pupils characterized by mutual affection and sympathetic understanding. The pupils should like the teacher and enjoy school work. The teacher should like the children and enjoy teaching. Situations requiring disciplinary action should rarely occur. . . .
>
> At the other extreme of the scale is the teacher who attempts to dominate the classroom. He may be successful and rule with an iron hand, creating an atmosphere of tension, fear and submission; or he may be unsuccessful and become nervous, fearful and distraught in a classroom characterized by frustration, restlessness, inattention, lack of respect, and numerous disciplinary problems. . . .[6]

The first problem faced by the authors of the test was to develop items which might discriminate between teachers who were able to maintain high and low rapport with pupils. Five areas of socio-educational literature were canvassed in

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[6]Cook, Leeds, and Callis, op. cit., p. 3.

order to obtain an adequate sampling of attitudes. A total of seven hundred fifty-six items were constructed from these areas and placed in two "try-out" inventories. The five areas were:

1. Moral status of children in the opinion of adults.
2. Discipline and problems of conduct in the classroom and elsewhere, and methods employed in dealing with such problems.
3. Principles of child development and behavior related to ability, achievement, learning, motivation, and personality development.
4. Principles of education related to philosophy, curriculum, and administration.
5. Personal reactions of the teacher, likes and dislikes, sources of irritation, etc.[7]

In answer to the question of whether or not these items are actually measuring attitudes or knowledge, Leeds has said the following:

> Consideration of the system of classification will reveal a rough attempt to identify psychological factors in personality structure and function, as well as to make a differentiation relative to the ideational content of items. It was believed, for example, that the categories "Moral status" and "Personal reactions of teacher" related to responses that involved more of the affective nature and less of the cognitive, than did the other categories. The feeling component in these areas would seem to be stronger than the intellectual element. At least, the subject-matter that would make

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[7] Walter W. Cook, "Personality Characteristics of Successful Teachers," The American Association of Colleges for Teacher Education, Seventh Yearbook of the American Association of Colleges for Teacher Education (Chicago, Illinois: American Association of Colleges for Teacher Education, 1954), p. 64.

> up the content of items under these two categories was less objective and less well established as ideational principles. However, the composition of psychological reactions to statements of opinion, as expressed in terms of affective and intellectual elements, is still essentially a matter of conjecture.[8]

The first experimental form of the Inventory was constructed by selecting one hundred sixty-four items from the original seven hundred fifty-six. This experimental form of the Inventory was administered to a random sample of one hundred teachers of grades four through six inclusive and their scores correlated with three outside criteria of teacher-pupil rapport. The three outside criteria were: (1) rating of the teachers by their pupils, (2) rating of the teachers by their principal, and (3) rating of the teachers by a specialist in the area of teaching effectiveness.

The results of the ratings were then correlated with the scores made by the one hundred randomly selected teachers on the experimental form of the Inventory. The single criterion measure which had the highest relationship with the Minnesota Teacher Attitude Inventory was the specialist's rating. This correlation was .49. The next highest was the pupils' ratings, .45, and the lowest was the principal's ratings, .43.

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[8]Carroll H. Leeds, op. cit., p. 4.

In 1956, Clinton R. Meek[9] reported that a fairly substantial correlation of .56 existed between the Minnesota Teacher Attitude Inventory and the more often used F-Scale. This was in line with a correlation of .38 reported by Piers for graduate students at George Peabody College for Teachers.

In a recent study an attempt was made to determine whether or not certain personal variables were related to teaching attitudes. Three hundred teachers including one hundred superior teachers, one hundred inferior teachers and one hundred randomly selected teachers, were requested to fill out a personal data sheet as well as the Minnesota Teacher Attitude Inventory. Information was obtained relative to age, sex, nationality, marital and parental status, training, teaching experience, grade level, subject taught, size of school system, liking for teaching, and whether or not a course in mental hygiene had been taken. Separate analyses were made for each of these groups of teachers. Findings may be summarized as follows:

1. In these three groups of teachers--sex, nationality, marital and parental status showed little or no relationship to teacher's attitude toward pupils.

2. Teachers in grades 1-3 tended to score higher than those in grades 4-6, who in turn scored higher than

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[9]Clinton R. Meek, "Some Factors Related to Teacher Attitude Change," The College of Education Record, XLI (June, 1956), p. 134.

senior high school teachers; junior high school teachers (grades 7-8) scored lowest of all.

3. The teachers in the unselected group who liked teaching "very much" scored higher than those who liked it "fairly well."

4. Teachers who had had courses in mental hygiene scored significantly higher than those who had not in the superior group. This was not true in the inferior group.

5. There was no relationship between MTAI scores and intelligence. The correlations tended to cluster around .12 and were not significant at the five per cent level.[10]

Robert Callis conducted a study in 1950 using the Minnesota Teacher Attitude Inventory and reached the following conclusions:

1. Attitudes measured by the Minnesota Teacher Attitude Inventory are of sufficient stability to warrent further investigation as to their efficiency in predicting teacher-pupil relations and in pre-training selection of teachers.

2. There are significant differences in teacher-pupil attitude among subjects classified by their major curriculum and that differences are present in about the same magnitude at the beginning of professional training as at the end of it.

3. Attitudes measured are rather well formed by the time the subject enters pre-professional training and influenced to only a minor extent by training and the first half year of teaching. A small group of attitudes are affected significantly by training and another group, still smaller, affected by experience.[11]

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[10]Walter W. Cook, op. cit., p. 69.

[11]Robert Callis, "Changes in Teacher-Pupil Attitudes Related to Training and Experience," Educational and Psychological Measurement, X (October, 1949), p. 727.

III. TREATMENT OF DATA

Statistical techniques. The statistical techniques employed on the basic data were to gather the scores received by the graduate group and those received by the under-graduate group, and to treat each group separately and by categories in determining the following: (1) the number of cases in each group, (2) the range of each group, (3) the summation of the scores received on the score sheets by each group, (4) the mean of each group, (5) the summation of the squares of the scores received by each group, (6) the standard deviation of the mean of each group, and (7) the standard error of the mean of each group.

Normality was assumed and F tests used to determine homogeneity by use of a two tailed test of significance of variances. The information received from working the basic data was then fed into unpooled formulas to determine "t" (uncorrected) values for the difference in means of the main groups and paired categories within the main groups. The "t" (uncorrected) values which were found were used to determine significance through use of Table XII of the Handbook of Probability and Statistics with Tables by Burington and May.[12] In a majority of the cases involved the

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[12] Richard S. Burington, and Donald C. May, Jr., Handbook of Probability and Statistics with Tables (Sandusky, Ohio: Handbook Publishers, Inc., 1953), p. 283.

significance or non-significance of the "t" (uncorrected) value was immediately evident from the table. For a "t" (uncorrected) value approaching significance, the Cochran and Cox formula was applied to determine a more nearly exact "t" value.[13]

Categories used. Comparisons were made between major groups on the following bases: (1) total graduate group and total under-graduate group, (2) male graduate group and male under-graduate group, (3) female graduate group and female under-graduate group, (4) female graduate group and male graduate group, and (5) male under-graduate group and female under-graduate group.

Each major group was further categorized and the resulting subdivisions compared within the respective group.

Comparisons within the graduate group were based on the information received from the questionnaire each graduate student had submitted with the Minnesota Teacher Attitude Inventory score sheet. This information was arranged according to frequency and appropriate subdivisions selected for comparison.[14] The subdivisions were based on: (1) age, (2) marital status, (3) amount of graduate work, (4)

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[13]Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York: Rinehart and Company, Inc., 1954), p. 274.

[14]The data in Appendix C show the frequencies of the graduate subdivisions.

classroom and administrative work, (5) levels of teaching, (6) teaching experience, and (7) size of system.

Information concerning the under-graduate group was not as extensive as the information pertaining to the graduate group and, consequently, just one subdivision was possible. This subdivision of the under-graduate group was based on the sexes within the group.

CHAPTER III

THE FINDINGS

I. RELATIONSHIPS AMONG GRADUATE AND UNDER-GRADUATE CATEGORIES

All graduates and under-graduates. The data of Table I indicate that the mean for the total graduate group was higher than the mean for the total under-graduate group. The standard deviation of the graduate group was not significantly higher than the standard deviation of the under-graduate group ($F = 1.35$, $m_1 = 55$, $m_2 = 55$), but the ranges of the two groups were more nearly equal with the graduate range slightly higher than the range of the under-graduate group.

TABLE I

MEANS, DEVIATIONS AND RANGES FOR GRADUATE AND UNDER-GRADUATE GROUPS ON THE BASIS OF MAJOR GROUPS AND SEX

Measure	GRADUATES			UNDER-GRADUATES		
	All	Male	Female	All	Male	Female
Mean	40.2	36.1	46.8	33.0	22.8	49.4
S.D.	33.6	33.1	33.1	29.0	27.9	20.6
S.E.M.	4.5	5.7	7.2	3.9	4.8	4.5
N	55.	34.	21.	55.	34.	21.
Range	131.	131.	122.	129.	112.	81.

The findings of Table II show a lack of significance in the difference of the means of the graduate and under-graduate groups at any of the confidence levels used.

TABLE II

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS FOR GRADUATE AND UNDER-GRADUATE CATEGORIES ON THE BASIS OF MAJOR GROUPS AND SEX

Groups compared	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
All graduates and All under-graduates	1.20	---	---	---	55 and 55	Graduates
Male graduates and Male under-graduates	1.78	---	---	---	34 and 34	Graduates
Female graduates Female under-graduates	.31	---	---	---	21 and 21	Under-graduates
Male graduates and Female graduates	1.19	---	---	---	34 and 21	Female graduates
Male under-graduates and Female under-graduates	4.05	yes	yes	yes	34 and 21	Female under-graduates

Graduates and under-graduates by sex. The data of Table I indicate a higher mean for the graduate male group than for the under-graduate male group. The standard deviation of the graduate males was not significantly higher than the standard deviation for the under-graduate males ($F = 1.41$, $m_1 = 34$, $m_2 = 34$), but the range of the graduate

group was lower than the range for the under-graduate group. The mean of the graduate female group was higher than the mean of the under-graduate female group. The standard deviation of the graduate female group was significantly higher than the standard deviation of the under-graduate female group ($F = 2.58$, $m_1 = 21$, $m_2 = 21$, tested at .02), but, as in the case of the male groups, the graduate female group range was lower than the under-graduate female group range.

The findings of Table II show a lack of significance in the difference of the means of the graduate group and the under-graduate group at any of the confidence levels used in this study.

II. RELATIONSHIPS AMONG GRADUATE CATEGORIES

All graduates by sex. The data of Table I indicate a higher mean for the graduate female group than for the graduate male group. The standard deviations of the two groups were not significantly different ($F = 1.00$, $m_1 = 34$, $m_2 = 21$), but the graduate male group standard deviation was the larger. The range of the graduate male group was higher than that of the female graduate group.

The findings of Table II show a lack of significance in the difference of the means of the graduate male group and the graduate female group at any of the confidence levels used.

All graduates by age. The data of Table III indicate that the mean for the graduate age group forty-five and over was the largest, followed by the means of the graduate age groups thirty and over, thirty to forty-four, and twenty-nine and under respectively. A marked difference in mean existed between the twenty-nine and under group and the forty-five and over group, but the thirty to forty-four group and forty-five and over group had more nearly equal means. The standard deviations of the four groups were more nearly equal than were the means, and no significant differences were found. The F values were: twenty-nine and under group and thirty and over group ($F = 1.15$, $m_1 = 30$, $m_2 = 25$), twenty-nine and under group and thirty to forty-four group ($F = 1.21$, $m_1 = 16$, $m_2 = 25$), twenty-nine and under group and forty-five and over group ($F = 1.02$, $m_1 = 25$, $m_2 = 14$), and thirty to forty-four group and forty-five and over group ($F = 1.23$, $m_1 = 16$, $m_2 = 14$). The ranges differed greatest between the twenty-nine and under group and the thirty and over group.

The findings of Table IV show a lack of significance in the difference of the means of the graduate age categories at any of the confidence levels used in this study.

TABLE III

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORIES ON THE BASIS OF AGE

	AGE IN YEARS			
Measure	29 and under	30 and over	30 to 44	45 and over
Mean	32.9	46.2	44.4	48.3
S.D.	31.6	33.9	34.7	31.2
S.E.M.	6.3	6.2	8.7	8.3
N	25.	30.	16.	14.
Range	114.	125.	119.	122.

TABLE IV

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORIES COMPARED ON THE BASIS OF AGE

Age groups	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
29 and under 30 and over	1.50	---	---	---	25 and 30	30 and over
29 and under 30 to 44	1.15	---	---	---	25 and 16	30 to 44.
29 and under 45 and over	1.47	---	---	---	25 and 14	45 and over
30 to 44 45 and over	.33	---	---	---	16 and 14	45 and over

Marital status of all graduates. The data of Table V indicate that the mean for the single graduate group was higher than the mean for the married graduate group. The standard deviations of the married graduate group and the single graduate group were more nearly equal with the married graduate group standard deviation the larger, but no significance was found ($F = 1.28$, $m_1 = 17$, $m_2 = 38$). The range for the married graduates was higher than the range for the single graduates.

TABLE V

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORIES ON THE BASIS OF MARITAL STATUS

	MARITAL STATUS	
Measure	Married	Single
Mean	35.6	50.3
S.D.	32.9	29.0
S.E.M.	5.3	7.0
N	38.	17.
Range	131.	106.

The findings of Table VI indicate no significance in the difference of the means of the married graduate group and the single graduate group on the confidence levels used in this study.

TABLE VI

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORIES COMPARED ON THE BASIS OF MARITAL STATUS

Marital status	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
Married and Single	1.66	---	---	---	38 and 17	Single

All graduates by amount of graduate work. The data of Table VII indicate that the mean for the graduates who had two or more quarters of graduate study was higher than the mean for the graduates who had one or less quarters of graduate work. The standard deviation of the graduate group which had two or more quarters of graduate study was significantly higher than the standard deviation of the graduate group which had one or less quarters of graduate work ($F = 2.52$, $m_1 = 16$, $m_2 = 34$,

tested at .10). The range of the group with two or more quarters of graduate work was lower than that of the group with one or less quarters of graduate work. The total number of returns in this category was incomplete, since only fifty of the fifty-five graduate students who took the test and filled out the questionnaire answered this particular item.

TABLE VII

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORIES ON THE BASIS OF AMOUNT OF GRADUATE WORK

	AMOUNT OF GRADUATE WORK IN QUARTERS	
Measure	0 to 1	2 or more
Mean	38.3	42.3
S.D.	19.2	30.5
S.E.M.	3.3	7.6
N	34.	16.
Range	131.	100.

The findings of Table VIII show a lack of significance on the confidence levels used in this study in the difference of the means of the graduate group which had

two or more quarters of graduate work and the graduate group which had one or less quarters of graduate work.

TABLE VIII

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORIES COMPARED ON THE BASIS OF AMOUNT OF GRADUATE WORK

Graduate work	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
0 to 1 and 2 or more	.48	---	----	---	34 and 16	2 or more

All graduates by type of work. The data of Table IX indicate that the mean for the group which was composed of graduates who both taught and did part-time administrative work was considerably higher than the mean for the group composed of graduates who taught full time. The standard deviations of the two groups were more nearly equal with the standard deviation of the graduate group of teacher-administrators the larger, but no significance was found ($F = 1.16$, $m_1 = 13$, $m_2 = 40$). The range of the graduate group of full-time teachers was higher than the range of the graduate teacher-administrator group. Two of the fifty-five questionnaires were not answered in this category since two of the graduate students indicated they had no previous teaching experience.

TABLE IX

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORY ON THE BASIS OF TYPE OF WORK

Measure	TYPE OF WORK: Teaching full time	Teaching and administration
Mean	37.7	45.6
S.D.	32.9	35.5
S.E.M.	5.2	9.8
N	40.	13.
Range	128.	125.

The findings of Table X indicate no significance at any of the confidence levels used in this study in the difference of the means of the full-time teaching graduate group and the teaching and administration graduate group.

TABLE X

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORY COMPARED ON THE BASIS OF TYPE OF WORK

Type of work	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
Teaching full time and Teaching and administration	.71	---	---	---	40 and 13	Teaching and administration

All graduates by level of teaching effort. The data of Table XI indicate that the mean for the graduate group of teaching level one to six exceeded the means of the two other graduate groups of teaching levels, the seven to nine group and the ten to twelve group. The mean for the graduate group of teaching level ten to twelve was higher than the mean for the graduate group of teaching level seven to nine. The standard deviation of the graduate group of teaching level ten to twelve was the largest followed by the standard deviation of the graduate groups of teaching levels seven to nine and one to six respectively. The standard deviation of the graduate group of teaching level one to six was lower than that of the other two levels. Significance was found for the difference of standard deviations for the graduate group of teaching levels one to six and seven to nine ($F = 3.98$, $m_1 = 19$, $m_2 = 10$, tested at .02), and one to six and ten to twelve ($F = 5.51$, $m_1 = 22$, $m_2 = 10$, tested at .02). However, no significance was found between the difference of standard deviations for the graduate group of teaching levels seven to nine and ten to twelve ($F = 1.38$, $m_1 = 22$, $m_2 = 19$). The range of the graduate group of teaching level ten to twelve was the largest followed by the seven to nine group and the one to six, respectively. Four of the fifty-five questionnaires were not complete in regard to this item. Two of these were

incomplete because the graduate students listed no previous teaching experience in answer to this question.

TABLE XI

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORIES ON THE BASIS OF LEVEL OF TEACHING EFFORT

	LEVEL OF TEACHING EFFORT BY GRADES		
Measure	1 to 6	7 to 9	10 to 12
Mean	63.2	32.0	37.8
S.D.	15.3	30.6	36.0
S.E.M.	4.8	7.0	7.7
N	10.	19.	22.
Range	81.	107.	131.

The findings of Table XII show significance at the .01 confidence level in the difference of the means of the graduate groups of teaching levels one to six and seven to nine. Significance was also evident in the difference of the means of the graduate groups of teaching levels one to six and ten to twelve, but at the .05 confidence level. No significance was found in the difference of means of the graduate groups of teaching levels seven to nine and ten to twelve.

TABLE XII

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORIES COMPARED ON THE BASIS OF LEVELS OF TEACHING EFFORT

Levels of teaching effort	"t" value	Significance at .05	Significance at .05	Significance at .001	Degrees of freedom	Higher group
1 to 6 and 7 to 9	3.66	yes	yes	---	10 and 19	1 to 6
1 to 6 and 10 to 12	2.80	yes	---	---	10 and 22	1 to 6
7 to 9 and 10 to 12	.52	---	---	---	19 and 22	10 to 12

All graduates by years of experience. The data of Table XIII indicate the mean for the graduate group with eleven or more years of teaching experience was the largest, followed by the means of the group with four to ten years teaching experience and the group with zero to three years teaching experience, respectively. The standard deviations were more nearly equal with the standard deviation of the graduate group with from four to ten years experience the largest, the zero to three years experience next and the group with teaching experience of eleven years or more the

smallest. No significance was found between any of the differences of standard deviations. The F values were: for the zero to three and four to ten years of experience ($F = 1.23$, $m_1 = 20$, $m_2 = 20$), for the zero to three and eleven or more years of experience ($F = 1.01$, $m_1 = 20$, $m_2 = 14$), and for the four to ten and eleven or more years of experience ($F = 1.24$, $m_1 = 20$, $m_2 = 14$). The ranges of the three groups varied directly with experience. The most experienced group range was the highest, the intermediate group next and the least experienced the lowest.

TABLE XIII

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORIES ON THE BASIS OF YEARS OF EXPERIENCE

	TEACHING EXPERIENCE IN YEARS		
Measure	0 to 3	4 to 10	11 or more
Mean	31.4	43.2	49.1
S.D.	31.4	34.8	31.2
S.E.M.	7.2	7.8	8.4
N	20.	20.	14.
Range	114.	119.	122.

The findings of Table XIV show a lack of significance in the difference of the means of the graduate categories based on experience at any of the confidence levels used in this study.

TABLE XIV

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORIES COMPARED ON THE BASIS OF TEACHING EXPERIENCE

Teaching experience	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
0 to 3 and 4 to 10	1.11	---	---	---	20 and 20	4 to 10
0 to 3 and 11 or more	1.16	---	---	---	20 and 14	11 or more
4 to 10 and 11 or more	.52	---	---	---	20 and 14	11 or more

All graduates by size of system. The questionnaire item concerning size of system was the fill-in type of item. The results of the frequency chart showed a range in size of systems from one hundred fifty-seven to fifty thousand. This difference in size of systems constituted singularity in many instances, so it was decided to categorize into two more meaningful groups. The two groups selected were five

hundred and under and five hundred one and over.

The data of Table XV indicate the mean for the graduate group from schools of five hundred and under was larger than the mean of the graduate group from schools of five hundred one and over. The standard deviations of the groups were more nearly equal with the inverse of the means relationship existing. However, no significance was found between the differences of standard deviations ($F = 1.24$, $m_1 = 27$, $m_2 = 24$). The ranges of the two groups differed by three points with the group from the larger schools possessing the higher range.

TABLE XV

MEANS, DEVIATIONS AND RANGES FOR GRADUATE CATEGORY ON THE BASIS OF SIZE OF SYSTEM

	NUMBER OF PUPILS IN THE SYSTEM	
Measure	500 and under	501 and over
Mean	42.8	35.4
S.D.	31.7	35.3
S.E.M.	6.5	6.8
N	24.	27.
Range	125.	128.

The findings of Table XVI show a lack of significance in the difference of the means of the graduate group from systems of five hundred and under and the graduate group from systems of five hundred one and over, on the confidence levels used in this study.

TABLE XVI

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF GRADUATE CATEGORY COMPARED ON THE BASIS OF SIZE OF SYSTEM

Size of system	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
500 and under and 501 and over	.78	---	---	---	24 and 27	500 and under

III. THE RELATIONSHIP BETWEEN THE UNDER-GRADUATE CATEGORY

All under-graduates by sexes within the group. The data of Table XVII indicate that the mean for the under-graduate female group was more than twice as large as the mean for the under-graduate male group. The standard deviations of the two groups were more nearly equal with the under-graduate male group standard deviation the larger. No significance of the difference of the standard deviations was found ($F = 1.67$, $m_1 = 34$, $m_2 = 21$). The range of the

under-graduate male group was considerably larger than the range of the under-graduate female group.

TABLE XVII

MEANS, DEVIATIONS AND RANGES FOR THE UNDER-GRADUATE CATEGORY ON THE BASIS OF SEX

Measure	SEX Male	Female
Mean	22.8	49.4
S.D.	27.9	20.6
S.E.M.	4.8	4.5
N	34.	21.
Range	112.	81.

The findings of Table XVIII show a significance in the difference of the means of the under-graduate male group and the under-graduate female group at the .001 confidence level.

TABLE XVIII

SIGNIFICANCE LEVELS FOR DIFFERENCE OF PAIRED MEANS OF THE UNDER-GRADUATE CATEGORY COMPARED ON THE BASIS OF SEX

Sex	"t" value	Significance at .05	.01	.001	Degrees of freedom	Higher group
Male and Female	4.05	yes	yes	yes	21 and 34	Under-graduate female

FINDINGS RELATED TO OTHER STUDIES

A difference in choice of categories both major and subdivisional for this study and other studies conducted using the Minnesota Teacher Attitude Inventory allowed the following comparisons to be made: (1) grade levels, (2) sex, (3) marital status, (4) training, and (5) experience.

Cook's[1] study found significance in the difference of paired means of teachers of grades one to three and four to six, and in the difference of paired means of teachers of grades four to six and high school teachers. The findings of this study were similar to those of Cook, although the subdivisions used were different. A significance at the .01 level of confidence was found in the difference of paired means of the graduate groups of teaching levels one to six and seven to nine and a significance at the .05 level of confidence found in the difference of paired means of the graduate groups of teaching levels one to six and ten to twelve. In both Cook's study and this study the means of elementary teachers were found to be largest and the means of junior high school teachers smallest of all the groups

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[1]Walter W. Cook, "Personality Characteristics of Successful Teachers," The American Association of Colleges for Teacher Education, Seventh Yearbook of the American Association of Colleges for Teacher Education (Chicago, Illinois: American Association of Colleges for Teacher Education, 1954), p. 64.

with regard to teaching levels.

Cook did not find significance in the difference of paired means of male and female groups of experienced teachers. This study reaffirmed Cook's findings since no significance was found in the difference of paired means of the graduate group based on sex. Conversely in the study, significance at the .001 level of confidence was found in the difference of paired means of the under-graduate group based on sex, with the under-graduate female group mean larger than the under-graduate male group mean. No comparison was possible in this regard because Cook dealt solely with experienced teachers and not with under-graduate students who had had no teaching experience.

Agreement in a lack of significance of the difference of paired means of single and married teachers in Cook's study and single and married graduate group members in this study was found.

Callis[2] found that attitudes measured were rather well formed by the time the subject entered pre-professional training and were influenced to only a minor extent by training and the first half year of teaching. This study agreed with these findings since no significance was found

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[2]Robert Callis, "Changes in Teacher-Pupil Attitudes Related to Training and Experience," Educational and Psychological Measurement, X (October, 1949), p. 727.

in the difference of paired means of the graduate groups based on training and the graduate groups based on experience in teaching.

CHAPTER IV

SUMMARY, CONJECTURES AND SUGGESTIONS

SUMMARY

Areas of significant difference in paired means. In this study a significance at the .01 level of confidence was found in the difference of paired means of the graduate groups of teaching levels one to six and seven to nine, and a significance at the .05 level of confidence in the difference of paired means of the graduate groups of teaching levels one to six and ten to twelve. Significance at the .001 level of confidence was found in the difference of paired means of the graduate categories based on sex.

Areas of no significant difference in paired means. In this study the following areas showed no significance in the difference of paired means:

1. All graduates and all under-graduates.
2. Graduate males and under-graduate males.
3. Graduate females and under-graduate females.
4. Graduate females and graduate males.
5. Age and marital status of the graduate group.
6. Graduate work of the graduate group.
7. Classroom and administrative work of the graduate group.

8. Grade teaching levels seven to nine and ten to twelve of the graduate group.
9. Years of teaching experience of the graduate group.
10. Size of system for the graduate group.

CONJECTURES

Scores received by graduate students may have been influenced by the graduate student's ability, gained through training and experience, to anticipate the type of response which is most desired by the author of the test.

The significance of the difference of paired means of the under-graduate males and under-graduate females may have been influenced by the fact that the under-graduate males may not be considering teaching as a life's work, but as a "stopping off point" before entering some other profession. The under-graduate females may be thinking in a diametrically opposite way and may be considering teaching as a vocation for life. This may mean that they will not be influenced by other professional interests.

Significance in the difference of paired means of teaching levels one to six and seven to nine and teaching levels one to six and ten to twelve may be due in part to the intimate teacher-pupil relationships which prevail in the elementary grades as opposed to the more formal relationships which exist between the junior high school and high school teachers and their pupils.

SUGGESTION

Through larger groups, significance in the difference of paired means may be determined for some of the categories which appear to be insignificant. This program should be continued to make these larger groups available to future studies.

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BIBLIOGRAPHY

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APPENDIX A

DO NOT OPEN UNTIL TOLD TO DO SO

MINNESOTA TEACHER ATTITUDE INVENTORY

Form A

WALTER W. COOK
University of Minnesota

CARROLL H. LEEDS
Furman University

ROBERT CALLIS
University of Missouri

DIRECTIONS

This inventory consists of 150 statements designed to sample opinions about teacher-pupil relations. There is considerable disagreement as to what these relations should be; therefore, there are no right or wrong answers. What is wanted is your own individual feeling about the statements. Read each statement and decide how YOU feel about it. Then mark your answer on the space provided on the answer sheet. Do not make any marks on this booklet.

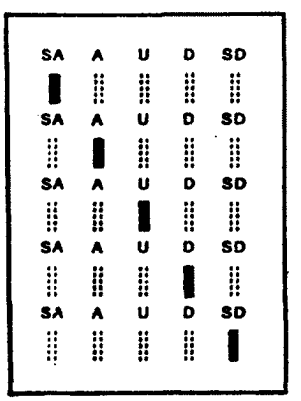
If you **strongly agree**, blacken space under "SA" .....

If you **agree**, blacken space under "A" .....

If you are **undecided** or **uncertain**, blacken space under "U" .....

If you **disagree**, blacken space under "D" .....

If you **strongly disagree**, blacken space under "SD" .....



Think in terms of the general situation rather than specific ones. There is no time limit, but work as rapidly as you can. **PLEASE RESPOND TO EVERY ITEM.**

Printed in U.S.A.

51-161TB

SA—Strongly agree
A—Agree

U—Undecided
or uncertain

D—Disagree
SD—Strongly disagree

1. Most children are obedient.
2. Pupils who "act smart" probably have too high an opinion of themselves.
3. Minor disciplinary situations should sometimes be turned into jokes.
4. Shyness is preferable to boldness.
5. Teaching never gets monotonous.
6. Most pupils don't appreciate what a teacher does for them.
7. If the teacher laughs with the pupils in amusing classroom situations, the class tends to get out of control.
8. A child's companionships can be too carefully supervised.
9. A child should be encouraged to keep his likes and dislikes to himself.
10. It sometimes does a child good to be criticized in the presence of other pupils.
11. Unquestioning obedience in a child is not desirable.
12. Pupils should be required to do more studying at home.
13. The first lesson a child needs to learn is to obey the teacher without hesitation.
14. Young people are difficult to understand these days.
15. There is too great an emphasis upon "keeping order" in the classroom.
16. A pupil's failure is seldom the fault of the teacher.
17. There are times when a teacher cannot be blamed for losing patience with a pupil.
18. A teacher should never discuss sex problems with the pupils.
19. Pupils have it too easy in the modern school.
20. A teacher should not be expected to burden himself with a pupil's problems.
21. Pupils expect too much help from the teacher in getting their lessons.
22. A teacher should not be expected to sacrifice an evening of recreation in order to visit a child's home.
23. Most pupils do not make an adequate effort to prepare their lessons.
24. Too many children nowadays are allowed to have their own way.
25. Children's wants are just as important as those of an adult.
26. The teacher is usually to blame when pupils fail to follow directions.
27. A child should be taught to obey an adult without question.
28. The boastful child is usually over-confident of his ability.
29. Children have a natural tendency to be unruly.
30. A teacher cannot place much faith in the statements of pupils.

GO ON TO THE NEXT PAGE

SA—Strongly agree
A—Agree

U—Undecided
or uncertain

D—Disagree
SD—Strongly disagree.

31. Some children ask too many questions.

32. A pupil should not be required to stand when reciting.

33. The teacher should not be expected to manage a child if the latter's parents are unable to do so.

34. A teacher should never acknowledge his ignorance of a topic in the presence of his pupils.

35. Discipline in the modern school is not as strict as it should be.

36. Most pupils lack productive imagination.

37. Standards of work should vary with the pupil.

38. The majority of children take their responsibilities seriously.

39. To maintain good discipline in the classroom a teacher needs to be "hard-boiled."

40. Success is more motivating than failure.

41. Imaginative tales demand the same punishment as lying.

42. Every pupil in the sixth grade should have sixth grade reading ability.

43. A good motivating device is the critical comparison of a pupil's work with that of other pupils.

44. It is better for a child to be bashful than to be "boy or girl crazy."

45. Course grades should never be lowered as punishment.

46. More "old-fashioned whippings" are needed today.

47. The child must learn that "teacher knows best."

48. Increased freedom in the classroom creates confusion.

49. A teacher should not be expected to be sympathetic toward truants.

50. Teachers should exercise more authority over their pupils than they do.

51. Discipline problems are the teacher's greatest worry.

52. The low achiever probably is not working hard enough and applying himself.

53. There is too much emphasis on grading.

54. Most children lack common courtesy toward adults.

55. Aggressive children are the greatest problems.

56. At times it is necessary that the whole class suffer when the teacher is unable to identify the culprit.

57. Many teachers are not severe enough in their dealings with pupils.

58. Children "should be seen and not heard."

59. A teacher should always have at least a few failures.

60. It is easier to correct discipline problems than it is to prevent them.

GO ON TO THE NEXT PAGE

SA—Strongly agree
A—Agree

U—Undecided
or uncertain

D—Disagree
SD—Strongly disagree

61. Children are usually too sociable in the classroom.

62. Most pupils are resourceful when left on their own.

63. Too much nonsense goes on in many classrooms these days.

64. The school is often to blame in cases of truancy.

65. Children are too carefree.

66. Pupils who fail to prepare their lessons daily should be kept after school to make this preparation.

67. Pupils who are foreigners usually make the teacher's task more unpleasant.

68. Most children would like to use good English.

69. Assigning additional school work is often an effective means of punishment.

70. Dishonesty as found in cheating is probably one of the most serious of moral offenses.

71. Children should be allowed more freedom in their execution of learning activities.

72. Pupils must learn to respect teachers if for no other reason than that they are teachers.

73. Children need not always understand the reasons for social conduct.

74. Pupils usually are not qualified to select their own topics for themes and reports.

75. No child should rebel against authority.

76. There is too much leniency today in the handling of children.

77. Difficult disciplinary problems are seldom the fault of the teacher.

78. The whims and impulsive desires of children are usually worthy of attention.

79. Children usually have a hard time following instructions.

80. Children nowadays are allowed too much freedom in school.

81. All children should start to read by the age of seven.

82. Universal promotion of pupils lowers achievement standards.

83. Children are unable to reason adequately.

84. A teacher should not tolerate use of slang expressions by his pupils.

85. The child who misbehaves should be made to feel guilty and ashamed of himself.

86. If a child wants to speak or to leave his seat during the class period, he should always get permission from the teacher.

87. Pupils should not respect teachers anymore than any other adults.

88. Throwing of chalk and erasers should always demand severe punishment.

89. Teachers who are liked best probably have a better understanding of their pupils.

90. Most pupils try to make things easier for the teacher.

GO ON TO THE NEXT PAGE

SA—Strongly agree
A—Agree

U—Undecided
or uncertain

D—Disagree
SD—Strongly disagree

91. Most teachers do not give sufficient explanation in their teaching.

92. There are too many activities lacking in academic respectability that are being introduced into the curriculum of the modern school.

93. Children should be given more freedom in the classroom than they usually get.

94. Most pupils are unnecessarily thoughtless relative to the teacher's wishes.

95. Children should not expect talking privileges when adults wish to speak.

96. Pupils are usually slow to "catch on" to new material.

97. Teachers are responsible for knowing the home conditions of every one of their pupils.

98. Pupils can be very boring at times.

99. Children have no business asking questions about sex.

100. Children must be told exactly what to do and how to do it.

101. Most pupils are considerate of their teachers.

102. Whispering should not be tolerated.

103. Shy pupils especially should be required to stand when reciting.

104. Teachers should consider problems of conduct more seriously than they do.

105. A teacher should never leave the class to its own management.

106. A teacher should not be expected to do more work than he is paid for.

107. There is nothing that can be more irritating than some pupils.

108. "Lack of application" is probably one of the most frequent causes for failure.

109. Young people nowadays are too frivolous.

110. As a rule teachers are too lenient with their pupils.

111. Slow pupils certainly try one's patience.

112. Grading is of value because of the competition element.

113. Pupils like to annoy the teacher.

114. Children usually will not think for themselves.

115. Classroom rules and regulations must be considered inviolable.

116. Most pupils have too easy a time of it and do not learn to do real work.

117. Children are so likeable that their shortcomings can usually be overlooked.

118. A pupil found writing obscene notes should be severely punished.

119. A teacher seldom finds children really enjoyable.

120. There is usually one best way to do school work which all pupils should follow.

GO ON TO THE NEXT PAGE

SA—Strongly agree
A—Agree

U—Undecided
or uncertain

D—Disagree
SD—Strongly disagree

121. It isn't practicable to base school work upon children's interests.

122. It is difficult to understand why some children want to come to school so early in the morning before opening time.

123. Children that cannot meet the school standards should be dropped.

124. Children are usually too inquisitive.

125. It is sometimes necessary to break promises made to children.

126. Children today are given too much freedom.

127. One should be able to get along with almost any child.

128. Children are not mature enough to make their own decisions.

129. A child who bites his nails needs to be shamed.

130. Children will think for themselves if permitted.

131. There is no excuse for the extreme sensitivity of some children.

132. Children just cannot be trusted.

133. Children should be given reasons for the restrictions placed upon them.

134. Most pupils are not interested in learning.

135. It is usually the uninteresting and difficult subjects that will do the pupil the most good.

136. A pupil should always be fully aware of what is expected of him.

137. There is too much intermingling of the sexes in extra-curricular activities.

138. The child who stutters should be given the opportunity to recite oftener.

139. The teacher should disregard the complaints of the child who constantly talks about imaginary illnesses.

140. Teachers probably over-emphasize the seriousness of such pupil behavior as the writing of obscene notes.

141. Teachers should not expect pupils to like them.

142. Children act more civilized than do many adults.

143. Aggressive children require the most attention.

144. Teachers can be in the wrong as well as pupils.

145. Young people today are just as good as those of the past generation.

146. Keeping discipline is not the problem that many teachers claim it to be.

147. A pupil has the right to disagree openly with his teachers.

148. Most pupil misbehavior is done to annoy the teacher.

149. One should not expect pupils to enjoy school.

150. In pupil appraisal effort should not be distinguished from scholarship.

APPENDIX B

PLEASE SUPPLY THE FOLLOWING INFORMATION:

Your age _____

Write your code number here and also on your answer sheet. _____

Sex (circle one) M F

Marital status (circle one) S M

How many quarters do you have beyond your B.A.? (circle one)
1 2 3 4 more

Check one of the following three: If you did not teach last year, answer for the last year you did teach.

(1) Did you teach classes full time last year? _____

(2) Did you have full-time administrative or supervisory duties last year? _____

(3) Did you have both teaching and administrative or supervisory duties last year? _____

Encircle the one area that best describes the level on which you worked last year. 1 - 6 7 - 9 10 - 12 1 - 12

How many years have you taught? _____

What was the approximate total number of students in your system last year? _____

APPENDIX C

FREQUENCIES OF THE GRADUATE SUBDIVISION

Age in Years		Amount of Graduate Work in Quarters	Type of Work
20---0	40---1	0----------9	Full time teaching-----40
21---0	41---1	1----------25	
22---0	42---3	2----------8	
23---1	43---0	3----------3	Full time admin.--------0
24---1	44---0	4 or more-----5	
25---3	45---3	unmarked------5	
26---6	46---0		Both teaching and admin.---13
27---4	47---1		
28---4	48---2		
29---6	49---2		Did not teach before--------2
30---2	50---0		
31---1	51---2		
32---0	52---0		
33---3	53---0		
34---1	54---0		
35---0	55---0		
36---1	56---2		
37---2	57---1		
38---1	58---1		
39---0	59---0		
	60---0		

Levels of Teaching Effort by Grades	Years of Experience	
	0 to 1---5	18 to 19--1
1 to 6----10	1 to 2---8	19 to 20--0
	2 to 3---2	20 to 21--0
7 to 9----19	3 to 4---7	21 to 22--1
	4 to 5---2	22 to 23--0
10 to 12---22	5 to 6---3	23 to 24--2
	6 to 7---5	24 to 25--0
1 to 12--- 0	7 to 8---3	25 to 26--1
	8 to 9---2	26 to 27--3
unmarked-- 4	9 to 10--1	27 to 28--0
	10 to 11--3	28 to 29--0
	11 to 12--1	29 to 30--0
	12 to 13--1	30 to 31--0
	13 to 14--3	31 to 32--0
	14 to 15--0	32 to 33--1
	15 to 16--0	33 to 34--0
	16 to 17--0	34 to 35--0
	17 to 18--0	

FREQUENCIES OF THE GRADUATE SUBDIVISIONS (con't)

Size of System

500 and under	23
501 to 1000	6
1001 to 1500	5
1501 to 2000	0
2001 to 2500	2
2501 to 3000	2
3001 to 3500	0
3501 to 4000	0
4001 to 4500	0
4501 to 5000	0
5001 to 5500	0
5501 to 6000	1
6001 to 6500	0
6501 to 7000	1
7001 to 7500	0
7501 to 8000	3
10,000	1
12,000	1
25,000	1
30,000	1
50,000	1
Great Falls	1
No. of Elementary Students 850	1
High School Students 150	1
Unmarked	4

APPENDIX D

SCORES RECEIVED BY MAJOR GROUPS ON THE

MINNESOTA TEACHER ATTITUDE INVENTORY

Graduate		Under-graduate	
-26	42	-35	36
-20	47	-30	38
-19	48	-17	40
-14	52	-13	41
-12	55	-13	42
-10	58	-5	42
-4	59	0	44
-2	60	7	45
-1	62	10	45
10	64	10	47
12	65	13	48
12	65	13	50
13	67	14	51
17	69	15	51
19	69	16	52
21	70	17	53
22	74	19	56
23	74	20	59
23	77	22	63
24	78	22	72
29	79	24	72
29	86	29	75
32	86	30	76
33	87	31	76
33	95	31	76
35	101	31	89
37	104	35	93
42			

SCORES RECEIVED BY ALL GRADUATES BY SEX ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

Male		Female	
-26	35	-20	86
-19	42	-10	86
-14	42	-4	101
-12	47	10	
-2	55	21	
-1	58	22	
10	60	24	
12	65	33	
12	67	37	
13	69	48	
17	69	59	
19	74	62	
23	79	64	
23	87	65	
29	95	70	
29	104	74	
32		77	
33		78	

SCORES RECEIVED BY ALL UNDER-GRADUATES BY SEX ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

Male		Female	
-35	24	13	76
-30	31	19	89
-17	36	22	93
-13	40	29	
-13	41	30	
-13	42	31	
-5	45	31	
0	45	35	
7	47	38	
10	48	42	
10	50	44	
13	51	52	
14	51	53	
15	56	59	
16	76	63	
17	76	72	
20		72	
22		75	

SCORES RECEIVED BY ALL GRADUATES BY AGE ON THE

MINNESOTA TEACHER ATTITUDE INVENTORY

29 and Under	30 and Over		30 to 44	45 and Over
-26	-20	79	-14	-20
-19	-14	86	-12	10
-4	-12	95	-10	12
-2	-10	101	12	22
-1	10	104	24	33
10	12		33	37
13	12		42	48
17	22		47	62
19	24		55	64
21	33		58	65
23	33		59	77
23	37		69	79
29	42		70	86
29	47		78	101
32	48		95	
35	55		104	
42	58			
60	59			
65	62			
67	64			
69	65			
74	69			
74	70			
86	77			
87	78			

SCORES RECEIVED BY ALL GRADUATES BY MARITAL STATUS ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

Married		Single
-26	42	-4
-20	47	-1
-19	48	10
-14	55	21
-12	58	22
-10	59	23
-2	60	33
10	65	37
12	67	62
12	69	64
13	70	69
17	74	74
19	78	77
23	79	86
24	87	86
29	104	95
29		101
32		
33		
35		
42		

SCORES RECEIVED BY GRADUATES BY LEVEL OF TEACHING ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

1 - 6	7 - 9		10 - 12	
21	-19	60	-26	64
22	-14	65	-20	65
48	-12	69	-10	67
55	-4	70	-1	69
62	10	87	10	78
74	12		12	79
77	19		13	95
86	23		17	104
86	24		23	
101	33		29	
	37		29	
	42		35	
	47		42	
	59		58	

SCORES RECEIVED BY ALL GRADUATES BY KIND OF WORK ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

Full Teaching		Both Teaching and Administration
-26	35	-20
-19	37	-12
-14	42	10
-10	42	17
-4	48	29
-2	58	47
-1	59	55
10	60	65
12	62	65
12	64	69
13	67	77
19	69	87
21	70	104
22	74	
23	78	
23	79	
24	86	
29	86	
32	95	
33	101	

SCORES RECEIVED BY ALL GRADUATES BY SIZE OF SYSTEM ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

500 and Under	501 and Over	
-20	-26	79
-10	-19	86
-2	-14	101
10	-12	
12	-4	
13	-1	
17	10	
22	12	
29	19	
35	21	
37	23	
42	23	
48	24	
58	29	
59	33	
60	42	
64	47	
65	55	
65	62	
67	69	
70	69	
87	74	
95	77	
104	78	

SCORES RECEIVED BY ALL GRADUATES BY AMOUNT OF GRADUATE WORK ON THE MINNESOATA TEACHER ATTITUDE INVENTORY

0 - 1		2 or more
-26	37	-20
-19	47	-12
-14	48	10
-10	55	12
-4	58	22
-2	60	24
-1	62	42
10	65	42
12	67	59
13	70	64
19	86	65
21	86	69
23	87	69
23	95	74
29	101	78
33	104	79
33		
35		

SCORES RECEIVED BY ALL GRADUATES BY NUMBER OF YEARS TAUGHT ON THE MINNESOTA TEACHER ATTITUDE INVENTORY

0 - 3		4 - 10		11 and more
-26	69	-14	78	-20
-19	74	-12	86	10
-4	74	-10	95	12
-2	87	-1	104	22
10		17		33
12		19		37
13		21		59
23		24		62
23		42		64
29		47		65
29		48		77
33		55		79
35		60		86
42		65		101
58		69		
67		70		