

**THE EFFECT OF PRACTICE TEACHING ON ATTITUDE
CHANGE AND THE EFFECT OF ATTITUDE CHANGE
ON PRACTICE TEACHING GRADES**

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Thesis presented to the School of
Education of the University of
Ottawa as partial fulfillment of
the requirements for the degree
of Doctor of Philosophy



Revere, Massachusetts, 1970

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ACKNOWLEDGMENTS

This thesis was prepared under the supervision of Lionel Desjarlais, Ph.D., Dean of Graduate Studies of the Faculty of Education of the University of Ottawa.

The writer is indebted to his colleagues at Salem State College for their interest and cooperation, to the students who participated, and especially to Arnold Checchi, Ed.D., Chairman of the Education Department at Salem State College, for his permission to use these students in this study.

CURRICULUM STUDIORUM

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INTRODUCTION

Studies conducted on the relevancy of aspects of teacher education, academic and educational courses, as viewed by teachers who completed the teacher-training programs, indicate that student teaching is considered to be the best single method for preparing teachers. Because teachers have stated that the practical experience of practice teaching is so valuable, one would expect that this period would produce attitudinal changes of singular importance. What kinds of changes take place during practice teaching and what direction do a practice teacher's attitudes take? Do practice teachers become more conservative during the practice teaching period when they encounter the generally more traditional stance adopted by classroom teachers as compared to education professors? Or do they grow rapidly in their attitudes toward teaching because of a practical reinforcement of the principles discussed in education courses? Part of the present study is an attempt to determine the effect of practice teaching on attitude changes.

The other part of this study is intended to determine the effect of attitude change during the practice teaching period upon the grade received in practice teaching. For example, do these individuals who undergo a considerable improvement in teaching attitudes during

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practice teaching receive higher grades than those whose attitudes deteriorate considerably? Or do those whose attitudes remain unchanged score higher or lower than both the former and the latter?

The first chapter of this thesis deals with research related to the two major aspects of this study. The second chapter of this study is devoted to the design of the research which includes the following: a formal statement of the hypotheses; the instruments used in the study and the way in which they were scored; a description of the sample; the details of the experimental design; and the statistical technique for analyzing the data. The third chapter is concerned with the results of the statistical analysis, and a summary, conclusions, and recommendations for further research.

CHAPTER I

REVIEW OF THE LITERATURE

One of the most crucial points in the preparation of teachers occurs during the period of student teaching. The student teacher is placed into an actual school situation in which it is hoped that he will implement the theoretical foundation that he has acquired within the academic program. This period has often proved to be a decisive point in the development of many of the aspiring teachers. For many the practice teaching period is one of growth; for others it can be a period of frustration and disillusionment. The effects of practice teaching can confirm or alter one's attitudes toward teaching. Since it is apparent that the practice teaching period can be a turning point in the preparation of teachers it has been a topic of a great deal of research.

A systematic review of the literature concerning student teaching was undertaken, including a survey of the major sources of research material. These included: Dissertation Abstracts, Abstracts of Doctoral Dissertations, readings in various journals, Education Index, Reader's Guide to Periodical Literature, Encyclopedia of Educational Research, and Review of Educational Research. This review revealed studies related to student teaching in such a way

as to warrant further investigation in light of the topic of the study. The studies covered a wide range of areas - from the effect of professional informal groups upon the perception of teacher's values, norms, and attitudes to the use of the Minnesota Teacher Attitude Inventory in the counseling, selection, and placement of teachers.

Practically every aspect of the teacher education program has been criticized by various groups and attacked as a causal factor in poor teaching. However, academicians and educationists have voiced agreement on the prime value of student teaching because it requires on-the-job training and practical application.¹ Studies conducted on the relevancy of aspects of teacher education, academic and education courses as viewed by teachers who completed the programs, indicated that student teaching is considered to be the best single factor for determining preparation to teach.²

This review will be concerned with four basic aspects of attitudes and practice teaching: the general attitudinal change which occurs during practice teaching; the type of change in attitude attributable to the

1 Hodenfield, G.K. and Stinnett, T.M., The Education of Teachers: Conflict and Consensus, New Jersey, Prentice Hall, 1961, 177p.

2 Stiles, L., Teacher Education in the United States, New York, Ronald Press, 1960, 260p.

institutional demands of the school; the type of change in attitude attributable to the attitudes of the cooperating teacher; and the relationship of attitudes to ratings received during practice teaching.

1. Attitudinal Change during Practice Teaching

Biddle, Twyman, and Rankin compared the responses of teachers, education students, and students not studying education to a scale intended to measure teacher behavior. They drew the following conclusion:

Education students were idealistic in allowing pupil freedom in comparison with both teachers and non-education students. Such a distortion might be explained in several ways. It is possible that idealistic professors of education are having an impact on education students and that their idealism represents inspired social change that will take place in the school systems of tomorrow. It is also possible that education students are choosing a teaching career because of the idealistic picture they hold of teacher-pupil relations. Finally, it is possible that the education student assumes a patina of idealism as a protective device during the time when he is a student and unable to experience the rewards of professional participation.³

³ Biddle, B., Twyman, J., and Rankin, E., "The Role of the Teacher and Occupational Choice", School Review, Vol.70, issue of Summer 1962, p.191-206.

Their conclusion that education students are highly idealistic concerning teaching is not surprising. But it is interesting that the education students whom they studied had not yet been exposed to practice teaching. The practice teaching period jolts many students because it does not coincide with the idealistic image of teaching that they have conjured. In fact, it may be that practice teaching has a highly deleterious effect upon the teaching attitudes of practice teachers, as Kaltsounis and Nelson have so sharply stated:

The student teacher accepts the status quo in teaching, lacks initiative, develops a conformist pattern of behavior, and perpetuates the myth supported by teachers because student teaching prepares them to fit into a complacent, noncritical role in the schools.⁴

The issue is a serious one. Does practice teaching result in a deterioration of general attitudes toward teaching? Is the favorable idealism of the novice squelched and replaced by unimaginative conformism? There are several studies which use the Minnesota Teacher Attitude Inventory (MTAI) that address themselves to these questions.

⁴ Kaltsounis, T. and Nelson, J., "The Mythology of Student Teaching", Journal of Teacher Education, Vol.19, issue of Fall 1968, p.277-281..

Weinstock and Peccolo studied 156 seniors in teacher education - - ninety-seven specializing in secondary education and fifty-nine in elementary education. The students were administered the MTAI before and after student teaching. The authors drew the following conclusion: Students preparing to teach in elementary school as well as students preparing to teach in secondary school showed a consistent decrease in mean scores on the Minnesota Teacher Attitude Inventory on completion of student teaching in the schools ... Secondary-school teachers showed a highly significant decrease in this measure on returning from teaching in the schools.⁵

In another study, Muuss examined graduates of liberal arts colleges working toward an M.Ed. degree in elementary education over a three-year period. The students were administered the MTAI on three occasions: in early September, before their formal study of the field of education; in January, after the formal period of study ended and before an internship period began; and finally in early June, just at the completion of the program. He found that during the period from September to January,

⁵ Weinstock, H. and Peccolo, C., "Do Students' Ideas and Attitudes Survive Practice Teaching?", Elementary School Journal, Vol.70, issue of January 1970, p.210-218.

the studying period, the attitudes of students, as measured by the MTAI, improved significantly. On the other hand, in the period between January and June, the internship period, the students' MTAI scores declined significantly. Further, this decline was directly related to whether a student had difficulty in the internship as determined by the director of the program.⁶

Both of the previous studies point to the conclusion that practice teaching does alter the attitudes of student teachers in a negative manner as determined by the MTAI. However, other evidence indicates that this may not be the case. Sandgren and Schmidt administered the MTAI to 393 students at a midwestern state teachers college before and after student teaching. They found that MTAI scores improved significantly for both elementary and secondary-school student teachers as a result of practice teaching.⁷

Because of the conflicting results derived from studies of attitude change during practice teaching, it is still unclear whether teaching attitudes get better or worse

⁶ Muuss, R., "Differential Effect of Studying Versus Teaching on Teachers' Attitudes", Journal of Educational Research, Vol.63, No.4, issue of December 1969, p.185-189.

⁷ Sandgren, D. and Schmidt, L., "Does Practice Teaching Change Attitudes Toward Teaching?", Journal of Educational Research, Vol.49, No.9, issue of May 1956, p.673-680.

during practice teaching.

2. Institutional Demands and Attitude Change

The second major aspect of attitude change is concerned with the effect on attitudes attributable to the institutional demands of the school. Probably the most important theoretical statement along these lines has been provided by Getzels and Guba. They state:

We conceive of the social system as involving two major classes of phenomena, which are at once conceptually independent and phenomenally interactive. There are, first, the institutions with certain roles and expectations that will fulfill the goals of the system. Second, inhabiting the system there are the individuals with certain personalities and need-dispositions, whose interactions comprise what we generally call 'social behavior'. Social behavior may be apprehended as a function of the following major elements: institution, role, and expectation, which together constitute the nomothetic, or normative, dimension of activity in a social system; and individual, personality, and need-disposition, which together constitute the idiographic, or personal, dimension of activity in a social system.⁸

⁸ Getzels, J. and Guba, E., "Social Behavior and the Administrative Process", School Review, Vol.65, issue of Winter 1957, p.423-441.

This statement has definite application to the student teacher. He must temper his personal (idiographic) needs to the institutional (nomothetic) demands of the school. Horowitz designed a study to determine the effects of the interplay of the nomothetic and idiographic dimensions upon practice teachers. He administered an instrument to measure role expectations and role perceptions to elementary school student teachers and their cooperating teachers. His findings included the following results: student teachers are more idiographic and less nomothetic than are cooperating teachers both before and after practice teaching; however, the student teachers do become more nomothetic in their expectations after a period of student teaching. The author concludes:

This change, coupled with the fact that they became less transactional, suggests that student teachers are more concerned after student teaching than before with the expectations of others for the role of teacher.⁹

In another study, Walberg, Metzner, Todd, and Henry were concerned with the effects of both tutoring and practice teaching on the self-concept and attitudes in

⁹ Horowitz, M., "Student-Teaching Experiences and Attitudes of Student Teachers", Journal of Teacher Education, Vol.19, No.3, issue of Fall 1968, p.317-324.

education students. Although they did not use the terms of Getzels and Guba (i.e., idiographic and nomothetic), they were interested in the conflict between "personality need" and "role demands", which are very similar to the concepts posed by Getzels and Guba.

They studied a group of practice teachers of sixty-four college senior women and a tutoring group of seventy-seven college junior women in elementary education. The students were administered three instruments: a seven-point bipolar adjective semantic differential scale, a seven-point bipolar phrase scale, and thirty-five modified items from the MTAI that included items categorized into seven factors, as determined through a factor analysis of the MTAI scale. Each of the other two scales was also factor analyzed so that the adjective scale was divided into seven factors and the phrase scale into three factors. In all, there were seventeen factor scores upon which the students were measured.

The results of the study are summarized in the following statements:

Of especial interest are the two scores that changed significantly in both groups but in opposite directions: on controlling, the tutors scored lower after tutoring, and the practice teachers higher after practice teaching; on pupil-centered, the tutors scored higher, and the practice teachers lower. In other words, in contrast to each other, tutors became pupil-centered and practice teachers became more controlling.

On the other hand, the personality-role conflict hypothesis is also borne out. Despite the advantages of practice teaching in suburban schools, the present sample, like the inner city practice teachers, thought of themselves as less pedagogical and less identified with students. These findings confirm the previous research: the beginning teacher, in conforming to the institutional role of the teacher, learns that she must maintain a status gap between herself and the children. Although a number of studies have shown her basic desire to be emotionally close to children, she must learn to keep her proper professional distance. Thus, the declines in aspects of professional self-concept found here and in the previous studies can also be interpreted psychologically as a result of personality-role conflict.

Turning now to the changes in teaching attitudes, the practice teachers became less pupil-centered and egalitarian and more puritanical ... These findings are additional support for the personality-role conflict hypotheses.¹⁰

¹⁰ Walberg, H., Metzner, S., Todd, R., and Henry, P., "Effects of Tutoring and Practice Teaching on Self-Concept and Attitudes in Education Students", Journal of Teacher Education, Vol.19, No.3, issue of Fall 1968, p.283-291.

Both of the above studies indicate that the practice teacher does submit to institutional demands and does modify his attitudes to conform to these demands. The modification which occurs does appear to be of the illeberal type which Kaltsounis and Nelson alleged, though not as sharply as they portrayed it to be.

3. Cooperating Teacher and Attitude Change

This third aspect of attitude change is concerned with the effect of the cooperating teacher upon the attitudes of the student teacher. Two studies are directed toward this problem.

In the first study, Scott and Brinkley administered the MTAI to seventy-seven student teachers in seven white teacher-education institutions in Georgia before and after practice teaching and to their cooperating teachers before the practice teaching period. Before the practice teaching period began, forty-seven of the practice teachers had lower MTAI scores than their cooperating teachers, whereas thirty had MTAI scores higher than their cooperating teachers. The group of practice teachers who had lower MTAI scores than their cooperating teachers attained a significantly higher mean MTAI score after practice teaching. The group of practice teachers who had higher MTAI scores than their cooperating teachers did not change significantly during

practice teaching.¹¹

This points to the conclusion that if student teachers work with cooperating teachers with attitudes toward teaching better than the students, the student teachers' attitudes will probably improve. However, student teachers working with cooperating teachers whose attitudes toward teaching are not as good as their own do not worsen in their attitudes.

In the second study, Price divided prospective practice teachers and cooperating teachers into groups of high, low, and average scorers on the MTAI. Forty-five student teachers and forty-five cooperating teachers were selected for the study. Nine combinations of "high", "middle", and "low" student teachers and "high", "middle", and "low" cooperating teachers were placed together. The practice teachers were again administered the MTAI after the practice teaching period was over. The author's conclusions:

The study has shown that a considerable change occurred in student teachers' attitudes during the student teaching semester and that there was a tendency for their attitudes to change in the direction of the attitudes held by their respective supervising teachers.¹²

11 Scott, O. and Brinkley, S., "Attitude Changes of Student Teachers and the Validity of the MTAI"; Journal of Educational Psychology, Vol.51, No.2; 1960, p.76-81.

12 Price, R., "The Influence of Supervising Teachers", Journal of Teacher Education, Vol.12, No.4, Dec.1961, p.471-475.

The second study contradicts the first study in that even the students who scored higher than their cooperating teacher at the outset of the study did score lower after the practice teaching period was over.

4. Attitudes and Ratings in Practice Teaching

The fourth major aspect of attitude change is concerned with the effect of students' attitudes upon the ratings they received in practice teaching.

Fuller, in a study of seventy-four seniors in the University of Minnesota College of Education, majoring in nursery school-kindergarten-primary teaching found that the MTAI may be considered useful as an instrument for early vocational selection of teachers from the general population, and from the College of Education students as a group. However, the MTAI scores showed no significant relationship to self-ratings, supervisor's ratings, honor point ratios, intelligence test scores, or to the rank order list of student teachers as measured by the Spearman rank difference correlation method.¹³ The author admits that there is such

¹³ Fuller, E., "The Use of Teacher-Pupil Attitudes, Self-Rating and Measures of General Ability in the Pre-Service Selection of Nursery School-Kindergarten-Primary Teachers", Journal of Educational Research, Vol.44, issue of 1951, p.675-686.

screening via many tests on the selection of students into the program of this type of teacher education that the results of this testing would not apply to the low or high average student.

Oelke studied a group of forty-four senior student teachers and a group of fifty junior students in education at a large midwestern university during the professional semester; in this study the student teachers were on campus the first six and last four weeks of the semester, while the middle six-week period was spent away from campus teaching in a community. On examining the relationship between the MTAI scores of the forty-four senior student teachers and the ratings given them by their supervisors, he similarly found no significant relationship.¹⁴ Again the norm of the group is questioned.

Sandgren and Schmidt, in the aforementioned study, divided student teachers into the upper and lower third on MTAI scores and their cooperating teachers rated them on a twenty-five-item rating scale. The MTAI was administered

¹⁴Oelke, M., "A Study of Student Teachers' Attitudes Toward Children", Journal Educational Psychology, Vol.47, issue of 1956, p.193-196.

to the student teachers before and after student teaching experience. The attitude score of the critic teacher was used as the criterion for determining the probability of success in teaching. Student teachers who moved in the direction of the attitudes of the critic teachers did not perform significantly better during their student teaching than those who did not. There was no significant difference in the ratings given to the groups.¹⁵

The three studies seem to indicate that the attitude of practice teachers on the MTAI do not affect the ratings that are given by the supervising or cooperating teachers.

5. Summary

As Spindler has noted there is so much flexibility in teaching and learning that there is a continuous need for information for facts about a new situation or a new idea or a new ethic.¹⁶

The review of the literature has focused on general attitudinal change during practice teaching, attitudinal

¹⁵ Sandgren, D. and Schmidt, L. op. cit.

¹⁶ Spindler, G., Education and Culture, New York, Holt, Rinehart, and Winston, 1963, 571p.

change attributable to institutional demands, attitudinal change attributable to the attitudes of the cooperating teacher, and the relationship of attitudes to ratings received during practice teaching.

In brief, first, it seems clear that the practice teaching period is generally a period of attitudinal change toward teaching. Whether this change results in an improvement or a deterioration in attitudes is unclear. Second, it also appears as if student teachers do assume attitudes which are nomothetic or demanded by the role of teacher. These attitudes do seem less liberal than those espoused prior to practice teaching. Third, it seems as if a cooperating teacher with attitudes more favorable to teaching than those of a student teacher working with him will affect the student teacher's attitudes in a positive way. However, there is conflicting research evidence concerning the effect of a cooperating teacher on a student teacher whose attitudes are less favorable than those of the student teacher working with him. Finally, several older studies indicate that the MTAI scores of student teachers are unrelated to the ratings given them by either supervising or cooperating teachers.

The area of concentration of the present study concerns change in attitudes that occur in practice teaching, as measured by the MTAI and an opinion scale, and the

relationship between grades and attitude change. Although both of these issues have been dealt with in a different way in other research studies, the findings have been so inconclusive and the issues of such importance that further research along different lines is warranted.

CHAPTER II

DESIGN OF STUDY

The first chapter of this study was concerned with the research literature related to attitudes and the student teaching experience. This chapter will deal with the overall design of the study. It is divided into five parts: Problems and Null Hypotheses, Instruments and Scoring, Sample, Research Design, and Statistical Analysis. Each of these parts will be explained in the following pages.

1. Problems and Null Hypotheses

The first problem with which this study deals is, Does practice teaching cause elementary student teachers to change their attitudes toward teaching, as measured by the Minnesota Teacher Attitude Inventory and an Opinion Scale? In order to investigate this problem methodically, it was converted into the following null hypothesis, labeled Null Hypothesis 1.

Null Hypothesis 1

There are no significant differences in attitudes toward teaching, as measured by the Opinion Scale (OS), the Minnesota Teacher Attitude Inventory (MTAI), and five subtests of the MTAI, between elementary education students who have not had practice teaching and elementary

education students who have had practice teaching.

The second problem with which this study deals is, Do practice teachers whose attitudes change considerably during practice teaching receive higher or lower grades in practice teaching than those who do not? Similarly, in order to investigate this problem, it was converted into the following null hypothesis, labeled Null Hypothesis 2.

Null Hypothesis 2

There are no significant differences in practice teaching grades among the elementary student teachers whose attitude change has been
a) greater than the median score change in a positive direction,
b) greater than the median score change in a negative direction,
and c) less than the median score change in a positive or negative direction, on the OS, MTAI, and the five subtests of the MTAI.

The first problem and the null hypothesis compares two groups - - an experimental practice teacher group and a control group - - on seven attitude variables. The second problem compares the grades given to three levels of the practice teacher group who displayed varying types of change during practice teaching on each of the seven variables, one group scoring positively beyond the median change, one group scoring negatively beyond the median

change, and one scoring either positively or negatively within the median change.

2. Instruments and Scoring

A. Opinion Scale

Two attitude instruments were used in the study. The first instrument was an opinion scale (OS) developed as part of a doctoral dissertation at Pennsylvania State University¹ and originally derived from an attitude scale constructed as part of an NDEA Project - - Teacher Training Films² and a published attitude scale³. In his doctoral research, Vittetoe selected one hundred items from the two attitude scales and submitted them to a jury of five professors associated with testing, methods, and supervision of student teaching at Pennsylvania State University to determine answers that they thought were the best answers. On this basis he chose certain answers to be

1 Vittetoe, J.E., "The Influence of Cooperating Teachers on Attitudes of Student Teachers", unpublished Doctoral thesis, Pennsylvania State University, 1963.

2 Patrick, M. and Davison, H., "Your Appraisal of High School Teaching as a Profession", developed as part of the National Defense Education Act Project - - Teacher Training Films, Grant No. 736054.00.

3 Beecher, D.E., The Teaching Evaluation Record, Buffalo, New York, Education Publishing Company, 1956, p. 1-16.

professors associated with testing, methods, and supervision at Salem State College. The Osgood type scale was maintained but the number of choice positions was reduced from seven to five because, with seven choices, differences in choice positions become so narrow that the individual is forced to make choices that appear more refined than they really are. Along a five-choice continuum an individual can make distinctions which are still refined but not so narrow or arbitrary as in a seven-choice continuum.

The best or "right" answers were selected by determining the agreement of the five judges to the various responses. Because of considerable disagreement, five of the items were rejected. (A copy of the final scale of thirty-six items can be found in the appendix). The criteria for acceptance or rejection of an item was that at least four of the five judges must have selected choices in two adjacent positions.

To assign a position of "rightness" to each of the items the following procedure was used. A choice position was selected as being "right" if it met one of the following conditions: a) all five of the judges agreed on the choice position; b) at least three of four judges in two adjacent positions agreed on the response; or c) whenever four judges in two adjacent positions split evenly, two and two, both choices were considered "right".

Just as in Vittetoe's study, the highest possible score value was assigned to the category agreed upon by the judges, and the values of the other positions were determined by their distance from the correct answer. The highest possible value for any item in the present study was five and the lowest possible value for any item in the study was one. For example, in the present study the judges scored item 26 in the following manner:

26.	humor belongs in the classroom	:4: : :1: :	the classroom is no place for humor
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Since four of the five judges agreed that the choice on the far left was best, this was considered to be the right answer and received a value of five. The next choice to its right received a score value of four, the next one three, and so on.

B. Reliability and Validity of MTAI

The second instrument used in the study was the Minnesota Teacher Attitude Inventory (MTAI). This is one of the most respected and widely used measures of teacher attitudes. It was designed so that attitudes concerning teaching in the following five areas were covered: moral status, discipline, principles of child development and behavior, principles of education, and personal reactions

of the teacher.⁴ The inventory contains 150 Likert-type scale items which were selected from 756 items that had been originally constructed. The selection of the items in the final form of the test was determined through various statistical techniques following the administration of the items. The most important techniques used were the following:

- 1) the significance of chi-square between teachers designated by principals as having very effective relations with students and those who did not;
- 2) the significance of the difference between the percent of responses of the superior and inferior teachers for each of the five categories of the item;
- 3) item discrimination indices based on an internal consistency technique.

The reliability and validity of the scale are the two most important questions that can be asked about any test. The test manual reports that reliability coefficients are generally about .93 for the final form of the scale. The validity of the scale has been examined in many different ways. For example, a study in South Carolina

⁴ Cook, Walter W., Leeds, Carroll H., and Callis, Robert, Minnesota Teacher Attitude Inventory - Manual, New York, Psychological Corporation, 1952, 15p.

was carried out in which one hundred teachers in grades four to six were randomly selected and rated by pupils, principals, and specialists in the area of teaching effectiveness. The multiple correlation of the three ratings with the MTAI was .63, indicating that the scale does differentiate between teachers with and without effective pupil relations.⁵ In Missouri, seventy-seven teachers in grades four to ten were studied using a similar procedure of pupil, principal, and specialist ratings. A composite of the three ratings resulted in a correlation of .46. This composite correlation was lower than the multiple correlation of the previous study because the correlation between the principals' ratings and the MTAI was low, .19, a fact which may be attributable to the erratic nature of principals' ratings. Nevertheless, the composite correlation coefficient of .46 indicates that the MTAI validly differentiates between teachers with effective and ineffective relations with children.⁶

In a study mentioned above, Fuller in working with nursery students found the MTAI scale to correlate positively (+.60) with combined ratings of principals,

5 Cook, W., Leeds, C., and Callis, R., op. cit.

6 *ibid.*

observations by its authors, and the ratings of pupils in evaluating teacher performance in the classroom.⁷ Kearney and Rocchio investigated whether the type of teacher education institutions attended by elementary teachers were significantly related to their ability to maintain a harmonious relationship with children. Using the analysis of variance as the statistical analysis they found, at the five per cent level of significance, that significant differences existed among the means of the teachers who had attended various types of teacher education institutions.⁸

In a study by Day, there was found to be a slight positive correlation between the MTAI test scores and the criteria ratings employed. Utilizing the principals' ratings as a criterion of success, there was found to be an eight per cent improvement over chance if the MTAI were used in the selection of good teaching prospects. Utilizing the supervisors' ratings as a criterion of success there was found to be only a three per cent improvement over chance. The findings indicated that the instrument had very little value for predictive purposes.⁹

7 Fuller, E. op. cit.

8 Kearney, N. and Rocchio, P., "The Effect of Teacher Education on the Teacher's Attitude", Journal of Educational Research, Vol.49, issue of May 1956, p.703-708.

9 Day, H., "A Study of the Validity of the MTAI as a Predictive Instrument in the Selection of Good Teaching Prospects", unpublished Doctoral thesis, Florida State, 1956.

Unlike the previous studies, Stein and Hardy employed student-teachers as a basis for examining the reliability of the MTAI. On a test-retest procedure using faculty of education and normal school students, the two testings of the faculty of education group were found to correlate .88 and the two testings of the normal school group were found to correlate .92. An obtained correlation of .56 between MTAI scores and outside criteria and an obtained correlation of .92 between MTAI scores of a first and second testing indicated that student-teacher attitude could be measured with a fair degree of both validity and reliability.¹⁰

Leeds in updating his research in a fifteen year span with students at Furman University states that the coefficient of .51 found between MTAI scores obtained after at least one year of teaching experience and the composite rating criteria is an indication of the current validity of the MTAI. (The earlier validation studies of 1946 and 1951 showed a coefficient of .59).¹¹

10 Stein, H. and Hardy, J., "A Validation Study of the Minnesota Teacher Attitude Inventory in Manitoba", Journal of Educational Research, Vol.50, No.5, issue of January 1957, p.321-338.

11 Leeds, C., "Predictive Validity of the MTAI", Journal of Teacher Education, Vol.20, No.1, issue of Spring 1969, p.51-56.

In addition to using the total score of the MTAI in this study, five subtests were also used. The five subtests concerned the aforementioned five areas with which the MTAI was designed to deal. The writer corresponded directly with one of the authors of the test, Carroll H. Leeds, who provided information as to which items in the test fell within each of the five categories. A copy of Mr. Leed's correspondence has been placed in the appendix.

It is now clear from at least two factor analytic studies that the MTAI does not measure a single unitary trait but that it measures several traits. Horn and Morrison make the following statement: "The only safe conclusion that can be drawn is that the MTAI items probably measure more than one attribute".¹² These authors in their factor analytic study identified five factors in the MTAI which they labeled as follows: traditionalistic versus modern beliefs about child control, unfavorable versus favorable opinions about children, punitive intolerance versus permissive tolerance for child misbehavior, aloof versus involved attitude toward children, and laissez-faire

¹² Horn, J. and Morrison, W., "Dimensions of Teacher Attitudes", Journal of Educational Psychology, Vol.56, No.3, issue of June 1965, p.118-125.

versus controlling attitude toward children.

Walberg, in another factor analytic study, identified seven factors in the MTAI which he labeled as follows: puritanical, pupil-centered, distant, authoritarian, egalitarian, irritable, and restrictive.¹³ There seems to be some overlap among the factors identified by Walberg and Horn and Morrison but there is also some incongruence among the factors that have been identified in the two studies, and so Walberg states:

The items which loaded highly on Factor I in this analysis loaded on the first, second, and third factors in the Horn-Morrison study. Examination of the rest of the factors in the present study revealed no clear-cut replication of any of the Horn-Morrison factors, except possibly Factor II. Whether the differences in factor structure can be attributed to differences in subjects - undergraduate education majors and experienced physics teachers - or differences in methods of analysis - indirect parcel analysis and direct principal components factoring - might be determined by subsequent replication. In view of the fact that the factor structures are different, the factors in the present study were given new labels and interpretations.¹⁴

¹³ Walberg, H., Metzner, S., Todd, R., and Henry, P., op. cit.

¹⁴ Walberg, H., "Personality Correlates of Factored Teaching Attitudes", Psychology in the Schools, Vol.5, No.1, issue of January 1968, p.67-74.

Mr. Leed's five divisions of the MTAI overlap to some extent. Each item is not placed into a separate category as a pure measure of some aspect of that category. Instead, many items occur in two or three different categories. The items were placed into categories on the basis of the subjective judgment of the author. They were not arrived at through factor analysis. Nevertheless, since he is an author who participated in the construction of the test, it seemed research based on his subjective division of the MTAI might be fruitful, especially since factor analyses of the MTAI were not in complete agreement as to the various attributes measured by the MTAI. Further, since the two basic factor analyses of the MTAI produced conflicting and inconclusive results, it seemed as if the rational approach to the creation of self-report inventories might be an effective technique for differentiating attitudes among student teachers. The rational approach differs from the factor analytic and empirical approaches to test construction in the following manner, as stated by Messick:

We will consider three kinds of self-report or questionnaire measure of personality: 1) a type that I will call a factorial inventory, in which factor analysis or some other criterion of internal consistency is used to select items reflecting homogeneous dimensions; 2) empirically derived inventories, in which significant differentiation among criterion groups is the basis of item selection; and 3) rational inventories, in which items are chosen on logical grounds to reflect theoretical properties of specified dimensions.¹⁵

The items of the MTAI are classified into the following five areas, each of which served as a subtest in the present study:

- 1) moral status of children in the opinion of adults, especially as concerns their adherence to adult-imposed standards, moral or otherwise;
- 2) discipline and problems of conduct in the classrooms 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;

¹⁵ Messick, S., "Personality Measurement and College Performance", Testing Problems in Perspective, Washington, D.C., American Council on Education, 1966, p.557-572.

- 4) principles of education related to philosophy, curriculum and administration; and
- 5) personal reactions of the teacher, likes and dislikes, sources of irritation, etc.

Each of the above areas will be dealt with as subtests and will be referred to as: MORAL, DISCIPLINE, CHILD, EDUCATION, and PERSONAL in following pages.

C. Scoring of the MTAI

Because the total score and the five subscores in the MTAI can be either positive or negative, the author of this study had to adjust these scores so that negative scores would be eliminated. Negative scores did not lend themselves to the type of statistical analysis used in this study.

To eliminate the negative scores from the total score of the MTAI, 150 was added to the total score of each individual. This was done because scores on the MTAI can range from +150 to -150. If one adds 150 to each person's score all possible negative scores are eliminated and no real change is made on the score results. If one wishes to determine an individual's score or a group's mean score in the original MTAI total score manner, one can simply subtract 150 from the total score.

To eliminate negative scores from each of the subtests of the MTAI a similar procedure was followed. The

positive value of the highest possible negative score in each of the subtests was added to the score of every individual. This technique also eliminated all negative scores and, like the previous technique, did not change an individual's standing on the test nor did it distort the statistical analysis in any way. Similarly, if one wishes to determine an individual's or a group's mean score on a subtest in the negative manner, one can simply subtract the value which has been added. The values which have been added to each of the subtests to eliminate negatives are: 88 to the moral status, 42 to the discipline, 41 to the child knowledge, 46 to the educational principles, and 32 to the personal reactions.

3. Sample

The sample upon which the present study was based was composed of 127 seniors at Salem State College majoring in elementary education. The college is located about fifteen miles north of Boston in the state of Massachusetts. There are eleven state colleges in Massachusetts, of which eight offer majors in elementary education.

The entrance requirements of the state colleges vary from one to the other, from year to year, and from major to major. The Scholastic Aptitude Tests, Verbal and Quantitative, are two of the major criteria for acceptance

at Salem State College and at many other colleges in the United States. The elementary education students, male and female, who participated in this study received the mean scores on the two tests presented in Table I at the time of their application. As one can see, the elementary education students performed at about the average of all students who had taken the Scholastic Aptitude Tests that year.

The students who attend Salem State College generally live within a thirty-mile radius. It is essentially a commuting college. The practice teaching is generally done in communities within a twenty-mile radius of the college. The communities in which the students live and teach are generally the urban and suburban communities north of Boston.

The experimental group was composed of six males and fifty-four females; the control group of ten males and fifty-seven females. The two groups, therefore, were very similar in their sexual composition. On application of the SDP formula, for differences between proportions - male and female in both groups - there was no significant difference between males in the groups (Z was .693 which was less than five per cent probability level of 1.96), therefore there was no statistical significance of sex difference as regards the sexual makeup of the two groups.

Table I.- Mean Scores of Males and Females
in Elementary Education on the
Scholastic Aptitude Tests.

Sex	Verbal	Quantitative
Male	482	541
Female	505	515

Published by Educational Testing
Service, Princeton, New Jersey.

The mean of these tests is 500 and the
standard deviation is 100.

Also, in a research study concerned with student teachers, Oelke found that there were no significant differences in MTAI scores between sexes. Oelke states:

Neither of the instruments used in this study demonstrated any statistically significant differences which could have been attributed to teaching field, age, sex, school where student teaching was done, previous informal teaching ...¹⁶

The preponderance of females is attributable to the fact that the elementary schools in Massachusetts, as in many other areas, are generally staffed by women. The age of most of the individuals in both groups was twenty or twenty-one.

4. Research Design

The design of this study is a direct outgrowth of the null hypotheses stated above. The first null hypothesis implied that an experimental group of practice teachers would be compared with a control group of students on seven attitudinal variables. As a result, the first hypothesis was tested by comparing the means of the

¹⁶ Oelke, M., "A Study of Student Teachers' Attitudes Toward Children", Journal of Educational Psychology, Vol.47, No.4, issue of April 1956, p.194-198.

attitude scores of the experimental and control groups at the end of the practice teaching period. While the experimental group was practice teaching, the control group remained at the college and studied courses in academic areas rather than in educational methodology. One might expect that academic courses would have little effect on teaching attitudes.

The second null hypothesis was concerned solely with the practice teachers, the experimental group. This group was divided into three parts based on the type and degree of change which occurred on each of the seven attitudinal variables. There were two types of changes possible on each of the seven variables - - positive or negative. If the change in a positively changed student on any variable was greater than the median change of the total practice teacher group on that variable, then the student teacher was placed in one group. Similarly, if the change in a negatively changed student on any variable was greater than the median change of the total practice teacher group on that variable, then the student was placed in a second group. Finally, if the change in either a positively or negatively changed student on any variable was less than the median change of the total practice teacher group, then the student was placed in a third group. Once the students were placed into three groups for

each variable separately, the three groups were compared for differences among the means on grades received during practice teaching.

5. Statistical Analysis

The students who were placed into the experimental and control groups to investigate the first null hypothesis could not be randomly assigned to either group because at Salem State College students are allowed to choose whether they wish to do practice teaching in the first or second quarter, for many do not have cars and are thus able to arrange car pools. The experimental group was composed of those students who chose to practice teach in the first quarter and the control group was composed of those who chose the second quarter. Although the two groups appeared to be similar on many characteristics, it seemed preferable not to make the assumption that the groups were comparable because there had not been random assignment of individuals to groups. In order to adjust for any differences that may have existed between the groups, each of the groups was administered the OS and the MTAI before the practice teaching period began. The pre-test results on the seven variables (i.e., OS, MTAI, and the five subtests of the MTAI) were later used as covariates in univariate analyses of covariance for each of the seven criterion variables.

The statistical technique of analysis of covariance was used to adjust post-test means for any pre-treatment difference between groups on each attitudinal variable.

In order to investigate the second null hypothesis, the experimental group (i.e., the ones who had returned from practice teaching) was divided into three groups according to the type of change a student made on each of the seven variables after practice teaching. The types of change were as follows: a positive change greater than the median change, a negative change greater than the median change, and a change less than the median change either positively or negatively. This, of course, indicates that individuals within each group probably differed for each of the seven variables. The mean scores in practice teaching for each of the three groups on the seven variables were then compared through the statistical technique of univariate analysis of variance. If any of the univariate analyses of variance produce an F -ratio that was statistically significant at the .05 probability level or less, it was the writer's intent to determine the difference between the three possible pairs of group means by using Tukey's "compact 2-sample test" which has been

described as the "Slickest significance check yet devised".¹⁷

The data in the study were coded and placed on IBM cards. The statistical analysis was carried out through utilization of a computer program - - "A General Purpose Program to Compute Multivariate Analyses of Variance" on an IBM Computer 7090 by Hall and Cramer - - on a 360-40 computer at the Boston College Computing Center. The program performs both multivariate and univariate analyses of variance and covariance. The univariate analyses of variance and covariance were used in this study.

One of the basic assumptions is that the variance due to experimental error within each of the treatment populations be homogeneous. Moderate departures from this assumption do not, however, seriously affect the sampling distribution of the resulting F statistic. That is, when the variances in the population are not equal, the F statistic using a pooled variance has approximately the same distribution as the F statistic which takes the differences in the population into account.¹⁸

Evidence from the usual analysis of variance indicates that F tests in the analysis of covariance

¹⁷ Smawley, R., "After A Significant F in Anova?", Journal of Experimental Education; Vol.37, No.3, issue of Spring 1969, p.75-77.

¹⁸ Winer, B.J., Statistical Principles in Experimental Design, New York, McGraw-Hill, 1962, p.92.

are robust with respect to the violation of the two assumptions, normality and homogeneity of the residual variance.¹⁹

Another departure from the idea of testing for homogeneity of variance is McNemar who states that there is ample evidence that marked skewness, departures from normal kurtosis, and extreme differences in variance (of the order 1 to 4 to 9 - it is not the numerical differences but the relative sizes of the variances that are pertinent) do not greatly disrupt the F test as a basis for judging significance in the analysis of variance.²⁰

19 Winer, B.J. op. cit.

20 McNemar, Q., Psychological Statistics, New York, John Wiley, 1962, p.288.

CHAPTER III

ANALYSIS OF RESULTS

In this chapter the two major null hypotheses have been analyzed. The results of the analysis of the first hypothesis comparing the experimental and control groups on each of the seven attitudinal variables will be presented in the first part of the chapter. The next part of the chapter will deal with the results of the testing of the second null hypothesis comparing seven sets of three groups (i.e., three groups compared on each of the seven variables) of the total experimental group on their grades attained in practice teaching. The last part of the chapter will contain a summary and the conclusions of the research.

1. Results of the Testing of Null Hypothesis 1

As was stated in Chapter II, the experimental and control groups were administered both the Opinion Scale (OS) and the Minnesota Teacher Attitude Inventory (MTAI) as part of a pre- and post-test research design. The administration of the MTAI resulted in six scores for each individual: a total score on the test and five subtest scores of attitudes toward children - - moral status of children (MORAL), principles of child development and behavior (CHILD), discipline (DISCIPLINE), personal reactions of the

teacher (PERSONAL), and principles of education (EDUCATION). Also, each of the six MTAI scores was adjusted by adding a constant in order to eliminate negatives as was explained in Chapter II. The pre-test results on each of the seven variables (i.e., OS, MTAI, MORAL, CHILD, DISCIPLINE, PERSONAL, and EDUCATION) were used as covariates in seven univariate analyses of covariance. The results of each of these analyses will be presented below.

Table II contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of OS. Table III contains a summary of the analysis of covariance comparing the scores of the two groups on OS. (The post-test mean scores for the experimental and control groups adjusted for the pre-test covariate for each of the seven variables have been placed in the appendix).

As is apparent from Table III, the level of probability is about .37; that is, there are about thirty-seven chances in one hundred that such a result could have been obtained on a chance basis. The level of probability that has been selected as being statistically significant in this study is .05; that is, a result at this level of probability would occur five times in one hundred on a chance basis and any probability at or below this point is considered to indicate a significant difference between

Table II.-.

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of OS.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	154.22	153.55	155.27	155.15
S.D.	9.45	9.24	6.97	6.74

Table III.-

Results of the Analysis of Covariance on OS Using
the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	41.74	1	41.74		
Within	6497.73	124	52.40	.797	.374

groups. Since the probability level for OS is far above the .05 level, the null hypothesis that the experimental and control group means do not differ on OS was not rejected.

Table IV contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of MTAI. Table V contains a summary of the analysis of covariance comparing the scores of the two groups on MTAI. As indicated in Table V the probability level for the MTAI total score is well below the .05 level. Therefore the null hypothesis that the experimental and control group means do not differ on the MTAI total score was rejected. An examination of Table IV indicates that the mean score of the control group on the post-test was considerably higher than that of the experimental group. Therefore, during the period of the experimental treatment the control group made a significantly greater positive change than did the experimental group.

Table VI contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of MORAL. Table VII contains a summary of the analysis of covariance comparing the scores of the two groups on MORAL. The results of the analysis of covariance in Table VII indicate that on the MTAI subtest MORAL, the level of probability was .053. This level of probability comes so close to the established level of

Table IV.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of MTAI.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	189.63	192.52	193.81	205.69
S.D.	31.90	36.61	28.88	27.19

150 points was added to each person's
score in order to eliminate any
negative scores

Table V.-

Results of the Analysis of Covariance on MTAI Using
the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	3128.56	1	3128.56		
Within	59989.00	124	483.78	6.467	0.012

significance that it has been interpreted to be statistically significant. To refuse to consider this level of probability as not significant would certainly require a rigid adherence to statistical orthodoxy. Therefore, the null hypothesis that the experimental and control group means do not differ on the MTAI subtest MOKAL was rejected.

As is indicated in Table VI the control group again made a greater positive change in attitude during the experimental period.

Table VIII contains the mean scores and standard deviation of the experimental and control groups on the pre- and post-tests of CHILD. Table IX contains a summary of the analysis of covariance comparing the scores of the two groups on CHILD. The summary of the analysis of covariance in Table IX indicates that the probability level is about .26, which is far above the .05 level of significance. Therefore, the null hypothesis that the experimental and control group means do not differ on the MTAI subtest CHILD was not rejected.

Table X contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of DISCIPLINE. Table XI contains a summary of the analysis of covariance comparing the scores of the two groups on DISCIPLINE.

Table VI.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of MORAL.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	111.44	115.67	114.21	124.17
S.D.	20.07	23.13	17.40	23.89

Table VII.-

Results of the Analysis of Covariance on MORAL Using
the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	1217.57	1	1217.57		
Within	39467.64	124	318.29	3.825	0.053

Table VIII.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of CHILD.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	53.77	55.38	55.72	58.08
S.D.	9.13	9.76	6.86	7.57

Table IX.-

Results of the Analysis of Covariance on CHILD Using
the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	63.60	1	63.60		
Within	6038.68	124	48.70	1.306	0.255

As shown in Table XI when the experimental and control group means were compared on the MTAI subtest DISCIPLINE the level of probability, .001, far exceeded the .05 level of significance. Therefore, the null hypothesis that the two group means did not differ on the MTAI subtest DISCIPLINE was rejected.

The post-test means in Table X indicate that the control group mean again changed significantly more in a positive direction.

Table XII contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of PERSONAL. Table XIII contains a summary of the analysis of covariance comparing the scores of the two groups on PERSONAL.

The results of analysis of covariance in Table XIII show that the level of probability, .11, is above the .05 level of probability established as the level of significance. Therefore, the null hypothesis that the experimental and control group means do not differ was not rejected.

Table XIV contains the mean scores and standard deviations of the experimental and control groups on the pre- and post-tests of EDUCATION. Table XV contains a summary of the analysis of covariance comparing the scores of the two groups on EDUCATION.

Table X.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of DISCIPLINE.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	50.57	49.43	50.49	55.57
S.D.	10.80	13.00	10.46	9.60

Table XI.-

Results of the Analysis of Covariance on DISCIPLINE
Using the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	1210.76	1	1210.76		
Within	9382.40	124	75.67	16.002	0.001

Table XII.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of PERSONAL.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	37.82	38.89	39.69	42.34
S.D.	8.82	10.35	7.86	8.70

Table XIII.-

Results of the Analysis of Covariance on PERSONAL
Using the Pre-test as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	171.77	1	171.77		
Within	8226.77	124	66.35	2.589	0.110

Table XIV.-

Means and Standard Deviations of the
Experimental and Control Groups on
Pre- and Post-tests of EDUCATION.

	Experimental		Control	
	Pre	Post	Pre	Post
Mean	61.97	63.50	62.25	66.34
S.D.	10.54	12.10	9.67	9.34

Table XV.-

Results of the Analysis of Covariance on EDUCATION
Using the Pretest as a Covariate.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	218.72	1	218.72		
Within	7301.67	124	58.89	3.714	0.056

As indicated in Table XV, the level of probability .056, in the analysis of covariance between the experimental and control group means is slightly above the .05 level of significance. Just as with the level of probability in the MTAI subtest MORAL, this level of probability comes so close to the established level of significance that it has been interpreted to be significant.

Again, as with the other three variables in which the group means were significantly different, the control group made a greater positive change than did the experimental group, as shown in Table XIV.

In brief, the experimental and control group means differed significantly beyond the .05 level of probability on two of the variables - MTAI and DISCIPLINE - and approximated the .05 level so closely on two other variables, MORAL and EDUCATION, that Null Hypothesis 1 was rejected for the four variables. Null Hypothesis 1 was not rejected for the three remaining variables - OS, CHILD, and PERSONAL.

2. Results of the Testing of Null Hypothesis 2

As was stated in Chapter II, the experimental group was divided into three groups according to the type of change a student made on each of the seven variables after practice teaching. The three types of change being: a positive change greater than the median change, a negative change greater than the median change, and a change less than the median change either positively or negatively. The median change for each of the seven variables is as follows: OS = 4.5, MTAI = 11.0, MORAL = 7.4, CHILD = 4.0, DISCIPLINE = 5.5, PERSONAL = 4.7, EDUCATION = 5.9.

Since the distributions on all of the tests and subtests were negatively skewed, the median was chosen as the best measure of central tendency and the best way to insure that the same number of cases fell above and below the breaking point.¹ Further justification is offered by the following authors: the median is the midmost measure of any set of measures. It is a useful average when there are only a few very high or low measures. The mean is unduly affected by such measures; the median is not. Perhaps its most frequent use in social scientific and

¹ Siegel, S., Nonparametric Statistics for the Behavioral Sciences, New York, McGraw Hill, 1956, 312p.

educational research is to help split a group.² Also, it then follows that when a distribution is positively or negatively skewed, the best average to be used is the median.³ And to conclude with Smith who states, a more important situation which calls for the median in preference to the mean is one in which we want to know the typical annual income for a large group of people. For example, the mean income for adult New Yorkers is lifted considerably above the median by the influence of a relatively small number of fabulous Wall Street incomes. The median value, however, is far more representative. In general, the median should be used when a few atypical cases of very large or small value will distort the mean.⁴

Since each student did differ in the way he changed on each variable, each group was composed of different individuals and different sample sizes. Table XVI contains the sample size of each group on each variable.

2 Kerlinger, F., Foundations of Behavioral Research, New York, Holt Rinehart, 1967, p.612.

3 Downie, N. and Heath, R., Basic Statistical Methods, New York, Harper and Row, 1965, 325p.

4 Smith, G.M., A Simplified Guide to Statistics for Psychology and Education, New York, Holt Rinehart, 1962, 244p.

Null Hypothesis was tested for each of the seven variables through the statistical technique of univariate analysis of variance. The results of the seven analyses are presented on the following pages.

Table XVII shows the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on OS. Table XVIII contains a summary of the analysis of variance for the three groups. The level of probability in Table XVIII is .041 which is below the .05 level of probability accepted as significant in this study. Therefore, the null hypothesis that the three groups do not differ on practice teaching grade when classified according to type of change on OS was rejected.

As stated in Chapter II in the section on statistical analysis, Tukey's test was applied to determine the significance of differences between pairs of group means after a significant F-test in analysis of variance. The results, paired comparisons, indicated that only the difference between groups one and three was significant at the .05 level. Therefore, the rejection of Null Hypothesis 2 for OS was primarily attributable to the difference in grade between the group which made a positive change greater than the median and the group which made a change less than the median in either a positive or negative direction.

Table XVI

Sample Sizes for the Three Groups of Positive Change Greater than Median, Negative Change Greater than Median, and Change Less than Median Either Positive or Negative on Each of the Seven Variables.

Variable	Pos. Change Greater than Mdn. Change	Neg. Change Greater than Mdn. Change	Change Less than Mdn. Pos. or Neg.
OS	14	17	29
MTAI	22	5	30
MORAL	26	5	26
CHILD	21	5	31
DISCIPLINE	14	12	34
PERSONAL	16	10	34
EDUCATION	21	7	32

Table XVII.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on OS.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.964	3.641	3.662
S.D.	0.305	0.455	0.384

Table XVIII.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on OS For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	1.036	2	.518		
Within	8.701	57	.153	3.392	.041

Table XIX contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on MTAI. Table XX contains a summary of the analysis of variance for the three groups. Since the level of probability, .22, is above .05 the groups did not differ significantly on MTAI. Therefore, the null hypothesis that the three groups do not differ on practice teaching grade when classified according to type of change on MTAI was not rejected.

Table XXI contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on MORAL. Table XXII contains a summary of the analysis of variance for the three groups. The level of probability, .39, is clearly above the .05 level of probability. Therefore, the null hypothesis that the three groups did not differ on practice teaching grade when classified according to type of change on MORAL was not rejected.

Table XXIII contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on CHILD. Table XXIV contains a summary of the analysis of variance for the three groups. Here again the level of .70 is far above the .05 level of significance. Hence, the null hypothesis that the three groups did not differ on practice

Table XIX.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on MTAI.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.682	3.550	3.813
S.D.	.424	.407	.390

Table XX.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on MTAI For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	0.519	2	0.259		
Within	9.346	57	0.164	1.581	0.215

Table XXI.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on MORAL.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.777	3.550	3.731
S.D.	.448	.407	.360

Table XXII.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on MORAL For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	.316	2	.158		
Within	9.421	57	.165	.955	.391

teaching grade when classified according to type of change on CHILD was not rejected.

Table XXV contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on DISCIPLINE. Table XXVI contains a summary of the analysis of variance for the three groups. The level of probability in Table XXVI is .88, which is clearly a chance occurrence. Hence, the null hypothesis that the three groups did not differ on practice teaching grade when classified according to type of change on DISCIPLINE was not rejected.

Table XXVII contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on PERSONAL. Table XXVIII contains a summary of the analysis of variance for the three groups. The level of probability in Table XXVIII is so high, .93, that it is again very clearly a chance occurrence. Thus the null hypothesis that the three groups did not differ on practice teaching grade when classified according to type of change on PERSONAL was not rejected.

Table XXIX contains the means and standard deviations of the practice teaching grades for the three groups classified according to type of change on EDUCATION. Table XXX contains a summary of the analysis of variance

Table XXIII.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on CHILD.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.752	3.612	3.739
S.D.	.475	.364	.373

Table XXIV.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on CHILD For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	0.123	2	0.061		
Within	9.614	57	0.169	.364	.697

Table XXV.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on DISCIPLINE.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.700	3.692	3.750
S.D.	.464	.399	.395

Table XXVI.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on DISCIPLINE For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	0.043	2	0.022		
Within	9.694	57	.170	0.127	0.881

Table XXVII.-

Means and Standard Deviations of Practice Teaching
 Grades for Three Groups Classified According to
 Type of Change on PERSONAL.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.712	3.770	3.721
S.D.	0.411	.510	.383

Table XXVIII.-

Results of Analysis of Variance on Practice Teaching
 Grade Using Type of Change on PERSONAL
 For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	0.023	2	0.012		
Within	9.714	57	0.170	0.068	0.934

for the three groups. The level of probability, .29, is above the .05 level of probability. Therefore, the null hypothesis that the three groups did not differ on practice teaching grade when classified according to type of change on EDUCATION was not rejected.

In brief, Null Hypothesis 2 was rejected for OS but not for the remaining six variables.

Table XXIX.-

Means and Standard Deviations of Practice Teaching Grades for Three Groups Classified According to Type of Change on EDUCATION.

	Pos. Change Greater than Mdn.	Neg. Change Greater than Mdn.	Change Less than Mdn.
Mean	3.743	3.500	3.766
S.D.	.417	.342	.408

Table XXX.-

Results of Analysis of Variance on Practice Teaching Grade Using Type of Change on EDUCATION For Classifying the Groups.

	Sums of Squares	Degrees of Freedom	Mean Square	F	Level of Probability
Between	0.414	2	0.207		
Within	9.323	57	0.164	1.265	0.290

SUMMARY AND CONCLUSIONS

This study has been centered around two major null hypotheses. The first null hypothesis, that an experimental group of practice teachers does not differ from a control group on seven attitudinal variables, was rejected for four of the variables. The four variables for which the null hypothesis was rejected are MTAI, MORAL, DISCIPLINE, and EDUCATION. The three variables for which the null hypothesis was not rejected are OS, CHILD, and PERSONAL.

On the variables for which the first null hypothesis was rejected, the control group displayed significantly higher positive attitudes toward teaching than the experimental group. The primary factor was that the control group's significantly higher positive attitudes on the variables and thus the control group's mean scores (and adjusted mean scores) increased considerably during the period of the experimental group's practice teaching. The experimental group's mean score displayed an increase during this practice teaching period on three of the four variables. Only on DISCIPLINE did the experimental group display a narrow decrease compared to the pretest score. Whether the increases on the three variables or the slight decrease on one variable was a significant change from the pretest score is not important. What is interesting is that the control group's attitude scores on four variables increased so much

when compared to the three small increases and the one slight decrease of the experimental group, the control group's scores were significantly higher than the scores of the experimental group. Practice teaching was less effective than no practice teaching in growth and direction of attitude change as measured by the MTAI variables.

At first glance, it may seem surprising that the control group grew so much during the experimental practice teaching period while the experimental group did not. There are, probably, many reasons for this. The writer suggests one that he feels is plausible.

One of the major values of practice teaching is that the student is required to assume the responsibility of teaching. Up to this time the student can entertain any ideals about classroom practices that he finds desirable. Practice teaching challenges the ideals with the reality of the classroom. For some, there is little change; for others the change can be considerable in either positive or negative direction. Overall, the mean change is not very great.

On the other hand, the individual who is awaiting his practice-teaching experience is not yet forced to pit his ideals against the reality of the classroom. He is strongly aware of the fact that within a matter of weeks he will be doing his practice teaching. For him, the experimental group's period of realistic experience is

substituted with a period of anticipation of practice teaching. Although he may be taking courses that are unrelated to educational methodology, he is keenly aware of his imminent exposure to practice teaching. He generally hopes to be a successful teacher and may conjure an idyllic picture of how teaching ought to be performed. The idyllic picture may soon be shattered by practical experience, but, for the moment, it produces a growth of idealism about teaching which may be reflected in certain attitude measures.

In short, it is suggested that the control group's higher positive attitudes had been raised during the experimental group's practice teaching period because the control group was undergoing a period of idealistic anticipation. Although the control group did not participate in practice teaching or study courses directly related to the practice of teaching, they did apparently undergo some form of attitude change that may be explained by the hypothesis of idealistic anticipation.

The second null hypothesis - - that the three groups do not differ on practice teaching grade when classified according to the median change for each variable -- was rejected for only one of the seven variables. Three groups -- positive change greater than median change, negative change greater than median change, and a change

less than the median change in a positive or negative direction -- differed significantly on only one of the seven variables, OS. One concludes that type of change on MTAI and the five subscores of MTAI during the practice teaching period had no effect on one's grade. However, the null hypothesis can only be rejected, or not rejected. Therefore, the only conclusion the writer can draw is that, in the present study, the direction of attitude change during practice teaching on MTAI and the five MTAI subscores was not significantly related to grade on practice teaching. Such a result is indeed surprising since practice teacher groups which underwent major attitude changes in positive and negative directions on six of seven variables did not receive significantly different grades. Apparently, grade on practice teaching was affected very little by change in attitude. This result is not unexpected because so many other factors (i.e., intelligence, dramatic ability, creativity, grooming, etc.) may affect the determination of a practice teacher's grade.

The present study has shown that a control group may score more highly than a practice-teaching group in its attitudes toward teaching. Also, another conclusion of the study is that the type of change in attitude which an individual may display during practice teaching may have very little effect on his grade.

The former finding is an unusual one in that no research has shown that a control group similar to a practice-teacher group grows more rapidly in teaching attitudes than do practice teachers. One must not interpret this result as an affirmation of Kaltsounis and Nelson's conclusion that the practice teacher learns to conform to the conservatism of the schools. On only two of the seven variables, OS and DISCIPLINE, did the practice-teacher mean scores decrease and these decreases were so slight as to be obviously insignificant statistically. The assertion that the beginning teacher becomes more conservative as he interacts with a school environment was not supported by the evidence gathered in this study.

The latter finding, concerning the type of change occurring in attitudes during practice teaching and grades received, has not been treated in other research studies. The present study indicated that change in the MTAI score and its five subscores had no effect on student teachers'

grades. However, two of the groups -- positive change greater than the median and change less than the median in a positive or negative direction -- did differ significantly in change on OS, as shown by the post-hoc comparison after the F test indicated an overall difference among the means.

The first null hypothesis uncovered some surprising results that certainly indicate that the development of teacher attitudes has not been adequately studied. A longitudinal study of the development of teacher attitudes would provide a strong step toward clarifying the many uncertainties surrounding the growth of these attitudes. For example, a group of freshmen entering an education program could be tested a number of times over a period of years: before beginning their college studies; before beginning their education courses (if they are not given until after the freshman year); before the practice-teaching period; after the practice-teaching period; and after two, five, and ten years of teaching. Longitudinal studies are difficult and costly to carry out but they often provide the most valuable information. In this case, it might be possible to construct an idealized curve of development of

teacher attitudes from a period of relative naivete' to teaching maturity. Such a curve would allow us to compare an individual's attitudes with the norms of the curve at various stages of his development.

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APPENDIX I

OPINION SCALE

A check to the left side is strong agreement with the statement on the left; a check to the right side is strong agreement with the statement to the right; a check in the center indicates neutral.

- | | | |
|--|-----------|---|
| 1. students "share" experiences | : : : : : | class concentrates on "book" work |
| 2. always thank pupils for reports | : : : : : | demand reports on time |
| 3. students misbehave to annoy teacher | : : : : : | students are good sports |
| 4. administrators are prejudiced | : : : : : | teachers conform to administrative policy |
| 5. youth should obey | : : : : : | pupils use self discipline |

Which of the following words describe your present attitude toward the prospect of teaching?

- | | | |
|-----------------|-----------|---------------|
| 6. unhappy | : : : : : | joyful |
| 7. indifferent | : : : : : | eager |
| 8. failure | : : : : : | successful |
| 9. unconcerned | : : : : : | conscientious |
| 10. superficial | : : : : : | dedicated |

Which attitude or activity would you utilize in student teaching?

- | | | |
|--|-----------|------------------------------------|
| 11. punish by additional time | : : : : : | punish by additional work |
| 12. progressive | : : : : : | classical |
| 13. teacher selects standards of class | : : : : : | teacher encourages self-discipline |

14.	identify pertinent control methods	: : : : :	identify situations needing control
15.	select material for a class	: : : : :	present material for a class
16.	direct whole class	: : : : :	individual help
17.	evaluate pupil progress by other means	: : : : :	prepare mathematical grades for class
What attitude or condition do you expect to find while in student teaching?			
18.	unable to apply methods theory	: : : : :	able to apply methods theory
19.	realistic attitude	: : : : :	idealistic attitude
20.	happy being with pupils	: : : : :	unhappy being with pupils
21.	all pupils met in friendly sympathetic manner	: : : : :	not sympathetic with pupil failure due to pupils own difficulty
22.	recognize individual effort	: : : : :	teach for the group
23.	change plans to meet circumstances	: : : : :	maintain constant policy
24.	pupil tasks purposeful	: : : : :	pupil tasks flexible
25.	pupils have mutual respect	: : : : :	pupils are generally disrespectful
26.	humor belongs in the classroom	: : : : :	classroom is no place for humor
27.	records of pupil used for prognosis	: : : : :	pupils records used for evaluation only

Indicate your reaction to your over-all student teaching situation:

- | | | | |
|-----|--|-------------|--|
| 28. | use pupil experience
in motivating
interest | : : : : : : | teacher competent in
in motivating
interest |
| 29. | variety of source
material | : : : : : : | use textbook for
most instructions |
| 30. | teacher provides
opportunities and
materials for
creative work | : : : : : : | teacher has enough to
cover course of study
without anything
additional |
| 30. | more interested in
local affairs | : : : : : : | more interested in
your personal affairs |
| 32. | rather teach than
any other
profession | : : : : : : | teaching is a good
bridge to higher
positions |
| 33. | teach down to
student level | : : : : : : | raise student up
to adult level |
| 34. | little actual
responsibility as
teacher | : : : : : : | full responsibility
as a
teacher |
| 35. | will think of
yourself in terms of
being a teacher
rather than student
teacher | : : : : : : | will think in terms
of being a student
teacher rather than
a regular
teacher |
| 36. | deeply committed
to being a teacher | : : : : : : | uncertain as to
being a teacher |

APPENDIX II

CLASSIFICATION OF MTAI ITEMS

moral status:

1, 6, 9, 11, 13, 14, 16, 17, 18, 19, 21, 23, 24, 25, 26, 27, 29, 30,
31, 36, 37, 38, 44, 47, 49, 50, 52, 54, 58, 62, 64, 65, 67, 68, 70,
88 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 89,
90, 92, 93, 94, 95, 96, 99, 100, 101, 103, 104, 105, 108, 109,
110, 113, 114, 116, 117, 118, 121, 123, 125, 126, 130, 132,
133, 134, 135, 136, 137, 140, 142, 144, 149.

child knowledge:

2, 4, 8, 10, 28, 37, 40, 41, 42, 43, 44, 49, 52, 53, 55, 64, 65, 70,
41 74, 77, 81, 82, 83, 85, 93, 99, 103, 104, 108, 112, 120, 121,
122, 123, 129, 131, 134, 138, 139, 143, 150.

discipline:

3, 7, 8, 10, 11, 13, 15, 27, 33, 35, 39, 41, 45, 46, 48, 49, 50, 51,
42 56, 57, 60, 61, 66, 69, 76, 77, 85, 88, 102, 104, 105, 110, 115,
118, 126, 127, 129, 133, 139, 140, 146, 148.

personal reaction of teacher:

5, 7, 17, 18, 20, 21, 22, 34, 39, 50, 51, 55, 57, 67, 89, 90, 94,
32 96, 98, 99, 101, 106, 107, 111, 113, 117, 119, 124, 127, 141,
144, 148.

educational principles:

46 12, 15, 16, 18, 19, 20, 21, 22, 26, 27, 31, 32, 34, 35, 42, 43, 45,
48, 50, 53, 59, 61, 63, 64, 66, 69, 71, 80, 81, 82, 86, 91, 92, 93, 97, 100,
103, 105, 112, 116, 120, 121, 123, 135, 149, 150.

APPENDIX III

ADJUSTED MEANS OF THE CONTROL GROUP ON THE SEVEN VARIABLES

	OS	MTAI	MORAL	CHILD	DISCIPLINE	PERSONAL	EDUCATION
mean	155.15	205.69	124.17	58.08	55.57	42.34	66.34
adjusted	154.94	204.17	123.07	57.40	55.59	42.34	66.28

APPENDIX IV

ADJUSTED MEANS OF THE EXPERIMENTAL GROUP ON THE SEVEN VARIABLES.

	OS	MTAI	MORAL	CHILD	DISCIPLINE	PERSONAL	EDUCATION
mean	153.55	192.52	115.67	55.38	49.43	38.88	63.50
adjusted	153.79	194.21	116.86	56.12	49.46	39.00	63.73

APPENDIX V

ABSTRACT OF

The Effect of Practice Teaching on Attitude Change and the Effect of Attitude Change On Practice Teaching Grades¹

Studies have shown that teachers who have completed teacher-training programs look back on practice teaching as the single best method for preparing teachers. One would expect the attitudes of practice teachers to undergo a marked change during the practice-teaching period. One of the two major questions which was investigated in the present research study is, What is the effect of practice teaching on the attitudes of student teachers? Kaltsounis and Nelson have asserted that practice teaching prepares student teachers to conform to the conservation of the schools.

The second major question which was investigated in this study is, What is the effect of attitude change during practice teaching on the grade received in practice teaching? Fuller and Oelke have both concluded that changes in MTAI scores have no effect on grades given by supervisors.

¹ Perry Yanow, doctoral thesis presented to the School of Education of the University of Ottawa, Ontario, 1970, IX-74 p.

In order to answer the first question, a pretest posttest design was used on a sample of elementary education senior at Salem State College in Massachusetts. The experimental group was composed of sixty student teachers and the control group of sixty-seven students who were taking academic courses while awaiting their own practice-teaching period, which was to begin eight weeks later. Both groups contained similar proportions of males and females, with a preponderance of the latter.

Before and after the practice-teaching period, the experimental and control groups were administered the Minnesota Teacher Attitude Inventory (MTAI) and an Opinion Scale (OS) which was also designed to measure teaching attitudes. The MTAI was further divided into five subtests dealing with the following areas: moral status of children in the opinion of adults (MORAL); discipline and problems of conduct in the classroom (DISCIPLINE); principles of child development and behavior (CHILD); principles of education related to philosophy, curriculum, and administration (EDUCATION); and personal reactions of the teacher (PERSONAL).

The data for the first question were analyzed through the statistical technique of analysis of covariance using the pretest as a covariate. The control group scored significantly higher than the experimental group on four of

the seven variables - - MTAI, MORAL, DISCIPLINE, and EDUCATION.

In order to answer the second question, the experimental group was divided into three groups according to the type of change made before and after practice teaching on each of the seven variables. The division into three groups for each variable was carried out by calculating the median change for each variable. Individuals were then placed into three groups for each variable on the following basis: a) a positive change greater than the median change; b) a negative change greater than the median change; and c) a change less than the median change, either positive or negative. Once the classification was completed for each variable, the grade that each individual received during practice teaching was used as the criterion.

The data for the second question were analyzed by the statistical technique of analysis of variance. On none of the seven variables according to which the individuals were classified did the three groups differ significantly.

The experimental group did not grow as rapidly as the control group on four MTAI measures during the practice teaching period in spite of the fact that the control group was studying only academic courses during this period. The explanation for this unusual result may be that the control group was so alert to its upcoming practice teaching

experience that idealistic anticipation acted as a leaven for their teaching attitudes, whereas the attitudes of the experimental group were being tested against the reality of the teaching situation. These results must not be interpreted to affirm Kaltsounis and Nelson's conclusion that the practice teacher learns to conform to the conservatism of the schools, because the mean scores of the practice teachers decreased slightly on only two of the seven variables and even then not to statistical significance.

The second major conclusion of the study, that changes in MTAI scores do not affect grades has not been treated in other research studies. This was not only true for the MTAI score but also for all five subtests. However, two of the groups - - positive change greater than the median and change less than the median in a positive or negative direction - - did differ significantly in change on OS, as shown by the post-hoc comparison after the F test indicated an overall difference among the means. Student-teacher grade is probably dependent on so many variables (e.g., intelligence, creativity, dramatic ability, grooming, etc.) that attitude change during practice teaching alone proved to be of little significance in its effect on practice teaching grade.

A longitudinal study of teacher attitudes at various stages of preparation and experience is needed. For example, the attitudes of a group of education students

could be studied over a fourteen-year period as follows: before entrance into college; before taking any education courses; before practice teaching; after practice teaching; and after two, five, and ten years of experience. If such a study were conducted, an idealized curve of development based on norms could be constructed and an individual's status at any stage of his preparation or experience could be compared to the norms.