ATTITUDINAL CHANGES TOWARD TEACHING OF PRE-SERVICE ELEMENTARY TEACHERS BEFORE AND AFTER TWO REQUIRED FIELD-BASED COURSES AT MICHIGAN STATE UNIVERSITY

By

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ABSTRACT

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The purpose of this study was to determine the attitudes toward teaching of pre-service elementary education majors enrolled in one of two required field-based courses at Michigan State University, Spring Term, 1975. Specifically, the study examined the changes in the students' attitudes over the term and compared the first course to the second, in terms of attitude changes. The students were enrolled in one of two courses; Exploring Elementary Teaching (101A) or Curriculum Methods in Elementary Education (321A).

A random sampling of 45 students per course was done. The subjects were chosen from a population of 213 (101A) and 168 (321A) students.

To determine the students' attitudes, the Minnesota Teacher Attitude Inventory was administered. Each student in the sample was given the measure twice; first as a pre-test during the first week of the course, then as a posttest during the last week of the course.

In addition to the MTAI, interviews were conducted with twelve students; six from each course. These students were selected on the

basis of the differences in their scores from pre-test to posttest. Included in the group were two students who had changed the most in a positive direction, two who had changed the most in a negative direction, and two who had no change, in each course.

Both groups of students were involved in local elementary schools. In 101A the students were assigned to classrooms in a cooperating public school district for observation/participation. In 321A the students were assigned to classrooms in a second cooperating public school district for observation/participation. There were some major differences between the two school systems in terms of socio-economic status and educational practices.

Using the pre-test and posttest scores in the analysis of the data, a repeated measures design was employed. From this analysis it was concluded that there were no differences in either course between the pre-test and posttest scores on the MTAI. However, there was a significant difference in attitudes between the two courses. The students in the second course (321A), had more positive attitudes toward teaching than the students in the first course (101A).

On the basis of the interviews, the 321A students seemed more anxious to begin their professional careers than the 101A students. Students in 101A felt they needed more experience, more time and more techniques for classroom management.

This study indicates that students in the second required field-based course have more positive attitudes toward teaching than students in the first required field-based course at Michigan State

University. Field-based experiences seem to provide the students with a more realistic view of the elementary classroom.

Dedicated to

Homer and Phyllis

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CHAPTER I

THE PROBLEM

Need for the Study

In the last few years there has been considerable discussion regarding the desirability of providing pre-service teachers with experience in elementary or secondary schools as part of their college career. Many teacher training programs have initiated field-based courses that allow the students to work actively in public school classrooms. One of the reasons that field-based courses are being offered is that beginning classroom teachers have felt their college training in education was not based on the realities of the classroom. Metzner, Nelson and Sharp[1] have called this phenomenon "reality shock." They have stated there is not just one reason for it, but ". . . a number of possible reasons varying with each individual." In a study, Lane[2] found that beginning teachers cited the major reason for their teaching difficulties to be inadequate college preparation for teaching. They tended to feel that much of teacher education was ineffective when they attempted to deal with teaching problems in the field.

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[1]Seymour Metzner, Walter A. Nelson and Richard M. Sharp, "On-Site Teaching: Antidote for Reality Shock?" Journal of Teacher Education, 23:195, Summer, 1972.

[2]Frank Lane, "A Study of the Professional Problems Recognized by Beginning Teachers and Their Implication for a Program of Teacher Education at State University of New York Teachers College at Brockport," (Unpublished Doctoral dissertation, New York University, 1954).

Ornstein[3] supports this view of lack of reality training. He states, "In the eyes of most prospective and experienced teachers, school administrators, professors of liberal arts and candid professors of education, teacher training has failed for the most part to prepare teachers for the realities of the classroom." He subscribes to the view that field-based courses will enable students to better understand the realities of teaching. This experience does not necessarily preclude a positive attitude toward teaching. It is the intent of many educators that prospective teachers acquire a positive attitude toward teaching during their college training. Jacobs[4] feels that attitudes are an important dimension of teacher education.

> Since attitudes show an inclination or predisposition to act in certain ways in given situations, it should be the purpose of a teacher education program to mold attitudes that will equip the prospective teacher to deal with the teaching role in a way that will bring the greatest benefit to his students in terms of their individual growth toward living in a free and democratic society.

Studies have shown that the attitudes toward teaching of elementary education undergraduates change considerably between the time they enter the program and the time they graduate. Claycomb's[5] study showed a significant increase in positive attitudes toward teaching between beginning education students and those students finishing their education program.

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[3]Allan C. Ornstein, "Some Possible Hazards Inherent in Evaluating Teacher Education Programs," Journal of Teacher Education, 23: 294, Fall, 1972.

[4]Elmer B. Jacobs, "Attitude Change in Teacher Education: An Inquiry into the Role of Attitudes in Changing Teacher Behavior," Journal of Teacher Education, 19:410, Winter, 1968.

[5]Clyde M. Claycomb, "An Exploratory Study of Attitudes Toward Children Expressed by Undergraduate Teacher Candidates" (Unpublished Doctoral dissertation, Michigan State University, 1970).

Field-based courses should concern themselves not only with the realities of the classroom, but also with helping students change their attitudes toward teaching in a positive direction. According to recent literature there appear to be reasons to examine what happens to the attitudes toward teaching of students in teacher education courses, especially those courses that provide field-based experiences.

At Michigan State University two field-based courses have been required of all undergraduate elementary education majors since 1972. The first course is entitled Exploring Elementary Teaching, hereafter referred to by the course number, 101A. It is offered as the beginning education course to freshmen and sophomores, with some upper classmen enrolled. The second course is called Curriculum Methods in Elementary Education, hereafter referred to by its course number, 321A. This course is offered to juniors and seniors who have successfully completed or waived 101A.

The two field-based courses have certain differences. It is possible that these differences may effect attitudes in the two courses. Therefore, a description and setting for each course is provided.

In 101A the structure of the course is one day (six hours) per week observation/participation in an elementary classroom in a cooperating school system (District A). An assumption is made that the students who enroll in the course have had little or no contact in an elementary school since their own attendance. This course provides the opportunity for students to determine if they actually want to pursue a teaching career in elementary education. In order to be admitted to the College of Education, students must pass 101A. Students

in the course are divided into two sections. The students in each section are required to attend a group meeting once a week on campus for fifty minutes. The subjects of the meetings are based on a general introduction to the field of elementary education, with special emphasis on the employment situation in teaching. At the end of the term the students are evaluated by the supervising classroom teacher. The course description and checklist of activities can be found in Appendix A.

For 321A the structure is somewhat the same in regard to the observation/participation. The students are assigned to an elementary classroom in another public school system (District B). For this course two assumptions are made. The first is that the students enrolled have had some prior experience in an elementary classroom situation. The second assumption is that the students will do more stand-up teaching in 321A than they did in 101A. The students are required to attend a seminar session on campus one day a week for fifty minutes. Each seminar section contains approximately one-eighth of the total enrollment of the course. The seminars are based on the assumption that within a calendar year these students will be student teachers. The seminars deal with topics pertinent to student teaching and a subsequent professional career in an elementary classroom. There is also a special emphasis on seeking employment as a teacher. At the end of the term there is a limited evaluation by the supervising classroom teacher. The course objectives and guidelines, and the outline of the topics for the seminars can be found in Appendix B.

In addition to the structural differences between the two courses, there are differences between the two cities which contain the school districts. Although the two cities share one common boundary, Table 1 shows some of the apparent statistical differences.

Table 1

Statistics on Population, Elementary School Enrollment, Mean Income, and Tax Rate for District A and District B.

	Population	Elementary Enrollment	Mean Income	Tax Rate
	(1)	(2)	(3)	(4)
District A	48,468	2,248	14,973	$69.74/$1,000 assessed valuation
District B	134,926	17,019	12,768	$55.87

The information used to compile the above table was provided by various public agencies in the cooperating school districts.

The population of District B is nearly three times that of District A. The mean income of District A is considerably higher than that of District B. Also the tax rate is appreciably higher for Distract A.

Statistical differences are not the only differences between the two cities that comprise the school districts. The following are descriptions of District A and District B.

> (District A) is one of Michigan's finest residential communities. The community is 'home' to professors, students, merchants, government workers and industrialists of the Lansing Metropolitan area. One of the most significant factors of this

> reputation is the community's highly-rated educational system. (The) schools provide the children with a complete and progressive education. The dynamic, pluralistic and cultural realities of the community are reflected in a variety of innovative and imaginative programs . . . .[6]

District A can be considered progressive in its approach to education. There is considerable interaction between parents, their children and the schools. The system is responsive to innovative curricular programs and is continually experimenting with new educational developments, attempting to interest as many students as possible. District A has many diversified educational programs in both the secondary and elementary schools.

District B is ". . . also a community of fine homes and industrial plants whose products are known throughout the world and a great educational center as well."[7] It is interested in providing the best education possible to the majority of its students. New programs that have proven effective are incorporated into the system in a gradual manner.

There appear to be some major differences between the two cities which are the sites of the two MSU field-based courses, 101A and 321A.

Purpose of the Study

The purpose of this study was to examine the attitudes of those students enrolled in the two required elementary education field-based courses, Spring Term, 1975, at MSU. The instrument used to

[6] Polk's Lansing (Ingham County, Michigan) City Directory (Taylor, Mich.: Polk and Company, 1974), p. XIX.

[7] Ibid., P. XI.

measure the attitudes was Minnesota Teacher Attitude Inventory (MTAI). Attitudes were compared on scores obtained both at the beginning and at the end of the term for each student in the sample.

Hypotheses

There are eight hypotheses that will be tested in this study. The first four are minor hypotheses. It is necessary to test these four first, in order to provide the necessary assumptions and information for testing the four major hypotheses which follow.

Minor Hypotheses

1. Students who enroll in one section of 101A will have similar attitudes toward teaching as those enrolled in the other section, at the beginning of the course.

2. Students who enroll in one section of 101A will have similar attitudes toward teaching as those enrolled in the other section, at the end of the term.

3. Students who enroll in one section of 321A will have similar attitudes toward teaching as those enrolled in the other section, at the beginning of the term.

4. Students who enroll in one section of 321A will have similar attitudes toward teaching as those enrolled in the other section, at the end of the term.

Major Hypotheses

I. Students enrolled in 101A will have no attitude change toward teaching from the beginning to the end of the course.

II. Students enrolled in 321A will have no attitude change toward teaching from the beginning to the end of the course.

III. Students enrolled in 321A will have more positive attitudes toward teaching at the beginning of their course than those students enrolled in 101A will have at the end of their course.

IV. Students enrolled in 321A will have a more positive attitude toward teaching than those students enrolled in 101A, both at the beginning and at the end of the courses.

Assumptions

The following assumptions were made in this study.

1. The MTAI adequately measures pre-service teachers' attitudes toward teaching.

2. Pre-service teachers will evaluate themselves accurately on a self-reporting instrument.

3. The setting and population for this study were not unusual so that the findings could be generalized to other similar populations.

Limitations

The assumptions in the previous section outline the framework of the limitations. The following statements provide the major limitations of this study.

1. This study of attitudes toward teaching has the problem that all attitudinal studies possess. The problem is that of making

judgments and classifying attitudes. The use of paper and pencil tests further complicates the process of obtaining accurate information concerning attitudes.

2. Since 101A and 321A are the only required field-based courses for elementary education majors, with the exception of student teaching, the generalizations can only be applied to those two groups of students.

3. This study has the same limitations found in most survey research studies.

Overview

In Chapter I is a description of the problem under consideration. The chapter is organized under the following headings: need, purpose, hypotheses, assumptions, limitations and overview.

In Chapter II is a presentation of the review of the literature pertinent to the study.

In Chapter III is the contents of the design of the study. In this chapter can be found the population, sample, sampling procedure, measures, design, hypotheses and summary.

In Chapter IV an analysis of the results is provided.

In Chapter V a summary of the theses along with a discussion of the conclusions and recommendations for future research are considered.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature pertinent to this study is found in this chapter. The chapter is divided into three segments; 1) attitude and attitude change toward teaching, 2) field-based teaching experiences, and 3) the Minnesota Teacher Attitude Inventory.

Attitude and Attitude Change Toward Teaching

Katz[1] has defined general attitude and attitude change in the following manner:

> Attitude is the predisposition of the individual to evaluate some symbol or object or aspect of his world in a favorable or unfavorable manner. At the psychological level the reasons for holding or for changing attitudes are found in the functions they perform for the individual, specifically the functions of adjustment, ego defense, value expression and knowledge. The conditions necessary to arouse or modify an attitude vary according to the motivational basis of the attitude.

It is this definition of attitude and attitude change that will be used throughout this study.

Attitudes toward teaching and the changes in these attitudes have been the focus of numerous studies. Since 1951 the most widely used instrument for measuring attitudes has been the Minnesota Teacher

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[1]Daniel Katz, "The Functional Approach to the Study of Attitudes," Public Opinion Quarterly, 24:163-204, Summer, 1960.

Attitude Inventory--MTAI, which was published in that year. Most of the studies reported in this section on attitudes toward teaching involved the use of the MTAI.

In the past twenty years, teacher education has seen numerous trends. According to Buchanan[2], an area of concern that appears to have been neglected is that of teacher attitude. She states, "In the past, teacher attitudes have scarcely been considered in teacher preparation courses. Schools of education assume that because an individual elects to go into the teaching profession, he already possesses the necessary attitudes to make him successful in his dealings with students."

In the following three studies the authors found similar results concerning what happens to students' attitudes toward teaching as they progress from beginning education courses to their final education course.

Brim[3] used 250 undergraduate teacher education students at the University of Denver for his sample. He administered the MTAI at the beginning of the quarter and at the end of the quarter. Then he held taped interviews with those students who demonstrated the greatest difference between pre-test and posttest scores. The students were placed in five groups, ranging from beginning course enrollees to students enrolled in the final education course. Brim found that the

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[2]Marcia M. Buchanan, "Preparing Teachers to be Persons," Phi Delta Kappan, 52:614-617, June, 1971.

[3]Burl J. Brim, "Attitude Changes in Teacher Education Students," Journal of Educational Research, 59:441-445, July-August, 1966.

students' mean scores of the MTAI were "higher with each level of progression through the undergraduate program." He also found that the greatest change occurred in the groups that were in the beginning stages of their educational course work. In addition he concluded that "laboratory experience was perceived to be most effective in changing attitudes."

Jacobs[4], in his study of attitude change in teacher education, states that ". . . it should be the purpose of a teacher education program to mold attitudes that will equip the prospective teacher to deal with the teaching role in a way that will bring the greatest benefit to his students." He found a positive change in attitudes among students enrolled in five teacher education institutions during a beginning professional education course. Using the same instrument, Survey of Teaching Practices, and the same institutions, he found a negative change in attitudes during student teaching. Because of the negative change, Jacobs suggests that alternate programs be considered. "Exposure to social situations encountered in the teaching role needs to occur more often in the teacher education program prior to the student-teaching experience."

In Claycomb's[5] study concerning attitudes he found that "those people about to graduate from the university in education seem to have more positive attitudes toward children than those now entering

[4]Elmer B. Jacobs, "Attitude Change in Teacher Education: An Inquiry into the Role of Attitudes in Changing Teacher Behavior," Journal of Teacher Education, 19:410-415, Winter, 1968.

[5]Clyde M. Claycomb, "An Exploratory Study of Attitudes Toward Children Expressed by Undergraduate Teacher Candidates" (Unpublished Doctoral dissertation, Michigan State University, 1970), p. 84.

their preparation for teaching." Then he suggests that there is a need for planned rather than chance experiences to help pre-service teachers develop more positive attitudes. The instrument Claycomb used in his study was the MTAI.

The studies cited above indicate that as students progress through their pre-student teaching professional education courses their attitudes toward teaching tend to become more positive. Time and maturity would also be definite factors in this occurrence. In support of this position, studies by Sickmiller[6], and Sinclair[7] have indicated no significant change in student attitudes between the beginning and the ending of an individual professional education course.

In his study of attitudes in early clinical education experiences, Sickmiller[8] found no significant differences between the entering and exiting attitudes of prospective elementary teachers. His measuring device was the MTAI. He concluded that "an early clinical course is not likely to be accompanied by a change of students' attitudes toward teaching."

In Sinclair's[9] study, he found no attitude difference between three groups of pre-student teachers, as measured by the MTAI. These groups were: 1) an observation group, 2) an independent reading group,

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[6]Edwin R. Sickmiller, "Confidence, Attitude, Desire to Teach, and an Early Clinical Experience" (Unpublished Doctoral dissertation, Michigan State University, 1973).

[7]William W. Sinclair, "An Analysis of Three Pre-Student Teaching Experiences in the Preparation of Elementary School Teachers" (Unpublished Doctoral dissertation, Michigan State University, 1961).

[8]Sickmiller, op. cit., p. 97.

[9]Sinclair, loc. cit.

and 3) a traditional course group. After personal interviews were conducted, Sinclair found that the students in the observation group unanimously felt better prepared to begin student teaching than did the other two groups.

Some studies have investigated the results of field-based experiences by comparing attitudes of groups of students participating in schools with groups of non-participating students. Most of the studies have shown that attitudes do not differ significantly on any attitudinal measuring device.

Cox[10] conducted a study to determine the attitude changes of pre-service teachers as a result of a professional laboratory course prior to student teaching. He used the MTAI as his measuring device. His subjects were juniors and seniors at a state teachers' college. He found that there was no significant difference on the MTAI between those students who had interacted with children as part of the course and those students who only had college classroom instruction. However, on an empirical measure he found "participants of the study indicated that there was considerable personal value in their laboratory experiences." Cox concluded that the experience seemed to help the students understand children and make them more enthusiastic for more work with children.

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[10]Dan Cox, "An Objective and Empirical Study of the Effects of Laboratory Experience in a Professional Education Course Prior to Student Teaching," Journal of Experimental Education, 29:89-94, September, 1960.

Other studies have shown that attitudes toward teaching have gone in a negative direction. Day[11] found that attitudes of teachers changed in a negative direction after initial teaching contact. His subjects included 196 college seniors who took the pre-test, which was the MTAI. One year later he again tested the group with the same instrument. Those subjects who had not entered teaching had little attitude change, but those who had entered teaching showed a significant negative change. He concluded:

> Unless the extreme point of view is adopted that young teachers should be 'shocked' on first gaining experience as a means of culling out the unfit, then it would seem appropriate to introduce some kind of initial contact with a teaching situation early in the program before the student has advanced very far with an unrealistic picture of what lies ahead in the classroom.

In a study to determine what happens to teachers' attitudes after they have been teaching for several years, Rabinowitz and Rosenbaum[12] collected data from 1,628 student teachers in New York City. They used the MTAI as the measuring device. Three years later those subjects who were then employed in elementary schools were again given the MTAI. The authors acknowledged that if the manual for the MTAI was correct, the only possible interpretation of the decrease in scores would be that a deterioration in teacher attitudes had occurred, associated with the ability to establish rapport with pupils. They concluded that there was another possible explanation: "change may be

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[11]Harry P. Day, "Attitude Changes of Beginning Teachers After Initial Teaching Experience," Journal of Teacher Education, 10:326-328, September, 1959.

[12]William Rabinowitz and Ira Rosenbaum, "Teaching Experience and Teachers' Attitudes," Elementary School Journal, 60:313-319, March, 1960.

seen as a sign of the more mature, tempered judgment that experience may be expected to bring. . . . (it) may indicate a realistic adaption to the demands of classroom life."

The studies cited so far have all focused on the idea that a positive attitude toward teaching is a desirable characteristic of prospective and in-service teachers. Piana and Gage's [13] study was based on the assumption that teachers' attitudes have an influence on pupils. The subjects were in-service teachers. They were given the MTAI while their pupils were given a measure entitled "My Teacher" constructed by Leeds.[14] There was a significant correlation between the two measures. Piana and Gage concluded, "the MTAI will vary in validity for teacher effectiveness according to the values of the pupils interacting with the teacher." They felt the study supported the validity of the interaction between pupil and teacher. "Attitudes and similar characteristics of teachers depend for their significance on the values, needs and other characteristics of their pupils." This study seemd to support their assumption that teachers' attitudes do indeed influence their pupils.

In an article by Lehmann, Sinha and Hartnett[15], they warn:

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[13] G. M. D. Piana and N. L. Gage, "Pupils' Values and the Validity of the Minnesota Teacher Attitude Inventory," Journal of Educational Psychology, 46:167-178, 1955.

[14] C. H. Leeds, "The Construction and Differential Value of a Scale for Determining Pupil Attitudes" (Unpublished Doctoral dissertation, University of Minnesota, 1946).

[15] Irvin J. Lehmann, Birenda K. Sinha and Rodney T. Hartnett, "Changes in Attitudes and Values Associated with College Attendance," Journal of Educational Psychology, 57:89-98, April, 1966.

> Although attitudes and values are instilled early in life and are most easily modifiable in infancy and adolescence, it is readily evident that changes do take place from ages 18-22, or older. It is therefore imperative that our colleges and universities recognize these facts and discard the notion that behavior characteristics are not their concern because it is too late to do anything about them.

The above review of the literature on attitudes toward teaching indicates that attitudes can be and are changed during pre-service teachers' college years. Teacher education institutions need to be aware of this fact and do all they can to help the students' attitudes toward teaching grow in a positive direction.

Smith[16] states that the literature of the past twenty years shows no consistency from one study to another in terms of attitude measures. Many studies show an attitude change, but the direction and magnitude of the changes are ambiguous.

Most of the studies reviewed used the Minnesota Teacher Attitude Inventory as the measuring device on attitudes and attitude change. The majority of the studies indicated that there were positive attitude changes in pre-service teachers during their professional pre-student teaching courses.

Field-Based Teaching Experiences

Goodlad's[17] definition of professional laboratory experiences is, "those activities of the teacher in training which bring him into

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[16]Martha L. Smith, "A Study of Elementary Student Teaching Confidence in and Attitude Toward Music and Changes that Occur in a Student Teaching Experience" (Unpublished Doctoral dissertation, Michigan State University, 1969).

[17]John I. Goodlad, "An Analysis of Professional Laboratory Experiences in the Education of Teachers," Journal of Teacher Education, 16:263-270, September, 1965.

direct involvement with the practice of teaching." He feels that these experiences are designed to achieve two purposes: "1) the development of teaching technique and 2) the understanding of principles of education upon which practice should be based."

Field-based experiences provide pre-service teachers with an opportunity to observe/participate in an actual classroom setting. Such experiences help to give students a more realistic idea of what goes on in classrooms to supplement a theoretical approach often found in textbooks and college classes.

Bidna and Hahn[18] indicate a need for the incorporation of theory and practice in teacher education programs. They state that college students say, 'this is all theory and we accept it, but how do we know it will work when we face students in the classroom?' In a program launched at Los Angeles State College the students were placed in classrooms for participation/observation experience. An evaluation revealed that the "college students profited greatly (at least 90 percent of them reported that the observation was the most valuable part)."

When Reynard[19] conducted his study in 1963 he felt that laboratory experience was the least challenging area in teacher education. He found that in the institutions studied, clearly the

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[18]David B. Bidna and Robert O. Hahn, "Participating and Observing," Journal of Teacher Education, 10:319-322, September, 1959.

[19]Harold E. Reynard, "Pre-Service and In-Service Education of Teachers," Review of Educational Research, 33:369-380, October, 1963.

implications were that "participation and observation were considered effective and essential for students prior to student teaching." However, little was being done about this fact.

In a similar study Estes[20] studied 110 institutions that prepared students for teaching in the elementary school. He developed a questionnaire and sent it to the randomly selected institutions. After analyzing the data he concluded:

> Little has been done in the field of education which provides basis for classifying, by educational authority, professional laboratory experiences as being suggested, necessary or effective, nor has there been development of a set of criteria which measures the effectiveness of specific laboratory experiences.

Hunter and Amidon[21] reported that there seems to be strong evidence to support the idea of involving pre-service teachers in direct experience with children. They state:

> There should be continuous contact with children throughout the education sequence. This should consist at times of 'manageable participation'--teaching one child or a very small group of children in a school setting. Direct experiences in the schools need not be isolated from foundations courses but can begin with the first course in education.

Metzner, Nelson and Sharp[22] reported several studies have shown that:

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[20]Sidney Harrison Estes, "A Status Study of Pre-Student Teaching Laboratory Experiences in Elementary Teacher Education," Dissertation Abstracts, 28:4022A, 1967.

[21]Elizabeth Hunter and Edmund Amidon, "Direct Experience in Teacher Education: Innovation and Experimentation," Journal of Teacher Education, 17:282-289, Fall, 1966.

[22]Seymour Metzner, Walter A. Nelson and Richard M. Sharp, "On-Site Teaching: Antidote for Reality Shock?" Journal of Teacher Education, 23:194-198, Summer, 1972.

New teachers want college experiences that are more reality-oriented, emphasizing specific classroom procedures and providing for greater involvement with children at earlier stages of teacher preparation.

Lucina[23] suggests that there are certain readiness characteristics that are necessary for all students enrolled in teacher-education programs. The students must be able to recognize, interpret and report their professional laboratory experiences. In order to acquire these skills the students must have: "(1) the ability to observe and comprehend the relationships between principle and action expressed in the behaviors of children, (2) the possession of a suitable vocabulary for self-expression and communication of the observation and reaction and (3) the acquisition of desirable attitudes toward the learning situation."

In a study concerning the attitudes of pre-service elementary teachers, Funk[24] concluded that the laboratory experiences, "seem to have a positive effect on elementary education students expressed attitudes toward children, the curriculum and the role of the teacher."

Colvin[25] found that through field-based experiences prior to student teaching the students "became less anxious about teaching, more eager to assume responsibility for guiding children and more able to identify factors involved in effective teaching."

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[23]Sister Mary Lucina, "Readiness for Professional Laboratory Experiences," Journal of Teacher Education, 10:310-314, September, 1959.

[24]Haldon D. Funk, "The Effect of Pre-Student Teaching Professional Laboratory Experiences on Selected Attitude and Concepts of Prospective Elementary Teachers," Dissertation Abstracts, 19:3020A, 1968.

[25]Cynthia Colvin, "Achieving Readiness for Student Teaching Through Direct Experience," Dissertation Abstracts, 19:3229A, 1958.

Edualino[26] found that the more hours of experience a student has had with children prior to student teaching the easier it is for him to solve problems on school discipline when student teaching. He also found that this type of student had a less frequent occurrence of problems related to instructional methods and understanding of educational objectives.

Fehl[27] studied on observation/participation program at the University of Cincinnati and reached this conclusion:

> The pre-student teaching laboratory experience is a valuable and necessary component of the teacher education curricula. It acts to smooth the transition from novice to student teacher by building realistic attitudes and by reducing unnecessary emotional anxiety.

The literature suggests that field-based courses in teacher education are definitely important experiences for undergraduates. These courses help students gain an awareness into the realities of the classroom. However, there are very few studies done on evaluating these courses. Most of the evaluating has been by one of two methods. The first is to determine the attitude change toward teaching of the students enrolled in the field-based courses. The second method is to empirically determine the value of the course via an interview with the students. Both methods have been employed with increasing regularity.

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[26]Emilia Quial Edualino, "The Relationship Between Successful Student Teaching and Pre-Student Teaching Experiences with Children," Dissertation Abstracts, 19:486, 1958.

[27]Patricia K. Fehl, "The Effects of an Observation-Participation Program on Attitudes and on Concepts," Dissertation Abstracts, 27:3338A, 1967.

Minnesota Teacher Attitude Inventory

The Minnesota Teacher Attitude Inventory (MTAI), was designed by Cook, Leeds and Callis[28] to measure "those attitudes of a teacher which predict how well he will get along with pupils in interpersonal relationships, and indirectly how well satisfied he will be with teaching as a vocation."

The MTAI contains 150 items. These items are statements of beliefs about teaching, teachers, and pupils. The key to the items is as follows:

SA = strongly agree
A = agree
N = undecided or uncertain
D = disagree
SD = strongly disagree [29]

The respondent is asked to mark one and only one response to each item, based on his own particular beliefs. The scoring is done by determining how many "right" and "wrong" answers the respondent has. The "wrongs" are then subtracted from the "rights." The scores range from +150 to -150. The higher the score, the more positive the respondent's attitude toward teaching is assumed to be.

The instrument was originally intended to be for use with in-service teachers. The initial studies done between in-service

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

[29]Walter W. Cook, Carroll H. Leeds, and Robert Callis, Minnesota Teacher Attitude Inventory--Form A (New York: Psychological Corporation, 1951), p. 1.

teachers' MTAI scores and the combined criteria of pupils', principals' and experts' ratings of teachers yielded a positive correlation (r = .60). Similar studies done between 1951 and 1975 have also netted high correlations between teachers' MTAI scores and other teacher rating devices.

Although the instrument was designed for use with in-service teachers, it has been used with pre-service teachers for predictive purposes. Information can be found in the manual for the MTAI about scores for various education majors. Early childhood majors tend to score higher than elementary majors. In turn the elementary majors tend to score higher than secondary majors.

Giebink[30] states that the most popular instrument for assessing teacher attitudes is the MTAI. It can be used for the selection of potential teachers and for their preparation. He feels that those teachers who rank high on the MTAI are expected to be capable of establishing cooperative and mutual relationships with their students; those who rank low are likely to be more dominating and authoritative in their behavior. These low-scoring teachers would also be more subject- and self-oriented than the high-scoring teachers, who should be more concerned with the pupils themselves and their participation in the classroom experience.

Leeds[31] did a longitudinal study concerning the predictive validity of the MTAI over a fifteen year span. He felt that because

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[30]John W. Giebink, "A Failure of the Minnesota Teacher Attitude Inventory to Relate to Teacher Behavior," Journal of Teacher Education, 18:233-239, Summer, 1967.

[31]C. H. Leeds, "Predictive Validity of the 'Minnesota Teacher Attitude Inventory'," Journal of Teacher Education, 20:53, Spring, 1969.

the instrument was used extensively, there was a need to obtain an indication of predictive validity and also to "provide empirical data for the study of response stability and/or change for the Inventory items as a result of training and experience." He studied 100 subjects and obtained three MTAI scores for them, (1) at the beginning of teacher training, (2) at college graduation, and (3) after one or more years of teaching experience. These scores were correlated with evaluations done on the teachers after they had had at least one year of teaching experience. Leeds concluded that "it is felt that as one measure of teacher acceptance of pupils and children, the MTAI performs an important function in the prediction of teaching potential."

Scott and Brinkley[32] did a study on attitude changes of student teachers. Their study showed a reason to place student teachers with teachers who had positive attitudes toward teaching. Eighty two student teachers were given the MTAI as were their supervising teachers. At the end of the quarter they were again given the same instrument. Those student teachers who had supervising teachers with high MTAI scores showed a significant increase in scores on the MTAI. Those student teachers with supervising teachers who had low MTAI scores, showed no significant differences in MTAI scores.

Most attitude studies involve the assumption on the part of the researcher that the respondents will answer the questions "correctly." Stemming from this assumption, some studies have been done

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[32]Owen Scott and Sterling B. Brinkley, "Attitude Changes of Student Teachers and the Validity of the Minnesota Teacher Attitude Inventory," Journal of Educational Psychology, 51:76-81, April, 1960.

on the "fakability" of the MTAI. Cook, Leeds and Callis [33] studied three groups of undergraduates at the University of Minnesota. They were each given the MTAI as a pre-test and then as a posttest at a later date. Some students were asked to fake the test in order "to get as high a score as possible." Other students were not given the faking instructions. On the basis of the means and standard deviations for the groups, the authors concluded that "the MTAI is only slightly susceptible to attempts to 'fake good'."

Rabinowitz[34] tended to disagree with the assumptions in the previous study. He states:

> It seems likely that from the student's frame of reference his own attitudes and good attitudes are identical. Indeed, for the test-conscious college student it may be almost impossible to differentiate his 'true' attitudes from the attitudes which he feels will earn him the highest score.

Therefore, Rabinowitz conducted another study in fakability. In this study he used 56 female undergraduate education majors as his subjects. They were divided into three groups and given pre-tests and posttests with the MTAI. On the posttests there were three separate directions given, one for each group. The first group got the same directions as on the pre-test. Group two was told to take the test according to Permissive instructions given by the researcher. The third group was told to take the test according to Authoritarian instructions. After

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[33] Cook, Leeds and Callis, op cit., p. 13.

[34] William Rabinowitz, "The Fakability of the Minnesota Teacher Attitude Inventory," Educational and Psychological Measurement, 14:658, Winter, 1954.

the analysis of the means and standard deviations of the the three groups it was concluded that the authors' assertion that the MTAI was only slightly susceptible to faking was not legitimate. "Instead," states Rabinowitz, "when these subjects were given explicit instructions to simulate the attitudinal orientations of particular types of teachers, they were able to alter their MTAI scores to a marked extent."

Sorenson[35] also found that students could "fake" their answers and alter their scores to a great extent. When he asked some students to sign their names to the MTAI and others not to, he found the scores of the signed answer sheets to be significantly higher than the scores on the unsigned sheets.

Another problem associated with responses on the MTAI is that of bias. Budd and Blakely[36] hypothesized that scores would be higher for those persons who stated extreme responses on the instrument. After conducting a study with 225 college students and scoring the answers in three separate ways, they found evidence to support this hypothesis. They concluded, "high scores on the MTAI are associated with the tendency to prefer extreme response positions to moderate response positions when taking this inventory."

The MTAI has been used extensively with pre-service as well as in-service teachers to determine attitude changes toward teaching.

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[35]A. Garth Sorenson, "A Note on the 'Fakability' of the Minnesota Teacher Attitude Inventory," Journal of Applied Psychology, 40:192-194, June, 1956.

[36]William C. Budd and Lynda S. Blakely, "Response Bias in the Minnesota Teacher Attitude Inventory," Journal of Educational Research, 51:707-709, May, 1958.

In 1963, Getzels and Jackson[37] found over 50 studies in their review of the literature on the MTAI. Most of the literature is supportive of the instrument. There are a few studies that have declared that the MTAI is not a reliable measure when used to predict how well a teacher will get along with pupils. Also, as with any instrument that requires self-reporting, it is susceptible to faking. Even with these criticisms, current literature is still supportive, for the most part, of using the Minnesota Teacher Attitude Inventory to measure attitudes and attitude change toward teaching of pre-service and in-service teachers.

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[37]J. W. Getzels and P. W. Jackson, "The Teacher's Personality and Characteristics," in Handbook of Research on Teaching, ed. by N. L. Gage (Chicago: Rand McNally, 1963), pp. 506-582.

CHAPTER III

DESIGN OF THE STUDY

This chapter contains a description of the design of the study concerning the attitude changes of pre-service elementary education undergraduates enrolled in two required field-based courses at Michigan State University, Spring Term, 1975.

Population

The population for this study was the 213 students who were enrolled in Education 101A (Exploring Elementary Teaching) and the 168 students who were enrolled in Education 321A (Curriculum Methods in Elementary Education) at Michigan State University, Spring Term, 1975.

Sample

A random sampling of 50 students per course was conducted via a random numbers assignment to alphabetical class lists. These lists were obtained at the close of regular registration. For convenience, the sampling was done in the larger of the two sections in which each student was enrolled. In 101A this meant that selection was based on the meeting class list. In 321A the selection was based on the school observation assignment list. Since all students in both 101A and 321A were enrolled in a meeting/seminar and a school observation section, there was no reason to assume this sampling procedure would effect the outcome of the study.

In 101A the students were enrolled in one of two large meeting sections. Section one contained 40 percent and section two contained 60 percent of the enrollment. Therefore, to insure that each student had the same chance of being selected, twenty students in section one and thirty students in section two were chosen.

In the 321A group, the students were enrolled in one of two large school observation groups. The composition was 60 percent in section one and 40 percent in section two. Thus 30 students from section one and 20 students from section two were chosen.

Also five alternates were randomly selected from both 101A and 321A for pre-testing purposes. This was to insure that there would be a sample of fifty from each course at the end of the term. If all those students originally selected and pre-tested in the study were posttested, then there would be no need for the alternates.

Since the class lists were compiled at the close of regular registration, there was a problem with late additions. In 101A there were eight and in 321A there were seven late enrollees. Thus these students were not included in the original sample selection. Since there were no other available class lists until several weeks after the pre-testing was done, it was necessary to exclude the late adds.

Sampling Procedure

This study was conducted in three phases. The first phase was administration of the pre-test. It was given during the first week of classes. The pre-test consisted of the Minnesota Teacher Attitude Inventory--MTAI. It was used to measure the students'

attitudes toward teaching. In the second phase, the posttest was given. Again it was the MTAI. It was administered at one of the final class sessions of the term. The final phase consisted of personal interviews with six students from each course. The interviews were held with those students who had either greatly changed their attitudes in a positive or negative direction or had displayed no attitude change at all, based on score differences from pre-test to posttest on the MTAI.

Phase I--Pre-test

The procedures for sampling the two groups were different due to the structure of the two courses. For the sake of convenience, administration of the instrument was done on campus rather than in the elementary schools. Section one of 101A met in a large lecture room in Erickson Hall. Those students in section one, selected for the study were asked to leave the lecture room and go to a smaller room for test administration. They were told that they had been randomly selected and could easily obtain any material missed in the meeting, that taking the pre-test was not mandatory and that there would be a follow-up posttest at the end of the term. All of the students selected agreed to participate. In section two, there was no smaller room available for test administration. Therefore, the students took the MTAI in one secluded section of the lecture room. Again the same instructions were given. All selected students agreed to participate.

In 321A the on-campus portion of the course consisted of assignment to one of eight seminar sections. Since there were between 14-26 students in each seminar, the instructors for the course felt it would be very difficult to ask those randomly selected students to leave to take the pre-test. Also there were no rooms available for test administration. It was decided that all students would be asked to take the pre-test. They were told that it was not mandatory to take the pre-test and that there would be a follow-up posttest.

Phase II--Posttest

The instrument used to obtain posttest data was the MTAI. In 101A all selected students were seated in a corner of the lecture room for posttest administration. Due to conditions beyond the control of the researcher, the sample was reduced to 45.

In 321A it was thought desirable to posttest in the same way the pre-test was administered. However, the instructors for the course felt that they could not give up another session solely for data collection and would allow only those students randomly selected to participate in the posttest. Those students were asked to go to an available room at the last seminar session and take the posttest. These students were told that they had been randomly selected, could obtain any missed seminar material and were not required to take the posttest. All selected students in attendance participated at one of the eight seminar sessions the last week of classes. Again, due to conditions beyond the control of the researcher, the sample was reduced to 45.

Phase III--Interviews

After the pre-test and posttest scores had been computed, gain scores were determined. Based on a comparison of these gain scores, six students from each course were interviewed. Those interviewed were the two with the highest gain scores, two with no change, and two with the greatest negative gain scores from each course. Since time did not permit the interviewing of all students involved in the study, it was decided that those students who showed the greatest deviations and those who showed no change at all on the MTAI, would be selected for interviews. These students would represent the most extreme changes it was thought that these students might be more aware of what caused their attitude change than those students who did not have such extreme changes in attitudes.

The interviews were conducted by the researcher at the students' assigned observation school. Each interview took approximately 15-20 minutes. The questions used in the interviews were designed using guidelines from Babbie.[1] They were open-ended questions to encourage the students to talk about aspects of the course that might have influenced them and ultimately have caused an attitude change toward teaching. (See Appendix C for interview questions.)

Measures

The instrument used for data collection in this study was the Minnesota Teacher Attitude Inventory--MTAI. It was chosen because

[1]Earl R. Babbie, Survey Research Methods (Belmont, California: Wadsworth, 1973), pp. 140-149.

it is a well-known and widely used instrument for measuring teacher attitudes. It is designed to measure teachers' attitudes that will predict to what extent the teachers will favorably interact with pupils in a teaching situation.

The MTAI assumes that teachers scoring high on the instrument will have a harmonious teaching atmosphere in their classrooms. In describing a harmonious teaching atmosphere the MTAI manual states:

> It is assumed that a teacher ranking at the high end of the scale should be able to maintain a state of harmonious relations with his pupils characterized by mutual affection and sympathetic understanding. The pupils should like the teacher and enjoy school work. The teacher should like the children and enjoy teaching. Situations requiring disciplinary action should rarely occur. The teacher and pupils should work together in a social atmosphere of cooperative endeavor, of intense interest in the work of the day, and with a feeling of security growing from a permissive atmosphere of freedom to think, act and speak one's mind with mutual respect for the feelings, rights and abilities of others.[2]

Those persons scoring at the low end of the instrument are characterized in a different manner.

> At the other extreme of the scale is the teacher who attempts to dominate the classroom. He may be successful and rule with an iron hand, creating an atmosphere of tension, fear and submission; or he may be unsuccessful and become nervous, fearful and distraught in a classroom characterized by frustration, restlessness, inattention, lack of respect, and numerous disciplinary problems. In either case both teacher and pupils dislike school work; there is a feeling of mutual distrust and hostility. Both teacher and pupils attempt to hide their inadequacies from each other. Ridicule, sarcasm and sharp-tempered remarks are common. The teacher tends to think in terms of his status, the correctness of the position he takes on classroom matters, and the subject matter to be covered rather than in terms of what the pupil needs, feels, knows, and can do.[3]

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

[3]Ibid.

The construction of the preliminary items on the MTAI involved a canvassing of five areas of socio-educational literature about children. It was assumed that this would give an adequate sampling about teacher attitudes. The five areas selected were:

> 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 classroom and elsewhere, and methods employed in dealing with such problems.
> 3. Principles of child development and behavior related to ability, achievement, learning, motivation, and personality development.
> 4. Principles of education related to philosophy, curriculum and administration.
> 5. Personal reactions of the teacher, likes and dislikes, sources of irritation, etc.[4]

The instrument consisted of 756 items. It was administered to 200 teachers in Ohio and Pennsylvania. Of these 200 teachers, 100 were judged inferior teachers and 100 were judged as superior teachers. The principals of the teachers acted as the judges who were rating the teachers on the criteria of working relations with pupils. The teachers were given Form A of the test, then a week later, Form B. Chi-square was computed to determine the extent to which each item discriminated between the two groups of teachers. The number of items chosen for their discriminating power was 164. The criteria used in selecting these items were: "(1) Is the item adequate in differentiating the two groups of teachers? (2) Is the item unambiguous in meaning? (3) Does the content of the item duplicate that of another item? (4) Is the response pattern logical and easy to interpret?"[5]

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[4] Ibid., p. 10.

[5] Ibid., p. 11.

In validating the items, 100 teachers were chosen, without prior judgement by their principals as to their working relations with pupils. The MTAI was administered to these 100 teachers. Then separate ratings were done on the teachers by pupils, principals, and teaching specialists. The instruments used in the ratings had high reliabilities of .93, .87, and .92, respectively before administration to the teachers.

Correlations were then made between the teachers' MTAI scores and the three separate ratings. The results showed correlations of .43, .45, .49, and .60 for the MTAI scores and principals' ratings, MTAI scores and pupils' ratings, MTAI scores and specialists' ratings and MTAI scores and combined ratings, respectively. Finally, 150 items were selected for publication. Two further validation studies on the items were done in South Carolina and Missouri, with reliability coefficients of .63 and .46.

As a result of these studies it is reasonable to conclude that the authors of the MTAI have provided ample evidence, to the extent indicated, that the test items discriminate between "inferior" and "superior" teachers, as judged by their principals.

A review of the literature on the Minnesota Teacher Attitude Inventory was reported in Chapter II.

Hypotheses

The hypotheses for this study are stated here in the null form. There are two sets of hypotheses; minor and major. The emphasis of the study is on the major hypotheses, however it is necessary to

test the minor hypotheses in order to increase the validity of the study. The minor hypotheses are listed first since they must be tested before the major hypotheses can be tested.

Minor Hypotheses

1. In 101A no differences will be found between pre-test scores of group one and group two on average performance or variability in performance.

2. In 101A no differences will be found between posttest scores of group one and group two on average performance or variability in performance.

3. In 321A no differences will be found between pre-test scores of group one and group two on average performance or variability in performance.

4. In 321A no differences will be found between posttest scores of group one and group two on average performance or variability in performance.

Major Hypotheses

I. No differences will be found between the pre-test and posttest scores, as measured by the MTAI, for those students enrolled in 101A.

II. No differences will be found between pre-test and post-test scores, as measured by the MTAI, for those students enrolled in 321A.

III. The group mean on the MTAI pre-test for 321A will exceed that of the MTAI posttest for 101A.

IV. The combined scores of the pre-test and posttests for 321A will exceed that of 101A.

Design

The design consists of two parts. The first part is a two independent group design and the second is a repeated measures design.

In the first part, after two scorers, working independently, had scored both the pre-tests and posttests (MTAI), and found 100 percent agreement, the minor hypotheses were tested by "t-tests" to determine if there were any differences in the group means. Then corresponding "F-tests" were run to determine if there were any differences in the variances of the groups being compared. These tests were done to insure that there were no differences in the sections of the course that were being compared so they could be combined to form the desired group.

In the second part, a repeated measures design was used. This design can best be shown by Porter's[6] representation:

$$\begin{array}{l} R\ O\ X_1\ O \\ \hline R\ O\ X_2\ O \end{array}$$

This is a design over time. The notation is as follows: R indicates that the subjects were randomly selected in their groups, O indicates

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[6]Andrew C. Porter, "Analysis Strategies for Some Common Evaluation Paradigms" (paper presented at the meeting of the American Educational Research Association, New Orleans, February, 1973).

an observation of the subjects, which is the score obtained on the MTAI, X_1 is the treatment of being in 101A, X_2 is the treatment of being in 321A. The dotted line denotes that the subjects were not randomly assigned to treatment groups. Table 2 shows a graphic representation of the model used in testing the major hypotheses. The dependent variable is the measure, the independent variable is the treatment.

The students in both 101A and 321A were pre-tested and post-tested with the MTAI. The time lapse between the two tests was approximately eight weeks. No individual was in more than one treatment group. The statistic used in the design was the score obtained on the MTAI, pre-test and posttest.

Kirk[7] has described some of the advantages of using the repeated measures design. Since the design matches the same subjects in the pre-test and the posttest, this helps control subject heterogeneity. In turn, the effects of the treatment are not obscured. Another advantage is that the design is "useful in assessing certain types of treatment effects." In this study the treatment is the participation in one of the two required field-based courses.

A limitation of this design is that the students were not randomly assigned to the treatment groups. Therefore it cannot be assumed that the groups were equal on all possible variables. Another limitation according to Kirk is that the error portion of the scores

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[7]Roger E. Kirk, Experimental Design: Procedures for the Behavioral Sciences (Belmont: Brooks/Cole, 1968), p. 247.

Table 2

Repeated Measures Design for
Analysis of Hypotheses I-IV

	m_1	m_2
t_1	S_1 . . . . S_{45}	
t_2	S_{46} . . . . S_{90}	

M = Measure; m_1 = pre-test MTAI, m_2 = posttest MTAI

T = Treatment; t_1 = 101A, t_2 = 321A

S = Subjects nested within groups

"must be independent of each other and the treatment effects. There is ample reason to believe that in repeated measures experiments the error components of the scores are not independent."[8]

In an attempt to rationalize this design, Harnquist[9] states:

> Even if the initial standing of the subjects is controlled by means of a number of relevant variables, there will always be room for uncontrolled differences that may be important. The investigator, who because of the nature of his problem cannot use random or systematic assignment of subjects to treatments, has to live with an insecurity in that respect--and try to behave intelligently within the limitations of his design.

In part three of the design the results of the interviews were analyzed by pooling the responses to each of the five questions and reporting these responses. The main interest of this was to find the patterns that might exist among the answers.

There were some limitations to this type of design. One of them was the problem of subjectively categorizing the responses to find the patterns in the answers. Another limitation was that of asking similar questions to all respondents in order to elicit more specific answers to the questions. Interviews involve the problem of the subjectivity of the interviewer and the subjectivity of the person who analyzes the data.

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[8] Ibid.

[9] K. Harnquist, "Relative changes in Intelligence from 13 to 18," Scandinavian Journal of Psychology, 9:50-82, 1968, cited by Andrew C. Porter, "Analysis Strategies for Some Common Evaluation Paradigms," (paper presented at the meeting of the American Educational Research Association, New Orleans, February, 1973).

Summary

This chapter contains the basic design elements of the study. The population and sample were identified. The sampling procedure, with its three phases was described. The measures used in the study were described and background information of the measures was provided. The hypotheses, minor and major, were listed. The last section of the chapter contains the design for the study with limitations and assumptions.

CHAPTER IV

ANALYSIS OF DATA

This chapter includes an analysis of the major and minor hypothesis for the study. An empirical analysis of the interviews is also provided. The last section of the chapter contains a summary.

The purpose of this study was to determine the attitudes toward teaching of pre-service teachers enrolled in Education 101A and in Education 321A. Their attitudes were measured by the Minnesota Teacher Attitude Inventory. This inventory consisted of 150 items. Scores could range from -150 to +150. The hypotheses were all based on the scores obtained with the MTAI.

Minor Hypotheses

Each minor hypothesis is presented, along with a description of the type of significance testing, a tabulation of the results, and a significance statement. The minor hypotheses are presented first since it was necessary to test them before testing the major hypotheses.

Minor Hypothesis 1

> In 101A no differences will be found between pre-test scores of group one and group two on average performance or variability in performance.

A two-tailed "t-test" was performed between group one and group two of 101A to determine if there were any differences in the

group means. Then a corresponding "F-test" was run to determine if any differences existed in the group variances. Significance was set at the .05 level for both tests. Table 3 presents the data for these tests; the number in each group, the means for the pre-test, the standard deviations, the "t" ratio and the "F" ratio.

Table 3

t-Test and F-Test for Pre-Test MTAI Scores of Groups One and Two in 101A

	N	$\overline{X}$	SD	t	F
Group 1	22	48.3	23.7	1.02	.78
Group 2	23	40.6	26.8		

A t value of 2.021 was needed to demonstrate significance at the .05 level. Since the value was 1.02 there is no reason to assume that there are significant differences in the means of the two groups. In addition, an F value < .41 was required to demonstrate significance at the .05 level. The F value in this test was .78. Thus there is no reason to suspect significant differences in the variances of the two groups. Since there was no statistical evidence to support the rejection of the hypothesis, it was accepted.

Minor Hypothesis 2

In 101A no differences will be found between posttest scores of group one and group two on average performance or variability in performance.

A two-tailed "t-test" was performed between group one and group two of 101A to determine if there were any differences in the group means on the posttest. A corresponding "F-test" was run to determine if any differences existed in the group variances. Significance was set at the .05 level for both tests. Table 4 illustrates the data for these tests; the number in each group, the means for the posttest, the standard deviations, the "t" ratio and the "F" ratio.

Table 4

t-Test and F-Test for Posttest MTAI Scores of Groups One and Two in 101A

	N	$\overline{X}$	SD	t	F
Group 1	22	43.2	30.0	.05	1.36
Group 2	23	42.8	25.8		

A t value of 2.021 was required to demonstrate significance at the .05 level. The value obtained was .05. Thus there is no reason to assume that there are significant differences in the means of the two groups. An F value less than .41 was needed to demonstrate significance at the .05 level. The value obtained was 1.36. There is no reason to assume significant differences in the variances of the two groups. Since the statistical evidence did not support rejection of the hypothesis, it was accepted.

Minor Hypothesis 3

In 321A no differences will be found between pre-test scores of group one and group two on average performance or variability in performance.

A two-tailed "t-test" was done between group one and group two of 321A on the pre-test scores on the MTAI. This was to test for differences in the group means. A corresponding "F-test" was done to determine if any differences existed in the group variances. Significance was set at the .05 level for both tests. Table 5 shows the data for these tests; the number in each group, the group means for the pre-test, the standard deviations, the "t" ratio and the "F" ratio obtained.

Table 5

t-Test and F-Test for Pre-Test MTAI Scores of Groups One and Two in 321A

	N	$\overline{X}$	SD	t	F
Group 1	27	60.6	20.4	.15	.71
Group 2	18	61.6	24.3		

A t value of 2.021 was needed to demonstrate significance at the .05 level. The t value obtained was .15, therefore, there is no reason to assume that significant differences exist between the means of groups one and two on the pre-test. An F value < .41 was needed to show significance at the .05 level. The F value obtained was .71. Thus there is no reason to assume that there are significant

differences between the variances of the two groups on the pre-test measure. Since there was no statistical evidence to support rejection of the hypothesis, it was accepted.

Minor Hypothesis 4

In 321A no differences will be found between posttest scores of group one and group two on average performance or variability in performance.

A two-tailed "t-test" was run between group one and group two of 321A on the posttest scores on the MTAI. This was to test for differences in the group means. A corresponding "F-test" was done to determine if any differences existed in the group variances. Significance was set at the .05 level for both tests. Table 6 shows the data for these tests; the number in each group, the group means for the posttest, the standard deviations, the "t" ratio and the "F" ratio obtained.

Table 6

t-Test and F-Test for Posttest MTAI Scores of Groups One and Two in 321A

	N	$\bar{X}$	SD	t	F
Group 1	27	62	24.7	.16	1.13
Group 2	18	63.2	23.2		

A t value of 2.021 was needed to demonstrate significance at the .05 level. The t value obtained was .16, thus it is reasonable

to conclude that there are no significant differences between the means of groups one and two of 321A on the MTAI posttest. An F value less that .41 was needed to show significance at the .05 level. The F value obtained was 1.13. Therefore, there is no reason to assume that significant differences exist between the variances of group one and group two of 321A on the posttest measure. Since there was no statistical evidence to support rejection of the hypothesis, it was accepted.

Major Hypotheses

In analyzing the major hypotheses, it was first necessary to determine if the two groups of 101A were equivalent. Also, it was necessary to determine if the two groups of 321A were equivalent. The analyses of the four minor hypotheses indicate that the necessary equivalences exist. Therefore, since there are no significant differences in the groups, the two groups of 101A can be combined to form one group and the two groups of 321A can be combined to form one group.

Using the results of the tests on the minor hypotheses, the following table provides the data on group means for the four groups now being tested; 101A pre-test, 101A posttest, 321A pre-test, and 321A posttest.

Table 7

Pre-Test and Posttest Group Mean Scores for 101A and 321A

	Pre-Test	Posttest
101A	44.35	43.0
321A	61.04	62.49

A repeated measures test was done on the pre-test and post-test scores of 101A and 321A. This test combined each student's scores to determine if there was a treatment effect (being in a certain course), a measures effect, (differences on pre-test and posttest scores), or an interaction effect (treatment and measures). The following results were obtained:

Table 8

Repeated Measures Significance for Pre-Test and Posttest Scores of 101A and 321A

Effect	Significance
Treatment Effect	P < .0004
Measures Effect	P < .9799
Interaction Effect	P < .4266

Using the information from Table 8, the four major hypotheses can now be examined.

Major Hypothesis I

No differences will be found between the pre-test and post-test scores for those students enrolled in 101A.

Major Hypothesis II

No differences will be found between the pre-test and post-test scores for those students enrolled in 321A.

Analysis of the first two hypotheses consists of combining the measures effect and the interaction effect. The measures effect combines all students, regardless of course. Table 8 indicates that significance was at the .9799 level for this effect. Therefore, there was no measures effect. The interaction effect indicates whether there was significance between the measures and the treatment (the course in which each student was enrolled). Since the level of significance for the interaction effect was .4266, there was no interaction effect. Combining these two facts shows that there was no difference in pre-test and posttest scores for either 101A or 321A. Therefore, the first two hypotheses do not need to be subjected to further analysis.

Major Hypothesis III

The group mean on the MTAI pre-test for 321A will exceed that of the MTAI posttest for 101A.

The treatment effect showed significance at the .0004 level. This indicated that there are significant differences between 101A and 321A. Since the measures effect showed no differences, it is reasonable to conclude that the posttest for 101A and the pre-test for 321A result in significantly different scores. By examining Table 7, the indications are that the 321A pre-test scores are significantly higher than the 101A posttest scores.

Major Hypothesis IV

The combined scores of the pre-tests and posttests for 321A will exceed that of 101A.

The combined scores of the pre-tests and the posttests is the treatment effect. This effect was significant at the .0004 level. This indicates that there were significant score differences between 101A and 321A. Table 7 illustrates the differences in the mean scores between the two courses. The scores from 321A were significantly higher than the scores of 101A, both on the pre-test and on the post-test.

Interviews

The interviews were conducted with twelve students, six from 101A and six from 321A. They were chosen from the sample for one of two reasons, extreme differences in pre-test and posttest scores or no differences in pre-test and posttest scores. Table 9 illustrates the students' scores. (See Appendix C for interview questions.)

In analyzing the information obtained in the interviews, the responses are noted by course, then by attitude change. The course information presented indicates that at least 4 out of 6 of the students gave those responses indicated. The attitude information indicates that at least 3 out of 4 of the students in a specific attitude change category gave those responses indicated.

By Course

The students in 101A indicated that they had learned a lot about teachers and teaching. They liked the children and the teachers. There were mixed emotions about the classrooms. Some comments were:

Table 9

Pre-Test, Posttest and Gain Scores for 101A and 321A Students Interviewed

	Pre-test	Posttest	Gain	Attitude Change
101A	23	48	+25	P
	8	38	+30	P
	47	47	0	S
	63	60	- 3	S
	58	16	-42	N
	40	- 6	-46	N
321A	61	85	+24	P
	69	93	+24	P
	63	66	+ 3	S
	26	28	+ 2	S
	68	33	-35	N
	34	- 4	-38	N

Legend:
P Positive attitude change
S No attitude change of significance
N Negative attitude change

1) "there's too much freedom," 2) "it was radically different from my own elementary experience," 3) "I don't know how I'd handle that much confusion." More experience was regarded as absolutely essential. The students indicated that they eventually wanted their own classrooms, but that they were not ready yet. Attitudes were changed "just because of the experience itself. It helped me to realize that I really did want to become a teacher." Most of the comments were in terms of teaching and organizing classrooms. There were very few comments about their own interaction with the children. One of the six students decided that as a result of her experience she did not want to become a teacher.

In 321A the students responded that the experience in District B schools was quite different from District A. "My school this term is very traditional, not like my school in 101A," was a typical response. The students tended to like the classrooms and the teachers. There were mixed emotions about the children. Some comments were: 1) "They were difficult to control," 2) "I liked some of the children, but not all of them." The students were excited about having their own classrooms and looked forward to soon graduating. They felt their attitudes changed because, "the experience in District B really showed what the classroom was like." These students responded to the questions in terms of getting along with the children, providing for individual differences, and the social-emotional climate of the classroom. All six of the 321A students definitely want to become classroom teachers.

By Attitude Change

Those students with a positive attitude change indicated that they enjoyed the field experience. They liked the classroom, the teacher and the children. They wanted to eventually be teachers. All of them felt that their attitudes had become more definite as a result of the experience.

The students whose attitudes did not change used the word "worthwhile" to describe the experience. They tended not to like the classroom they were placed in, nor the teacher, but they did like the children. Three of them wanted to eventually become teachers. They felt their attitudes seemed more defined after the experience.

Those students with a negative attitude change indicated that discipline was a problem. The experience was "O.K." They didn't like the classroom, but they liked the teacher and the children. All four eventually wanted their own classrooms. They felt their attitudes changed because of the children. The students indicated the children did not act as expected.

Summary

In this chapter, the analysis of the data was presented. The minor and major hypotheses were examined. In addition an empirical analysis of the interviews was included.

Chapter V contains the findings and conclusions from the data analyzed in this chapter.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter contains a summary of the study, the conclusions drawn from the data, a discussion of the findings and recommendations for future research.

Summary

The purpose of this study was to determine the attitudes toward teaching of pre-service elementary education majors who were enrolled in one of two required field-based courses at Michigan State University, Spring Term, 1975. These students were either enrolled in Education 101A (Exploring Elementary Teaching) or Education 321A (Curriculum Methods in Elementary Education).

Specifically, this study examined the students' attitudes at the beginning of their course and at the end. The instrument used to measure their attitudes was the Minnesota Teacher Attitude Inventory.

The population of 101A was 213 students. In 321A there were 168 students. The students were enrolled in one of two sections in their respective course. A random numbers assignment to alphabetical class lists, obtained at the close of regular registration, provided the 55 students desired from each course for the sample. These students

took the pre-test (MTAI) on campus in a meeting/seminar session of their course, during the first week of the term. After eight weeks of participation/observation, the students were again administered the MTAI as a posttest in their on-campus session of the course. At this time not all of the originally selected students were present, so the sample size was reduced to 45 from each course.

During the time between the pre-test and the posttest, the students in 101A were assigned to elementary classrooms in District A. This is a high socio-economic district and experiments with several innovative programs concurrently.

The students went to their assigned classrooms once a week (6 hours) for eight weeks of observation/participation. Appendix A provides a description of the activities in which the students were presumably involved. The students were also required to attend a meeting once a week on campus. The purpose of the meetings was to discuss general topics of concern in elementary education.

The students in 321A were assigned to elementary classrooms in District B. The students assigned to these schools attended one day a week (6 hours) for eight weeks of observation/participation. Appendix B provides a description of classroom activities in which the students were apt to be involved. The students were also required to attend a seminar once a week on campus. These seminars dealt with topics relevant to student teaching and subsequent employment as an elementary school teacher.

After the posttest scores were computed, gain scores were determined for each student. On the basis of the gain scores, twelve

students, six from each course, were selected for interviews. The students chosen were those whose scores from the pre-test to the post-test had changed the most or not at all. Included in the group were two who had changed the most in a negative direction, two who had changed the most in a positive direction, and two who had no change in each course. They were each interviewed by the researcher at their assigned school. Their responses were then combined to determine what patterns of response existed. These patterns were reported by course and then by attitude change. Appendix C contains the interview questions.

The literature reviewed indicates that the students enrolled in most courses in teacher education, either field-based or college classroom situations, do not significantly change their attitudes during the time of the course. Major changes in attitudes toward teaching seem to occur between the time the student begins the first course in teacher education and the time of his/her last course in teacher education. Usually this is a span of 3-4 years. The attitudes appear to go in a more positive direction as the student progresses through the teacher education program. Many variables other than the teacher education program may also contribute to this attitude change.

The instrument used in this study to measure the students' attitudes toward teaching was the Minnesota Teacher Attitude Inventory. It is one of the most widely used attitude measures. It was constructed in 1951 and the original version, Form A, is still the only version in print.

This study involved the testing of eight hypotheses. These were separated equally into two categories; minor hypotheses and major hypotheses. The minor hypotheses involved determining if the two groups in each course were essentially equal in attitudes on the pre-test and on the posttest. t-tests and corresponding F-tests yielded no significant differences in the groups. Thus the two groups of 101A were combined to form one group and the two groups of 321A were combined to form one group. Next, a repeated measures design, using the information obtained from testing the minor hypotheses, was employed to test the major hypotheses. These hypotheses centered around finding differences between the pre-test and posttest scores in each course, and finding differences between 101A and 321A, in terms of attitudes. There was no significant difference found between the pre-test and posttest scores of either group. There was, however, a significant difference between the two courses. Significance was reported at the .0004 level.

On the basis of the interviews the 321A students seemed more anxious to begin their professional careers than 101A students. The students in 101A felt they needed more experience, more time and more techniques for classroom management. The students in 321A felt that District B schools had given them a more realistic view of the typical elementary school classroom. They felt they had more realistic attitudes toward teaching and toward children.

Conclusions

Using the results of the t-tests and F-tests conducted on the minor hypotheses, the following conclusions were reached.

1. There were no significant (.05) differences in attitudes toward teaching between the students enrolled in section one and section two of 101A.

2. There were no significant (.05) differences in attitudes toward teaching between the students enrolled in section one and section two of 321A.

Using the results of the repeated measures test on the major hypotheses, the following conclusions were reached.

3. The students enrolled in 101A did not significantly (.05) change their attitudes toward teaching during the term.

4. The students enrolled in 321A did not significantly (.05) change their attitudes toward teaching during the term.

5. In 321A, the students' pre-test attitudes toward teaching were more positive than 101A students' posttest attitudes toward teaching, as determined by observation of the group mean scores.

6. Students enrolled in 321A had more positive attitudes toward teaching at the beginning and at the end of the term, than those students enrolled in 101A (significant at the .0004 level).

Using the information obtained in the limited number of interviews, the following conclusions seem warranted.

1. Students reported more problems with discipline in 321A than students in 101A.

2. Students in 321A indicated that they felt more prepared to teach their own classroom than those students in 101A.

3. Students in both 321A and 101A expressed the belief that the experience helped them better understand the realities of the classroom.

4. Students in 101A indicated more concern with the organization of the classroom; students in 321A more concern with the pupils' mental and social growth.

Discussion

Attention should be drawn to certain factors in this study. First, the length and ambiguity of the MTAI should be noted. Administration of the instrument "usually takes from 20 to 30 minutes,"[1] is stated in the manual. In this study it took from 35-55 minutes to administer the test. Some students seemed restless and upset by the MTAI. There were complaints that it was too difficult to understand the questions and put an exact answer. The students felt that sometimes they would answer one way, but at other times they would answer with a completely different answer, depending on the circumstances. By hand scoring the answer sheets it was obvious that those students who made extreme responses (strongly agree/strongly disagree) tended to score higher than those who made neutral responses (undecided/uncertain). The MTAI was first published in 1951 and the original version is still the only one in print today.

Secondly, although the students in 101A and in 321A showed no significant differences from pre-test to posttest scores, it is worth noting the following information. In 101A the mean scores went in a negative direction from pre-test to posttest. In 321A the mean

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[1]Walter W. Cook, Carroll H. Leeds, and Robert Callis, Minnesota Teacher Attitude Inventory--Manual (New York: Psychological Corporation, 1951), p. 5.

scores went in a positive direction from pre-test to posttest. In closer examination of the scores, 50 percent of the 101A students had an increase in scores while 60 percent of the 321A students had an increase in scores. Possibly the MTAI has its items based on the realities of the classroom. As the students become more aware of the actual classroom setting, they tend to make more definite commitments within themselves regarding teaching. This fact, coupled with the extreme response tendency of influence on the MTAI, as reported by Budd and Blakely[2], could account for the higher scores on the part of the 321A students.

This study adds support to other studies done on attitudes of pre-service elementary teachers. The students, sampled are representative of the population of 101A and 321A students. There is no reason to believe that Spring Term, 1975, was any different than other terms, except Summer when there is no field-based experience connected with the courses.

The second field-based course, 321A, was represented by more positive attitudes than the first field-based course, 101A, on both pre-test and posttest of the MTAI. As the students progress through their course work at Michigan State University, they tend to become more positive in their attitudes toward teaching, as defined by the MTAI.

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[2]William C. Budd and Lynda S. Blakely, "Response Bias in the Minnesota Teacher Attitude Inventory," Journal of Educational Research, 51:707-709, May, 1958.

Recommendations for Future Research

This study was centered around pre-service teachers' attitudes toward teaching. Specifically, it dealt with two field-based courses required of elementary education majors at Michigan State University. There are a number of other considerations, in addition to attitudes that should be explored.

1. Studies have indicated that students feel they have a more realistic view of the classroom as a result of field-based courses. Are there certain experiences that should be included in field-based courses, in order for students to gain a more realistic view of the classroom?

2. Research has shown that student teachers' attitudes have been influenced by their supervising teacher. Do the teachers who supervise the students in field-based courses, influence the attitudes of those students?

3. Since the MTAI is 24 years old and has not been revised since its inception, it might prove fruitful to develop a different approach to assessing attitudes toward teaching using constructs and concepts related to teaching, commonly used today.

4. Attitudes toward teaching differ according to educational level. How do attitudes differ according to specialization within elementary education?

5. Field-based courses usually have some input from the teacher training institution. Does the amount of college supervision in the classroom of the field-based course effect the attitudes toward teaching of the students enrolled?

6. Since studies have reported that students' attitudes toward teaching increase as they progress through the teacher education program, at what stage do their attitudes show the most significant increase?

7. Are there certain courses in teacher education that cause more of an attitude change than others?

APPENDICES

APPENDIX A

COURSE DESCRIPTION, CHECKLIST OF ACTIVITIES, AND MEETING OUTLINE FOR EDUCATION 101A

APPENDIX A

EXPLORING TEACHING
ED 101A
Michigan State University

INTRODUCTION

Exploring Teaching (ED 101A) is the first professional course in the M.S.U. teacher certification programs for students majoring in Elementary and Special Education or Family and Child Sciences. It is a field course made possible by cooperative arrangements between District A and Michigan State University. Students enrolled in the course are obligated to spend a full school day in an elementary school each week throughout an academic term (usually nine weeks). The classroom role of the student approximates that of a teacher's aide. In this role the student is expected to be actively involved in the proceedings of the classroom and not a passive observer.

OBJECTIVES

There are two major objectives for the course:

1. To provide an authentic classroom experience which will enable students to assess their own interests and aptitudes for teaching.

2. To provide a screening and selection mechanism which will enable experienced educators to evaluate the capabilities and commitment of students who seek admission to elementary school teacher certification programs at Michigan State University.

Successful completion of Exploring Teaching is prerequisite to enrollment in professional education courses.

THE BASIC EXPERIENCE

It is hoped that each student enrolled in Exploring Teaching will have school experiences which provide a broad sampling of teaching tasks and responsibilities. We seek a balance among those tasks which are routine, menial, and non-instructional and those tasks which involve interpersonal relationships with children, instructional decisions, and responsibilities for the supervision and care of children. Because of the relative inexperience of the students and the lack of educational preparation in teaching techniques, the work of the students must always be done under the direct supervision of legally responsible educators. The relationship between cooperating school authorities and the Exploring Teaching students whould be one of mutual benefit in which the assistance of the student volunteers is traded for the richest possible introduction to the realities of a teaching career. To assist students and teachers in planning a wide variety of experiences, a list of appropriate tasks is attached. This list is not exhaustive, of course, and is to be used for guidance only.

When and where it is possible to extend the students' experience beyond a single classroom setting without seriously interferring with the basic relationship already described it is desirable to do so. A complete sampling of the curriculum for children--including activities in other classrooms, the gym, field trips, and outdoors--would be beneficial for most students. Opportunities to converse with a variety of school staff members should help students understand other roles and the relationships among people which are developed to achieve

a smooth running school. Occasional meetings with teachers and the school principal in which child management, professional, curricular and operational matters could be discussed would enlighten students and help them understand facets of an educational career that are sometimes obscure at first. It would also be useful to inform students of school policies on safety, conditions of employment and other matters close to the interests of teachers. The university supervisors will be happy to cooperate in arranging such activities when their assistance is desired.

MICHIGAN STATE UNIVERSITY
DEPARTMENT OF ELEMENTARY AND SPECIAL EDUCATION

CHECKLIST OF EXPLORING TEACHING ACTIVITIES

I. OBSERVING AND INTERACTING WITH CHILDREN

Maintain observational log of behavior of 1 or 2 children.
Help supervise children on/off bus.
Accompanied children on school bus ride.
Help children with clothing--zipper, shoes, etc., especially in kindergarten.
Assist with art, music, dramatic presentations.
Read story to child or children.
Arrange and supervise games/rainy day activities.
Give directions for a classroom activity.
Converse with children.
Listen to children in conversations.
Tutor child or children.
Work with groups of 3-5 children.
Listen to oral reading of individual children.
Assist individuals in correcting written work.
Direct work or pupils on a teacher-introduced project.
Assist pupil(s) locate resources.
Assist in lunch room supervision.
Assist in playground supervision or in auditorium.
Assist with field trips.
Assist with medical exams, innoculations, vision tests, etc.
Take children to library, playground, office, nurse, etc.

II. ASSIST TEACHER WITH INSTRUCTION

Correct papers.
Put lessons for the next day on the chalk board.
Arrange science corner, reading corner, etc.
Prepare transparencies as directed.
Prepare charts as directed.
Prepare teaching aids: flip charts, covered boxes for storage, etc.
Procure and operate A-V equipment.
Act as a proctor for the classroom teacher in test situations.
Record data in cumulative folder, reading cards, etc.
Distribute reading materials according to the results of tests.
Contribute a special skill to the work of the classroom.
Develop an instructional or resource unit for classroom teacher.

III. ASSIST TEACHER WITH ORGANIZATION OF CLASSROOM

Make seating charts.
Assist in keeping room neat and orderly.

ASSIST TEACHER WITH ORGANIZATION OF CLASSROOM (Cont.)

Do various housekeeping chores--cleaning closets, sorting materials, etc.
Assist in the collection and filing of pictures.
Operate duplicating equipment.
Collect money from children as directed.
Help arrange room for special activity.
Fill paint jars.
Help with clerical duties in school
Check attendance, lunch counts, etc.
Pass out routine notices, information, bulletins, etc.
Arrange bulletin board.
Collect, mount, file picture.
Make name tags for children.
File instructional materials for the teacher.
Type masters of reading forms, questionnaires, and testing profile forms.

IV. ASSIST IN ADMINISTRATION

Work in principal's office.
Work in library.
Assist school secretaries in student registration and withdrawals, typing dittos, answering the telephone and other types of office work.
Score and profile achievement & diagnostic tests.

V. ASSIST WITH PUBLIC RELATIONS.

Attend parent-teacher conference.
Attend PTA meetings.
Attend teachers' meeting.
Maintain professional readings about teaching.
Attend professional meeting.
Call parents for teacher.
Converse with custodian, special teachers, volunteers, etc.

Schedule for Exploring Teaching
ED 101A - Spring, 1975

	Wed or Mon	
(1)	3/26 or 3/31	Exploring Teaching overview. School assignments: Begin Mon 4/7 - End Mon 6/2
(2)	4/2 or 4/7	Maintaining a daily journal. Becoming a group. What do teacher-aides do? Assignment: Select a book to read this term from the list provided.
(3)	4/9 or 4/14	Meet your hosts--principals and teachers from your schools.
(4)	4/16 or 4/21	Your contribution to the classroom. What are you reading? Dealing with classroom situations.
(5)	4/23 or 4/28	Cognitive mapping for more effective learning.
(6)	4/30 or 5/5	The Elementary Intern Program--Dr. Cooper and Interns. Child management principles you can apply.
(7)	5/7 or 5/12	Occupational prospects for teachers--Dr. Pat Scheetz, Placement Office.
(8)	5/14 or 5/19	Where do you go from here? To teach or not to teach? What do you need to learn?
	5/21 or 5/26	(No class on either date. Final conferences in school during week beginning Tues 5/27.)

School Calendar:

Week	M	Tu	W	Th	F
(1)	*4/7	4/8	4/9	4/10	4/11
(2)	4/14	4/15	4/16	4/17	4/18
(3)	4/21	4/22	*4/23	4/24	4/25
(4)	4/28	4/29	4/30	5/1	5/2
(5)	5/5	5/6	*5/7	5/8	5/9
(6)	5/12	5/13	5/14	5/15	5/16
(7)	5/19	5/20	*5/21	5/22	5/23
(8)	**	5/27	5/28	5/29	5/30
	**6/2				

* Professional Activity day for teachers
**To make up for Memorial Day holiday

APPENDIX B

COURSE OBJECTIVES AND GUIDELINES AND SEMINAR OUTLINE FOR EDUCATION 321A

MICHIGAN STATE UNIVERSITY
COLLEGE OF EDUCATION
DEPARTMENT OF ELEMENTARY AND SPECIAL EDUCATION

Spring Term 1975

EDUCATION 321A - ELEMENTARY EDUCATION

Course Activities:

1) Required:
   a) Tuesday or Thursday participation in an elementary school
   b) Self-instructional program in educational media
   c) Participation in recitation sections

2) Optional:
   I. R. C. Graphics Production Lab

Course Objectives:

1) Our primary purpose for the classroom experience is to enable you to work with children in the school setting. The classroom activities we suggest are intentionally left relatively open to allow you to gain as much as you can and to allow the teacher the necessary latitude to fit you into the classroom program. Specifically, we anticipate that you will gain the following from this experience:
   a) Through observation and discussion with the teacher you will begin to develop a valid perception of the teacher's role.
   b) Your work in the classroom will provide you with a background of experience which will add meaning to your methods courses.
   c) Your tutoring experiences will provide an opportunity for insight into the learning process.
   d) You will gain some initial ideas as to how you can be most effective in working with small groups of children.

2) The self-instructional media program is designed to acquaint you with the basic educational hardware found in most schools. You should be able to operate five of the most common pieces of equipment upon completion.

3) Recitation sections will provide an arena for the exchange of ideas and information. In addition, instructors will provide input in a number of areas including planning for instruction, class and room management and school organization.

Course Evaluation:

Education 321A is on the Pass - No Credit basis. To receive the Pass grade you must:

a) complete the self-instructional program in education media,
b) participate in the Tuesday or Thursday in-school experience for 8 full days, or the equivalent,
c) attend and participate in recitation sections

MICHIGAN STATE UNIVERSITY
COLLEGE OF EDUCATION
DEPARTMENT OF ELEMENTARY AND SPECIAL EDUCATION

Spring Term 1975

EDUCATION 321A
GUIDELINES FOR TUESDAY - THURSDAY PARTICIPATION

I. Your teacher has been given the following list of activities for methods students. There are only suggested, and the list is not inclusive of all the activities you might be asked to undertake in the classroom.

1) Take roll
2) Read a story
3) Tutor
4) Work with small groups
5) Help with make-up work
6) Teach an art, science, or math, etc., enrichment lesson
7) Help with gym or playground groups
8) Help with bulletin boards
9) Help with wraps and boots
10) Check papers (This can be a learning experience, but it can be overused.)
11) Help with field trips
12) Produce materials and supplies
13) Help with AV materials
14) Distribute materials
15) Prepare seat work

In addition to these activities, the students may have an assignment from one or more of her methods instructors for which he may need to observe a group of your children or work with a small (3-5) group of them in an enrichment lesson.

II. Crucial Guidelines for You

a) Keep in mind you are an individual guest in the school. The first responsibility of the teacher you work with is to her pupils. Your learning experience must always fit into the program planned for the pupils. Most teachers are sensitive about their teaching. Adverse comments in the coffee lounge or elsewhere serve no positive purpose. If you have a problem, bring it to your ED 321A supervisor.

b) Keep the information you learn about specific children in the school strictly confidential. This is absolutely critical.

c) Your hours are 8:00 to 3:50 (the teacher's full day). Please be prompt. This will allow time for you to talk with your teacher. On the first day, report to the principal's office.

d) If you are ill, or in the event of an emergency which keeps you from attending, please call the school office between 7:50 and 8:15. Once you become a part of the human resources of the school, the teacher and the pupils are counting on you.

e) Dress appropriately. On the first day, dress on the conservative side, then let the dress of the regular teachers in the building be your guide.

321A SEMINAR OUTLINE

For the Week of:	Session	Topic	Written Assignments
3/27 & 4/3	I	Introduction to the Course	
4/10	II	The School and the University Sub-Culture	Introduction to Assignment A: Management Observation
4/17	III	Classroom Management (I)	Management Observation A-1 due
4/24	IV	Classroom Management (II)	Management Observation A-2 due
5/1	V	The Teacher and the Law	Introduction to Assignment B: Schoolboard Observation or Teaching Episode Reaction or Motivation Observation
5/8	VI	Individualizing Instruction	Assignment B due
5/15	VII	Techniques for Evaluation	
5/22	VIII	Tooling up to Look for a Job (I)	Introduction to Assignment C: Model Resume
5/29	IX	Tooling up to Look for a Job: (II)	Assignment C due
6/5	X	Emerging Trends in Elementary Education	

APPENDIX C

INTERVIEW QUESTIONS

Interview Questions

1. How would you characterize your field experience this term in 101A/321A?

2. How did you feel about your classroom?

   the children?

   the teacher?

3. How do you feel about eventually having your own classroom?

4. How did your attitudes toward teaching change during this term?

5. What caused your attitudes to change?

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Babbie, Earl R. Survey Research Methods. Belmont, Cal.: Wadsworth, 1973.

Buros, Oscar Krisen, ed. The Third Mental Measurements Yearbook. New Brunswick: Rutgers University Press, 1949.

Buros, Oscar Krisen, ed. Fourth Mental Measurements Yearbook. Highland Park, N.J.: The Gryphon Press, 1953.

Buros, Oscar Krisen, ed. Fifth Mental Measurements Yearbook. Highland Park, N.J.: The Gryphon Press, 1959.

Buros, Oscar Krisen, ed. Sixth Mental Measurements Yearbook. Highland Park, N.J.: The Gryphon Press, 1965.

Buros, Oscar Krisen, ed. Seventh Mental Measurements Yearbook. Highland Park, N. J.: The Gryphon Press, 1972.

Buros, Oscar Krisen, ed. Tests in Print: A Comprehensive Bibliography of Tests for Use in Education, Psychology and Industry. Highland Park, N.J.: The Gryphon Press, 1961.

Campbell, Donald T., and Julian C. Stanley. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally, 1963.

Campbell, William Giles, and Stephen Vaughan Ballou. Form and Style. Boston: Houghton Mifflin, 1974.

Getzels, J. W., and P. W. Jackson. "The Teacher's Personality and Characteristics." Handbook of Research on Teaching. Edited by N. L. Gage. Chicago: Rand McNally, 1963.

Glass, Gene V., and Julian C. Stanley. Statistical Methods in Education and Psychology. Englewood Cliffs, N. J.: Prentice-Hall, 1970.

Kirk, Roger E. Experimental Design: Procedures for the Behavioral Sciences. Belmont, Cal.: Brooks/Cole, 1968.

Koerner, James D. The Miseducation of American Teachers. Baltimore: Penguin Books, 1963.

Polk's Lansing (Ingham County, Michigan) City Directory. Taylor, Mich.: Polk and Company, 1974.

U.S. Department of Commerce. Social and Economic Statistics Administration, Bureau of the Census. General Social and Economic Characteristics--Michigan, 1970 Census of Population. Washington: Government Printing Office, April, 1972.

Periodicals

Acheson, Keith, and James L. Olivero. "Educational Laboratories and Teacher Education," Journal of Teacher Education, 21:325-334, Fall, 1970.

Allen, M. R. "Early and Continuous Direct Experiences with Children," Contemporary Education, 42:226-228, April, 1971.

Andrews, Leonard O. "Experimental Programs of Laboratory Experiences in Teacher Education," 1:259-267, December, 1950.

Bausell, R. Barker, and William B. Moody. "Are Teacher Preparatory Institutions Necessary?" Phi Delta Kappan, 54:298, January, 1973.

Bennett, Don. "Teacher Commitment--Whose Responsibility," Journal of Teacher Education, 21:515-518, Winter, 1970.

Bidna, David B., and Robert O. Hahn. "Participating and Observing," Journal of Teacher Education, 10:319-322, September, 1959.

Blumberg, Arthur, and Roger Perry. "A Comparison of Human Relations Problem-Diagnostic Tendencies of Elementary and Secondary Teachers," Journal of Educational Research, 67:207-209, January, 1974.

Bowman, David L. "The Two-Week Field Experience," Journal of Teacher Education, 11:87-91, March, 1960.

Brim, Burl J. "Attitude Changes in Teacher Education Students," Journal of Educational Research, 59:441-445, July-August, 1966.

Buchanan, Marcia M. "Preparing Teachers to be Persons," Phi Delta Kappan, 52:641-617, June, 1971.

Budd, William C., and Lynda S. Blakely. "Response Bias in the Minnesota Teacher Attitude Inventory," Journal of Educational Research, 51:707-709, May, 1958.

Callis, Robert. "Change in Teacher-Pupil Attitudes Related to Training and Experience," Educational and Psychological Measurement, 10:718-727, Winter, 1950.

Callis, Robert. "The Efficiency of the Minnesota Teacher Attitude Inventory for Predicting Interpersonal Relations in the Classroom," Journal of Applied Psychology, 37:82-85, February, 1953.

Casey, John P., and Keith McNeil. "Attitudinal Dimensions of Supervising Teachers and of Elementary and Secondary Student Teachers," Journal of Teacher Education, 23:358-362, Fall, 1972.

Clayton, Thomas E. "What Happens to Prospective Teachers in Early Experiences with Children?" Journal of Teacher Education, 8:376-379, December, 1957.

Cook, Walter W. "Why Train Teachers," Journal of Teacher Education, 9:233-234, September, 1958.

Cook, Walter W., Cyril J. Hoyt, and Alf Eikaas, "Studies of Predictive Validity of the Minnesota Teacher Attitude Inventory," Journal of Teacher Education, 7:167-172, June, 1956.

Cooper, James M., and David Sadker. "Current Trends in Teacher Education Curriculum," Journal of Teacher Education, 23:312-317, Fall, 1972.

Cox, Dan. "An Objective and Empirical Study of the Effects of Laboratory Experience in a Professional Education Course Prior to Student Teaching," Journal of Experimental Education, 29:89-94, September, 1960.

Cox, Dan. "Initiating a Program of Pre-Student-Teaching Laboratory Experiences," Journal of Teacher Education, 9:159-161, June, 1958.

Day, Harry P. "Attitude Changes of Beginning Teachers After Initial Teaching Experience," Journal of Teacher Education, 10:326-328, September, 1959.

DeLong, Greta. "Toward More Meaningful Teacher Preparation," Journal of Teacher Education, 22:15-17, Spring, 1971.

Dobson, Russell, Sue Hawkins, and Bill Bowman. "The Effect of Intensive Human Relations Laboratory Experiences Upon Student Teachers Perception and Treatment of Behavioral Problems of Elementary School Children," Educational Leadership, 29:159-164, November, 1971.

Dugan, Ruth. "Personality and the Effective Teacher," Journal of Teacher Education, 12:335-337, September, 1961.

Dutton, Wilbur H., and Evan R. Keislar. "Attitudes Toward Teaching," Journal of Teacher Education, 12:165-171, June, 1961.

Dyrli, Odvard Egil. "Involving Prospective Teachers With Children--A Workable Model," Journal of Teacher Education, 23:461-463, Winter, 1972.

Eichhorn, Donald H. "The School as Center for Human Development," Educational Leadership, 29:24-27, October, 1971.

Fulton, W. R., and O. J. Rupiper. "Observation of Teaching: Direct vs Vicarious Experiences," Journal of Teacher Education, 13:157-164, June, 1962.

Gallegos, Arnold M. "Teacher Training: The Realities," Journal of Teacher Education, 23:43-46, Spring, 1972.

Giebink, John W. "A Failure of the Minnesota Teacher Attitude Inventory to Relate to Teacher Behavior," Journal of Teacher Education, 18:233-239, Summer, 1967.

Goodlad, John I. "An Analysis of Professional Laboratory Experiences in the Education of Teachers," Journal of Teacher Education, 16:263-270, September, 1965.

Hammerman, Donald R. "First-Rate Teachers Need Firsthand Experience," Journal of Teacher Education, 11:408-411, September, 1960.

Henney, Maribeth, and W. Paul Mortenson. "What Makes a Good Elementary School Teacher," Journal of Teacher Education, 24:312-316, Winter, 1973.

Hoover, Kenneth H. "Student Attitude Change in an Introductory Education Course," Journal of Educational Research, 6:300-303, March, 1968.

Horowitz, Myer. "Student-Teaching Experiences and Attitudes of Student Teachers," Journal of Teacher Education, 19:317-323, Fall, 1968.

Hoyt, Cyril J., and Walter W. Cook. "The Predictive Validity of the Minnesota Teacher Attitude Inventory Based on Pupil Attitude Toward School," Journal of Teacher Education, 10:42-44, March, 1959.

Hoyt, Cyril J., and Walter W. Cook. "The Stability of MTAI Scores During Two to Seven Years of Teaching," Journal of Teacher Education, 11:487-491, December, 1960.

Hunter, Elizabeth, and Edmund Amidon. "Direct Experience in Teacher Education: Innovation and Experimentation," Journal of Teacher Education, 17:282-289, Fall, 1966.

Ingle, Robert B., and Edward W. Robin. "An Examination of the Value of Classroom Observation for Prospective Teachers," Journal of Teacher Education, 16:456-460, December, 1965.

Jacobs, Elmer B. "Attitude Change in Teacher Education: An Inquiry into the Role of Attitudes in Changing Teacher Behavior," Journal of Teacher Education, 19:410-415, Winter, 1968.

James, Helen H. "Attitude and Attitude Change: Its Influence Upon Teaching Behavior," Journal of Research in Science Teaching, 8:351-355, 1971.

Katz, Daniel. "The Functional Approach to the Study of Attitudes," Public Opinion Quarterly, 24:163-204, Summer, 1960.

Kinney, Lucien B. "The Preparation of Teachers for Effective Professional Participation," Journal of Teacher Education, 8:246-252, September, 1957.

Lagey, Joseph Chiozza. "Does Teaching Change Students' Attitudes?" Journal of Educational Research, 50:307-311, December, 1956.

Lambert, Lillian. "The Impact of Actual Experience," Journal of Teacher Education, 11:402-407, September, 1960.

Lansing, Kenneth. "Weaknesses in Teacher Education," Educational Forum, 38:31-39, November, 1973.

Leeds, Carroll H. "A Second Validity Study of the Minnesota Teacher Attitude Inventory," Elementary School Journal, 52:398-405, March, 1952.

Leeds, C. H. "Predictive Validity of the 'Minnesota Teacher Attitude Inventory'," Journal of Teacher Education, 20:51-26, Spring, 1969.

Lehman, Irvin J., Birendra K. Sinha, and Rodney T. Hartnett. "Changes in Attitudes and Values Associated with College Attendance," Journal of Educational Psychology, 57:89-98, April, 1966.

Levine, Madeline S. "Extending Laboratory Experiences," Journal of Teacher Education, 9:379-382, December, 1958.

Levine, Madeline S. "Extending Laboratory Experiences Part II," Journal of Teacher Education, 12:29-35, March, 1961.

Lucina, Sister Mary. "Readiness for Professional Laboratory Experiences," Journal of Teacher Education, 10:310-314, September, 1959.

McCarty, Frederick H., Bernard Nisenholz, and Russell Kraus. "Awareness Experiences for Elementary School Teachers," Journal of Teacher Education, 23:457-460, Winter, 1972.

McIntosh, R. Gordon. "The Clinical Approach to Teacher Education," Journal of Teacher Education, 22:18-24, Spring, 1971.

Metzner, Seymour, Walter A. Nelson, and Richard M. Sharp. "On-Site Teaching: Antidote for Reality Shock?" Journal of Teacher Education, 23:194-198, Summer, 1972.

Monson, Jay A. "The New Models in Elementary Teacher Education," Phi Delta Kappan, 51:101, October, 1969.

Morrison, W. Lee, and R. C. Romoser. "Personality Structure and Dimensions of Teacher Attitudes," Journal of Experimental Education, 36:55-58, Winter, 1967.

Murphy, Geraldine. "The Prospective Teacher as Observer," Journal of Teacher Education, 13:150-156, June, 1962.

Openshaw, Karl. "Attitudes for Growth," Educational Leadership, 20: 90-92, October, 1962.

Ornstein, Allan C. "Some Possible Hazards Inherent in Evaluating Teacher Education Programs," Journal of Teacher Education, 23:294-295, Fall, 1972.

Overby, George Robert. "A New Perspective in the Evaluation of Prospective Teachers in Professional Education Courses," Journal of Teacher Education, 23:50-52, Spring, 1972.

Perlman, Ruth. "The Field Workshop in Teacher Education," Journal of Teacher Education, 12:91-95, March, 1961.

Piana, G. M. D., and N. L. Gage. "Pupils' Values and the Validity of the Minnesota Teacher Attitude Inventory," Journal of Educational Psychology, 46:167-178, 1955.

Posey, Cecil W. "Preparation for the Profession and the Pre-Service Program," Journal of Teacher Education, 8:261-264, September, 1957.

Rabinowitz, William. "The Fakability of the Minnesota Teacher Attitude Inventory," Educational and Psychological Measurement, 14:657-664, Winter, 1954.

Rabinowitz, William, and Ira Rosenbaum. "Teaching Experience and Teachers' Attitudes," Elementary School Journal, 60:313-319, March, 1960.

Reynard, Harold E. "Pre-Service and In-Service Education of Teachers," Review of Educational Research, 33:369-380, October, 1963.

Richards, Rachel. "Prospective Students' Attitudes Toward Teaching," Journal of Teacher Education, 11:375-380, September, 1960.

Robinson, Joseph. "A Field Experience Program in Teacher Education," Kappa Delta Pi Record, 8:87-88, February, 1972.

Rosenberg, Milton J. "A Structural Theory of Attitude Dynamics," Public Opinion Quarterly, 24:319-340, Summer, 1960.

Scott, Owen, and Sterling G. Brinkley. "Attitude Changes of Student Teachers and the Validity of the Minnesota Teacher Attitude Inventory," Journal of Educational Psychology, 51:76-81, April, 1960.

Scrivner, A. W. "Professional Laboratory Experiences," Journal of Teacher Education, 12:48-53, March, 1961.

Shuck, Emerson. "Field or Laboratory Experience in Teacher Education," Journal of Teacher Education, 12:271-274, September, 1961.

Sorenson, A. Garth. "A Note on the 'Fakability' of the Minnesota Teacher Attitude Inventory," Journal of Applied Psychology, 40:192-194, June, 1956.

Stein, Harry, and James Hardy. "A Validation Study of the Minnesota Teacher Attitude Inventory in Manitoba," Journal of Educational Research, 50:321-338, December, 1956.

Stiles, Lindley J. "Attitudes Toward Education Courses," Journal of Teacher Education, 10:182-188, June, 1959.

Summers, Gene F., Arnold A. Shuster, and Susan K. Shuster. "The Minnesota Teacher Attitude Inventory and Counselor-Camper Interaction: A Note on Predictive Validity," Educational and Psychological Measurement, 29:999-1004, Winter, 1969.

Thompson, Ralph. "Where Teacher Education Programs Fail," Journal of Teacher Education, 21:264-269, Summer, 1970.

Torrence, E. Paul. "Teacher Attitude and Pupil Perception," Journal of Teacher Education, 11:97-102, March, 1960.

Weil, Philip E., and Mildred Weil. "Professionalism: A Study of Attitudes and Values," Journal of Teacher Education, 22:314-318, Fall, 1971.

Dissertations

Carroll, Raymond A. "Teacher Education: Trends in Concepts of the Professional Preparation of Teachers 1940-1968." Unpublished Doctoral dissertation, Michigan State University, 1969.

Claycomb, Clyde M. "An Exploratory Study of Attitudes Toward Children Expressed by Undergraduate Teachers Candidates." Unpublished Doctoral dissertation, Michigan State University, 1970.

Colvin, Cynthia. "Achieving Readiness for Student Teaching Through Direct Experience." Dissertation Abstracts, 19:3229A, 1958.

Edualino, Emilio Quial. "The Relationship Between Successful Student Teaching and Pre-Student Teaching Experiences with Children." Dissertation Abstracts, 19:486, 1958.

Estes, Sidney Harrison. "A Status Study of Pre-Student Teaching Laboratory Experiences in Elementary Teacher Education." Dissertation Abstracts, 28:4022A, 1967.

Fehl, Patricia K. "The Effects of an Observation-Participation Program on Attitudes and on Concepts." Dissertation Abstracts, 27:3338A, 1967.

Funk, Haldon Dean. "The Effect of Pre-Student Teaching Professional Laboratory Experiences on Selected Attitudes and Concepts of Prospective Elementary Teachers." Dissertation Abstracts, 29:3020A, 1968.

Jones, Isabel Fleming. "A Study of the Relationship of Various Types of Pre-Student Teaching Experiences to Success in Student Teaching." Dissertation Abstracts, 16:709, 1955.

Lane, Frank T. "A Study of the Professional Problems Recognized by Beginning Teachers and Their Implications for a Program of Teacher Education (at State University of New York Teachers College at Brockport)." Unpublished Doctoral dissertation, New York University, 1954.

Leeds, C. H. "The Construction and Differential Value of a Scale for Determining Pupil Attitudes." Unpublished Doctoral dissertation, University of Minnesota, 1946.

Marino, Ronald J. "The Effects of a Concentrated In-Service Program Designed to Improve Elementary Teachers' Attitudes Toward Children." Unpublished Doctoral dissertation, Michigan State University, 1971.

Quinn, Mary Ellen. "An Investigation of Undergraduate Field Study Experiences at Michigan State University." Unpublished Doctoral dissertation, Michigan State University, 1972.

Schneck, George Robert. "An Investigation of Visitation Experiences in an Education Program for Prospective Elementary Teachers." Unpublished Doctoral dissertation, Michigan State University, 1972.

Schrag, Marie Carol. "An Assessment of Selected Attitudinal Changes in Secondary Vocational Teachers." Unpublished Doctoral dissertation, Michigan State University, 1972.

Sickmiller, Edwin R. "Confidence, Attitude, Desire to Teach, and an Early Clinical Experience." Unpublished Doctoral dissertation, Michigan State University, 1973.

Sinclair, William W. "An Analysis of Three Pre-Student Teaching Experiences in the Preparation of Elementary School Teachers." Unpublished Doctoral dissertation, Michigan State University, 1961.

Smith, Martha L. "A Study of Elementary Student Teaching Confidence in and Attitude Toward Music and Changes that Occur in a Student Teaching Experience." Unpublished Doctoral dissertation, Michigan State University, 1969.

Other Materials

Cook, Walter A., Carroll H. Leeds, and Robert Callis. Minnesota Teacher Attitude Inventory--Form A. New York: Psychological Corporation, 1951.

Cook, Walter A., Carroll H. Leeds, and Robert Callis. Minnesota Teacher Attitude Inventory--Manual. New York: Psychological Corporation, 1951.

Porter, Andrew C. "Analysis Strategies for Some Common Evaluation Paradigms." Paper presented at the meeting of the American Educational Research Association, New Orleans, February, 1973.