THE EFFECT OF STUDENT TEACHING ON ATTITUDES OF SELECTED ELEMENTARY AND SECONDARY EDUCATION STUDENTS AT UTAH STATE UNIVERSITY

by

Sylvia Lynn Rhoades

A dissertation submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Curriculum Development and Supervision

Approved

UTAH STATE UNIVERSITY
Logan, Utah

1975
I wish to express my appreciation to Dr. Eldon M. Drake, my major professor, for his encouragement and advice throughout the writing of this dissertation. A special thank-you also goes to Dr. Kenneth C. Farrer, Head of Secondary Education, for his counsel at various stages of my doctoral program. I am also grateful for the helpfulness of the other members of my committee: Dr. David R. Stone, Dr. William J. Strong, and Dr. John M. Patrick. Dr. Walter R. Borg and Prof. Ron Thorkildsen were most generous with advice concerning the statistical analysis. I also appreciate the cooperation of Dr. Arthur D. Jackson, Head of Elementary Education, and Prof. Evelyn L. Wiggins, Coordinator of Elementary Student Teaching. This study could not have been completed without the generous cooperation of the university supervisors of the student teachers during winter quarter, 1975. I appreciate the permission to use the National Iota Council’s copyrighted Instrument for the Observation of Teaching Activities (IOTA). In particular, I wish to thank Dr. Merwin Deever, Director of the Bureau of Educational Research and Services, Arizona State University, for his cooperation and for his generous lending of materials from his library.

I would like to express a very special thank-you to my husband George. His understanding and encouragement are deeply appreciated.

Sylvia Lynn Rhoades
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vi</td>
</tr>
</tbody>
</table>

**Chapter I. INTRODUCTION**

- Statement of the Problem | 4
- Purposes of the Study | 4
- Hypotheses | 5
- Assumptions | 7
- Definitions | 8

**Chapter II. REVIEW OF LITERATURE**

- Attitudes | 9
- Self-concept | 11
- Effect of Teachers' Attitudes upon Students' Attitudes and Self-Concepts | 15
- Effect of Teachers' Attitudes upon Students' Achievement | 21
- Student Teachers' Attitudes and Performance Grades | 24
- Student Teachers' Attitude Changes | 25
- Summary | 30

**Chapter III. INSTRUMENTS, SUBJECTS, AND RESEARCH DESIGN**

- Instruments | 32

  - Minnesota Teacher Attitude Inventory (MTAI) | 32
  - Instrument for the Observation of Teaching Activities (IOTA) | 40

- Subjects | 43

- Research Design | 46
# TABLE OF CONTENTS (Continued)

## IV. ANALYSIS OF THE DATA

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Data Related to the Hypotheses of the Study</td>
<td>48</td>
</tr>
<tr>
<td>Discussion</td>
<td>63</td>
</tr>
</tbody>
</table>

## V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS                           | 72   |

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypotheses of the Study</td>
<td>72</td>
</tr>
<tr>
<td>The Instruments</td>
<td>75</td>
</tr>
<tr>
<td>Subjects</td>
<td>75</td>
</tr>
<tr>
<td>Research Design</td>
<td>76</td>
</tr>
<tr>
<td>Analysis of the Data</td>
<td>76</td>
</tr>
<tr>
<td>Conclusions</td>
<td>79</td>
</tr>
<tr>
<td>Recommendations</td>
<td>82</td>
</tr>
</tbody>
</table>

## BIBLIOGRAPHY                                                           | 85   |

## VITA                                                                  | 92   |
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Percentile rank equivalents for raw scores on the Minnesota Teacher Attitude Inventory, Form A. (Students)</td>
<td>35</td>
</tr>
<tr>
<td>2. Percentile rank equivalents for raw scores on the Minnesota Teacher Attitude Inventory, Form A. (Experienced Teachers)</td>
<td>36</td>
</tr>
<tr>
<td>3. Analysis of variance F-ratio table for differences between mean attitude scores of elementary education and secondary education students before and after student teaching</td>
<td>49</td>
</tr>
<tr>
<td>4. Analysis of covariance F-ratio table for adjusted mean attitude scores of elementary and secondary education students</td>
<td>50</td>
</tr>
<tr>
<td>5. Analysis of variance F-ratio table of mean attitudes of elementary education and secondary education students before and after student teaching</td>
<td>51</td>
</tr>
<tr>
<td>6. Analysis of variance F-ratio table of mean attitudes, before and after student teaching, of students teaching in various areas of secondary education</td>
<td>55</td>
</tr>
<tr>
<td>7. Analysis of variance F-ratio table of mean performance scores of elementary education and secondary education student teachers on the Instrument for the Observation of Teaching Activities (IOTA)</td>
<td>56</td>
</tr>
<tr>
<td>8. Correlation between elementary education students' and secondary education students' mean attitudes, before and after student teaching, and their performance scores on the Instrument for the Observation of Teaching Activities (IOTA)</td>
<td>57</td>
</tr>
<tr>
<td>9. Number of students who increased and decreased MTAC scores after student teaching, and average number of points of increase and decrease</td>
<td>67</td>
</tr>
</tbody>
</table>
ABSTRACT

The Effect of Student Teaching on Attitudes of Selected Elementary and Secondary Education Students at Utah State University by Sylvia Lynn Rhoades, Doctor of Education Utah State University, 1975

Major Professor: Dr. Eldon M. Drake Department: Secondary Education

Introduction

The purpose of this study was to determine whether the attitudes of Elementary Education students and Secondary Education students toward children and teaching differ significantly prior to and after student teaching and whether these attitudes show a significant change as a result of the student-teaching experience. The study was also concerned with correlation between attitude change and the subject which the student teaches and correlation between attitude and the student's performance grade in student teaching.

Method

Subjects for the study were 33 Elementary Education students and 67 Secondary Education students at Utah State University who did their student teaching during the winter quarter, 1975. Secondary Education students were distributed in six areas as follows: Arts/Humanities, 11;
Business Education/Distributive Education, 12; Math/Science, 5; Vocational Education, 23; Social Studies, 7; and Physical Education/Health, 9.

Students participating in the study were tested on the Minnesota Teacher Attitude Inventory (MTAI) before and after student teaching. They were rated by university supervisors on Part I of the Instrument for the Observation of Teaching Activities (IOTA) during the final weeks of student teaching.

Analysis of variance and analysis of covariance were used to compare group means on the pre- and post-tests of the MTAI. Analysis of variance was also used to compare mean group scores on the IOTA.

Pearson's r product-moment correlation was used to determine significant relationships between student teachers' attitude scores on the MTAI and performance scores on the IOTA.

**Findings**

1. Prior to student teaching, Elementary Education student teachers had a significantly less realistic attitude toward children and teaching than Secondary Education student teachers had. Significance was at the .01 level.

2. After student teaching, there was no significant difference between the mean attitudes of Elementary Education and Secondary Education students toward children and teaching.

3. Elementary Education students and Secondary Education students had more realistic attitudes toward children and teaching (significant at the .01 level) after student teaching.

4. There was no significant difference in the mean attitudes toward children and teaching, before and after student teaching,
of Secondary Education students who taught in five of the six Secondary Education teaching areas. Students who taught in the area of Vocational Education had a significantly more realistic mean attitude toward children and teaching after the student-teaching experience. Significance was at the .01 level.

5. There was no significant difference in mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA) for Elementary Education student teachers and Secondary Education student teachers.

6. There was no significant correlation between mean attitude scores and mean performance scores on the IOTA for Elementary Education student teachers and Secondary Education student teachers.

7. There was no significant correlation between mean attitude scores and mean performance scores on the IOTA for students in five of the six Secondary Education teaching areas. Students teaching in the area of Physical Education/Health had a significant correlation between their mean attitudes prior to and after student teaching, and their mean performance score on the IOTA. Significance was at the .01 level.
CHAPTER I
INTRODUCTION

Educators today face an unprecedented challenge in preparing young people for citizenship in a complex world. The problems of education are multi-dimensional, as changes are occurring rapidly at every level of society.

In his book Future Shock, Alvin Toffler stated,

In education, in politics, in economic theory, in medicine, in international affairs, wave after wave of new images penetrate our defenses, shake up our mental images of reality. The result of this image bombardment is the accelerated decay of old images, a faster intellectual through-put, and a new, profound sense of the impermanence of knowledge itself. (Toffler, 1970, p. 161)

Given these tremendous changes, teacher educators are concerned with how to meet the needs of the individuals who must cope with this dynamic society.

Positive attitudes toward learning--the attitudes needed for adaptation and survival--can be transmitted from teachers to students. Teacher educators, therefore, are vitally concerned with the formation of positive educational attitudes by prospective teachers. These attitudes not only influence the success of the individual in his teaching career, but also influence the attitudes, and therefore the learning, of countless numbers of students.

Dr. Karl Menninger, the famed psychiatrist, said,

...what the teacher is and what motivates her in teaching are far more important than what or how she teaches. What a teacher is depends upon her own personality development--the value system she has established for herself, her ideals, her emphases, her attitudes.... Next to the parents themselves, no
one has an influence comparable to that of the teacher. (Menninger, 1957, pp. 156-57)

The teacher, then, has great opportunity to influence the child's desire to learn. Nurturing that desire is the teacher's basic task, and he fulfills it by creating a climate of acceptance for the child. He can transmit his respect for the individual and concern about the individual's well-being and progress. This concern can foster development of the child just as surely as lack of concern can stifle it.

The interaction between the teacher and the child, Mattocks and Jew (1974) said, can aid or distort development of the self-concept, the child's attitude toward himself.

Particularly to the young child, the teacher becomes a significant figure in his life and communicates to him in direct and indirect ways what kind of person he is. It is also in this context that education takes on its meaning to the child. Therefore, it is important that teachers become aware of the significant role they play in shaping the self-concept of the child, which will effect his learning not only for the present, but for the future as well. (Mattocks and Jew, 1974, p. 204)

Bennetta B. Washington said, in the 1970 Yearbook of the Association for Supervision and Curriculum Development, NEA (p. 190), "The student's self concept is a significant factor in his ability to learn. ... The student's belief in himself must be nurtured if he is to grow emotionally and intellectually." Washington stated:

The teacher does indeed have the power of life and death over the individual's learning process. The teacher controls in large measure the personal and social satisfaction of the student, and the teacher sets the stage for academic success or failure. The friendly and accepting teacher establishes one kind of climate; the critical and repressive teacher another. Tight controls, the inhibiting of spontaneity, and resort to sarcasm and criticism diminish, often to the vanishing point, the desire and ability of the student to learn. (Washington, 1970, p. 199)

That the student's attitude does affect his ability to learn was demonstrated in Alvord's (1972) study comparing attitudes toward school
with achievement in science for a total of 3,162 Iowa pupils in grades four, seven, and twelve. Correlations between attitude and achievement, significant at the .05 level, were found to exist at each of the three grade levels studied.

Combs (1970, p. 182) pointed out that the teacher's attitude, his "humanness," affects not only the mental health of the students he works with, but "vitally affects the success of even the teacher's traditional role as conveyor of learning." Attitude is also related to the student teacher's own learning, Combs said: "For the teacher in training, humanness is as important to his success as a learner as the humanness of his future students will be in their growth and development."

A significant relationship was found by Crane (1974) between attitudes towards acceptance of self and others and adjustment to teaching. Attitude scales differentiated at the .01 level between groups of students who had never considered withdrawal from the student-teaching program (i.e., who were well adjusted), those who had seriously considered withdrawal (less well adjusted), and those who withdrew voluntarily (unable to adjust). The study also showed that students who withdrew from student teaching had significantly worse opinions of themselves and others than the students who remained in the program.

Attitudes have also been found to be important for success as a full-time teacher. Ryans (1953) found a significant correlation between teachers' attitudes and their success or failure with classroom discipline. Teachers with classroom management problems had less favorable attitudes toward students, showed less warmth, and were academic-oriented rather than child-oriented.

Since the teacher's attitude can determine whether children do or do not learn and whether he himself does or does not succeed as a teacher,
it is important to teacher educators to know the extent to which they are succeeding in developing favorable attitudes toward children and teaching. It is also important to know if these attitudes, fostered and developed in the academic, university environment, can survive the ultimate test of practical reality--the classroom teaching situation.

**Statement of the Problem**

The problem of this study included determining the attitudes toward children and teaching, of Elementary Education and Secondary Education students who did their student teaching at Utah State University during winter quarter, 1975. Student teachers were tested before and after the student-teaching experience in order that pre- and post-test attitude scores might be compared. In addition, this study was concerned with determining the performance ratings of these teachers by their university supervisors and discovering any significant correlations between attitudes and performance scores.

**Purposes of the Study**

This paper attempted to answer the following questions: Do the attitudes of Elementary Education students toward children and teaching differ significantly from the attitudes of Secondary Education students? Do student teachers' attitudes show a significant change as a result of the student teaching experience? Is there any correlation between change in attitude and the subject which the student teaches? Is there a correlation between the student teacher's attitude and his performance grade in student teaching?
Knowledge about what happens to student teachers' attitudes during student teaching could have important implications for the teacher training program at Utah State University.

**Hypotheses**

The following hypotheses were developed in this study and pertain to Elementary Education students and Secondary Education students at Utah State University who did their student teaching during winter quarter, 1975.

**Hypothesis one**

There will be no significant difference, prior to student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching.

**Hypothesis two**

There will be no significant difference, after student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching.

**Hypothesis three**

There will be no significant change, after student teaching, in the attitudes of Elementary Education students toward children and teaching.

**Hypothesis four**

There will be no significant change, after student teaching, in the attitudes of Secondary Education students toward children and teaching.
Hypothesis five

There will be no significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health.

Hypothesis six

There will be no significant difference between the mean performance score of the Elementary Education student teachers and the mean performance score of the Secondary Education student teachers on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis seven

There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis eight

There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis nine

There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).
Hypothesis ten

There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis eleven

There will be no significant correlation between the mean attitudes toward children and teaching, before student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis twelve

There will be no significant correlation between the mean attitudes toward children and teaching, after student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA).

Assumptions

The method of measuring student teachers' attitudes toward children and teaching was based on the assumption that the most direct way to measure attitude is to administer a self-report test.
Definitions

Elementary Education student teachers

Elementary Education student teachers refers to student teachers who are being prepared to teach on the elementary teaching level (grades 1-6).

Secondary Education student teachers

Secondary Education student teachers refers to student teachers who are being prepared to teach on the secondary teaching level (grades 7-12) in either nonvocational or vocational fields.

Student teacher's performance score

The student teacher's performance score refers to the level of competence evidenced by the student teacher during the student-teaching experience as measured by his university supervisor on the Observation Scales (Scales 1-14) of the Instrument for the Observation of Teaching Activities (IOTA).

Attitudes

For the purpose of this study, attitudes are defined as scores obtained on the Minnesota Teacher Attitude Inventory (MTAI). High scores on the MTAI may be interpreted as indicating idealistic, permissive attitudes toward children and teaching, while low scores may indicate more realistic expectations.
CHAPTER II
REVIEW OF LITERATURE

The review of the literature related to this study was divided into six areas. These are:

1. Attitudes
2. Self-concept
3. Effects of Teachers' Attitudes upon Students' Attitudes and Self-Concepts
4. Effects of Teachers' Attitudes upon Students' Achievement
5. Student Teachers' Attitudes and Performance Grades
6. Student Teachers' Attitude Changes

Attitudes

Much literature of education is concerned with the effects of attitudes of students and/or teachers upon perception of self and achievement or performance. Although educators may use different terms ("attitudes," "values," and even "behavior" are sometimes used interchangeably), there is general agreement upon the importance of the concept.

Osgood, Suci, and Taunnenbaum (1957) stated:

...how a person behaves in a situation depends upon what that situation means to him. ... One of the most important factors in social activity is meaning and change in meaning--whether it be termed "attitude," or "value," or something else again. (Osgood, Suci, and Taunnenbaum, 1957, p. 1)

Smith, Bruner and White (1956) defined an attitude as

...a predisposition to experience a class of objects in certain ways, with characteristic affect; to be motivated by this class of objects in characteristic ways; and to act with
respect to these objects in a characteristic fashion. In brief, an attitude is a predisposition to experience, to be motivated by, and to act toward, a class of objects in a predictable manner. (Smith, Bruner, and White, 1956, p. 33)

Attitude, opinion, and sentiment are terms that may be used interchangeably to refer to this kind of predisposition, Smith, Bruner, and White (1956) stated.

Three major functions of attitudes were discussed by Smith, Bruner, and White (1956, pp. 41-46): (1) Attitudes help persons to respond efficiently to new objects and events in the environment; (2) Attitudes help in social adjustment, i.e., help us to get along with other people and to discriminate between groups we are like and unlike; and (3) Attitudes help us to deal with inner psychological problems by "externalizing" them.

Katz (1960) defined an attitude as the predisposition to make a favorable or unfavorable evaluation. Attitudes, he said, can be expressed both verbally and non-verbally.

The following definition of "attitude" was given by Rokeach (1969):

...a relatively enduring organization of interrelated beliefs that describe, evaluate, and advocate action with respect to an object or situation, with each belief having cognitive, affective, and behavioral components. (Rokeach, 1969, p. 132)

Krech, Crutchfield, and Ballecky (1962, p. 139) defined attitude as "an enduring system of positive or negative evaluations, emotional feelings and pro or con action tendencies with respect to social object."

Although there can be intervening variables, the authors said, actions tend to a large degree to be governed by attitudes.

The Stanford Center for Research and Development in Teaching, in its First Annual Report (1967), commented on the relation of attitude and education:
Attitudes, values, and more complex combinations of attitudes and values such as one's conception of himself or his philosophy of life, are usually recognized as orientations which significantly influence an individual's life. Historically, changes in these orientations have usually been regarded as one of the most important outcomes of an education. These outcomes influence how a person thinks and feels for many years after he has forgotten the details of specific disciplines. (Stanford Center for Research and Development in Teaching, 1967, p. 56)

Cook and Seltiz (1964) report that performance of specific tasks may be influenced by attitude, and that a systematic bias in performance reflects the influence of attitudes.

Cook, Leeds, and Callis (1951, pp. 3-4) said that "attitude affords a key to prediction of the type of social atmosphere a teacher will maintain in the classroom."

**Self-Concept**

Self-concept might be defined as the attitude one has toward oneself. Arthur W. Combs (1965) defined the self-concept in this way:

Of all the perceptions existing for an individual, none are so important as those he has about himself. Each of us has thousands of ways in which we see ourselves and each of these has more or less importance in a given personal economy. These thousands of ways make up the peculiar organization which seems to each to be his "very self." It is this organization of ways of seeing one's self that the modern psychologist calls the self-concept. **It represents the most important single influence affecting an individual's behavior.** (Combs, 1965, p. 14)

Davidson and Lang (1960, p. 107) stated:

Feelings about the self are established early in life and are modified by subsequent experiences. Among the significant people believed to affect the child's feelings about himself are first, his parents, and, later, his teachers.

Combs et al. (1962, p. 92) pointed out that "the adequate person is very largely determined by the ways in which he comes to perceive himself." This healthy self-concept is achieved. It develops from the
relations which an individual has with others. "What is more, the self-concept is involved and modified by every life situation in which the individual moves, not just those labeled, 'Self Concept 236.'" (Combs et al., 1962, p. 93)

People learn who they are and what they are from all their experiences, not just those directed at teaching them the nature of the self. Like character and values, the self is learned from every human experience. This kind of learning used to be called concomitant learning. One cannot rule self out of a classroom. One can only learn to deal with it more or less effectively. (Combs et al., 1962, p. 93)

The child who feels that he is accepted becomes open to experiences. He functions in terms of self-growth rather than self-protection. When the school atmosphere communicates acceptance, Combs (1962) said, students need have no fear of being themselves. They can take an active part in learning without fear of making mistakes.

Kelley (1962, p. 9) stated that "the self is built almost entirely, if not entirely, in relationship to others." Others can help bring the self out by showing respect for it, Kelley said, but disrespect starts the process of closing off the self. "Facilitating persons" and "enhancing experiences," Kelley (1962) said, can bring the human personality into flower.

The fully functioning self, Kelley said, has the following characteristics:

1. The fully functioning personality thinks well of himself.
2. He thinks well of others.
3. He therefore sees his stake in others.
4. He sees himself as a part of a world in movement--in process of becoming.
5. The fully functioning personality, having accepted the ongoing
nature of life and the dynamic of change, sees the value of mistakes.

6. The fully functioning self, seeing the importance of people, develops and holds human values.

7. He knows of no other way to live except in keeping with his values.

8. Since life is ever-moving and ever-becoming, the fully functioning person is cast in a creative role. (Kelley, 1962, pp. 18-20)

The self, Rogers (1951) said, is formed as a result of interaction with the environment and, particularly, as a result of evaluational interaction with others. Most of the ways of behaving which are adopted by the organism are those which are consistent with this concept of self, Rogers (1951) explained, even when the environment is providing stimuli to the contrary.

The more the self of the person is threatened, Rogers (1951) said, the more he will exhibit defensive neurotic behavior and the more his ways of being and behavior will become constricted. The more the self is free from threat, the more the individual will exhibit "self-affirming" and participant behavior. Only the unthreatened person can become "fully functioning," capable of developing his potentiality.

The "self theory" of Rogers (1951) is concerned with the degree of correlation between the self-concept and idealized other (the kind of person he ought to be). The congruence between the two concepts, Rogers says, is an index of the person's self-esteem.

Lepine and Chodoroff's (1955) study found that the greater the correspondence between the individual's perceived and ideal self, the greater the degree to which he will express feelings of adequacy.
Rogers (1951) pointed out the crucial importance in therapy and in teaching, of unqualified acceptance of the individual as he is. When the student perceives that he is valued by the significant person (teacher), he learns to value himself. Students cannot meet their maximum learning potential without attitudes of warmth and understanding being conveyed by their teachers, Rogers said.

Helping students develop a healthy self-image is vital to their learning, Abraham Maslow (1954) said. The child's basic needs must be satisfied before he can devote full attention to learning. These needs, Maslow says, are:

1. Physiological needs
2. Safety needs
3. Belongingness
4. Love needs
5. Self-esteem needs

Earl C. Kelley (1962) said that each person must have a workable concept of self to do well in school. How the individual sees himself, Kelley says, can be enabling or disabling.

An inadequate concept of self, so common in our culture, is crippling to the individual. Our psychological selves may become crippled in much the same way as our physical selves may be crippled by disease or by an accident. They are the same, in effect, because each limits what we can do. When we see ourselves as inadequate, we lose our "can-ness." There becomes less and less that we can do. (Kelley, 1962, pp. 10-11)

Human behavior, Shlien (1962, p. 116) said, aims at achieving that which is consistent with the self-concept and avoids that which is not. For example, a brilliant student may fail at mathematics because he has been told he is like some idealized person who doesn't "have a head for
numbers." His behavior seeks to fulfill the prophecy of the self. His performance in any situation thus depends upon his definition of the self.

Richard Alpert (1961, p. 36) said studies have shown "that children with high self-concepts perform better than equally intelligent children whose self-concepts are poor."

Reeder (1955) studied the relationship between the self-concept of the middle-grade child and his academic achievement. He concluded that children with a low self-concept achieve lower in comparison to their potential and are more frequently classified as having problem behavior than pupils with a high self-concept.

Stevens (1956) found a significant relationship between college students' academic achievement (measured by grades) and certain positive aspects of their self-concepts. Students in the study were matched for intelligence, and those who were academically successful students were compared to the unsuccessful students with reference to the degree to which they accepted or rejected themselves on the ten personality traits of the Guilford-Zimmerman Temperament Survey. It was found that students high in achievement showed a much greater degree of self-acceptance than non-achieving students, who tended to reject themselves.

Coopersmith (1967) found that persons with high self-esteem are more creative and move more realistically toward achievement of personal goals.

Effects of Teachers' Attitudes upon Students' Attitudes and Self-Concepts

Teachers' attitudes, and the resulting emotional climate of the classroom, are particularly important in their effects upon the
development of students' attitudes and self-concepts. Davidson and Lang (1960) found that children's perception of their teachers' feelings toward them correlated positively and significantly with self-perception. The child with the more favorable self-image was the one who more likely than not perceived his teacher's feelings toward him more favorably.

A study by Robert E. Bills (1959) showed that the more open to experience, flexible and positive the teacher, the more positive are the attitudes the pupils hold toward themselves.

Teachers can show the child, both directly and indirectly, that he is a worthwhile person, or--on the other hand--by not accepting the child, they can show him that he is not valued and can cause a decline in his self-esteem.

Children develop a poor self-image, Lawrence K. Frank (1959) said, because adults in Western society focus on their mistakes and burden them with guilt and shame:

We have been primarily concerned with children's failures and defects, emphasizing their deficiencies and shortcomings and their frequent misconduct, and by so much we neglect or ignore their potentialities. Indeed, we often stunt their development by our continual fault finding and punitive treatment, forgetting that much of what we condemn is not intentional misbehavior or wickedness, but often the careless, impulsive activity of children who can only slowly learn to meet our social requirements. (Frank, 1959, p. 21)

Rigid and inflexible methods of child training, Frank (1959) said, deprive the child of his self-confidence and his ability to cope with his life tasks.

Kelley (1962, pp. 11-12) said that damage to the self results from the authoritarian nature of our culture, the "tyranny in small doses" that is found in many classrooms. Lack of respect for the child's uniqueness, Kelley said, causes the child to feel inadequate. He needs people who respect him as a person.
Perhaps there is no one quality more important for the developing self, Kelley (1962, p. 17) said, than the feeling of involvement in what is taking place. The lack of consultation and involvement, he said, is the cause of "the continuing war" between teachers and learners.

The 1962 Yearbook of the Association for Supervision and Curriculum Development stated:

In a classroom where there is constant judging of behavior by adult standards--blaming, condemning, criticizing and punishing--the self of the child may become withered and stunted like a plant in a room where the temperature is severely low. (Combs et al., 1962, p. 123)

Teachers need to be especially aware of the self-concept problems of children from different social and learning backgrounds. Washington (1970) stated:

The student who comes to the school seething with the frustration and unappeased physical and emotional hungers implicit in a life of poverty and often compounded by prejudice expects to meet once again the rejection he has learned to expect from society. If we expect to teach such students, we must use every possible means to increase our understanding to the point where we can accept the individual child with his problems and his strengths. (Washington, 1970, p. 191)

Hanna (1970) pointed out:

Although all children need teachers who are humane, it is of the utmost importance that the teachers in poverty schools be accepting, sympathetic, enthusiastic, resourceful, and understanding. They must be persons who care about what happens to children, who make each child feel important and "good about himself." They must enhance students' self-respect, trust, and courage to try by giving them challenging tasks but within their capabilities. (Hanna, 1970, p. 215)

Taba (1962, p. 72) said:

...wholesale enforcement of rigid criteria of conduct limits the possibility of deviation from the common, and often too narrow, norm, thereby affecting negatively the self-image of many students.

Teachers need to protect pupils' uniqueness and provide equality of opportunity to learn, Taba said.
To improve the student's self-concept, Bills (1963) said, we must accept his perceptions and value his experience. When the child sees that he is accepted and valued by others, he will accept and value himself.

Teachers are in a unique position to either obstruct or contribute to the development of good mental health, Tolar (1975), said. Important to consider is that if teachers are unaware of attitudes and behaviors which interfere with emotional development, they may needlessly create emotional difficulties for their students. On the other hand, if they were inclined to do so, teachers, with relatively little effort could be quite effective in facilitating the development of good mental health. (Tolar, 1975, p. 71)

Staines (1958) showed that teachers can increase the mental health scores of students. His study involved an experimental fourth-grade class which attempted to help children build healthy self-concepts. A control group was taught the same subject content but did not receive the emphasis on self-concepts. At the end of the year there was no significant difference in the two groups academically, but the control group, taught in traditional style, showed decreased scores in mental health. There was a significant increase in the mental health scores of the group whose teacher was concerned about self-concept.

Wolff (1974) found that systematic use of positive, social reinforcement resulted in increased self-esteem for 88 fourth-grade students in the Freeport, Illinois, public schools. The increase in self-esteem at the end of the one-semester experiment was significant at the .001 level.

Hartley and Hoy (1972, p. 18) studied the relationship between "openness" of school climate and alienation of high school students. The "open" climate was defined as one in which principals and teachers were "energetic, friendly, dynamic, and confident." Teachers and
administrators in the open climate were "genuine or authentic; i.e., behavior emerges freely and without constraint." Characteristics of the "closed" school were "lethargy, impersonality, and rigidity."

Included in the sample of this study were 45 New Jersey high schools. The Pupil Attitude Questionnaire (PAQ) was administered to over 8,600 students, and the Organizational Climate Descriptive Questionnaire (OCDQ) was completed by almost 3,000 teachers and administrators.

The general hypothesis of the study was supported; the more open the climate of high schools, the less the sense of total alienation of the high school students.

Many studies have shown that teachers' evaluative behavior influences student response by affecting students' self-esteem and self-concepts. For example, Woolfolk and Woolfolk (1974) found that teachers' verbal and nonverbal behaviors had "pronounced impact" upon perceptions and attitudes of 80 fourth graders. The impact of the verbal channel was found to be greater than that of the nonverbal channel.

These results confirm that children who are recipients of evaluations under classroom conditions correctly perceive the evaluative input in the messages of their teachers. Furthermore, attraction for teacher was shown to be a function both of her verbal and of her nonverbal behavior. (Woolfolk and Woolfolk, 1974, p. 301)

Significant loss in positive attitudes of pupils toward their teachers and schoolwork during the school year was found in a study by Flanders, Morrison, and Brode (1968). In this study of 820 sixth-grade pupils in 30 classrooms, it was shown that erosion of positive attitudes is not related to pupils' IQ, socioeconomic status, or percentage of A and B letter grades assigned by the teacher. Losses in attitude were
found to be related to the "externality" or "internality" of the pupils and to the teachers' classroom verbal behavior.

Greater losses in attitude occurred among external pupils (pupils who believe their successes and failures are caused by forces beyond their control) than among internal pupils (pupils who believe that successes and failures are self-determined and products of one's own behavior).

Also, the study showed, greater losses in attitudes occurred among pupils whose teachers exhibited a lower incidence of praise and encouragement than whose teachers exhibited a higher incidence of such behaviors.

The 1962 Yearbook of the Association for Supervision and Curriculum Development stated that if the self-concept affects the ways in which an individual learns and behaves, then teachers must be concerned with the development of healthy self-concepts for students. "The self must be admitted to the classroom." (Combs et al., 1962, p. 95)

A positive self is teachable, the ASCD Yearbook (1962) stated.

If the self is learned as a function of experience, then, whether we are aware of it or not, children learn about themselves in the classroom. They learn about themselves from the kinds of experiences we and they provide. (Combs et al., 1962, p. 101)

Combs (1962) said,

People develop feelings that they are liked, wanted, acceptable and able from having been liked, wanted, accepted and from having been successful. One learns that he is these things, not from being told so, but only through the experience of being treated as though he were so. Here is the key to what must be done to produce more adequate people. To produce a positive self, it is necessary to provide experiences that teach individuals they are positive people. (Combs, 1962, p. 53)

The classroom teacher is responsible for creating an environment which facilitates healthy emotional and intellectual growth, the 1962
ASCD Yearbook said, and for seeing that development of the child's self receives as much attention as the acquisition of subject matter. The adequate classroom, the Yearbook said, would be characterized by warmth, acceptance, and permissiveness—permission to be oneself. Adequate teachers "would be characterized as being more responsive and less controlling than is current teaching in our schools. (Combs et al., 1962, p. 239)

The 1962 ASCD Yearbook stated:

If positive self concepts are important, then it means for the classroom:

1. The teachers must be aware of this importance.
2. They must be willing to admit concern about the self concept into the classroom as a legitimate part of the educating process.
3. They must find ways of creating a climate in the classroom that will permit the exploration and discovery of the self.
4. They must find ways of actively encouraging the discovery of the student's self in a positive fashion. (Combs et al., 1962, pp. 103-104)

Effects of Teachers' Attitudes upon Students' Achievement

Herbert Thelen (1961) presented research data to indicate how much more effectively people learn in groups that are "learner-centered" rather than "teacher-centered." In the learner-centered group, Thelen said, the teacher's responses fit into one of three categories: first, the teacher is trying to support or build up the child's ego; second, the teacher is trying to clarify, to help the child understand; and third, the teacher is trying to structure or define the situation, not by telling the child how to do it but by pointing to elements that have
to be taken into account. These three categories of response, Thelen said, seem to be responsive to the learner and his needs.

The teacher-centered response also fits into one of three categories, Thelen (1961) said: first, giving orders; second, making capricious criticism; and third, self-justifying. Thelen said these three responses "are primarily responsive to the teacher's needs for keeping people at proper distance, for building up his own ego or for reassuring himself." (Thelen, 1961, p. 46)

Thelen (1961) said that an experiment using the two types of teachers--"learner-centered" and "teacher-centered"--for 25 minutes each with the same pupils, had these results:

Of the principles learned under the learner-centered style of teaching, the recall at the end of four days was 100 percent. Of the principles taught during the teacher-centered period, the average recall was about 55 percent. (Thelen, 1961, p. 46)

Rogers (1958) reported that third-grade students' gains in reading achievement were greater in those classes which had higher ratings in three attitudinal qualities: degree of genuineness shown by the teacher, degree of unconditional positive regard, and the degree of empathetic understanding.

Clary (1974) studied reading achievement of fourth-grade students in South Carolina and found a significant relationship between student achievement in reading and the teacher's personality.

Lashier (1965) conducted a study to determine the relationship between the verbal behavior of student teachers and the achievement and selected attitudes of eighth-grade students. Verbal statements of the students and the student teacher were categorized using the Flanders Interaction Analysis System. Attitudes of the students toward their student teachers and toward their schoolwork were determined from the
Michigan Student Questionnaire. The analyses indicated that both achievement and student attitudes were significantly related to indirect teacher influence.

A positive correlation between pupil achievement and teacher warmth was found by C.M. Christensen (1960). Vocabulary and arithmetic achievement for fourth- and fifth-grade pupils were significantly greater when their teachers scored high on the warmth scale.

Subjects in Davidson and Lang's (1960) study were 80 boys and 114 girls, attending fourth, fifth, and sixth grades of a New York City public school. These children were distributed in 10 different classrooms. Davidson and Lang's (1960) study showed that there was a relationship between the children's academic achievement and favorable perception of teachers' feelings toward them. The more positive the children's perception of their teachers' feelings, the better was their academic achievement and the more desirable their classroom behavior as rated by the teachers.

Veldman and Brophy (1974) pointed out that some studies which have argued that schools don't make a difference in students' achievement have used schools rather than teachers as the unit of analysis, while their own study used a sample of 115 second- and third-grade teachers with five or more consecutive years of experience teaching at their respective grade levels.

Veldman and Brophy (1974) concluded that teachers affect student learning to a degree that is both statistically and practically significant. Teacher effects, they found, were especially robust in the data from Title I schools serving disadvantaged populations.
Student Teachers' Attitudes and Performance Grades

Although the evidence is not conclusive, most research studies seem to indicate that there is not a significant relationship between student teachers' attitudes and the way they are evaluated by supervisors.

Firestone (1973) did find a significant relationship between education students' scores on the MTAI and judgments of effectiveness or non-effectiveness as student teachers by their university supervisors. Effective student teachers had higher ratios on MTAI near the .02 level of significance. Results found in the Firestone (1973) study differ from those found in most such studies.

No correlation was found between student-teaching grades and attitudes of 97 Secondary Education students in a study by Weinstock and Peccolo (1970). However, there was a slight correlation on these variables for 59 Elementary Education students. Attitudes were measured by means of the Minnesota Teacher Attitude Inventory (MTAI).

A low correlation of .07 was revealed between the student-teaching grade and attitude in Greene's (1972) study of 116 elementary student teachers.

No significant relationships were found between elementary student teachers' attitudes and supervisors' ratings in studies by Fuller (1951) and Oelke (1956). Both studies measured attitudes by means of the MTAI.

Shapiro and Shapiro (1971) concluded that high grades in student teaching were not related to student teachers' attitudes toward student teaching. Education majors who were most satisfied with the student-teaching experience were those rated "average" by their supervisors.
James (1971), in a study involving 20 science student teachers, found no significant correlation between scores on performance (measured on the Teaching Strategies Observation Differential) and scores on attitude (measured on the Science Related Semantic Differential).

Crane (1974) found no significant relationship between student-teaching grades and student teachers' attitudes toward acceptance of self and others.

Woodbury (1974) found no relationship between attitudes of student teachers and the final evaluation of student teachers by their supervisors. However, students whose attitudes changed most in this study, regardless of the direction of change, tended to be given higher evaluations more frequently than did those student teachers whose attitudes remained basically the same.

Halverson (1974) found that early childhood, elementary, and middle school student teachers' scores on the MTAI were not significantly related to success in student teaching as measured on the Student Teacher Performance Scale (STPS).

Student Teachers' Attitude Changes

The research literature concerning student teachers' attitudes toward students and teaching, before and after student teaching, has resulted in some contradictory findings. Some studies show no significant changes in attitude, some show increases (more permissive or idealistic attitudes), and some show decreases (less liberal, more realistic attitudes).

Greene (1972) found no significant change in attitude by students who completed a 16-week student-teaching assignment. Greene tested 116 Elementary Education seniors enrolled in the 1969-70 school year at the
University of Nebraska. Attitudes were measured by the Minnesota Teacher Attitude Inventory (MTAI).

James (1971) found no significant changes in attitude toward science teaching after the student-teaching semester by 20 science student teachers.

Woodbury (1974) found that student teachers at two predominantly black colleges in South Carolina did not show significant changes in attitudes after student teaching.

Gordon (1974) found no significant difference between pre-test and post-test results on the MTAI for elementary student teachers in Fort Smith, Arkansas, who were tested before and after seven weeks of student teaching.

McDonald (1974) studied attitude changes of 58 elementary student teachers from the University of Arkansas and found that student teaching had no significant effect on attitudes for the population of this study as measured by the MTAI. While the overall (insignificant) change that did occur for the population was in a slightly negative direction, 23 subjects changed in a negative direction and 35 in a positive direction. There was wide variation from high positive change to extremely high negative change in attitudes. The study concluded that elementary student teaching affected individual student teachers' attitudes in different ways and with varying degrees of intensity.

A significant positive increase in attitude was shown in a study by Brim (1966) during which pre-test and post-test MTAI scores were compared for 37 students after 10 weeks of student teaching in either a public elementary school or secondary school. On an individual basis, the direction of change varied from person to person, but there was a significant overall change to a higher attitude mean (more liberal.
attitude toward children). The mean increased from 42.32 to 47.54, significant at the .01 level.

Harmon and Ingle (1969) made a similar comparison of attitude changes by education juniors who tutored in urban and suburban secondary schools. The subjects (38 education juniors at the University of Wisconsin during the spring of 1969) were given the MTAI before and after a tutoring experience with two or three pupils. The subjects were tutoring in their major or minor area of concentration and saw their pupils for one hour a week for eight weeks. Both groups showed a significant increase on the MTAI, with students in the urban school showing the greater gain. Mean gain for suburban tutors was 9.45 (significant at the .001 level).

Smith (1970) found that the student-teaching experience had a significant positive effect on 30 student teachers' attitudes toward teaching on the secondary level.

Although three of the foregoing studies (Brim, Harmon and Ingle, and Smith) show positive changes in attitude after student teaching, there are other studies that show an opposite effect. Attitudes of student teachers did show a significant decrease (less liberal attitude toward children) in a study by Weinstock and Peccolo (1970). Subjects were students in their senior year at Kansas State University during fall semester, 1966 (97 in Secondary Education, 59 in Elementary Education).

Mean scores on the MTAI decreased for both teaching levels. Secondary Education students showed a highly significant decrease, declining from a mean of 45.41 before student teaching to 33.14 after student teaching.

In a study conducted at the University of Iowa by Alper and Retish (1972), a similar decrease in attitude was revealed. After eight weeks
of student teaching, the mean MTAI score for 30 college seniors decreased from 65.3 to 54.9. This decrease was significant at the .05 level.

Subjects included 10 Special Education majors, 10 Elementary majors, and 10 Secondary Education majors. All subjects volunteered.

The Special Education group's mean score on the MTAI increased from 67.3 to 69.2. The Secondary Education group's mean score decreased from 56.5 to 51.9. Neither of these changes in mean MTAI scores is significant at the .05 level. The Elementary Education group's mean MTAI score decreased from 72.1 before student teaching to 43.5 after student teaching. This decrease is significant at the .05 level.

Mean MTAI scores also declined in a study by Muuss (1969). Fifty-two Elementary Education students were re-tested after a 4½-month teaching internship, at which time the mean MTAI score dropped from 53.48 to 44.62 (significant at the .001 level). The direction of the change during the internship was quite variable. Seventeen Ss (33%) increased their score, while 35 Ss (67%) showed a decrease in scores. Being placed in an inner city school or a school in a lower socio-economic neighborhood was not significantly correlated with a decrease in MTAI scores.

Walberg et al. (1967) found that two groups of women Elementary Education students declined in "democratic" teaching attitudes after practice teaching in middle- to upper-middle-class suburban schools. Moorefield (1974) studied attitudes of social studies student teachers in Virginia. The majority of the students' attitudes toward teaching (MTAI scores) changed in a negative direction during student teaching. The difference approached significance at the .05 level.

Shapiro and Shiflett (1974) found that University of California, Santa Barbara, students in an Elementary teacher-training program
displayed a statistically significant decrease in "connectedness" (a general attitude of trust and positive affiliation with others) as a result of experiences during the time of their student teaching. This decrease occurred in both an experimental and a control group, even though the experimental group received 30 three-hour sessions plus two weekends of Gestalt awareness training which the authors had supposed would reverse the observed effect.

Clinical interviews were conducted with 10 of the student teachers in order to determine what might account for the results. The most frequently mentioned explanatory factors were work overload, the "shock effect" of shattered illusions about teaching, irrelevant academic work, competition (the student teachers felt that they were competing for grades and for future employment), and vulnerability to the cooperating teachers.

Several studies have speculated about reasons for a decline in idealistic attitudes by student teachers. Walberg et al. (1967) hypothesized that student teachers' self-concept declines because the conflict between the need to be close to children and the role demand to establish authority as teacher lowers professional role self-evaluation.

Muuss (1969) suggested the following explanation:

The initial demands of the school reality, discipline problems, finding oneself in and identifying with the new role of the teacher and the inability to immediately implement high educational ideals and ambitions apparently bring about a disillusionment, loss of idealism, and a return to more traditional attitudes, less tolerance, and less sympathy for children and their behavior. (Muuss, 1969, p. 188)

Beck (1974), in a study involving female student teachers at the secondary level, found that inability to match expectations with reality proved to be a major obstacle during the early weeks of student teaching and led to feelings of frustration and failure.
Beck concluded that the new student teacher had painful feelings of loneliness and alienation...

...which resulted from her inability to identify a clearly defined role for herself, to find a teaching model, to establish rapport with a cooperating teacher or college supervisor, particularly one of the opposite sex, or to reconcile differences in personal style and philosophies, as well as her anxieties over being evaluated by teacher and student alike. (Beck, 1974, p. 3559-A)

In short, Beck said, the student teachers in her study seemed to have suffered "culture shock" as the result of the new and unfamiliar situation.

Shapiro and Shiflett (1974) theorized that elementary student teachers in a five-year teacher education program declined in attitudes of trust for this reason:

Great expectations and naive fantasies about the absolute trustworthiness of pupils, peers, parents, master teachers, administrators, professors, etc., were said to be reflections of over-idealism and immaturity. Nearly all of the ten respondents saw the fifth year program as a reality-testing experience from which the student teachers emerged with a more realistic view about what to expect from other people. (Shapiro and Shiflett, 1974, p. 147)

Most of the respondents, Shapiro and Shiflett said, felt that the loss of connectedness was a temporary stage of necessary growth and that, after attitudinal adjustment, trust (connectedness) would show an increase.

Summary

The review of literature reported studies showing the importance of attitudes and self-concepts for healthy emotional development and achievement of students' maximum scholastic potential. Teachers' attitudes and students' attitudes, self-concepts, and achievement were shown by many studies to be statistically and practically related.
Although the evidence is inconclusive, most studies showed no relationship between student teachers' attitudes and their performance grades in student teaching.

The effect of student teaching on the attitude of the student teacher remains open to question. Some studies showed no attitude change, some showed an increase in mean MTAI scores, and other studies showed a decline.

It remains to be seen whether Elementary Education and Secondary Education students at Utah State University will show a change in attitude after student teaching and whether they will show a correlation between attitude and the student-teaching grade.
CHAPTER III

INSTRUMENTS, SUBJECTS, AND RESEARCH DESIGN

Instruments

The Minnesota Teacher Attitude Inventory (MTAI) was used to determine each student's attitude toward children and teaching. The Instrument for the Observation of Teaching Activities (IOTA), which was completed by the student's university supervisor during the final weeks of the student-teaching term, was used to determine the student's performance score on student teaching.

Minnesota Teacher Attitude Inventory (MTAI)

The Minnesota Teacher Attitude Inventory (MTAI) is a device...

...designed to measure those attitudes of a teacher which predict how well he will get along with pupils in interpersonal relationships, and indirectly how well satisfied he will be with teaching as a vocation. (Cook, Leeds, and Callis, 1951, p. 3)

Getzels and Jackson (1963) stated that MTAI is the most popular instrument for the measurement of teacher attitudes.

The instrument has 150 opinion statements to be marked on a continuum ranging from "Strongly agree" to "Strongly disagree." A high score on the test indicates that a teacher is child-centered (i.e., has an idealistic, permissive attitude toward children) and has uncritical, positive attitudes toward teaching; low scores suggest that the teacher is more critical and more realistic (emphasizes strict classroom control). Klein (1974, p. 65) stated, "Mid-range scores may be optimal in that they reflect a
democratic, but at the same time realistic, orientation toward children and teaching."

Horn and Morrison (1965) stated that the MTAI measures teachers' attitudes in regard to:

1. Modern versus traditional attitudes toward classroom control
2. Optimism versus pessimism in attitudes toward children
3. Permissive lack of concern versus punitive concern about behavior
4. Rejection of pupils from bewilderment rather than dislike
5. Desire to maintain control of children rather than let them run free.

Evans (1966) said:

The assumption is made that the teacher's attitudes determine the type of classroom atmosphere he will maintain and that a liberal attitude toward his pupils is likely to characterize a good teacher. The test MTAI therefore seeks to pinpoint teachers' attitudes on a liberal-conservative continuum. (Evans, 1966, p. 135)

The MTAI Manual admits to an administrator bias:

Since scores on the Inventory reflect at least to some extent the educational philosophy of the authors, the potential user should determine whether his own philosophy of education corresponds with that reflected by the MTAI before he uses it for purposes of selection. It is possible that an administrator who scored low on the Inventory (i.e., whose philosophy is at variance with that reflected by the Inventory) might find that teachers who scored high would be out of place in his school system. (Cook, Leeds, and Callis, 1951, p. 4)

The possible range of scores on the MTAI is from plus 150 to minus 150. Each response scored "right" has a value of plus one, and each response scored "wrong" has a value of minus one. The authors' bias, of course, was reflected in the creation of the answer key which assigns plus or minus values to particular answers.
Publication of the MTAI was preceded by patient and careful research which included the testing of several different methods of scoring. The "rights minus wrongs" method which was chosen for the final form of the test gave slightly higher validity coefficients than any other scoring method. It consistently produced reliability coefficients of .93.

Arnold (1953) also pointed out that the norms for the experienced teachers were for teachers at random. Norms for "successful" and "unsuccessful" teachers might be more useful, he suggested.

Cronbach (1953, p. 798), stated, "The MTAI Manual should advise users to obtain their own local norms."

Norms for the MTAI were developed through pilot testing in several states. These norms, as shown in Tables 1 and 2, indicate that students in education, as a group, score approximately 30 to 45 points higher than do experienced teachers. Experienced four-year academic secondary teachers have a median score of 23. Graduating Elementary Education seniors have a median score of 82, and graduating education seniors from the four-year academic secondary program have a median score of 68. Arnold (1953, p. 797) suggested that the inventory will be of "limited value" until the question is answered, "Which attitudes and scores are desirable, those of students or those of experienced teachers?" The MTAI, Arnold suggested, will be a tool for further research on this question.
Table 1. Percentile rank equivalents for raw scores on the *Minnesota Teacher Attitude Inventory, Form A.* (Cook, Leeds and Callis, 1951, p. 8)

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>Beginning education juniors</th>
<th>Graduating education seniors (B.Ed.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elementary</td>
<td>Secondary</td>
</tr>
<tr>
<td></td>
<td>Academic</td>
<td>Nonacademic</td>
</tr>
<tr>
<td></td>
<td>101</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>92</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>83</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>79</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>63</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>46</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-13</td>
<td>-16</td>
</tr>
<tr>
<td></td>
<td>228</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>59.5</td>
<td>48.3</td>
</tr>
</tbody>
</table>
Table 2. Percentile rank equivalents for raw scores on the *Minnesota Teacher Attitude Inventory, Form A.* (Cook, Leeds and Callis, 1951, p. 9)

**EXPERIENCED TEACHERS**

<table>
<thead>
<tr>
<th>Rural Teachers</th>
<th>Elementary</th>
<th></th>
<th></th>
<th>Secondary</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small Systems(^a)</td>
<td>Large Systems(^b)</td>
<td>Academic</td>
<td>Nonacademic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 years training</td>
<td>4 years training</td>
<td>4 years training</td>
<td>5 years training</td>
<td>4 years training</td>
<td>5 years training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>107</td>
<td>114</td>
<td>103</td>
<td>112</td>
<td>98</td>
<td>98</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>98</td>
<td>103</td>
<td>87</td>
<td>100</td>
<td>81</td>
<td>84</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>90</td>
<td>100</td>
<td>81</td>
<td>90</td>
<td>67</td>
<td>74</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>72</td>
<td>88</td>
<td>67</td>
<td>75</td>
<td>47</td>
<td>64</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>67</td>
<td>82</td>
<td>57</td>
<td>69</td>
<td>40</td>
<td>56</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>62</td>
<td>79</td>
<td>40</td>
<td>63</td>
<td>34</td>
<td>49</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>51</td>
<td>70</td>
<td>34</td>
<td>53</td>
<td>21</td>
<td>41</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>41</td>
<td>60</td>
<td>23</td>
<td>45</td>
<td>10</td>
<td>33</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>29</td>
<td>49</td>
<td>13</td>
<td>35</td>
<td>2</td>
<td>29</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>17</td>
<td>42</td>
<td>1</td>
<td>24</td>
<td>-12</td>
<td>8</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>36</td>
<td>-5</td>
<td>16</td>
<td>-20</td>
<td>-4</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Continued

<table>
<thead>
<tr>
<th>Rural Teachers</th>
<th>Elementary</th>
<th>Secondary</th>
<th>Academic</th>
<th>Nonacademic</th>
<th>Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small Systems</td>
<td>Large Systems</td>
<td>4 years training</td>
<td>4 years training</td>
<td>5 years training</td>
</tr>
<tr>
<td>- 2</td>
<td>4</td>
<td>22</td>
<td>- 12</td>
<td>- 8</td>
<td>20</td>
</tr>
<tr>
<td>- 23</td>
<td>- 26</td>
<td>7</td>
<td>- 29</td>
<td>- 20</td>
<td>10</td>
</tr>
<tr>
<td>- 38</td>
<td>- 30</td>
<td>- 18</td>
<td>- 43</td>
<td>- 34</td>
<td>5</td>
</tr>
<tr>
<td>- 64</td>
<td>- 39</td>
<td>- 50</td>
<td>- 58</td>
<td>- 50</td>
<td>1</td>
</tr>
<tr>
<td>332</td>
<td>102</td>
<td>247</td>
<td>264</td>
<td>98</td>
<td>N</td>
</tr>
<tr>
<td>29.7</td>
<td>37.0</td>
<td>55.1</td>
<td>24.7</td>
<td>28.9</td>
<td>Mean</td>
</tr>
</tbody>
</table>

a Small systems are systems with fewer than 21 teachers.

b Large systems are systems with 21 or more teachers.
Validity of the MTAI test items was determined in studies using two experimental forms and the final form of the Inventory. The following procedure was used to determine if the items did actually differentiate between two groups of teachers (those with good student rapport and those with poor student rapport). Principals' ratings of 100 "superior" and 100 "inferior" teachers in approximately 70 schools in Pennsylvania and Ohio were correlated with these teachers' scores on the first experimental form of the Inventory. From an original 756 items, 164 were selected which discriminated between the two groups at the five per cent level to the ten per cent level. (Cook, Leeds, and Callis, 1951, pp. 10-11)

A second experimental form of the test, containing these 164 items, was administered to a random sample of 100 teachers, and scores were correlated with three outside criteria of teacher-pupil rapport. The first criterion involved ratings from at least 25 pupils on each teacher. (The reliability of this scale for 25 ratings was .93.) The second criterion of teacher-pupil rapport involved the ratings of the teachers by their principal on the Principal-Teacher Rating Scale. (The reliability of the Scale as determined by the split-half method was .87.) The third criterion of teacher-pupil rapport involved the rating of the teachers by a specialist in the area of teaching effectiveness. The rating scale used was a modification of Baxter's Rating Scale of the Teacher's Personal Effectiveness. (The reliability of this scale as determined by the split-half method was .92.) (Cook, Leeds, and Callis, 1951, p. 11)

When the three criteria are combined with multiple regression weighting, the validity coefficient is .60. The single criterion measure which has the highest relationship with the MTAI is the expert's rating. The correlation is .49. The next highest is the pupils'
ratings, .45, and the lowest is the principals' ratings, .43. (All significant at the .01 level.) (Cook, Leeds, and Callis, 1951, p. 11)

Based on these ratings, the MTAI Manual states,

If we assume that by the term "teaching personality" we mean those characteristics of the teacher's behavior related to the emotional responses of pupils and the ability to establish intimate and harmonious working relationships with them, we find that "teaching personality" can be measured with as high validity as can academic aptitude. (Cook, Leeds, and Callis, 1951, p. 12)

The reliability of this experimental form of MTAI, as determined for this random sample of teachers, by the Spearman-Brown split-half procedure, was found to be .89.

As a further check on validity, two studies were undertaken using the final form of the test. The first one was in South Carolina in 1951, the second in Missouri in 1951. In the South Carolina study, two validity coefficients were computed: when correlated with the T-score average of the three criteria (principals' ratings, pupils' ratings, and observers' ratings), \( r = .59 \); when using a multiple correlation combining the three criteria, \( R = .63 \). In the Missouri study the validity coefficient with the composite criterion was .46. Principals' ratings in this study correlated only .19 as contrasted with .45 and .46 in previous studies, resulting in this composite correlation of .46 as compared with earlier validity coefficients (obtained with a composite criterion) of .60, .63, and .59. (Cook, Leeds, and Callis, 1951, pp. 13-14)

Validity of the test, the authors said, is not susceptible to faking:

We can assume that everyone tried to "fake" the Inventory in the sense of making his answers conform to his beliefs. The data reveal, however, that a poor teacher "fakes" it in a different way from a good teacher. The scoring procedure adopted is such that the differences which may exist between good and poor teachers with reference to (1) faking, (2) response set, (3) test-taking attitude, and (4) role-playing,
operate in the direction of increasing the validity of the test. (Cook, Leeds, and Callis, 1951, p. 13)

These conclusions were reached as a result of experiments in which some subjects (student teachers) were instructed to "fake good" on the first and some on the second administration of the test, and these "fake" scores were correlated with "unfaked" scores. The authors concluded that "faking" could cause only slight improvement in scores.

**Instrument for the Observation of Teaching Activities (IOTA)**

The **Instrument for the Observation of Teaching Activities (IOTA)** was designed for the evaluation of teaching competence. IOTA is copyrighted and cannot be used without permission of the National Iota Council.

The IOTA was developed by Kinney, Kallenbach, Bradley, Owen, and Washington and has been refined and revised by the National Iota Council. Three faculty members at Arizona State University--Deever, Demeke, and Wochner--have developed the "Arizona Approach" to the instrument, which has been used extensively in IOTA in-service workshops, or pro-seminars, under the direction of the National Iota Council.

Criteria on the IOTA are derived from the definition of teacher competence as developed in the National Iota Council's publication **The Role of the Teacher in Society** (1970). That definition of teacher competence is based on criteria from the official definition of teacher competence adopted in 1955, and revised in 1964, by the California Teachers Association. (Perry, 1970, pp. 46-47)

Part I of the IOTA consists of 14 Observation Scales which are used to rate teachers' classroom performance.
Each scale is divided into five behavioral levels, or levels of competence, relating to that scale. The levels are intended to spread from the highest, or most sought after level of competence, to the lowest acceptable level. ... These levels may be thought of as levels five, four, three, two and one. When placed under each scale heading in the instrument, the levels are scrambled to enhance objectivity on the part of the trained observer in using the instrument. (Deever, Demeke, and Wochner, 1970, p. 16)

The 14 Observation Scales of the IOTA, which are based on observable classroom behavior, are:

Scale 1 Interest Centers
Scale 2 Variety in Activities
Scale 3 Use of Materials for Instruction
Scale 4 Classroom Control
Scale 5 Learning Difficulties
Scale 6 Individualization of Instruction
Scale 7 Development and Implementation of Classroom Goals
Scale 8 Opportunity for Participation
Scale 9 Exploration of Value Judgments
Scale 10 Creative Expression
Scale 11 Development of Student Initiative
Scale 12 Social Climate
Scale 13 Subject Matter Preparation
Scale 14 Current Application of Subject Matter

Kinney and Kallenbach (1970) have compiled validity/reliability studies of IOTA. They state that, in an experimental program at the University of Hawaii, the correlation between principals' judgments and ratings on the IOTA was .76. In a similar study at San Francisco State College, supervisors used the IOTA and were also asked to make an independent judgment of the overall competence of the student teachers. The
correlation between independent judgment and IOTA evaluations was .93. (Kinney and Kallenbach, 1970, p. 7)

Other reliability studies were made at San Jose State College, which has adopted IOTA as the official evaluation instrument in the Elementary Intern Teaching Program. Interrater reliability coefficients in the San Jose studies during the period 1962 to 1965 ranged from .68 to .95. (Kinney and Kallenbach, 1970, p. 9)

Deever, Demeke, and Wochner (1970, p. 14) state: "As a measure of consistency the correlation between the observations of multiple observers working independently is around .87."

Kinney and Kallenbach (1970, p. 9) concluded that "the reliability of the instrument and procedures is more than adequate to provide quality of instrument." By preparing a table showing the frequency of use of each of the items on each scale, Kinney and Kallenbach (1970) also concluded that the instrument had adequate discriminative ability, i.e., ability to identify significant differences.

Rhoton's (1971) study was designed to determine the content validity of the 1970 IOTA. Participants in the study, numbering 592, were from ten school districts in each of 26 states. There were 131 secondary school principals, 145 elementary school principals, 93 school board presidents, and 109 presidents of teachers' organizations. All participants were given a copy of the 27 IOTA scales, with the behavioral levels from "5" to "1" in descending order of desirability. The 562 randomly selected participants agreed above the 70 percent level on the ordering of the scales.

Examples of norms on the IOTA are these from the studies by Perry (1971) and Thompson (1972):
Perry (1971) used the Posttest-Only Control Group Design to test sixty student teachers in Elementary Education at Arizona State University during the spring semester of the 1969-70 school year. The students were equally divided into experimental and control groups, with the experimental group attending a one-week IOTA pro-seminar. The mean total score on Part I of the IOTA (Scales 1 to 14) was 40.23 for the experimental group and 35.37 for the control group. This difference is significant at the .05 level.

Thompson (1972) administered the IOTA to a group of 40 randomly selected teachers in four elementary and six secondary schools. Before participation in a 40-hour IOTA in-service workshop, the group had a mean score on the IOTA of 45.57. After the workshop, the mean for the group was 51.82, a difference significant at the .05 level.

**Subjects**

The selected population of this study was the Elementary Education and Secondary Education students at Utah State University who did their student teaching during the winter quarter, 1975. The target population included 42 Elementary Education students whose names were obtained from the Elementary Education Department and 90 Secondary Education students whose names were obtained from the Bureau of Student Teaching. All of the students who attended student teachers' orientation meetings conducted by the College of Education at Utah State University in December, 1974, and March, 1975, were included in the sample. Some of the target population did not attend both meetings because of out-of-state student-teaching assignments or part-time jobs whose hours did not permit their attendance. The final total of subjects, therefore, was 33 Elementary Education students and 67 Secondary Education students.
Secondary Education student teachers were distributed in six areas as follows: Arts/Humanities, 11; Business Education/Distributive Education, 12; Math/Science, 5; Vocational Education, 23; Social Studies, 7; and Physical Education/Health, 9.

Arts/Humanities included student teachers in the following areas: art, 2; speech, 2; English, 5; language, 1; and music, 1. The Business Education/Distributive Education category included 8 business education student teachers and 4 in distributive education. Math/Science included 1 student teacher in mathematics and 4 in science. Vocational Education included 6 agriculture education student teachers and 17 student teachers in home economics. The Physical Education/Health category included student teachers as follows: 2 in men's physical education/health, 2 in men's physical education, 3 in women's physical education/health, and 2 in women's physical education.

Elementary Education students who participated in this study were enrolled in SODIA, the new program for preparing elementary school teachers which was begun at Utah State University in the fall quarter, 1972. SODIA is an acronym representing the five levels of the program: Self, Others, Discipline, Implementation, and Associate, as described below:

**Level 1**

Self (Freshman Orientation) Students learn about self with introduction to elementary teachings through readings, discussions, and observations. Students at this level have a minimum of 10 hours of observation in elementary schools at various levels.
Level 2
O--Others
(Sophomore Bloc)

Students learn about others with the following general topics: variability in children, community services, world of work, legal aspects of education. Students spend approximately one half of each day in classrooms, working with children as tutors and aides.

Level 3
D--Disciplines
(Junior Bloc)

Development of methods of teaching in science, math, language arts, social studies, and reading through seminar instruction and practical application in elementary school classrooms. Practicum credit is usually taken during one quarter in the junior year.

Level 4
I--Implementation
(Student Teaching)

Students have total day assignment as student teachers—all previous experiences synthesized to develop total teacher—also a weekly seminar with university coordinator.

Level 5
A--Associate
(Associate Teaching)

This level is an optional, post student teaching experience defined by students to strengthen a weak area or to develop a specialty. This level includes 3 to 12 hours of specialized work.
Elementary Education students included in the present study had completed Levels 1, 2, and 3 of the SODIA program at the time they were pre-tested on the *Minnesota Teacher Attitude Inventory* (MTAI). They were post-tested on the MTAI after completion of Level 4, the student-teaching experience.

**Research Design**

The 33 Elementary Education students and the 67 Secondary Education students were administered a pre-test of the *Minnesota Teacher Attitude Inventory* (MTAI) during the student-teaching orientation meetings conducted by the College of Education at Utah State University in December, 1974. Since the two levels met separately, the Elementary Education students were tested in one group, and the Secondary Education students were tested in another group.

University supervisors of the Elementary Education students and the Secondary Education students rated them on Part I (Observation Scales) of the *Instrument for the Observation of Teaching Activities* (IOTA) during the final weeks of their student-teaching experience.

At the end of the student-teaching quarter, in March, 1975, the Elementary Education and Secondary Education students were administered a post-test of the *Minnesota Teacher Attitude Inventory* (MTAI).

All tests were hand-scored, and scores were teletyped directly into the computer at the Utah State University Computer Center.

Analysis of variance and analysis of covariance were used to test for significant differences at the 0.05 level between group means on the pre- and post-tests of the *Minnesota Teacher Attitude Inventory* (MTAI). Analysis of variance was also used to compare mean group scores on the *Instrument for the Observation of Teaching Activities* (IOTA).
Pearson's \( r \) product-moment correlation was used to determine significant relationships between student teachers' attitude scores on the MTAI and performance scores on the IOTA.

Statistical analysis of the data is given in Chapter IV.
CHAPTER IV

ANALYSIS OF THE DATA

Analysis of variance was used to compare Elementary Education and Secondary Education student teachers' scores on the Minnesota Teacher Attitude Inventory (MTAI). Analysis of covariance was also used, using the pre-test as a covariate. Analysis of variance was used to compare Elementary and Secondary Education students' scores on the Instrument for the Observation of Teaching Activities (IOTA).

MTAI scores were correlated with subjects' scores on the IOTA by means of the Pearson's product-moment correlation.

An F-ratio significant at the 0.05 level was necessary to reject the null hypotheses.

Analysis of Data Related to the Hypotheses of the Study

Hypothesis one

"There will be no significant difference, prior to student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching."

The hypothesis was tested by the analysis of variance. An F-ratio of 3.94 was needed for significance at the .05 level, and an F-ratio of 6.90 was needed for significance at the .01 level.

Mean scores on the MTAI pre-test were: Elementary Education student teachers, 54.39; Secondary Education student teachers, 41.48. The resulting F-ratio was 8.29, a difference significant at the .01 level,
as shown in Table 3. Therefore, the null hypothesis was not accepted. There is a significant difference, prior to student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching. The evidence suggests that Elementary Education students have significantly less realistic attitudes toward children and teaching, prior to the student-teaching experience, than do Secondary Education student teachers.

Table 3. Analysis of variance F-ratio table for differences between mean attitude scores of elementary education and secondary education students before and after student teaching

<table>
<thead>
<tr>
<th>MTAI</th>
<th>df</th>
<th>Elementary Mean</th>
<th>Secondary Mean</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>99</td>
<td>54.39</td>
<td>41.48</td>
<td>8.29**</td>
</tr>
<tr>
<td>Post-test</td>
<td>99</td>
<td>39.15</td>
<td>28.19</td>
<td>3.02</td>
</tr>
</tbody>
</table>

**Significant at .01 level.

Required F to be significant: 3.94 at the .05 level, 6.90 at the .01 level.

Hypothesis two

"There will be no significant difference, after student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching."

Analysis of variance required an F-ratio of 3.94 for significance at the .05 level, and an F-ratio of 6.90 for significance at the .01 level.

Mean scores on the MTAI post-test were: Elementary Education student teachers, 39.15; Secondary Education student teachers, 28.19. The
F-ratio of 3.02, as shown in Table 3, indicates that there is no significant difference, after student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward teaching.

Hypothesis two was also tested by means of analysis of covariance, using the pre-test as a covariate. Adjusted mean scores were: Elementary Education student teachers, 33.72; Secondary Education student teachers, 30.87.

With a required F-ratio of 3.94 for significance at the .05 level, and 6.90 at the .01 level, the adjusted F-ratio of .23, as shown in Table 4, proves that differences in the post-test attitude means of the two groups are not significant. Therefore, the null hypothesis was retained.

Table 4. Analysis of covariance F-ratio table for adjusted mean attitude scores of elementary education and secondary education students

<table>
<thead>
<tr>
<th>df</th>
<th>Elementary</th>
<th>Secondary</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>33.72</td>
<td>30.87</td>
<td>.23</td>
</tr>
</tbody>
</table>

Required F to be significant: 3.94 at the .05 level, 6.90 at the .01 level.

Hypothesis three

"There will be no significant change, after student teaching, in the attitudes of Elementary Education students toward children and teaching."

The hypothesis was tested by the use of analysis of variance. An F-ratio of 3.99 was required for significance at the .05 level, and an
F-ratio of 7.04 was needed for significance at the .01 level.

Pre-test mean on the MTAI for Elementary Education student teachers was 54.39; post-test mean was 39.15. The F-ratio of 8.76, as shown in Table 5, indicates that the difference between the attitudes of Elementary Education students before and after the student-teaching experience is significant at the .01 level. Therefore, the null hypothesis was rejected, and it was inferred that Elementary Education students have more realistic attitudes toward children and teaching after student teaching.

Table 5. Analysis of variance F-ratio table of mean attitudes of elementary education and secondary education students before and after student teaching

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Pre-test MTAI</th>
<th>Post-test MTAI</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>65</td>
<td>54.39</td>
<td>39.15</td>
<td>8.76**</td>
</tr>
<tr>
<td>Secondary</td>
<td>133</td>
<td>41.48</td>
<td>28.19</td>
<td>7.68**</td>
</tr>
</tbody>
</table>

**Significant at .01 level.

Required F to be significant at .05 level: Elementary, 3.99; Secondary, 3.92.

Required F to be significant at .01 level: Elementary, 7.04; Secondary, 6.84.

Hypothesis four

"There will be no significant change, after student teaching, in the attitudes of Secondary Education students toward children and teaching."

The hypothesis was tested by the use of analysis of variance. An F-ratio of 3.92 was required for significance at the .05 level, and an F-ratio of 6.84 was needed for significance at the .01 level.
Secondary Education student teachers' mean scores on the MTAI were: pre-test, 41.48; post-test, 28.19. The F-ratio of 7.68, as shown in Table 5, was significant at the .01 level. Therefore, the null hypothesis could not be accepted. The evidence suggests that, after student teaching, Secondary Education students have more realistic attitudes toward children and teaching.

Hypothesis five

"There will be no significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health."

The hypothesis was tested by the analysis of variance.

Arts/Humanities student teachers' mean attitude scores were: pre-test, 35.45; post-test, 32.00. An F-ratio of 4.35 was required for significance at the .05 level, and an F-ratio of 8.10 was needed for significance at the .01 level. The F-ratio of .10, shown in Table 6, was not significant. There was no significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in the area of Arts/Humanities.

Business Education/Distributive Education student teachers' mean attitude scores were: pre-test, 39.42; post-test, 34.50. An F-ratio of 4.30 was needed for significance at the .05 level, and an F-ratio of 7.94 at the .01 level. The F-ratio of .29, as shown in Table 5, was not significant. There was no significant difference in the mean pre- and
post-test attitude scores of student teachers who taught in the areas of Business Education/Distributive Education.

Math/Science student teachers' mean attitude scores were: pre-test, 62.20; post-test, 41.80. An F-ratio of 5.32 was needed for significance at the .05 level, and an F-ratio of 11.26 at the .01 level. The F-ratio of 1.38, as shown in Table 6, was not significant. There was no significant difference in mean pre- and post-test attitude scores of student teachers who taught in the areas of Math/Science.

Vocational Education student teachers' mean attitude scores were: pre-test, 46.74; post-test, 22.26. An F-ratio of 4.06 was required for significance at the .05 level, and an F-ratio of 7.24 was needed for significance at the .01 level. The F-ratio of 8.01, as shown in Table 6, was significant at the .01 level. There was a significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in the area of Vocational Education. It was inferred that, after student teaching, teachers in Vocational Education as a group had a significantly more realistic attitude toward children and teaching.

Social studies student teachers' mean attitude scores were: pre-test, 43.86; post-test, 24.71. An F-ratio of 4.75 was required for significance at the .05 level, and an F-ratio of 9.33 at the .01 level. The F-ratio of 1.10, as shown in Table 6, was not significant. There was no significant difference in mean pre- and post-test attitude scores of student teachers who taught in the area of social studies.

Physical Education/Health student teachers' mean attitude scores were: pre-test, 24.78; post-test, 25.44. An F-ratio of 4.49 was needed for significance at the .05 level, and an F-ratio of 8.53 at the .01 level. The F-ratio of .003, as shown in Table 6, was not significant.
There was no significant difference in mean pre- and post-test attitude scores of student teachers who taught in the area of Physical Education/Health.

The data showed that there were no significant differences in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Social Studies, and Physical Education/Health.

There was a significant difference, at the .01 level, in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in the area of Vocational Education. It was inferred that the Vocational Education student teachers' group had a more realistic attitude toward children and teaching after the student-teaching experience. Hypothesis five, therefore, could not be retained.
Table 6. Analysis of variance F-ratio table of mean attitudes, before and after student teaching, of students teaching in various areas of secondary education

<table>
<thead>
<tr>
<th>Area</th>
<th>df</th>
<th>Pre-test MTAI</th>
<th>Post-test MTAI</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts/Humanities</td>
<td>21</td>
<td>35.45</td>
<td>32.00</td>
<td>.10</td>
</tr>
<tr>
<td>Bus.Ed./Dist.Ed.</td>
<td>23</td>
<td>39.42</td>
<td>34.50</td>
<td>.29</td>
</tr>
<tr>
<td>Math/Science</td>
<td>9</td>
<td>62.20</td>
<td>41.80</td>
<td>1.38</td>
</tr>
<tr>
<td>Voc. Educ.</td>
<td>45</td>
<td>46.74</td>
<td>22.26</td>
<td>8.01**</td>
</tr>
<tr>
<td>Soc. Studies</td>
<td>13</td>
<td>43.86</td>
<td>24.71</td>
<td>1.10</td>
</tr>
<tr>
<td>P.E./Health</td>
<td>17</td>
<td>24.78</td>
<td>25.44</td>
<td>.003</td>
</tr>
</tbody>
</table>

**Significant at .01 level.

Required F to be significant at .05 level: Arts/Humanities, 4.35; Bus.Ed./Dist.Ed., 4.30; Math/Science, 5.32; Voc. Educ., 4.06; Soc. Studies, 4.75; P.E./Health, 4.49.

Required F to be significant at .01 level: Arts/Humanities, 8.10; Bus.Ed./Dist.Ed., 7.94; Math/Science, 11.26; Voc. Educ., 7.24; Soc. Studies, 9.33; P.E./Health, 8.53.

Hypothesis six

"There will be no significant difference between the mean performance score of the Elementary Education student teachers and the mean performance score of the Secondary Education student teachers on the Instrument for the Observation of Teaching Activities (IOTA)."

The hypothesis was tested by the analysis of variance. An F-ratio of 3.94 was required for significance at the .05 level, and 6.90 at the .01 level.

Mean scores on the IOTA were: Elementary Education students, 50.85; Secondary Education students, 50.99. The F-ratio of .005, as shown in Table 7, was not significant, and the null hypothesis was
There was no significant difference between the mean performance scores of the Elementary and Secondary student teachers on the IOTA.

Table 7. Analysis of variance F-ratio table of mean performance scores of elementary education and secondary education student teachers on the Instrument for the Observation of Teaching Activities (IOTA)

<table>
<thead>
<tr>
<th>df</th>
<th>Elementary</th>
<th>Secondary</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>50.85</td>
<td>50.99</td>
<td>.005</td>
</tr>
</tbody>
</table>

Required F to be significant: 3.94 at the .05 level, 6.90 at the .01 level.

Hypothesis seven

"There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA)."

The hypothesis was tested by means of the Pearson's r product-moment correlation. A correlation coefficient of .349 was required for significance at the .05 level, and a correlation coefficient of .449 was needed for significance at the .01 level.

The correlation coefficient of .137, as shown in Table 8, was not significant, and the null hypothesis was retained. No significant correlation was found to exist between the Elementary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the IOTA.
Table 8. Correlation between elementary education students' and secondary education students' mean attitudes, before and after student teaching, and their performance scores on the Instrument for the Observation of Teaching Activities (IOTA)

<table>
<thead>
<tr>
<th></th>
<th>Pearson's r Correlation Coefficient</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td>Elementary</td>
<td>31</td>
<td>.137</td>
<td>-.047</td>
</tr>
<tr>
<td>Secondary</td>
<td>65</td>
<td>.134</td>
<td>.113</td>
</tr>
<tr>
<td>Arts/Humanities</td>
<td>9</td>
<td>.001</td>
<td>.284</td>
</tr>
<tr>
<td>Bus.Ed./Dist.Ed.</td>
<td>10</td>
<td>-.258</td>
<td>.062</td>
</tr>
<tr>
<td>Math/Science</td>
<td>3</td>
<td>.264</td>
<td>-.418</td>
</tr>
<tr>
<td>Voc. Educ.</td>
<td>21</td>
<td>.163</td>
<td>.123</td>
</tr>
<tr>
<td>Soc. Studies</td>
<td>5</td>
<td>-.692</td>
<td>.384</td>
</tr>
<tr>
<td>P.E./Health</td>
<td>7</td>
<td>.724*</td>
<td>.729*</td>
</tr>
</tbody>
</table>

*Significant at .05 level.
Correlation required to be significant at the .05 level: Elementary, .349; Secondary, .250; Arts/Human., .602; Bus.Ed./Dist.Ed., .576; Math/Science, .878; Voc. Educ., .422; Soc. Studies, .755; P.E./Health, .666.

Correlation required to be significant at the .01 level: Elementary, .449; Secondary, .325; Arts/Human., .735; Bus.Ed./Dist.Ed., .708; Math/Science, .959; Voc. Educ., .537; Soc. Studies, .875; P.E./Health, .798.

Hypothesis eight

"There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA)."
The hypothesis was tested by means of the Pearson's $r$ product-moment correlation. A correlation coefficient of .349 was needed for significance at the .05 level, and .449 at the .01 level.

The correlation coefficient of -.047, as shown in Table 8, was not significant, and the null hypothesis was retained. There was no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the IOTA.

Hypothesis nine

"There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA)."

The hypothesis was tested by means of the Pearson's $r$ product-moment correlation. A correlation coefficient of .250 was needed for significance at the .05 level, and .325 was required at the .01 level.

The correlation coefficient of .134, as shown in Table 8, was not significant, and the null hypothesis was retained. No significant correlation was found to exist between the Secondary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the IOTA.

Hypothesis ten

"There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA)."
The hypothesis was tested by means of the Pearson's $r$ product-moment correlation. A correlation coefficient of .250 was required for significance at the .05 level, and .325 at the .01 level.

The correlation coefficient of .113, as shown in Table 8, was not significant, and the null hypothesis was retained. No significant correlation was found between the Secondary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the IOTA.

**Hypothesis eleven**

"There will be no significant correlation between the mean attitudes toward children and teaching, before student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA)."

The hypothesis was tested by means of the Pearson's $r$ product-moment correlation.

The Arts/Humanities student teachers' group needed a correlation coefficient of .602 for significance at the .05 level and a correlation coefficient of .735 at the .01 level. The resulting correlation coefficient of .001, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Arts/Humanities and their mean performance score on the IOTA.
The Business Education/Distributive Education student teachers' group needed a correlation coefficient of .576 for significance at the .05 level, and .708 at the .01 level. The resulting correlation coefficients of -.258, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Business Education/Distributive Education and their mean performance score on the IOTA.

The Math/Science student teachers' group needed a correlation coefficient of .878 for significance at the .05 level, and .959 for significance at the .01 level. The correlation coefficient of .264, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Math/Science and their mean performance score on the IOTA.

The Vocational Education student teachers' group needed a correlation coefficient of .422 for significance at the .05 level, and .537 at the .01 level. The correlation coefficient of .163, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Vocational Education and their mean performance score on the IOTA.

The Social Studies student teachers' group needed a correlation coefficient of .755 for significance at the .05 level, and .875 at the .01 level. The correlation coefficient of -.692, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, before student teaching, of
Secondary Education students who taught in the area of Social Studies and their mean performance score on the IOTA.

The Physical Education/Health student teachers' group needed a correlation coefficient of .666 for significance at the .05 level, and .798 at the .01 level. The resulting correlation coefficient of .724, as shown in Table 8, was significant at the .05 level; therefore, the null hypothesis could not be retained. There was a significant correlation between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Physical Education/Health and their mean performance score on the IOTA.

Hypothesis twelve

"There will be no significant correlation between the mean attitudes toward children and teaching, after student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA)."

The hypothesis was tested by means of the Pearson's $r$ product-moment correlation.

The Arts/Humanities student teachers' group needed a correlation coefficient of .602 for significance at the .05 level and a correlation coefficient of .735 at the .01 level. The resulting correlation coefficient of .284, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who
taught in the area of Arts/Humanities and their mean performance score on the IOTA.

The Business Education/Distributive Education student teachers' group needed a correlation coefficient of .576 for significance at the .05 level, and .708 at the .01 level. The correlation coefficient of .062, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Business Education/Distributive Education and their mean performance score on the IOTA.

The Math/Science student teachers' group needed a correlation coefficient of .878 for significance at the .05 level, and .959 for the .01 level. The correlation coefficient of -.418, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Math/Science and their mean performance score on the IOTA.

The Vocational Education student teachers' group needed a correlation coefficient of .422 for significance at the .05 level, and .537 at the .01 level. The correlation coefficient of .123, as shown in Table 8, indicated that there was no significant correlation between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Vocational Education and their mean performance score on the IOTA.

The Social Studies' student teachers' group needed a correlation coefficient of .755 for significance at the .05 level, and .875 at the .01 level. The correlation coefficient of .384, as shown in Table 8, indicated that there was no significant correlation between the mean
attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Social Studies and their mean performance score on the IOTA.

The Physical Education/Health student teachers' group needed a correlation coefficient of .666 for significance at the .05 level, and .798 at the .01 level. The resulting correlation coefficient of .729, as shown in Table 8, was significant at the .05 level; therefore, the null hypothesis could not be retained. There was a significant correlation between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Physical Education/Health and their mean performance score on the IOTA.

Discussion

Hypothesis one

Analysis of the data in connection with Hypothesis one led to the rejection of the null hypothesis at the .01 level. It was found that there was a significant difference, prior to student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching, with the Elementary Education students apparently having less realistic attitudes toward children and teaching.

Elementary Education students' mean pre-test score on the Minnesota Teacher Attitude Inventory (MTAI) was some 13 points higher than the pre-test score for the Secondary Education students, as indicated in Table 3. A higher score for elementary students is shown in the norms developed for the MTAI (Tables 1 and 2) in pilot testing in several states. As shown in Table 1, median scores on the MTAI for elementary
students in the junior year (prior to student teaching) are 15 to 17 points higher than for secondary students. This difference apparently was sustained throughout the teacher education programs on which the MTAI norms were based. The results found in regard to Hypothesis one are, therefore, not unexpected.

The Elementary Education students' mean attitude score on the MTAI pre-test ranks at about the 40th percentile in the norms for education juniors at the elementary level, as shown in Table 1. The table shows a norm of 56 at the 40th percentile, and Elementary Education students in the present study had a score of 54.39 (Table 3).

The Secondary Education students' mean attitude score on the MTAI pre-test also ranks at about the 40th percentile, as shown in Table 1. The norms show a score of 42 for academic juniors at the secondary level, and Table 3 shows that Secondary Education students in the present study had a score of 41.48.

**Hypothesis two**

Hypothesis two was retained, as it was found that there was not a significant difference, after student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching.

Although Elementary Education students had a mean score some 11 points higher on the MTAI (Table 3), that difference was shown to be statistically insignificant. Also, higher scores by the Elementary Education students were expected, according to the MTAI norms shown in Table 1. The norms show that graduating seniors in Elementary Education have a median MTAI score 14 to 15 points higher than graduating seniors in Secondary Education.
The analysis of covariance test, using the pre-test as a covariate, showed that the adjusted mean attitude scores for Elementary and Secondary Education students, after student teaching, differed by approximately 3 points (Table 4). With the largeness of the sample (99 degrees of freedom), this low difference in adjusted mean scores supports the hypothesis that any difference in the mean attitude scores of the two student teachers' groups, after student teaching, is insignificant.

**Hypothesis three and Hypothesis four**

Both Hypothesis three and Hypothesis four found results significant at the .01 level. There was a significant change in the attitudes of Elementary Education students and Secondary Education students after the student-teaching experience, with both groups showing increased realistic attitudes as measured by the MTAI (Table 5).

Similar results have been noted in many previous studies, including those by Weinstock and Peccolo (1970), Alper and Retish (1972), Muuss (1969), Walberg et al. (1967), and Shapiro and Shiflett (1974).

It is important to note again that norms developed for the MTAI (Tables 1 and 2) show that experienced teachers have median scores on the instrument that are some 30 to 45 points below the median scores of education students and that research is needed to determine which scores are actually more desirable.

Student teachers in the present study have mean attitude scores after student teaching that are quite similar to the mean attitudes shown for teachers with 4 years training (Table 2). The mean post-test attitude score of Elementary Education students in the present study was 39.15, which is close to the mean attitude score of 37.0 for elementary teachers in systems with fewer than 21 teachers. The mean post-test
attitude score of Secondary Education students in the present study was 28.19, which is similar to the mean attitude score of 24.7 for secondary academic teachers with 4 years training.

Since studies showing increases and decreases—or no significant change—in MTAI scores after student teaching are very evenly divided (see Review of Literature), more research is needed before it can be said what is meant by a decrease in MTAI scores at this stage of a teacher's development.

As pointed out in the Review of Literature, loss of idealistic attitude during student teaching may be caused by contrast between unrealistic expectations and the realities of the student-teaching situation.

The loss of idealistic attitude which occurred in the present study may be a normal, temporary stage in the student teachers' development. Full-time employment as teachers in their own classrooms could bring some increase in idealistic attitudes toward children and teaching. However, any such increase would probably not return the attitude score to the pre-student-teaching level, since scores at that early stage are probably not realistic.

Studies by Brim (1966) and Muuss (1969), cited in the Review of Literature, emphasized that the direction of attitude change during student teaching varied from person to person. The present study found this same type of variability, as shown in Table 9. An increase in idealistic attitude was shown by 28 students in the present study, while 70 students showed a more realistic attitude. Approximately one-fifth (6 out of 33) of the Elementary Education students showed an increase in their scores on the MTAI after student teaching, and approximately
one-third of the Secondary Education students (22 out of 67) showed an
increase in scores.

Table 9. Number of students who increased and decreased MTAI scores
after student teaching, and average number of points of increase and decrease

<table>
<thead>
<tr>
<th></th>
<th>Increased MTAI score</th>
<th>Average Increase (Points)</th>
<th>Decreased MTAI score</th>
<th>Average Decrease (Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>6</td>
<td>9.5</td>
<td>26</td>
<td>21.5</td>
</tr>
<tr>
<td>Secondary</td>
<td>22</td>
<td>14</td>
<td>44</td>
<td>28</td>
</tr>
<tr>
<td>Arts/Human.</td>
<td>6</td>
<td>15</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Bus.Ed./Dist.Ed.</td>
<td>4</td>
<td>29</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Math/Science</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Voc. Educ.</td>
<td>4</td>
<td>9</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>Soc. Studies</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>P.E./Health</td>
<td>3</td>
<td>11</td>
<td>6</td>
<td>14</td>
</tr>
</tbody>
</table>

It is not surprising that the reaction to student teaching appears
to be a highly personal, individualized response, since there are ob-
viously many variables that can and do affect the experience for the in-
dividual student. More research is needed to determine what causes a
successful or unsuccessful student-teaching experience and to determine
how the student teacher's self-concept can be supported during the stu-
dent-teaching experience.
Hypothesis five

Data in the study supported Hypothesis five in only five of the six areas of Secondary Education. There were no significant differences in the mean attitudes toward children and teaching, before and after student teaching, of students who taught in the areas of Art/Humanities, Business Education/Distributive Education, Math/Science, Social Studies, and Physical Education/Health. There was a significant change in attitude at the .01 level by students who taught in the area of Vocational Education, as shown in Table 6. It was inferred that these student teachers, as a group, were more realistic in their attitude toward children and teaching after the student-teaching experience.

As shown in Table 9, 4 Vocational Education students increased their MTAI scores after student teaching, with an average increase of 9 points, and 18 Vocational Education students had lower scores on the MTAI after student teaching, with an average decrease in score of 33 points.

It is possible that a few students in the study who had extreme decreases in the MTAI score affected the average of the group.

Further studies of differences in attitude changes among the various Secondary Education areas could determine whether the difference found in the present study would persist.

It must be pointed out again that it has not been determined whether a decline in the student teachers' MTAI scores is desirable or undesirable.

It is also necessary to note that lack of significance in some of the data related to this hypothesis could be a result of the small sample size in some of the Secondary Education student-teaching areas. For example, the 21-point difference in pre-test and post-test means for the
Math/Science group (see Table 6) may have lacked significance because of the fact that there were only five student teachers in this area, which resulted in only 9 degrees of freedom. The same point spread, with a larger sample, could be of statistical significance. The 19-point decrease in the mean score of the Social Studies group might also be of statistical significance with a larger sample than seven students.

**Hypothesis six**

Hypothesis six was retained, as no significant difference was found between the mean performance scores of Elementary and Secondary Education students on the Instrument for the Observation of Teaching Activities (IOTA). Mean performance ratings given to the student teachers by university supervisors for the two groups were almost identical: Elementary Education students, 50.85; Secondary Education students, 50.99 (Table 7).

**Hypotheses seven, eight, nine, and ten**

Hypotheses seven, eight, nine, and ten were retained. As shown in Table 8, no significant correlation was found between the mean attitude scores of Elementary Education and Secondary Education students, before and after student teaching, and the mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA).

The lack of significant correlations in Hypotheses seven, eight, nine, and ten was not unexpected. In the Review of the Literature, it was noted that most studies have shown that there is no significant relationship between student teachers' attitudes toward children and teaching and the way they are rated on student teaching performance by university supervisors.
Since some studies have shown that student teachers feel threatened by the supervisor's evaluation, it is likely that student teachers do not confide in the supervisor when they become aware of experiencing less idealistic attitudes toward children and teaching. It is also possible that, in their determination to succeed at teaching, the student teachers are able to conceal any change in attitude by over-compensating or "bending over backwards" in order to show idealistic attitudes in their relationships with the students.

Hypothesis eleven and Hypothesis twelve

Hypothesis eleven and Hypothesis twelve were both rejected. As shown in Table 8, the hypotheses were supported only in relation to the lack of correlation between mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, and Social Studies. Significant correlation, at the .05 level, was found between mean attitudes toward children, before and after student teaching, of students who taught in the area of Physical Education/Health.

Although most studies have shown no correlation between student teachers' attitudes and their performance grades in student teaching, it was pointed out in the Review of Literature that these findings were not conclusive. Studies by Weinstock and Peccolo (1970) and Greene (1972) found a slight correlation on these variables.

Further studies of correlation between attitude scores and performance scores in the various areas of Secondary Education could determine
whether the correlation found in the P.E./Health area in the present study would persist.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This paper attempted to answer the following questions: Do the attitudes of Elementary Education students toward children and teaching differ significantly from the attitudes of Secondary Education students? Do student teachers' attitudes show a significant change as a result of the student-teaching experience? Is there any correlation between change in attitude and the subject which the student teaches? Is there a correlation between the student teacher's attitude and his performance grade in student teaching?

Hypotheses of the Study

Hypothesis one

There will be no significant difference, prior to student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching.

Hypothesis two

There will be no significant difference, after student teaching, in the attitudes of Elementary Education students and the attitudes of Secondary Education students toward children and teaching.

Hypotheses three

There will be no significant change, after student teaching, in the attitudes of Elementary Education students toward children and teaching.
Hypothesis four

There will be no significant change, after student teaching, in the attitudes of Secondary Education students toward children and teaching.

Hypothesis five

There will be no significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health.

Hypothesis six

There will be no significant difference between the mean performance score of the Elementary Education student teachers and the mean performance score of the Secondary Education student teachers on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis seven

There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis eight

There will be no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).
Hypothesis nine

There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis ten

There will be no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis eleven

There will be no significant correlation between the mean attitudes toward children and teaching, before student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA).

Hypothesis twelve

There will be no significant correlation between the mean attitudes toward children and teaching, after student teaching, of Secondary Education students who student teach in the areas of Arts/Humanities, Business Education/Distributive Education, Math/Science, Vocational Education, Social Studies, and Physical Education/Health, and their mean performance scores on the Instrument for the Observation of Teaching Activities (IOTA).
The Instruments

The Minnesota Teacher Attitude Inventory (MTAI) was used to determine each student's attitude toward children and teaching. The instrument has 150 opinion statements to be marked on a continuum ranging from "Strongly agree" to "Strongly disagree." A high score on the test indicates that a teacher is child-centered (i.e., has an idealistic, permissive attitude toward children) and has uncritical, positive attitudes toward teaching; low scores suggest that the teacher is more critical and more realistic (emphasizes strict classroom control).

Part I of the Instrument for the Observation of Teaching Activities (IOTA), copyrighted by the National Iota Council, was used by the university supervisors to rate student teachers' classroom performance. Part I of the IOTA consists of 14 Observation Scales, each of which is divided into five behavioral levels, or levels of competence. The supervisor selects the level that best describes the student teacher's performance in each category. The levels are scored from one to five points each, with level five representing the highest level of competence.

Subjects

Student teachers participating in the study included 33 Elementary Education student teachers and 67 Secondary Education student teachers at Utah State University who did their student teaching during the winter quarter, 1975.

Secondary Education student teachers were distributed in six areas as follows: Arts/Humanities, 11; Business Education/Distributive
Education, 12; Math/Science, 5; Vocational Education, 23; Social Studies, 7; and Physical Education/Health, 9.

Research Design

Student teachers in the study were tested on the Minnesota Teacher Attitude Inventory (MTAI) before and after student teaching. They were rated by university supervisors on Part I of the Instrument for the Observation of Teaching Activities (IOTA) during the final weeks of student teaching.

All tests were hand-scored, and scores were teletyped directly into the computer at the Utah State University Computer Center.

Analysis of variance and analysis of covariance were used to test for significant differences at the .05 level between group means on the pre- and post-tests of the MTAI. Analysis of variance was also used to compare mean group scores on the IOTA.

Pearson's \( r \) product-moment correlation was used to determine significant relationships between student teachers' attitude scores on the MTAI and performance scores on the IOTA.

Analysis of the Data

Hypothesis one

Hypothesis one was rejected at the .01 level. Before student teaching, Elementary Education students did show less realistic attitudes than the Secondary Education students toward children and teaching.

Hypothesis two

Hypothesis two was retained. There was no significant difference, after student teaching, in the attitudes of Elementary Education students...
and the attitudes of Secondary Education students toward children and teaching.

**Hypothesis three**

Hypothesis three was rejected at the .01 level. Elementary Education students showed an increase in realistic attitudes, as measured by the MTAI, after student teaching.

**Hypothesis four**

Hypothesis four was rejected at the .01 level. Secondary Education students showed an increase in realistic attitudes, as measured by MTAI, after student teaching.

**Hypothesis five**

Hypothesis five was rejected since the data supported it for only five of the six Secondary Education teaching areas. After student teaching, Vocational Education student teachers, as a group, had a more realistic attitude (significant at the .01 level) toward children and teaching. The other groups showed no significant change in attitude.

**Hypothesis six**

Hypothesis six was retained. There was no significant difference in the mean performance scores of the Elementary Education students and the Secondary Education students on the IOTA.

**Hypothesis seven**

Hypothesis seven was retained. No significant correlation was found between the Elementary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the IOTA.
Hypothesis eight

Hypothesis eight was retained. There was no significant correlation between the Elementary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the IOTA.

Hypothesis nine

Hypothesis nine was retained. There was no significant correlation between the Secondary Education student teachers' mean attitude toward children and teaching, prior to student teaching, and their mean performance score on the IOTA.

Hypothesis ten

Hypothesis ten was retained. No significant correlation was found between the Secondary Education student teachers' mean attitude toward children and teaching, after student teaching, and their mean performance score on the IOTA.

Hypothesis eleven

Hypothesis eleven was rejected since the data supported it for only five of the six Secondary Education teaching areas. There was a significant correlation, at the .05 level, between the mean attitude toward children and teaching, before student teaching, of Secondary Education students who taught in the area of Physical Education/Health and their mean performance score on the IOTA. The other groups showed no significant correlation.

Hypothesis twelve

Hypothesis twelve was rejected since the data supported it for only five of the six Secondary Education teaching areas. A significant
correlation, at the .05 level, was found between the mean attitude toward children and teaching, after student teaching, of Secondary Education students who taught in the area of Physical Education/Health and their mean performance score on the IOTA. No significant correlation was found for the other secondary teaching areas.

Conclusions

Findings of the study were:

1. Prior to student teaching, Elementary Education student teachers had a significantly less realistic mean attitude toward children and teaching than Secondary Education student teachers had. Significance was at the .01 level.

2. After student teaching, there was no significant difference between the mean attitudes of Elementary Education and Secondary Education students toward children and teaching.

3. Elementary Education students and Secondary Education students had more realistic attitudes toward children and teaching (significant at the .01 level) after student teaching.

4. There was no significant difference in the mean attitudes toward children and teaching, before and after student teaching, of Secondary Education students who taught in five of the six Secondary Education teaching areas. Students who taught in the area of Vocational Education had a significantly more realistic mean attitude toward children and teaching after the student-teaching experience. Significance was at the .01 level.

5. There was no significant difference in mean performance scores on the Instrument for the Observation of Teaching Activities
(IOTA) for Elementary Education student teachers and Secondary Education student teachers.

6. There was no significant correlation between mean attitude scores and mean performance scores on the IOTA for Elementary Education student teachers and Secondary Education student teachers.

7. There was no significant correlation between mean attitude scores and mean performance scores on the IOTA for students in five of the six Secondary Education teaching areas. Students teaching in the area of Physical Education/Health had a significant correlation between their mean attitudes prior to and after student teaching, and their mean performance score on the IOTA. Significance was at the .01 level.

Attitudes of Elementary Education and Secondary Education student teachers in the study, prior to student teaching, are about at the 40th percentile level of the norms on the Minnesota Teacher Attitude Inventory (MTAI), as shown in Table 1.

The norms show that Elementary Education students have higher mean scores on the MTAI than Secondary Education students both before and after student teaching, and that finding was reflected in the present study, although the attitude difference after student teaching was found to be insignificant.

Student teachers in the present study had mean attitude scores after student teaching that are quite similar to the mean attitudes for teachers with 4 years training (Table 2).

More research is needed to determine whether a decline in score on the MTAI during student teaching is desirable or undesirable.
Some studies have hypothesized that a decline in idealistic attitude during student teaching results because of initial unrealistic expectations by the student teacher. The less idealistic attitudes after student teaching, according to this hypothesis, represent a realistic adjustment of naive and inexperienced attitudes. Some support is given to this hypothesis by the norms developed for MTAI (Tables 1 and 2), which show that median attitude scores for experienced teachers are 30 to 45 points lower than those for education students.

Because of the many variables involved in the student-teaching experience, attitude changes tend to be individualized. Approximately one-fourth of the total students in the present study (28 out of 100) showed an increase in idealistic attitude. (Table 9)

Mean performance scores on the *Instrument for the Observation of Teaching Activities* (IOTA) were almost identical for the Elementary Education and Secondary Education student teachers. No significant correlation was found between these performance scores and the mean attitude scores of the Elementary Education and Secondary Education students. Also, no significant correlation between these scores was found for students in five of the six Secondary Education teaching areas. Further study would be needed to determine whether the correlation for the one teaching area would persist.

University supervisors participating in the present study had high praise for the *Instrument for the Observation of Teaching Activities* (IOTA). Their comments indicated that the instrument helped in making a more objective evaluation of the student's classroom performance, since the supervisor chooses the performance level from practical, measurable descriptions of performance rather than simply choosing from numerical ratings of performance.
The IOTA gives a sample of the very complex set of behaviors involved in teaching. In particular, supervisors in the areas of Physical Education and Music pointed out that the IOTA, like most student-teaching evaluation forms, is designed more for the general classroom than for Physical Education or Music classrooms, which have particular, unique requirements.

**Recommendations**

1. It is recommended that further studies be made of student-teaching attitude changes of Utah State University students. Any future study should attempt to utilize larger sample groups insofar as possible, in order to strengthen the results of the study. Replication of the present study would be especially desirable if it were deemed worthwhile, as Cronbach (1953) suggested, to develop local norms for the MTAI. An extended study to measure attitudes of all student teachers during a year (three quarters) could determine whether the quarter in which student teaching is completed is related to attitude change.

2. If the study were replicated, it would be advisable to analyze MTAI and IOTA responses on an item-by-item basis in order to determine which items are most useful in identifying exactly what changes occur during student teaching.

3. It would be desirable for a replication study to include a follow-up questionnaire or interview with student teachers immediately after the student-teaching experience in order to help determine reasons for attitude changes during student
teaching and to determine how student teachers' self-concept could be supported during the student-teaching experience.

Were the investigator to determine the significant elements which constitute the reality of the classroom teaching experience, those elements could be incorporated in the teacher education program.

4. A follow-up study of student teachers after they had taught full-time for one year could be useful in determining the degree of permanence of attitude changes during student teaching.

5. Since experienced teachers have lower scores on the Minnesota Teacher Attitude Inventory (MTAI) than student teachers have, further research is needed to determine which attitudes toward children and teaching are more desirable.

6. Further research is also needed on how best to develop attitudes of student teachers.

7. It is possible that education students could benefit from an earlier exposure to the realities of classroom teaching so that they might alter any unrealistic expectations. If early entry in the classroom were chosen as a pattern, the focus should be upon involving the student in quality experiences rather than upon merely increasing the quantity of hours in the school. Further research should determine whether active teaching experience in this preparational stage, with gradually increasing responsibility, would be more effective for training the student teacher than more hours of mere observation.
8. It is recommended that, in the student-teaching experience itself, students get a gradual introduction to teaching, with gradually increasing independence in planning and implementing teaching goals.

9. It is possible that students could benefit from a more lengthy participation in student teaching, which would permit time for the student teacher to formulate a corrected or adjusted attitude based on experience. Further studies, recording student teachers' attitude change at various stages, might be made at universities having one and two-year internships for student teachers.

10. It is recommended that the teacher education program at Utah State University place greater emphasis upon human relations and personality development and upon further studies in these areas. Student teachers need increased self-understanding and self-acceptance in order to help their future students to develop healthy attitudes and self-concepts.
BIBLIOGRAPHY


Kinney, Lucien B. and Warren Kallenbach. 1970. The quality of measurements obtained through use of IOTA. The National IOTA Council, San Jose, California. (Mimeographed.) (Original not seen; referred to in Perry, 1971.)


National IOTA Council. 1970. The role of the teacher in society. First revision. San Jose, California. (Original not seen; referred to in Perry, 1971.)


Thompson, James C. 1972. A study to determine the effectiveness of the Instrument for the Observation of Teaching Activities (IOTA) as a tool for the improvement of instruction. Doctoral dissertation, University of Kansas, Lawrence, Kansas. (Original not seen; abstracted in IOTA Abstracts. Bureau of Educational Research & Services, Arizona State University.) (Xerox)


VITA

Sylvia Lynn Rhoades

Candidate for the Degree of

Doctor of Education

Dissertation: The Effect of Student Teaching on Attitudes of Selected Elementary and Secondary Education Students at Utah State University

Major Field: Curriculum Development and Supervision

Biographical Information:


Education: Attended elementary school in El Reno, Oklahoma; graduated from El Reno High School in 1953; received a Bachelor of Arts degree from the University of Oklahoma in 1959 with a major in Journalism; received a Teaching Certificate in Language Arts from the University of Science and Arts of Oklahoma in 1965; received a Master of Library Science degree from the University of Oklahoma in 1970; completed requirements for a Doctor of Education degree at Utah State University, 1975.