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The effects of cooperating teacher teaching style on student teacher teaching style.

Michel Alan Burton
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THE EFFECTS OF COOPERATING TEACHER
TEACHING STYLE ON STUDENT TEACHER
TEACHING STYLE

A dissertation Presented
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August 1970
THE EFFECTS OF COOPERATING TEACHER TEACHING STYLE ON STUDENT TEACHER TEACHING STYLE

A dissertation Presented
By
Michel Alan Burton

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of Doctor of Education

August 1970
(month) (year)

Major Subject: Teacher Education

ii
ACKNOWLEDGEMENTS

This is a page of thank-you notes. These persons were some, but by no means all, of the people related to this dissertation who became special to me.

Dwight Allen, Jim Sacco and Earl Seidman, who introduced me to the School of Education at the University of Massachusetts.

Dick Konicek and David Day, whose kindness and understanding were far more valuable to me than any number of handball games.

Peter Quinn and Ella Rowe, who provided some much needed support in times of need.

Jimmie Fortune, Bill Wolf Jr., and Tom Hutchinson, who were kind enough to help make sense out of some pretty rough ideas.

As is alphabetically fitting, last but not least, Jules Zimmer, who along with wife Flaurie, son Bill, cat Louis and dog Inky, provided me with a most atypical and invaluable year of family living.

Thanks to all.

Michel A. Burton
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CHAPTER I
GENERAL CONSIDERATIONS

Introduction

Introduction of the Problem

The training of prospective teachers, hereafter called student teachers, has come to include an apprenticeship type of arrangement called the "student teaching experience". It is normally an eight or sixteen week period during which the student teacher enters the classroom of an experienced teacher, called the cooperating teacher, and observes the cooperating teacher's method of instruction. The student teacher then begins to develop a style and method of his own.

In addition to the cooperating teacher's possible influence on the student teacher, the School of Education involved normally provides a supervisor to visit the classroom in which the student teacher is located, the purpose of the supervisor being to observe the student teacher's teaching behavior and to help the student teacher improve the teaching techniques involved.

The student teaching experience is almost universally required by states granting a teaching certificate and Schools of Education granting degrees in education. Therefore a question central to teacher training is: What changes take place in a student teacher during the student teaching experience, and what caused the changes?

On looking through the existing literature one finds much disagreement on such issues as the importance of the supervisor, (Cicirelli, 1969) the amount of influence the cooperating teacher has on the student teacher, (McAuly, 1960; Porretta, 1967; Price, 1961) and the degree of change that
takes place in the student teacher during the student teaching experience. 
(Bondi, 1969; Gowland, 1967; Johnson, 1969; Popham, 1965)

While there are conflicting studies regarding what happens to the student teacher during the student teaching experience, the fact that student teachers are paired with cooperating teachers on considerations other than personality or teaching skills is a matter of history. (Chaltas, 1965; Lingren, 1957; Roth, 1961; Shaplin and Powell, 1964)

Questions arose in the researcher's mind regarding the process of placing a student teacher with a cooperating teacher, which will be called pairing. As a supervisor, some pairs seemed "good" from both a personality and teaching skills standpoint. The student teacher and cooperating teacher worked together well and were happy. Also, the cooperating teacher was "strong" in a teaching skill area (e.g. the use of open ended questions) in which the student teacher was "weak", enabling the student teacher to seemingly be strengthened in that skill area. Other pairings seemed to be "bad" from both standpoints. The student teacher and cooperating teacher did not respect each other, resulting in an unwillingness to work together, and the cooperating teacher was "weak" in a skill area in which the student teacher needed help, resulting in little or no strengthening of the student teacher in that specific skill area. Pairings also arose exhibiting all ranges of compatibility between the two extremes.

The reason for a broad range of pairings becomes evident when the pairing process is seen in operation. Most student teachers choose a school for their student teaching experience because of ease of commuting, or perhaps a friend will be in that school to lend morale support. Some
student teachers plan to teach in the lower grades and make a choice on that basis. Other simply take what is available since positions for student teachers are sometimes scarce. It is a rare pairing that occurs as a result of someone knowing the student teacher and cooperating teacher well enough to say these persons would be a "good" pair from both a personality and teaching skills standpoint.

The question then becomes whether or not random assignment of student teacher - cooperating teacher pairs is as good as any other type of assignment.

Research on Personality Effects

Studies have been made to determine how certain student teacher personalities are affected by various cooperating teacher personalities. The many facets contained in a given person's personality and the complex nature of the interaction of personality dimensions has presented difficulties. Two broad personality measures used to study student teacher - cooperating teacher interaction are the Minnesota Teacher Attitude Inventory, used to measure the ability of a teacher to establish rapport with students, and the Rokeach Dogmatism Scale, used to measure dogmatic (open and closed minded) tendencies. Attempts to show that student teacher rapport or dogmatism change during the student teacher experience due to the influence of the cooperating teacher have met with varied success. (Johnson, 1969; Price; 1961) The general implications however seem to be that student teachers tend to model their "teaching personalities" after their cooperating teachers. (McAuly, 1960)
Research on Teaching Skill Effects

A look at teaching behavior affords some advantages over personality research in that very specific things may be observed. For example, it is much easier to record the number of direct questions asked by a teacher in a time period than it is to record a teacher's dogmatism over the same time period.

Two of the many instruments used to quantify teacher behavior are Flanders and OSCAR IV. The usage of these types of instruments to determine the extent to which student teachers model their teaching behavior after that of their cooperating teachers has produced results that vary in significance from study to study, but the indications are that some modeling takes place. (Muto, 1967; Hill, 1969)

Supervisor Effects

The influence of supervisors on student teachers is related to both the personalities and the supervisory techniques of the supervisor. (Koran, 1969) Supervisor – student teacher personality interaction seems to be strongest when clear guidelines are not established by the supervisor for the student teacher prior to the student teaching experience. Also, the type of evaluation the supervisor makes of the student teacher regarding the categories used by the supervisor seems to be linked to the degree of creativity the supervisor displays. (Cicirelli, 1969)

However, when clear behavioral objectives have been used throughout the student teaching experience, the student teacher has been able to produce significant changes in pupil behavior (McNeil, 1967). So it seems the effects produced by the supervisor are as many and varied as the persons and techniques involved.
Significance of the Problem

The significance of identifying whether or not the cooperating teacher's teaching behavior affects the student teacher's teaching behavior is two-fold. First, due to the universal nature of the student teaching experience, that it is required by schools of education and states alike, any information regarding changes in the student teacher teaching behavior during this time period would be of use to almost any teacher education program. Second, the student teaching experience provides for most student teachers their first contact with the classroom in the role of a teacher. It would therefore seem advantageous to identify changes in student teacher teaching behavior under these first exposure circumstances, with the intent of producing "good" teacher behavior from the outset as opposed to changing behavior at a later time after some undesirable habits may have been formed.

Research Objective

The research is intended to identify short term changes in student teacher teaching behavior as a function of cooperating teacher teaching behavior to enable the assignment and reassignment of a student teacher to a cooperating teacher based on the needs of the student teacher and the competencies of the cooperating teacher.

Definition of Terms

Student Teacher--a student involved in a teacher training program who is participating in the student teaching experience.
Cooperating Teacher—an experienced teacher presently teaching in a public or private school who has volunteered to help train a student teacher in his classroom.

Pairing—the process by which the student teacher and cooperating teacher are assigned to one another.

Student Teaching Experience—the eight weeks spent in the cooperating teacher's classroom.

Supervisor—a person well versed in teaching techniques who observes the student teacher in the classroom during the student teaching experience and counsels with the student teacher and cooperating teacher on the progress of the student teacher.

Teaching Behavior—behavior exhibited by a teacher in the process of teaching a videotaped lesson, Those behaviors captured on videotape.

Teaching Skills—those skills taught in a teacher training program. For example: questioning techniques, group alerting techniques, and classroom management.

Research Outline

Independent Variables—the teaching skills of the cooperating teacher and the teaching skills of the student teacher.

Dependent Variables—Group Alerting, Class Participation, Accountability, and Reinforcement as measured by the Steward Codes.

Sample—the cooperating teacher sample consists of 33 experienced teachers from the Springfield, Westfield, Belchertown, Northampton and Greenfield areas of Massachusetts. All have had student teachers before and all teach either the fourth, fifth, or sixth grades.
The student teacher sample consists of 33 student teachers enrolled in the University of Massachusetts School of Education Teacher Training Program with all having received methods courses prior to their student teaching.

Environment—the student teacher classroom environment was that of middle class rural and suburban classrooms. The only change from the usual student teaching experience was that there was no supervisor supplied by the School of Education. The cooperating teacher was the only supervisor of the student teacher's work.

Observation Techniques—the cooperating teachers were videotaped in their classrooms prior to the assignment of student teachers. The preclassroom videotape of the student teachers was made in a microteaching type of situation prior to their assignment to cooperating teachers. The student teachers were then taped twice more while in the cooperating teacher's classroom, once after four weeks and once after eight weeks. The coding of their teaching behavior was by three judges using an adapted form of the Steward Process and Management Codes.

The Hypotheses

Hypothesis 1—That student teacher scores in all teacher behavior categories will not change toward their respective cooperating teacher scores during the student teaching experience.

Hypothesis 2—That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the type of student teacher-cooperating teacher pairings involved.

Hypothesis 3—That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the teacher behavior categories.

Hypothesis 4—That the student teacher scores in all of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.
Hypothesis 5—That the student teacher scores in each of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.

Limitations of the Study

1) The use of videotape equipment in a classroom was an obtrusive means of collecting data.

2) No standardization of lessons taught for videotaping was sought for either student teachers or cooperating teachers.

3) The coding of broad teaching behavior categories as opposed to more specific teacher behaviors tends to be less objective than would be otherwise possible.
CHAPTER II
LITERATURE REVIEW

Literature Review Outline

I. Teacher Effectiveness Measures
   A. Personality Measures
   B. Teaching Behavior Measures

II. Student Teachers
   A. Short history of student teaching
   B. Measures of student teaching success
   C. Changes occurring during student teaching
   D. Cooperating teacher influences on the student teacher
   E. Supervisor influences on the student teacher

III. Video tape as an information gathering technique
   A. Videotape strategies
   B. Microteaching

IV. The Kounin and Steward Codes
Literature Review

Teacher Effectiveness Measures--A review of research concerned with identifying characteristics of an effective teacher was made to gain a perspective of how research on teaching had been done and what the results have been. Two broad dimensions were considered, personality measures and teaching behavior measures. A review of each area should lend a greater understanding of the problems involved within the specific area as well as within educational research as a whole.

Student Teachers--A short history of student teaching is given to place some present day practices and problems in a historical perspective.

A review of research concerning success in student teaching was made to determine how success was defined, achieved, and the causes thereof.

Since the student teaching experience is central to almost all teacher training programs the changes that occur during student teaching in the student teacher are of interest, as well as the factors involved in producing those changes. Specifically, the influences of two persons were considered, those of the cooperating teacher and those of the supervisor. These two persons are the central figures in the life of a student teacher and their abilities to effect change in the student teacher is a major consideration.

Videotape--As a new means of gathering information about teaching and providing feedback in a supervisory role the uses of videotape as related to this proposed study were reviewed. Specifically as concerns some strategies and techniques of employing videotape to gather information in the classroom and in microteaching situations.
The Kounin Codes and the Steward Modification of the Kounin Codes

The Kounin Codes and Steward Modifications provide an identification of teaching behaviors in the broad sense of the teacher as manager of the classroom environment. This provides a categorization of teachers by their individual styles. The work previously done by Kounin and the Stewards will be reviewed to understand more fully the structure of their coding system. The studies presented are for the most part discussed as groupings of related research, but each study has its own material presented separately. This is due to the local effects that seem to permeate individual studies. Differences in population, design, and instruments tend to make each study an isolated incident in research even though several studies may be trying to focus on identical problems.

Measures of Teacher Effectiveness

Since this study is primarily concerned with the identification of teaching styles a review of previous attempts to identify teaching styles and the goals of such identification procedures, in particular the selection of effective teachers, is in order.

Barr (1948) gives a starting point with an analysis of 150 studies done since 1900 related to the measurement and prediction of teaching efficiency. A summary of the findings presented in tabular form show behavior and personality traits yielding results more often than attitudes or status facts such as weight, salary or sex. The role of intelligence also seems to be doubtful by the instruments used in 1948.
General intelligence seems to be only slightly correlated with teaching success among the selected population provided by those who have already passed degree examinations. (Cattell, 1948, p. 719)

Later work by Lamke (1951) using Cattell's Sixteen Personality Factors failed to produce significant correlations between teaching success as judged by expert opinion, principal or supervisor approval, and personality factors. The conclusion being that good and poor teachers succeed or fail for varying reasons.

Work based on measuring the relationship between dogmatism and learning is relevant since the Rokeach Dogmatism scale has shown that teachers scoring low in the analytic area of the Teacher Characteristic Schedule and high on the Rokeach Dogmatism scale showed a significant difference from other combinations of Rokeach - Teacher Characteristic Schedule scores in their tendency to give information in the classroom. (Ohnmacht, 1967)

Ehrlich (1961) found a negative correlation between Rokeach Dogmatism scores and student achievement in an introductory sociology course. Christensen (1963) tried to correlate dogmatism as measured on the Rokeach scale to student achievement on objective and subjective tests in an introductory psychology course. No correlation was observed, but where Ehrlich pre and post tested, Christensen used only a post test. Costin (1965) tried to clear the matter up by using Ehrlich's design but, like Christensen, in an introductory psychology class. No significant correlation was obtained.

These studies seem to put either the reliability of the Rokeach Dogmatism scale or its sensitivity to different populations under scrutiny.

Tests in a much stricter psychological framework were used, such as the Rorschach ink blots, to identify characteristics of teacher effectiveness.
However, the usefulness of the Rorschach test as an evaluative device for teacher effectiveness seems to be poor according to two studies by Johnson (1955-1957) in which he failed to find significant correlations between the test interpretations and teacher behavior.

One test used extensively in research on teacher attitudes as they relate to teacher effectiveness is the Minnesota Teacher Attitude Inventory (MTAI). Fuller (1951) found that the mean score of 74 senior women at the University of Minnesota College of Education majoring in nursery school, kindergarten or primary teaching was 102.2. This mean score was in the 99th percentile. Rocchio and Kearney (1955) found that elementary education teachers with four years of college scored significantly higher on the MTAI than those with 2 years but that age and marital status gave no significant differences. Working to correlate the MTAI with biological data Lantz (1965) found that among 532 women about to start education course work a high MTAI score related to the relative number of scientific books in the home, the time spent in discussions of ethics and literature and the encouragement of their mothers to be independent, a high instance occurring in each of the three categories mentioned. No differences were found however in the amount of time spent reading in the home by the groups scoring high and low on the MTAI.

That changes in MTAI scores over time are related to attitudes seems questionable. However, Teigland (1966) found educational psychology grades significantly higher among students having the greatest MTAI score increases. Siebel (1967) has shown MTAI scores and changes in MTAI scores to be of some predictive value regarding the classroom behavior of teachers.

It is interesting to note work by Budd and Blakely (1958) concerning the response bias on the MTAI. High scores result from taking the extreme
positions on the test. This in itself may say something about conviction or confidence.

Concerning validation of the MTAI Button and Iannaccone (1964) state:

It is not clear that teacher behavior toward pupils is related to teacher affect toward pupil. The lack of relationship between a measure of teacher affect toward pupil and teacher perception of appropriate 'considerate' behavior toward pupil also suggest that an hypothesis of simple reciprocity of pupil-teacher affect may be inadequate, and that the MTAI may be a measure of teacher attribute other than affect toward pupil. (p. 185)

Munro (1964) found the MTAI to lack sufficiently high predictive validity for the selection of teacher training candidates at the University of British Columbia. However it was felt to be possibly valuable as one of a number of predictors. Stein and Hardy (1957) however found the MTAI to be both valid and reliable in choosing student teachers in Manitoba. Thus it seems that the validity of the MTAI may depend upon the level of teaching involved and the location.

Acceptance attitudes may have a bearing on teacher effectiveness according to Reed (1953).

A relationship far beyond chance expectancy was found to exist between the teacher's effectiveness in the classroom as evaluated by the students and that aspect of teacher's personality, organization or attitude, which permits him to be an accepting person.

Grouping together work on general dimensions of teaching effectiveness there is agreement on some characteristics that are in some way related to teacher success. Successful teachers exhibit a general stability and concern in dealing with pupils and tend to be secure and have good communication abilities, (Ringness, 1952; Tyler, 1964).

While the MTAI is one of the more widely used measures of teacher effectiveness, a number of other scales have been employed to try to pin down the factors indicative of good teaching. The Thurston Temperament
Schedule was employed by Ryans (1951) and Montross (1954) with only slight results. Cattell's Sixteen Personality Factors gave Montross only one correlate and this led Montross to state:

Although research in the field of teacher education would seem to indicate that personality is an important variable in teaching success, the identification and definition of this variable has not been made. (p. 73)

In a study done by Erickson (1954) employing a number of M-Blank Rating Forms a factor analysis gave only marginal results.

The low correlations of the several temperament, personality, and achievement variables, as here measured, with the nine estimates of teaching success and the three 'composites' seems to indicate that the relationship of these measures to teaching success as here measured has not been definitely established. (p. 36)

Medley and Klein (1957) constructed a 47 item inventory to investigate the ability of a pupil-reaction inventory to yield information about classroom behavior independent of the pupil's general attitude toward the teacher. The conclusion was that such a scale would work but that careful attention should be given to checking the halo effect.

Jarecke (1952) found his Teaching Judgement Test to have some predictive ability. The test technique used was a forced choice of solutions to a given teaching situation, a perhaps more accurate method of obtaining teacher attitudes than opinion questionnaires.

Using the Minnesota Multiphasic Personality Inventory (MMPI) failed to distinguish between effective and ineffective teachers according to MacLean, Gowan and Gowan (1955). Some general trends were cited however. Barr and Howe (1958) also used the MMPI as part of a battery of tests for factor analysis. The MMPI was of minimum use to them and in general the MMPI seems to be much more useful in identifying more extreme types of mental and emotional traits than in differentiating among the ranges of teacher effectiveness. (Moore and Cole, 1957)
Bendig (1955) was able to correlate ratings of introductory psychology instructors on the Purdue Rating Scale for Instruction, where the individual instructors' students did the rating, with vocabulary and total reading scores of the instructor. The correlations were positive and significant. No correlations were observed between the PRSI and either the Miller's Analogies or Mathematical Aptitude Tests.

Carlile (1954) used five categories to set up a performance prediction system for teaching. Intelligence, teaching aptitude, scholastic achievement, proficiency in the basic skills, and personality traits were the areas of consideration and the Allport A-S Reaction Study, Bell Adjustment Inventory, and Bernreuter Personality Inventory were used as measures. Intelligence and scholastic achievement correlated fairly high with teaching aptitude while basic skills and teaching aptitude had a high significant positive correlation. No correlations were observed between any of the categories and the personality traits.

Harrington (1955), Reed (1953), Singer (1954) and Tyler (1964) report other factors that seem to have some connection with teaching success. They are smiling, acceptance, social competence, and good communication abilities.

The conclusions drawn from the studies cited thus far are:

1) Tests designed for strictly psychological purposes, such as Rorschach and the MMPI, seem to have little value except when teachers display extreme mental or emotional peculiarities. Thus the tests cannot be related to effective or ineffective teaching.

2) Traits such as being an accepting person, being open-minded, smiling and in general, behavior characteristics of persons who are "nice" people to know and work with, seem to be pointed to by most of the personality and
attitude studies as indicative of an effective teacher.

Moving to more objective measures of teacher behavior like Flanders and OSCAR IV we find efforts directed more towards trying to describe what the teacher does without emphasis on the personality characteristics or attitudes that fostered a particular behavior. Considering one of the more well known instruments, Flanders, we find that although it has been widely used to improve teacher skills, there still seems to be some doubt as to the link between pupil achievement and teacher behavior. Rosenshine (1970) finds little encouragement from a report by Campbell and Barnes as he states:

The verdict is not in, and is not likely to be in for some time on the relationship between a teacher's behavior as measured by the Flanders Interaction Analysis (IA) system and pupil achievement. This holds true despite the glowing review of 12 studies presented by Campbell and Barnes in the June, 1969, issue of the KAPPAN.

In that review the results of each study were labeled statistically significant, and the overall conclusion was that the micro-elements involved in the indirect/direct ratios do affect achievement and attitude development at almost every grade level from K-9.

However, if one goes beyond the summaries which Campbell and Barnes read and checks the original reports, then one sees flaws in all of the 'results' they cited. These flaws include: 1) inappropriate statistical analyses by the investigators, 2) limits in the external validity or generalizability of the study, 3) data omitted from the summary reports, and 4) misinterpretations in reading. A more careful examination shows that not one of these 12 studies provides clear data which can be applied with confidence to a teacher training program. In short, the Campbell and Barnes review, which is based on secondary information, yields conclusions inconsistent with the original data."

The Campbell and Barnes report was dealing with studies by N.A. Flanders, E.J. Amidon, W.S. LaShier, G.I. Brown, L.N. Nelson, and others. While Rosenshine casts a shadow over the interaction analysis as related to the pupil achievement aspect of the Flanders Interaction Analysis system he does not question the reliability of Flanders when used merely as a
descriptive tool regarding teacher behavior. As Lamber, Goodwin and Roberts (1965) point out the Flanders scale is sensitive to classroom occurrences and is capable of yielding meaningful information.

Medley and Hill (1969) compare the Observation Schedule and Record IV (OSCAR IV) with Flanders for the purpose of pointing up the dimensions of classroom behavior dealt with by each instrument and recognizing the advantages offered by the expansion of some of the Flanders' categories in the OSCAR IV scale.

Bloom and Wilensky (1967) create four categories of teacher behavior under a Skinnerian framework, that being that pupils learn when their responses are promptly and consistently reinforced. The categories chosen are 1) information giving, 2) response elicitation, 3) feedback, and 4) teacher control. Using this type of categorization of teacher behavior they were able to get significant differences between four preschool teachers of under-privileged children.

An interesting approach to constructing a teacher behavior inventory was taken by Evans (1969). Attacking the problem from an inductive approach, Evans categorized both verbal and nonverbal behaviors that occurred in biology teachers' classrooms. Taking all observed behaviors and categorizing avoids the problems involved with adopting given teacher models ahead of time and trying to force observed behaviors into what may be artificial or irrelevant categories. Using video tape and the Biology Teachers' Behavior Inventory a .92 interrater reliability was obtained.

Considering the general reliability of observations of teachers' classroom behavior Brown, Mendenhall, and Beaver (1968) used the Teacher Practices Observations Record to rate films of teaching episodes. Untrained observers were used to insure that the worth of the instrument and not the
skill of the observer was being tested. They found the correlation of observers total scores to be very good as was the internal consistency reliability. Between and within observer reliability was fair while the correlations of observers scores between viewings one year apart were only fair to poor. Judging from this study it seems that the problem lies not in the ability of observers to identify and agree upon certain specific teacher behaviors but rather the relating of the observed behaviors to any type of learning that takes place in the classroom.

The studies cited using objective measures provides a good follow-up to the research using subjective measures of teacher behavior that was previously mentioned. A major problem in educational research is that while very careful and detailed observations of teacher behavior can be made it is quite another thing to relate these detailed observations to what is called "success" or "failure" in teaching.

It is rather significant and perhaps indicative of a great body of educational attitudes and philosophies that of all the studies cited, both objective and subjective in nature, a mere handful referred to pupil achievement or pupil interest in evaluating teacher effectiveness. For the most part "expert" opinion was the standard by which teachers were evaluated.

The situation merits some serious thought for it is not unlike a panel of experts choosing a new button making machine for their button factory without even looking at what type and of what quality the buttons are that the machine produces.

Student Teaching Experience

Considering research on student teachers five areas will be covered:
1) A short outline of the history of the so-called student teaching or practice teaching experience to establish the general widespread acceptance of the value of student teaching.

2) A review of studies dealing with measures of student teaching success.

3) A review of studies designed to measure the changes that take place during the student teaching experience.

4) The effect of the cooperating teacher on the student teacher during the student teaching experience.

5) The effect of supervisors on the student teacher during the student teaching experience.

According to Shaplin and Powell (1964) history of the student teaching experience, sometimes called practice teaching, dates to at least as early as 1895 where at Brown University a graduate level course which included practice teaching was offered after prerequisite undergraduate courses in professional education had already been studied. Persons participating in this course were sometimes able to be placed as paid half-time teachers in the Providence schools. Course work at Brown continued at the same time as the practice teaching while supervisory aid was given from both the schools involved and Brown. In 1919 the University of Cincinnati developed a program in cooperation with the Cincinnati public schools. After four years at the university during which some courses in education were taken, the fifth year was spent in the public schools as paid half-time teachers. A B.A. was usually awarded after four years and a B. ED. after the fifth.

By the 1920's similar programs had spread to many of the larger cities of the east and midwest.
The programs varied greatly, of course, according to local conditions. In some cases they were initiated by cities without the aid of a college or university but all shared the important element of increased supervision of beginning teachers. (Shaplin and Powell, p. 176)

Commonly called internship programs these fifth year on the job training situations came into hard times with the end of the depression and the start of World War II producing a teacher shortage that made the extra time and commitment of a fifth year unworkable.

Later, teacher training programs came into part of a university-wide academic realm and a major in education, like a major in mathematics or French or other areas could be obtained. In some programs student teaching was in the context of an internship involving all, half, or one quarter of the academic year in the classroom although the full or half year programs are usually called internships while the quarter year programs are referred to as practice or student teaching. The present day acceptance of intern and practice teaching situation is evidenced by many state laws requiring such training prior to the granting of a teaching certificate.

Assessment of Student Teachers

As in the assessment of most teacher attitudes and qualities problems have arisen as Mathis and Park (1965) state:

The definition of success in teaching has proved to be a troublesome problem in research for the educator over the past fifty years. Despite the abundance of studies available in the literature, very little has emerged in the way of evidence which might be generally useful in the selection of candidates for teacher education and in the prediction of future performance on the job. This dilemma is equally applicable to the problem of performance in student teaching, since the student teacher is exposed to many of the factors which relate to performance after certification. However, studies of
variables relative to student teaching success in a specific academic setting can be useful in confirming the applicability of past efforts to a specific institutional context. (p. 420)

One attempt at identifying some teaching styles among student teachers used systematic, humanistic, creative and general as categories. The grades of the systematic and general student teachers were essentially the same while creative student teachers received significantly higher grades in student teaching and from college supervisors than did humanistic student teachers. The needs of the two groups are interesting. Creative student teachers have a high need for achievement while humanistic student teachers have high needs for change combined with low needs in dominance and aggression (Minely, Galloway, Coodey and Sandefur, 1966)

McFadden (1968) used the Survey of Interpersonal Values, the Minnesota Teachers Attitude Inventory and the California Psychological Inventory in an attempt to discriminate student teaching performance on the basis of psychological attributes. Some hopeful areas were found which led McFadden to say that the results lend encouragement to the hypothesis that specific psychological dimensions discriminate success in groups of student teachers.

Assessment of the Student Teaching Experience

Inlow (1952) found that of 45 student teachers 88.8% considered student teaching to be of much greater value than any other education course or courses comparable in credit value. The question becomes; What takes place during the student teaching experience that is of such value and what changes occur in the student teacher as a result?

Since teacher training programs differ greatly, studies concerning
the changes occurring during student teaching will naturally be dependent on the program under observation. Recognizing this dependence, the research may be viewed in perspective.

Kearney and Rocchio (1956) found differences among 291 teachers in Liberal Arts, Teachers College, and University educational programs as evidenced in scores on the MTAI; the University group being high, the Teacher College group being medium and the Liberal Arts group being low.

Using the Student Teacher Report (STR) as developed by Ball State Teachers College student teacher supervisors, Sandgren and Schmidt (1956) found no significant differences between STR scores in students scoring in the upper and lower thirds of the MTAI.

Dutton (1962) studied the relationship between anxiety as measured by a revision of the Taylor Manifest Anxiety Scale (MAS) and the Anxiety Differential and teacher attitude as measured by the MTAI. He found no significant differences in MTAI score changes that occurred during the student teaching experience between anxious and non-anxious students. The MTAI score changes did show changes toward the MTAI scores of the cooperating teacher however, supporting the hypothesis that student teachers model after their cooperating teachers.

Brim (1966) found significant differences between MTAI scores before and after the teacher training program at the University of Denver for 250 undergraduates. The 32 students with the greatest changes in MTAI scores were interviewed to find the factors involved in producing the changes and while some possible factors were identified they arose both within and outside of the teacher training program; however, Campbell (1967) found no significant differences in the total pre and post student teaching MTAI scores of the group that he studied.
Taking a longer time span Haberman (1965) compared interns with regular first year teachers using Ryans Classroom Observation Record. For the most part the same teacher behaviors were evidenced by both groups. Although some differences were seen in the systematic, responsible, and business-like versus evading, unplanned, and slip-shod category, the groups were as varied as the teaching conditions leaving inconclusive results.

Using the Lipscomb Scale of Teacher Attitudes having a .80 reliability, Lipscomb (1966) found attitudinal changes to occur in 44 student teachers during the student teaching experience. Thirty-two of the changes were significant at the .01 level, 9 at the .05 level while 3 were above the .05 level.

To test various effects on student teachers by teacher training procedures Jalbert (1966) trained student teachers in the evaluation of classroom instruction prior to their student teaching experience. Fifty-eight trained student teachers and 53 untrained were rated according to the 5 observation categories previously used in the training procedure. Changes were evidenced favorable to the trained student teachers in 4 of the 5 observation categories, 2 of which were significant at the .05 level.

A similar study by Bondi (1969) checked the effects of interaction analysis feedback on the verbal behavior of student teachers. Bondi found that among other changes the interaction analysis feedback produced an increase in the amount of praise, clarification, indirect teacher talk, extended use of student ideas, and the initiation of student talk as evidenced by the student teacher verbal behavior. Also, a decrease was observed in the corrective feedback, criticizing, lecturing, and direction giving used by the student teacher.
Popham (1965) taught a modified curriculum to 22 student teachers while 28 received a regular instructional course. The groups taking the modified course were found to score significantly higher on the employment of principles stressed in the modified course. Thus it seems that when specific goals are sought within a teacher training program and the program itself is geared toward the attainment of those goals, predictable changes can be produced in the behavior of student teachers.

Cooperating Teacher Influence

Since most teacher training programs operate on the assumption that the cooperating teachers will provide a model of teacher behavior and technique for the student teachers to adopt, in part, as their own, it is well to see what effects of cooperating teachers on student teachers have been measured.

Gowland (1967) found that regardless of the level and specialization of teaching involved, student teachers became more like their cooperating teachers in 18 of 20 cases as measured by the Gowland 64-Item Teacher Behavior Q-Sort. Muto (1967) observed 18 pairs of student and cooperating teachers using Flanders, Rokeach, and the MTAI. He found changes in student teachers to take place but no relationship between these changes in teaching style and the Rokeach and the MTAI scores of either the student teachers or cooperating teachers was found.

Looking at changes in student teacher dogmatism as measured by Rokeach, Johnson (1969) found significant changes at the .01 level in 80 student teachers. However 53 of the changes were toward the cooperating teacher and 27 were away, leaving some doubt as to the effect of the cooperating teacher on student teacher dogmatism.
Trying to relate certain types of matchings of student teacher and cooperating teacher profiles Hill (1969) found no significant difference in student teacher performance as measured by Ryans Classroom Observation Record between fearful--self controlling, self controlling--fearful, self controlling--self controlling, and fearful--fearful pairs among 40 student teacher--cooperating teacher matches.

Price (1961) used the MTAI to measure attitude and the Sanders Observation Schedule (SOS) to measure classroom behavior of student teachers and cooperating teachers. Forty-five pairs were observed and analysis of variance showed the changes in the student teacher MTAI scores to be significant at the .05 level and in the direction of the cooperating teacher scores. However, correlations between the MTAI and SOS scores were not significant. Considering the SOS scores alone correlations between the total student teacher and cooperating teacher groups were significant at the .05 level.

Another approach to the problem is the use of critical incidents as they effect the student teacher. Roth (1961) and Hunter (1962) present a good case to support the hypothesis that perhaps methods courses and teaching techniques are not really as important as the one or two critical incidents that occur during the student teaching experience and which leave deep impressions on the student teacher. It may well be that a few critical incidents created by the cooperating teacher, in most cases entirely without prior thought or planning, spell the difference between failure and success for some student teachers. The idea of critical incidents is supported in part by McAuly (1960). Observing the classrooms of three first grade teachers the housekeeping, teaching of reading, and relationships to the pupils of the teachers were found to be severe and orderly,
warm but professional, and very freedom oriented. The student teachers placed with these cooperating teachers were observed in classrooms of their own a year later. The effects of the severe and orderly cooperating teacher on the habits of the student teacher were judged to be very marked. The effects of the warm but professional teacher were medium while the freedom oriented teacher seemed to have little effect on her student teacher's habits. The probability for the occurrence of critical incidents would also seem to decrease going from severe and orderly to freedom-giving types of cooperating teachers.

One factor that may explain some shifts of student teacher attitudes toward those of the cooperating teacher is that the cooperating teacher usually has a hand in the grading of the student teacher. Porretta (1967) used the Kerlinger Education Scale VI to measure the attitudes of student teachers and cooperating teachers. Of 104 pairs the correlations between the congruence of attitude and the student teacher grade as assessed by the cooperating teacher were significant at the .05 level.

The Effect of Supervisors on Student Teachers

Supervisor education has never occupied an important place in America's colleges and graduate schools of education, nor has supervision of instruction ever emerged as a systematic professional discipline. From time to time, serious literature has been produced on the subject and, especially in recent years, this field has attracted the interest of some researchers. Nonetheless, by comparison to teaching, administration, and, more recently, school counseling, useful literature on supervision is disappointingly sparse. Its authors and students have constituted an energetic, but dismayingly small, minority in the educational community. (p. vii, Goldhammer, 1969)

Since any effect of a supervisor would have been another variable to have been controlled for in some way, the cooperating teachers served as the only supervisor for the student teacher in the study. This is by no
means a new situation in student teaching as Rucker (1955) indicates in a study reporting that 79.4% of responding institutions had the cooperating teacher serving as the student teacher's supervisor.

According to Wolfgramm (1966), 73.8% of persons responding to a questionnaire about student teaching indicated that they liked the procedures used by university supervisors. Of the 19% that were dissatisfied, however, surprise visits, snap judgements, and too few short visits were cited as causes for displeasure.

Cleminson (1968) finds differences among supervisors regarding their commitment to a democratic supervision process and Circirelli (1969) shows that in some ways the creative ability of the supervisor affects the supervisor's appraisal of the student teacher's classroom performance.

Considering these few factors alone seems to indicate a variability among supervisors. Whether or not the variability among supervisors produces varying changes in student teachers is not clear, but for the purposes of this study supervisor influences will not be considered since there were no supervisors involved.

It is clear that student teachers, cooperating teachers, supervisors and researchers all agree that changes take place in the student teacher's behavior during the student teaching experience. Attempts to identify what kind of changes take place have met with some success as have attempts to identify the causes of the changes. Problems arise when some changes are taken as indicative of improvement while others are viewed as poor teacher traits.

In general, happy, secure, interested student teachers do well during the student teaching experience and are rated as such by the expert opinions available. One has little doubt that on an intuitive bases
alone the expert opinions are probably fairly accurate, but research should be able to improve on that situation. Using teacher output as a criteria of teacher effectiveness is not what has been taking place in the evaluation of teachers, student or regular. Viewing teacher behavior without considering pupil response, both short and long term, is not viewing teacher output.

It seems impossible to imagine not including in any assessment of teacher behavior a critical analysis of pupil response, both achievement and emotional. The fact that student teachers can be trained to exhibit certain preferred behaviors is of little value unless the effect of these behaviors on their pupils is known.

**Video Tape As An Information Gathering Technique**

Based on work done by the Stewards and Kounin, this study employs some of the same data collection techniques, namely, video tape. Some of the advantages listed by Cooper and Seidman (1969) include the ability to stop the tape at any point in a lesson to review specific points with a student teacher. If the same review had taken place in the classroom the whole lesson might have been disrupted as a result of the supervisor's intrusion. The same ability to stop the tape is useful in data evaluation since reruns of segments of taped behavior can be viewed repeatedly to make the ratings of the judges more accurate.

Morrison and Childs (1969) make some good points regarding the evaluation of data. They recommend that the categories be short enough to be easily tallied and that as nearly as possible the behaviors be entirely objective to make scoring independent of personal judgements, opinions, or attitudes.
The length of time involved for the making of video tapes varies according to how much and what types of data are desired. Bradley (1969) found that his original suspicion was not confirmed when instead of one hour of teaching only twenty minutes were needed to characterize the general teaching style of the person involved. Since part of this study is involved with data collection over sixteen minute time segments Bradley's work is of interest.

Related to time considerations also is information about microteaching by Allen and Clark (1967). In a short description of microteaching goals and procedures it was explained that sessions varying in length from 4 to 20 minutes and employing from 3 to 10 students were used to simulate teaching situations. The student teacher involved has the advantage of a real teaching situation containing low risks emotionally owing to the fact that fewer persons being taught reduces the fear and need for concentration that larger classroom groups would require. The immediate feedback available to the student teacher regarding teaching techniques is also of advantage. Cooper (1967) speaks of how microteaching can be used to focus on specific teaching skills such as reinforcement techniques, the variance of stimulus situations, presentation skills, use of examples, and obtaining student initiated questions. These specific skills parallel in part the areas of Group Alerting, Class Participation, Accountability and Reinforcement as used by the Stewards in their Teacher Management Codes.

The Steward Modification of the Kounin Codes, hereafter called the Steward Codes for ease in reference, are an outgrowth of a group of unpublished codes originally developed by Jacob S. Kounin of Wayne State University which were used by him to study the effects of emotionally disturbed children in the classroom. It is interesting to note that significant correlations
were obtained between the scores of disturbed and non-disturbed children, .764 for work involvement and .818 for deviancy in recitation subsettings, and .567 for work involvement and .649 for deviancy in seatwork settings. The indication could be either that the disturbed model after the non-disturbed or vice versa, but in either case the linking together of the two behaviors seems clear. (Kounin and Obradovic 1968)

Some of the code words used were Slowdowns, Smoothness, Group Alerting, Accountability, and others. Slowdown and Smoothness were used to refer to teacher initiated and maintained class movement, Slowdown being concerned with friction produced by the teacher that impedes the group's rate of movement. Smoothness was used to code the manner in which the teacher initiated and maintained class movement. Group Alerting and Accountability were used to identify the degree to which the teacher is concerned with the behavior of the whole group as opposed to the behavior of a single child. Group Alerting being specifically concerned with how the teacher acts to keep the group alert and stimulated while Accountability is the degree to which the children are made aware that the teacher is following their work and behavior.

In an earlier study Kounin and Gump (1958) were concerned with the effect of a teacher's method of discipline on the entire class, not just the child being reprimanded. The control techniques were divided into three areas; clarity, firmness, and roughness. Clarity was used as a measure of how well the teacher defined the extent of the child's misbehavior. Firmness dealt with the ability of the teacher to convince the children that he meant what he said and would follow through with action. Roughness indicated the extent to which the teacher lost his temper and became slightly or greatly abusive, verbally or physically.
When instructions for behavior were not clear the children responded with more non-conformance than when the instructions were clear. (.01 level of Chi-Square). The firmness used by the teacher did not enable a prediction of pupil reaction either toward or away from conformity. It is curious to note that an effect of roughness was found, however it was not toward conforming. Children participated in more disruptive behavior after one of their peers was treated roughly by the teacher than before the reprimand took place. The assumption was that the children were upset by the teacher's actions. The study took place in 26 Detroit kindergartens which would imply perhaps a high sensitivity on the part of the children to the teacher's actions. The length of time in the classroom also seemed to affect the children's response to control techniques. On the first day the children reacted to 55% of all control stimuli while on the next three days they reacted to only 34% of the control stimuli (.001 level). The indication seems to be that clarity is a valuable asset in the classroom control of kindergarten students while any roughness only aggravates more disruption.

It is postulated that aggression leads to counteragression; it is further postulated that a primitive teacher has more power over her pupils than they have over her and that she blocks overt manifestation of pupils' aggression. (p. 45 Kounin and Gump, 1961)

An interesting hypothesis posed for study was:

That the school misconduct preoccupations of children with primitive teachers will contain more aggression than those of children with non-primitive teachers. (p. 45)

74 boys and 100 girls in the first semester of the first grade were chosen from schools in upper-lower to middle-middle socio-economic neighborhoods and climate was controlled for by choosing primitive and non-primitive teachers in pairs from the same schools. The children were interviewed
individually during the third month of attendance at school. The questions asked were, "What is the worst thing a child can do at school?" and following the reply, "Why is that so bad?" Identical questions were asked regarding home as the area of misconduct. A comparison of attitudes toward school misconducts held by children with primitive and non-primitive teachers indicates a clear emphasis of violent, aggressive behaviors in the response of the children having primitive teachers. The percentage differences being significant at the .05 level or greater in all cases.

Most of Kounin's work is concerned with the classroom as a whole unit in an almost organic sense. Studying children in grades 1-5 he comments,

One might consider the implications of the findings of this study in relation to the training of teachers. For one thing, these findings point to the necessity of discovering the dimensions of teaching style that are relevant to the ecology of the classroom and to a teacher's position in this setting. They justify a degree of skepticism about extrapolating dimensions of adult-child relations from other settings (home, psychotherapy clinics) and applying these directly to teacher-child relations. They also raise questions about the fruitfulness of analyzing teachers on the basis of personality characteristics as compared to concrete techniques of programming activities and initiating and maintaining movement in the program. And, without the intent of minimizing the importance of studying individual children, the findings do suggest placing a higher priority on framing for group management than is currently emphasized in educational psychology curricula. (Kounin, Friesen & Norton, 1966, p. 13)

Kounin felt that perhaps in collecting data from the students regarding the seriousness of a given diviancy and the teacher's handling of it, the actual opinions of the pupils regarding the deviancy were collected and not the first impressions of the teachers. Kounin (1967) presented some questions as to three real variables being measured. It was recognized however that perhaps the opinions were the more important data of the two. In particular this was felt to be true in Kounin's first
exploratory study conducted in college classrooms. (Kounin, Gump, Ryan, 1961)

The Stewards, working with a research team, studied the unpublished Kounin codes and redesigned them to describe general classroom interaction within the context of the teacher as manager of the classroom. The basic divisions of the Steward Codes were the Process, Movement and Occasional Events Codes.

In a recent book by Kounin (1970) much of his work is tied together in an effort to aid classroom teachers in discipline and group management processes. The emphasis on group techniques remains a central theme with Kounin asserting that concern for individuals in the classroom cannot take place until the whole group can be managed and order maintained in the classroom.

The Steward Modification of the Kounin Codes

The process code is the main part of the Steward codes. It consists of four categories of on going teacher-student interaction for which the teacher is responsible. The categories cover the teacher's ability to get the student's attention, the degree to which the students are involved by the teacher in classroom activities, the amount of checking on student activities by the teacher, and the reinforcement of student behavior. These areas were coded at 30 second intervals with an inter-coder reliability in excess of .90 (Stewards, 1969).

The Movement and Occasional Events Codes were designed to identify less regular occurrences of teacher managerial skills. The Movement Code dealt with overall characteristics of classroom movement. The speed of a lesson, the smoothness and the follow through to a specific goal were
factors of consideration. The Occasional Events Code categorized teacher management of student initiated or outside disruptions.

Movement Codes were found by Dr. David Day at the University of Massachusetts to be difficult to use owing to poor conceptual framework and were later combined by the Stewards with the Occasional Events Code to produce an Event Code.

The influence of Kounin's work is clearly evident in the Steward Codes since the teacher is always viewed as the manager of the classroom situations.

Two studies have been completed by the Stewards with a third in progress. The first study took place at Emory University during the summer of 1968. Data was collected from forty experienced teachers attending an eight week NDEA mathematics institute and ten student teachers in their first term of Emory MAT program. The exploration of the usefulness of the concepts in the instrument to the teachers; and the stability of teacher management behavior over time were among the variables considered. The value of the instrument was judged by asking each teacher to rate the usefulness and teachability of the concepts defined in the codes on a five point scale ranging from "exceptionally useful" to "not at all useful." The mean and model values were toward the exceptionally useful end of the continuum; however 83% of the concepts elicited the full range of response with a mean of 1.8 on a 5 point scale. (Steward, 1969, p. 2)

Twenty of the experienced teachers were randomly selected and video taped during the six-week practicum. Four 10-15 minute samples were taken on each teacher and the samples were spread throughout the practicum. Coders trained by the investigators used a research form of the observational instrument to code the tapes. The coders started with a .886 inter-rater
reliability and weekly checks revealed levels of .937, .961, .956, and .967. Data analysis was performed to determine the stability of teacher style over time. Great variability was seen between teachers but little within teacher variability was observed.

The reinforcement categories (reward, punishment and information) were analyzed by a Chi-square test for independence comparing the first taping with the remaining three tapings. The amount of information given by the teachers following a student response was high and stable; however the amount of reward dropped significantly and the amount of punishment (though infrequent) increased significantly over repeated tapings. This finding, is paralleled in the observational research literature with families, and has been interpreted to be a function of the effect of being observed, and of the early fluctuation seen in the formation of a new group (in this instance the teacher and her class). (Stewards, 1969)

Two revisions of the Code followed the study, the result being to place the Process Code in agreement with contemporary learning theory research and to unite the Movement and Occasional Event Codes into a single Event code.

The second study was conducted during the winter of 1968-69 and considered three variables; experience of the teacher (5 years experience with 1-2 years aiding a student teacher); socio-economic class (low to middle); and grade level (1-3, 4-6). Thirty-two experienced teachers were obtained from 2 inner city schools, 4 metropolitan areas schools and two private schools. One 15 minute video tape was collected from each of the 32 teachers. Taping occurred during normal classroom session and no standardization of teaching method or content took place. A 2 X 2 factorial analysis of variance (1-3 and 4-6 grades, and low and middle socio-economic status comprising the 2 X 2) was done for each of the four weighted Process Code variables. Signal Delivery and Accountability gave no significant results. Participation analysis of variance showed a significant main effect (p=.05) revealing that middle class teachers used more classroom structure for the
students than the lower class teachers. Total feedback (positive, negative and information only) analysis of variance was almost significant (P=.06) and indicated that lower class first grade teachers supplied more feedback than either of the middle class cells. Interrater reliability was in excess of .90 and as of June 1969 data analysis of the Process Code was the only analysis completed.

A third study was in progress which was designed to investigate possible correlations between the Adjective Check List, a clinical instrument for describing the teachers' perceptions of his students, and the Teacher Management Codes.

The work of Kounin and Steward is primarily concerned with establishing the teacher as the manager of the classroom environment. Long term pupil achievement is not an issue, however, short term pupil response in both an academic and emotional sense is part of their codes. It is important to note that both Kounin and the Stewards code teacher behavior in terms of both the teacher behavior and the short term pupil response. This makes evaluation of the coded teacher behavior a reasonable process since teacher output in the full sense is being considered.
Chapter III
The Experiment
Research Outline

I. Methods of Sample Selection
   A. Schools
   B. Cooperating Teachers
   C. Student Teachers

II. Sample Description
   A. Cooperating Teachers
   B. Student Teachers

III. The Instrument
   A. General Description
   B. Modification of the Process Code
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IV. Data Collection
   A. Video Taping
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V. The Hypotheses
   A. Testing Hypothesis 1
   B. Testing Hypothesis 2
   C. Testing Hypothesis 3
   D. Testing Hypothesis 4
   E. Testing Hypothesis 5
The Problem

The problem was to identify short term changes in student teacher teaching style as a function of cooperating teacher teaching style. If such an identification is possible student teacher-cooperating teacher pairs could be made on the basis of the individual needs of the student teacher and the individual competencies of the cooperating teacher. If changes in the student teacher could be identified halfway through the eight week student teaching experience, it might also be possible to re-assign those student teacher-cooperating teacher pairs that were not working well together. The research to meet the problem was as follows.

Methods of Selection

Schools

An attempt was made to avoid both problem schools, e.g., urban ghetto and one room rural types, and very sophisticated experimental and unusually good private and public schools. The superintendents of large school systems were approached with the proposed research and asked to recommend cooperating teachers who had had previous experience as a cooperating teacher, were now teaching in the 4th, 5th, or 6th, grades that they thought would be willing to participate in the research. In smaller school systems the principals of the individual schools were similarly approached.

Cooperating Teachers

Cooperating teacher meetings were requested of prospective teachers in the various areas. At the meeting, the prospective cooperating teachers were asked to participate in a research project. They were told only
that a matching process would be used to place a student teacher with them and that they would assume complete responsibility for the student teacher supervision since a university supervisor would not be involved. It was also mentioned that three video tapes would be made in their classroom, one of them and two of the student teacher. To provide some compensation for the time spent the cooperating teacher was offered at the first meeting payment of $100 and optional enrollment in a 3 credit tuition-free supervision course to run concurrent with the student teaching experience. If the supervision course was not desired a tuition-free 3 credit course of their choosing in the School of Education was offered.

**Student Teachers**

For the student teachers an announcement was made at a meeting held for prospective student teachers in the School of Education. It was announced that research was going to be done regarding student teachers and cooperating teachers and that as a result 40 positions for student teachers wishing experience in either the 4th, 5th, or 6th grades were available. No screening process was used to determine entrance to the program. No special promises or awards were made other than the guarantee of a 4th, 5th, or 6th grade placement.

**Description of Cooperating Teachers**

Of the original 41 cooperating teachers recruited, only 33 were finally involved in the study. The reason was that not enough student teachers could be recruited to fill the 40 positions as originally desired. The cooperating teachers that were asked to participate were given $50
and the option of continuing with the supervision course if desired. Of
the 33 remaining cooperating teachers all took part in the supervision
course offered.

**Description of Student Teachers**

There seemed to be a great deal of anxiety on the part of most of
the student teachers regarding the nature of the research. This was due
in part to the fact that the only information given the student teachers
about the research being done was that a matching process was used to
place them with their cooperating teacher and that teaching characteris-
tics were being viewed.

**Description of the Instrument**

The instrument used to code the teacher skills was a modification
of David and Margaret Stewards' Process and Movement Codes which
were originally J. S. Kounin's Teacher Management Codes. The Process
Code as used by the Stewards was set up to code both the teacher's action
in each of the four categories and the students' response. It was deci-
ded for the purposes of this study to deal only with the teacher's action
since it was desired to view the student teacher behavioral changes as a
function of the cooperating teachers' behavior and not consider the effect
on the pupils of the student teachers' behavioral changes. The Steward's
description of their Process Code is in Appendix A.

The Movement Code was used by the Stewards to measure sensitivity
of the teacher toward the students and the deviation of the teacher from
goals that were teacher initiated. The Steward's description of their
Movement Code is in Appendix B.
Modification of the Process Code

Three categories of the Process Code lent themselves quite easily to a four point scale—Reinforcement being the exception. Group Alerting, Class Participation, and Accountability all had High, Medium, Low and None in their coding schemes. For these three categories, 4 corresponds to High, 3 to Medium, 2 to Low and 1 to None in the modified code. For the Reinforcement category a major alteration was made. The "Anticipates Response" category is in effect how hard the teacher tries to coax the pupil into doing a given task. It was felt that in a normal classroom this was an unrealistic situation with the presence of video tape equipment. (What child would refuse a teacher's wishes under the watchful eye of the TV camera?) Due to the length of taping time (20 min.) the teacher would have time to work on only one lesson. This would make it hard for the teacher to finish one task and have to try to gain pupil compliance with the second task. For these reasons the "Anticipates Response" category was deleted.

The "Follows Student Response" category is concerned with how the teacher handles a pupil's response. Only responses having a positive affect were considered e.g., "Good," "Fine Tommy, tell me more," "That's a good way of thinking about it." A 4 point scale was used with the same high, medium, low and none divisions as used on the rest of the Process Code.

The Process Code was used over a sixteen minute time span broken into 8 two-minute blocks. The occurrence of 3 or more group altering cues in a two-minute time period resulted in a 4 being the score for that particular time block, 2 in a score of 3, 1 in a score of 2, and none in a score of 1.
The Class Participation within any time block was coded as the greatest class participation obtained within the time block. Accountability was coded as 4 if the teacher checked 3 or more pupils in a 2-minute period, a 3 if 2 pupils were checked, a 2 if one pupil was checked and a 1 if no checking on pupil work was done. A score of 4 for Reinforcement resulted if 3 or more positive affects were given by the teacher during a 2-minute period. A score of 3 for 2 positive affects, a score of 2 for 1 positive affect and a score of 1 for no positive affects.

Modification of the Movement Code

The deviation from Goal and Slow-Down codes were chosen in an attempt to verify statements made by the Stewards about the Movement Code. They had stated that problems arose in using the Movement Code and that it had been subsequently dropped and it was decided to use the following method of coding. Deviation From Goal was interpreted as basically the smoothness of the lesson and coded as such on the coding sheet. If one or more deviations occurred in a 2-minute period a point was subtracted from the initial score given everyone of 4. Three or more deviations from a goal resulted in the minimum score of 1.

The Slow-Down Code was modified in the same manner as the Deviation From Goal. All teachers started with 4 points and could lose a maximum of 1 point in a 2-minute block and a maximum of 3 points for the 16-minute period. The Coding form used in the research is in Appendix C.

Data Collection

Video Taping

Video tapes were first made of the cooperating teachers in November and December of 1969--prior to the Christmas vacation. All teachers were
contacted prior to taping to make appointments for being video taped. The only instructions given were, "Teach what you consider to be a good lesson, avoiding laboratory type situations." Video tapes were then made in the cooperating teacher's classroom during a regular class session. The tapes were 20 minutes long but only 16 minutes of that were used for coding purposes.

Twenty video tapes were used to collect data on 40 cooperating teachers which meant that tapes had to be reused. Therefore, the only permanent record of the data was on the coding sheets.

Video tapes of the student teachers were made and coded in January prior to their assignment to a student teaching position with a cooperating teacher.

Four pupils in the 4th, 5th, and 6th grades came to an empty room from Mark's Meadow School. The intent was to provide a situation similar to microteaching for the student teacher to teach a lesson. The lessons were taped for 10 minutes but only 8 minutes were used for coding. The instructions to the student teacher were, "Teach what you consider to be a good lesson, avoiding laboratory type situations." Different pupils were used for each student teacher.

The use of a microteaching type of situation for the pairing of the student teacher with the cooperating teacher is not a good experimental procedure since a microteaching type of situation is in many ways not comparable to the normal classroom situation in which the cooperating teacher data and the second and third data collections of the student...
teachers were made. This presents problems when comparisons of the first student teaching data are made with the second and third collections as well as making direct comparisons of first student teaching data with cooperating teaching data difficult. The justification for this usage of a microteaching type of first student teaching data collection is linked to the second purpose of this research. Not only are changes in student teaching behavior as a function of cooperating teaching behavior to be identified, but this is to be done using a process that would enable the placement of 400 different student teachers each semester. Such a placement process must have 2 properites. 1) It must have a coding system that is broad enough to include teaching behaviors common to all teachers and simple enough to permit the rapid training of judges. 2) It must employ a data collection system that permits data on at least 400 student teachers to be gathered and processed rapidly.

The Steward Codes present a broad coding system that has been employed to identify types of teacher behavior common to a normal classroom. While the codes fail to detect many detailed activities that a more numerous coding system such as Flanders would reveal, they do fulfill the objective of a simple coding system with a reliability in excess of .90 that is simple enough to permit the rapid training of judges in the use of the codes.

The microteaching type of situation is the second and perhaps most vital link in the student teacher data collection process. Initially a microteaching type situation as employed in the study for the first student teaching data collection permits the video taping of an 8 minute
lesson using 4 school children from laboratory schools which are connected with most Schools of Education. The scheduling of taping sessions is relatively simple and allows approximately 4 student teachers to be video taped in an hour and the video tape equipment remains stationary. Compare this data collection scheme with the video taping of the student teacher in a classroom. Not only is the entire classroom disrupted for approximately 30 minutes including time spent setting up and dismantling the video tape equipment, but the equipment must be moved from classroom to classroom since it would be impossible to obtain the usage of a classroom and pupils for this type of data collection on more than an hour per day basis. Travel time between classrooms permits one student teacher per hour to be video taped when the classrooms are in different school buildings. At this rate 400 hours would be required to collect the placement data necessary to pair 400 student teachers with 400 cooperating teachers disregarding the classroom inconvenience to the schools involved. Using a microteaching type of situation, 100 hours would be needed to video tape 400 student teachers and no classrooms would be disturbed, except 4 pupils every 15 minutes in a laboratory school classroom. It is hoped that if microteaching becomes a widely used teacher training technique that the placement data on the student teacher could be collected during the regular microteaching sessions. The cooperating teacher data could be stored and used from semester to semester except for the turnover in cooperating teachers that would normally take place, necessitating additional video tapes of the cooperating teachers new to the School of Education's student teaching program.
Pairing Procedure

The pairing process of student teachers with cooperating teachers was not a pairing in the sense of one cooperating teacher being selected for one student teacher—in fact many student teachers might well have been paired with a given cooperating teacher. The pairing was designed to fill cells for data analysis in such a way as to look at all combinations of strong and weak cooperating teachers with strong and weak student teachers in all code areas. The words strong and weak being labels only, strong meaning a score above the mean in a coding area and weak meaning a score below the mean in a coding area and not used to indicate a value judgment on the teacher's skills. Who is to say that a high class participation score is always better than a low class participation score?

The cooperating teacher and student teacher scores were not combined with each other so there were 12 separate means altogether, one for each of the six code areas of the cooperating teacher and likewise for the student teacher. Letting a plus sign denote a score above the mean in a coding area and a minus sign denote a score below the mean in a coding area, it is desired to fill the following cells as nearly equally as is possible.

<table>
<thead>
<tr>
<th></th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>+8</td>
</tr>
<tr>
<td></td>
<td>-8</td>
</tr>
<tr>
<td>+</td>
<td>8</td>
</tr>
<tr>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

The matrix shown indicates that 8 pairs of cooperating teachers and student teachers have the characteristic of both the cooperating teacher and the student teacher being above the mean in Group Alerting, CT + ST +, 8 pairs
of CT & ST have the characteristic of the cooperating teacher being above the mean and the student teacher being below the mean in Group Alerting, CT + ST −. 8 pairs of CT & ST have the characteristic of the cooperating teacher being below the mean and the student teacher being above the mean in Group Alerting, CT − ST +, and 9 pairs of cooperating teachers and student teachers have the characteristic of the cooperating teacher and student teacher both being below the mean in Group Alerting, CT − ST −. All 33 pairs of CT & ST were represented only once in the Group Alerting matrix. Similar matrices were made for the same CT & ST pairs in the other coding areas, Class Participation, Accountability, Reinforcement, Slowdowns, and Smoothness.

The CT + ST + = 8, CT + ST − = 8, CT − ST + = 8, CT − ST − = 9 cell occupancy was desired for all code areas but it must be understood that a CT + CT + pair in a Group Alert matrix may appear in any of the cells of the other codes since each code was independently considered.
In tabular form letting: CT = Cooperating Teacher  
ST = Student Teacher  
GA = Group Alerting  
CP = Class Participation  
AC = Accountability  
RE = Reinforcement  
SL = Slowdowns  
SM = Smoothness

A chart ranking the CT scores in each area would resemble the following.

<table>
<thead>
<tr>
<th>GA</th>
<th>CP</th>
<th>AC</th>
<th>RE</th>
<th>SL</th>
<th>SM</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0=CT₁₀</td>
<td>3.8=CT₂₂</td>
<td>4.0=CT₁₀</td>
<td>3.9=CT₁₀</td>
<td>4.0=CT₁₀</td>
<td>4.0=CT₁₀</td>
</tr>
<tr>
<td>3.9=CT₂₀</td>
<td>3.7=CT₁₀</td>
<td>3.8=CT₁₀</td>
<td>3.9=CT₁₀</td>
<td>3.9=CT₁₀</td>
<td>4.0=CT₁₀</td>
</tr>
<tr>
<td>3.7=CT₁₀</td>
<td>3.6=CT₁₀</td>
<td>3.7=CT₁₀</td>
<td>3.8=CT₁₀</td>
<td>3.8=CT₁₀</td>
<td>3.9=CT₁₀</td>
</tr>
<tr>
<td>3.7=CT₁₀</td>
<td>3.5=CT₁₀</td>
<td>3.6=CT₁₀</td>
<td>3.7=CT₁₀</td>
<td>3.7=CT₁₀</td>
<td>3.8=CT₁₀</td>
</tr>
<tr>
<td>median 2.7=CT₁₀</td>
<td>3.0=CT₁₀</td>
<td>2.2=CT₁₀</td>
<td>2.5=CT₁₀</td>
<td>3.1=CT₁₀</td>
<td>3.2=CT₁₀</td>
</tr>
</tbody>
</table>

Those persons whose scores fall on or above the median were designated as plus in the respective area while persons whose scores fall below the median were designated minus in the respective area. Each cooperating teacher would then be coded CT +=+-++, the + or - depending upon the ranking of their individual scores.

A similar process occurred for the student teachers. The pairing of the student teacher and cooperating teacher was such as to fill the cells of the matrix previously shown, one such matrix for each of the six
teacher behavior areas. The only criteria was to seek as nearly as possible equal membership in each cell.

The Smoothness and Slowdown categories were dropped from consideration at an early date in the coding. Both categories were found to be very difficult to code in a reliable manner which was in agreement with findings recommended to the Stewards by David Day. The pairing therefore took place on the basis of the Group Alerting, Class Participation, Accountability and Reinforcement categories.
The Hypotheses

Hypothesis 1 - That student teacher scores in all teacher behavior categories will not change toward their respective cooperating teacher scores during the student teaching experience to indicate a modeling of the student teacher after the cooperating teacher.

Hypothesis 2 - That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the type of student teacher—cooperating teacher pairings involved.

Hypothesis 3 - That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the teacher behavior categories.

Hypothesis 4 - That the student teacher scores in all of the teacher behavior categories will not be significantly different with regard to the type of student teacher—cooperating teacher pairings involved.

Hypothesis 5 - That the student teacher scores in each of the teacher behavior categories will not be significantly different with regard to the type of student teacher—cooperating teacher pairings involved.
Testing the Hypotheses

Hypothesis 1 - Using the cooperating teacher's score as a reference point the student teacher's score can move either toward or away from the reference point during the student teaching experience. If the total movement in all categories is seen to be more toward than away from the reference point, using a chi square determination of significance, a modeling effect will have been observed.

Hypothesis 2 - Using a chi square analysis it is possible to determine whether or not movement toward and away from the cooperating teacher scores was without regard to the type of pairing involved.

Hypothesis 3 - Using a chi square analysis it is possible to determine whether or not movement toward and away from the cooperating teacher scores was without regard to the teacher behavior categories involved.

Hypothesis 4 - Using two way analysis of variance it is possible to determine whether or not student teacher scores in all teacher behavior categories combined were significantly different from each other by pairing types.

Hypothesis 5 - Using two way analysis of variance it is possible to determine whether or not student teacher scores in each teacher behavior category individually considered were significantly different from each other by pairing types.
CHAPTER IV
ANALYSIS OF THE DATA

Measures of student teacher style were observed over the eight-week student teaching experience using a modified form of the Steward Teacher Management Codes to identify teaching styles as coded by three judges. The overall interjudge correlation was .87 and the average of the three judges' scores was used to indicate teaching style. In 32% of the total number of cases judged, only two judges were used, also with an overall interjudge correlation of .87. Scores for both cooperating teachers and student teachers may be found in Appendix D and formulas used in the calculations may be found in Appendix E. Of the 33 cooperating teacher-student teacher pairs, one pair was not included in the data analysis because a second classroom student teacher videotape was not made. A student strike at the University of Massachusetts was the cause of the omission.

Similar data was collected at different time periods and the hypotheses may be accepted or rejected for each of the specific time periods involved. Due to the exploratory nature of the study a .05 level of significance was used throughout the analysis to determine the significance of the data.

General Observations

A rough analysis of the data is provided by simply comparing the mean scores of the various types of student teacher-cooperating teacher pairs over the entire length of the study. (Tables 1-1, 1-2, 1-3, and 1-4) Certain trends may be seen as well as relationships among the various pair types that will be pointed out more critically.
using chi square and analysis of variance techniques.

The cooperating teacher videotape scores and the student teacher preclassroom videotape scores are separated with CT+ scores averaging well above CT- scores, the CT+ scores being in the ST+ CT+, ST- CT+ columns and the CT- scores being in the ST+ CT-, ST- CT- columns. The same is true for the student teachers' scores with ST+ scores averaging well above ST- scores. On the average the student teacher-cooperating teacher pair types were well separated from each other.

Looking at student teacher scores on the first and second classroom videotapes it is interesting to note that all pair type scores in Group Alerting and Class Participation increased from the first to the second classroom observations. In the Accountability category ST+ CT+ and ST+ CT- pairs increased, ST- CT+ pairs decreased slightly and ST- CT- pairs held constant. The average score in the Reinforcement category dropped for ST+ CT+, ST+ CT- and ST- CT+ pairs with ST- CT- pairs showing a slight gain. The tendency seems to be for scores to increase or hold steady in Group Alerting, Class Participation and Accountability categories but to decrease or hold steady in the Reinforcement category.

If the student teacher second classroom videotape scores are considered by pair type some strong trends are seen. Student teachers paired with strong cooperating teachers, ST+ CT+ or ST- CT+, had higher average scores than either ST+ CT- or ST- CT- pairs in which the student teacher was paired with a weak cooperating teacher. This trend held for Group Alerting, Accountability and Reinforcement categories. For the Class Participation category the relationship was exactly reversed with the average ST+ CT+ or ST- CT+ scores being below either ST+ CT- or ST- CT- average scores.
A more critical analysis of the data's relationship to the hypotheses follows the tables of mean scores, but it is well to keep in mind the general observations while considering the hypotheses for the sake of clarity.
Table 1-1
Mean Scores
For Group Alerting

<table>
<thead>
<tr>
<th>Pair Type</th>
<th>ST+ CT+</th>
<th>ST+ CT-</th>
<th>ST- CT+</th>
<th>ST- CT-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperating teacher videotape</td>
<td>3.3333</td>
<td>2.6458</td>
<td>3.1979</td>
<td>2.6380</td>
</tr>
<tr>
<td>s.d. = .1031</td>
<td>s.d. = .0236</td>
<td>s.d. = .0554</td>
<td>s.d. = .0285</td>
<td></td>
</tr>
<tr>
<td>Student teacher preclassroom videotape</td>
<td>3.1667</td>
<td>3.0893</td>
<td>2.2656</td>
<td>2.1563</td>
</tr>
<tr>
<td>s.d. = .2578</td>
<td>s.d. = .0141</td>
<td>s.d. = .0421</td>
<td>s.d. = .0748</td>
<td></td>
</tr>
<tr>
<td>Student teacher first classroom videotape</td>
<td>3.2176</td>
<td>2.6786</td>
<td>2.4323</td>
<td>2.9740</td>
</tr>
<tr>
<td>s.d. = .1522</td>
<td>s.d. = .2579</td>
<td>s.d. = .7971</td>
<td>s.d. = .3343</td>
<td></td>
</tr>
<tr>
<td>Student teacher second classroom videotape</td>
<td>3.2546</td>
<td>2.9821</td>
<td>3.3802</td>
<td>2.9954</td>
</tr>
<tr>
<td>s.d. = .3869</td>
<td>s.d. = .2418</td>
<td>s.d. = .0840</td>
<td>s.d. = .4695</td>
<td></td>
</tr>
<tr>
<td>Number of pair types</td>
<td>9</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Differences between student teacher 1st and 2nd videotape averages</td>
<td>+.0370</td>
<td>+.3035</td>
<td>+.9479</td>
<td>+.0214</td>
</tr>
</tbody>
</table>

The average scores of the student teachers increased during the student teaching experience from the first to the second videotape for all pair types in the Group Alerting category. The student teachers' average scores for ST+ CT+ and ST- CT- pairs were both higher than for either ST+ CT- or ST- CT- pairs on the second classroom videotape. The higher average scores occurred when the student teacher was paired with a strong (CT+) cooperating teacher.
Table 1-2
Mean Scores
For Class Participation

<table>
<thead>
<tr>
<th>Pair Type</th>
<th>ST+ CT+</th>
<th>ST+ CT-</th>
<th>ST- CT+</th>
<th>ST- CT-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperating teacher videotape</td>
<td>2.8021</td>
<td>2.0208</td>
<td>2.6536</td>
<td>2.0156</td>
</tr>
<tr>
<td></td>
<td>s.d.=.4041</td>
<td>s.d.=.0010</td>
<td>s.d.=.1172</td>
<td>s.d.=.0020</td>
</tr>
<tr>
<td>Student teacher preclassroom videotape</td>
<td>3.4063</td>
<td>3.4063</td>
<td>2.1563</td>
<td>2.0625</td>
</tr>
<tr>
<td></td>
<td>s.d.=.1908</td>
<td>s.d.=.1819</td>
<td>s.d.=.1194</td>
<td>s.d.=.1696</td>
</tr>
<tr>
<td>Student teacher first classroom videotape</td>
<td>2.5104</td>
<td>2.3125</td>
<td>2.1875</td>
<td>2.2708</td>
</tr>
<tr>
<td></td>
<td>s.d.=.4865</td>
<td>s.d.=.0888</td>
<td>s.d.=.1141</td>
<td>s.d.=.1880</td>
</tr>
<tr>
<td>Student teacher second classroom videotape</td>
<td>2.5938</td>
<td>2.8620</td>
<td>2.5104</td>
<td>2.7396</td>
</tr>
<tr>
<td></td>
<td>s.d.=.6204</td>
<td>s.d.=.5023</td>
<td>s.d.=.4557</td>
<td>s.d.=.7092</td>
</tr>
<tr>
<td>Number of pair types</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Differences between student teacher 1st and 2nd videotape averages</td>
<td>+.0834</td>
<td>+.5495</td>
<td>+.3229</td>
<td>+.4688</td>
</tr>
</tbody>
</table>

The average scores of the student teachers increased during the student teaching experience from the first to the second videotape for all pair types in the Class Participation category. The student teachers' average scores for ST+ CT+ and ST- CT+ pairs were both lower than for either ST+ CT- or ST- CT- pairs on the second classroom videotape. The lower average scores occurred when the student teacher was paired with a strong (CT+) cooperating teacher.
The average scores of the student teachers increased for ST+ CT+ and ST+ CT- pairs during the student teaching experience from the first to the second videotape in the Accountability category. ST- CT+ pairs had a slight decrease with ST- CT- pairs unchanged. The student teachers' average scores for ST+ CT+ and ST- CT+ pairs were both higher than for either ST+ CT- or ST- CT- pairs on the second classroom videotape. The higher average scores occurred when the student teacher was paired with a strong (CT+) cooperating teacher.
The average scores of the student teachers decreased for ST+ CT+, ST+ CT- and ST- CT+ pairs during the student teaching experience from the first to the second videotape in the Reinforcement category. ST- CT- pairs had a slight increase. The student teachers' average scores for ST+ CT+ and ST- CT+ pairs were both higher than for either ST+ CT- or ST- CT- pairs on the second classroom videotape. The higher average scores occurred when the student teacher was paired with a strong (CT+) cooperating teacher.
Hypothesis 1

The null hypothesis is that student teacher scores in all teacher behavior categories will not change toward their respective cooperating teacher scores during the student teaching experience.

The hypothesis was tested as follows:

Example 1 -- Group Alerting

<table>
<thead>
<tr>
<th></th>
<th>ST preclassroom</th>
<th>ST first classroom</th>
<th>ST second classroom</th>
<th>CT classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.8112</td>
<td>3.0771</td>
<td>2.9120</td>
<td>2.9100</td>
</tr>
<tr>
<td>STpc - CT</td>
<td>= 2.8112 - 2.9100</td>
<td>= .0988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STfc - CT</td>
<td>= 3.0771 - 2.9100</td>
<td>= .1671</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STsc - CT</td>
<td>= 2.9120 - 2.9100</td>
<td>= .0020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The absolute value of the difference between the various student teacher scores, before and during the student teaching experience, and the cooperating teacher score was used to indicate the degree to which the student teacher was similar in style to the cooperating teacher. The student teacher in Example 1 is seen to move away from the cooperating teacher according to the first classroom scores since the difference increases from .0988 to .1671. The student teacher is then seen to move toward the cooperating teacher from the first classroom score to the second classroom score since the difference decreases from .1671 to .0020.

This toward and away movement was then analyzed using chi-square analysis to determine whether or not student teachers became similar to their cooperating teachers over three time spans, from preclassroom to first classroom, from preclassroom to second classroom, and from first
classroom to second classroom.

This analysis considered all teacher behavior categories and all student teacher cooperating teacher pairs together. The listing of pair types in the tables is to permit the reader to see which cells are contributing to the chi square value. The results are shown in Tables 2-1, 2-2, and 2-3.
Table 2-1

Student Teacher Score Changes

From the Preclassroom Videotape to the First Classroom Videotape

Frequency of Student Teacher Score Movement

<table>
<thead>
<tr>
<th></th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
<th>Chi Square Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
<td>Actual</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>16</td>
<td>15.5</td>
<td>15</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>16</td>
<td>13.5</td>
<td>11</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>26</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>14</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>56</td>
<td>40</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841
chi square (.01)(df=1) = 6.635

The modeling effect of the ST+ CT+, ST+ CT-, and ST- CT- pairs was not significant. The modeling effect of the ST- CT+ pairs was significant beyond the .01 level with a chi square of 9.529. The total modeling effect of all student teacher - cooperating teacher pairs was also significant at the .01 level with a chi square of 9.142 showing a tendency for the student teacher to become like the cooperating teacher in the first four weeks.
Table 2-2

Student Teacher Score Changes
From the Preclassroom Videotape to the Second Classroom Videotape

Frequency of Student Teacher Score Movement

<table>
<thead>
<tr>
<th></th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
<th>Chi Square Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
<td>Actual</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>26</td>
<td>17.5</td>
<td>9</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>15</td>
<td>11.5</td>
<td>8</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>27</td>
<td>15.5</td>
<td>4</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>12</td>
<td>11.5</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>56</td>
<td>32</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841
chi square (.01)(df=1) = 6.635

The modeling effect for the ST+ CT- and ST- CT- pairs was not significant. The modeling effect for ST+ CT+ pairs was significant at the .01 level with a chi square of 8.257. The modeling effect for ST- CT+ pairs was also significant at the .01 level with a chi square of 17.064. The total modeling effect of all student teacher-cooperating teacher pairs was significant well past the .01 level with a chi square of 20.571. Over the whole eight week student teaching experience student teacher scores show a marked change toward the scores of their respective cooperating teachers.
Table 2-3

Student Teacher Score Changes

From the First Classroom Videotape
to the Second Classroom Videotape

Frequency of
Student Teacher Score Movement

<table>
<thead>
<tr>
<th></th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
<th>Chi Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
<td>Actual</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>21</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>16</td>
<td>13.5</td>
<td>11</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>16</td>
<td>16.5</td>
<td>17</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>6</td>
<td>10.5</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>56.5</td>
<td>54</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841
chi square (.05)(df=1) = 6.635

The modeling effect of the ST+ CT+, ST+ CT-, and ST- CT+ pairs was not significant. The ST- CT- pairs showed a negative modeling effect significant at the .05 level with a chi square of 3.857. The total modeling effect of all student teacher-cooperating teacher pairs was not significant indicating that the modeling of student teachers after their respective cooperating teachers was not strong from half way through the student teaching experience to the end.
Hypothesis 2

The null hypothesis is that the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the type of student teacher-cooperating teacher pairings involved.

This hypothesis was tested using a chi square analysis of student teacher score movement with toward movement being considered apart from away movement. The analysis was used to indicate any toward movement that might be related to the type of student teacher-cooperating teacher pairs involved. The away movement was considered in the same way.

The toward and away movement is considered over three time spans, from preclassroom to halfway through the student teaching experience, from preclassroom to the end and from halfway through to the end of the student teaching experience. Figure 1 is the format for the results as shown in tables 2-4, 2-5, and 2-6.
## Student Teacher Score Changes

For Time Span A

### Frequency of Student Teacher Score Movement

<table>
<thead>
<tr>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>Expected</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>Number of student teachers that moved toward their cooperating teacher scores.</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>Number of student teachers that would have been expected to move their cooperating teacher scores.</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>Number of student teachers that would have been expected to move their cooperating teacher scores.</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>Number of student teachers that would have been expected to move their cooperating teacher scores.</td>
</tr>
</tbody>
</table>

Chi square value for the toward movement

Chi square value for the away movement

Figure 1
Table 2-4

Student Teacher Score Changes

From the Preclassroom Videotape to the First Classroom Videotape

<table>
<thead>
<tr>
<th>Pair Type</th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>16</td>
<td>20.246</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>16</td>
<td>15.746</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>26</td>
<td>20.246</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>14</td>
<td>15.746</td>
</tr>
</tbody>
</table>

Chi Square Value
- ST+ CT+: 2.723
- ST+ CT-: 3.631

chi square (.05)(df=1) = 3.841
chi square (.05)(df=1) = 6.631

The analysis of total toward movement of student teacher score changes by pairings gave no significant values for changes occurring between the beginning of the student teaching experience and the midway point.

The total away movement was near significance with a chi square of 3.631. More of the ST+ CT+ and ST+ CT- student teachers moved away from their cooperating teachers scores than would be expected and fewer ST- CT+ and ST- CT- student teachers moved away from the cooperating teachers than would be expected.
Table 2-5

Student Teacher Score Changes
From the Preclassroom Videotape
to the Second Classroom Videotape

<table>
<thead>
<tr>
<th>Frequency of Student Teacher Score Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toward the Cooperating Teacher</td>
</tr>
<tr>
<td>Actual</td>
</tr>
<tr>
<td>ST+ CT+</td>
</tr>
<tr>
<td>ST+ CT-</td>
</tr>
<tr>
<td>ST- CT+</td>
</tr>
<tr>
<td>ST- CT-</td>
</tr>
<tr>
<td>Chi Square Value</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841
chi square (.01)(df=1) = 6.635

The analysis of total toward movement by student teacher-cooperating teacher pairs was near significance with a chi square of 3.561. More of the ST+ CT+ and ST- CT+ student teachers moved toward their cooperating teacher scores than would be expected and fewer ST+ CT- and ST- CT- student teachers moved toward their cooperating teacher scores than would be expected. The analysis of total away movement by student teacher-cooperating teacher pairs was significant at the .05 level with a chi square of 5.184. More of the ST- CT- student teachers moved away from their cooperating teacher scores than would be expected and fewer ST- CT+ student teachers moved away from their cooperating teacher scores than would be expected.
Table 2-6

**Student Teacher Score Changes**

From the First Classroom Videotape to the Second Classroom Videotape

<table>
<thead>
<tr>
<th>Frequency of Student Teacher Score Movement</th>
<th>Towards the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
</tr>
<tr>
<td>ST+ CT+</td>
<td>21</td>
<td>16.570</td>
</tr>
<tr>
<td>ST+ CT-</td>
<td>16</td>
<td>12.920</td>
</tr>
<tr>
<td>ST- CT+</td>
<td>16</td>
<td>16.570</td>
</tr>
<tr>
<td>ST- CT-</td>
<td>6</td>
<td>12.920</td>
</tr>
<tr>
<td>Chi Square Value</td>
<td>5.643</td>
<td></td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841
chi square (.01)(df=1) = 6.635

The analysis of total toward movement by student teacher – cooperating teacher pairs was significant at the .05 level with a chi square of 5.643. The analysis of total away movement by student teacher – cooperating teacher pairs was not significant.

More of the ST+ CT+ and ST+ CT- student teachers moved toward their cooperating teacher scores than would be expected and fewer ST- CT- student teachers moved toward their cooperating teacher scores than would be expected.
Hypothesis 3

The null hypothesis is that the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the teacher behavior categories.

This hypothesis was tested using a chi square analysis of student teacher score movement toward and away from their respective cooperating teacher scores in each teacher behavior category. This procedure would identify any strong modeling of student teacher behavior after cooperating teacher behavior that was a property of a teacher behavior category. For instance, student teachers might model very strongly in Group Alerting and not at all in the other categories. Figure 2 shows the format used for Tables 2-7, 2-8, and 2-9. As for hypothesis 1 and hypothesis 2, the three time spans considered were preclassroom to halfway, preclassroom to the end, and halfway to the end of the student teaching experience.
<table>
<thead>
<tr>
<th>Performance Category</th>
<th>Given Category</th>
<th>Given Category</th>
<th>Given Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence of the Teacher</td>
<td>Scores in the Teacher Cooperating</td>
<td>Scores in the Teacher Cooperating</td>
<td>Scores in the Teacher Cooperating</td>
</tr>
<tr>
<td>Accountability</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
</tr>
<tr>
<td>Class Participation</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
</tr>
<tr>
<td>Group Attertions</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
<td>Teacher Cooperating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value of the Teacher</th>
<th>Actual</th>
<th>Expected</th>
<th>Actual</th>
<th>Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence of the Teacher</td>
<td>Away from the Cooperating</td>
<td>Toward the Cooperating</td>
<td>Away from the Cooperating</td>
<td>Toward the Cooperating</td>
</tr>
</tbody>
</table>

Frequency of Student Teacher Score Changes for Time Span A
### Table 2-7

**Student Teacher Score Changes**

From the Preclassroom Videotape to the First Classroom Videotape

<table>
<thead>
<tr>
<th>Frequency of Student Teacher Score Movement</th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
<th>Chi Square Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
<td>Actual</td>
</tr>
<tr>
<td>Style Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Alerting</td>
<td>17</td>
<td>15.5</td>
<td>14</td>
</tr>
<tr>
<td>Class Participation</td>
<td>20</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Accountability</td>
<td>23</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>12</td>
<td>10.5</td>
<td>9</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841  
chi square (.01)(df=1) = 6.635

The modeling effect in the Group Alerting and Reinforcement categories was not significant from the beginning of the student teaching experience to the midway point. The modeling effect in the Class Participation category was significant at the .05 level with a chi square of 5.143. The modeling effect in the Accountability category was significant at the .05 level with a chi square of 6.125.
Table 2-8

**Student Teacher Score Changes**

*From the Preclassroom Videotape to the Second Classroom Videotape*

<table>
<thead>
<tr>
<th><strong>Frequency of Student Teacher Score Movement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Table 2-8" /></td>
</tr>
</tbody>
</table>

The modeling effect in the Group Alerting and Class Participation categories was not significant from the beginning of the student teaching experience to the end. The modeling effect in the Accountability category was significant at the .01 level with a chi square of 11.645. The modeling effect in the Reinforcement category was significant at the .01 level with a chi square of 8.909.
Table 2-9

**Student Teacher Score Changes**

*From the First Classroom Videotape to the Second Classroom Videotape*

<table>
<thead>
<tr>
<th>Style Category</th>
<th>Toward the Cooperating Teacher</th>
<th>Away from the Cooperating Teacher</th>
<th>Chi Square Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Expected</td>
<td>Actual</td>
</tr>
<tr>
<td>Group Alerting</td>
<td>17</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Class Participation</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Accountability</td>
<td>17</td>
<td>15.5</td>
<td>14</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

chi square (.05)(df=1) = 3.841  
chi square (.01)(df=1) = 6.635

The modeling effect in the Group Alerting, Class Participation, Accountability, and Reinforcement categories was not significant for the time period from halfway through the student teaching experience to the end.
Hypothesis 4

The null hypothesis is that the student teacher scores in all of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.

This hypothesis was tested using a two-way analysis of variance for the student teacher-cooperating teacher pairs as shown in Figure 3.

Figure 3

<table>
<thead>
<tr>
<th>Cooperating Teachers</th>
<th>CT+</th>
<th>CT-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST+</td>
<td>ST+CT+</td>
<td>ST+CT-</td>
</tr>
<tr>
<td>ST-</td>
<td>ST-CT+</td>
<td>ST-CT-</td>
</tr>
</tbody>
</table>

The scores of the student teachers were used in the analysis, not the differences between their scores and their cooperating teachers' scores. The analysis was made for the scores obtained from the first classroom videotape and the scores obtained from the second classroom videotape and in each case all teacher behavior categories were considered together. Tables 3-1 and 3-2 show the results.

1 See Appendix C for the raw scoring sheet coding form.
Table 3-1

Combined Teacher Behavior Categories

First Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.074</td>
<td>.074</td>
<td>.096</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>1.084</td>
<td>1.084</td>
<td>1.404</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.533</td>
<td>.533</td>
<td>.691</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>124</td>
<td>95.749</td>
<td>.772</td>
<td></td>
</tr>
</tbody>
</table>

$F(.05) (1,124) = 3.92$

The analysis of student teacher scores over all behavior categories gave no significant main effect for student teachers or cooperating teachers on scores obtained from the first classroom videotape. The interaction effect was also insignificant.
Table 3-2  
Combined Teacher Behavior Categories  
Second Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.151</td>
<td>.151</td>
<td>.154</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.004</td>
<td>.004</td>
<td>.004</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.256</td>
<td>.256</td>
<td>.261</td>
</tr>
<tr>
<td>Subjects within</td>
<td>124</td>
<td>121.870</td>
<td>.983</td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1,124) = 3.92

The analysis of student teacher scores over all teacher behavior categories gave no significant main effect for student teachers or cooperating teachers on scores obtained from the second classroom videotape. The interaction effect was also insignificant.
**Hypothesis 5**

The null hypothesis is that the student teacher scores in each of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.

This hypothesis was tested in a way similar to the testing of Hypothesis 4; the difference being that instead of considering the scores of the student teachers over all teacher behavior categories, each teacher behavior category was considered separately. Two-way analysis of variance was used on the student teacher-cooperating teacher configuration as previously shown in Figure 3. Tables 3-3, 3-4, 3-5 and 3-6 show the analysis results for the student teacher scores obtained from the first classroom videotapes. Tables 3-7, 3-8, 3-9, and 3-10 show the analysis results for the student teacher scores obtained from the second classroom videotapes.
### Table 3-3

**Group Alerting Category**

**First Classroom Videotape**

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.060</td>
<td>.060</td>
<td>1.248</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.292</td>
<td>.292</td>
<td>6.072</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>1.346</td>
<td>.048</td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1,28) = 4.20

The analysis of student teacher scores by pairings in the Group Alerting category gave no significant main effects for student teachers or cooperating teachers on scores obtained from the first classroom videotape. A significant interaction effect was found with an $F = 6.072$ significant at the .05 level. Student teachers' scores were seen to be higher when paired with cooperating teachers having similar styles (ST+ CT+ or ST- CT-) than when paired with cooperating teachers having dissimilar styles. (ST+ CT- or ST- CT+)

See Table 1-1.
Table 3-4

Class Participation Category

First Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.033</td>
<td>.033</td>
<td>1.212</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.003</td>
<td>.003</td>
<td>.120</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.020</td>
<td>.020</td>
<td>.721</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>.768</td>
<td>.027</td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1,28) = 4.20

The analysis of student teacher scores obtained from the first classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Class Participation category. The interaction effect was also insignificant.
Table 3-5

Accountability Category

First Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.037</td>
<td>.037</td>
<td>.635</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.060</td>
<td>.060</td>
<td>1.041</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject within groups</td>
<td>28</td>
<td>1.625</td>
<td>.058</td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1.28) = 4.20

The analysis of student teacher scores obtained from the first classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Accountability category. The interaction effect was also insignificant.
Table 3-6

Reinforcement Category

First Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.012</td>
<td>.012</td>
<td>.199</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.381</td>
<td>.381</td>
<td>6.523</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.004</td>
<td>.004</td>
<td>.075</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>1.634</td>
<td>.058</td>
<td></td>
</tr>
</tbody>
</table>

\[ F(.05) (1,28) = 4.20 \]

The analysis of student teacher scores obtained from the first classroom videotape by pairings in the Reinforcement category gave no main effect for student teachers and no significant interaction effect. A main effect for cooperating teachers was found with \( F = 6.523 \) significant at the .05 level. Student teacher paired with strong cooperating teachers having higher scores than student teachers paired with weak cooperating teachers in the Reinforcement category.

See Table 1-4.
<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.005</td>
<td>.005</td>
<td>.127</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.108</td>
<td>.108</td>
<td>2.850</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.003</td>
<td>.003</td>
<td>.083</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>1.061</td>
<td>.038</td>
<td></td>
</tr>
</tbody>
</table>

\[ F(.05) (1,28) = 4.20 \]

The analysis of student teacher scores obtained from the second classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Group Alerting category. The interaction effect was also insignificant.
### Table 3-8

**Class Participation Category**

**Second Classroom Videotape**

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.011</td>
<td>.011</td>
<td>.148</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.062</td>
<td>.062</td>
<td>.865</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.0004</td>
<td>.0004</td>
<td>.005</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>2.002</td>
<td>.071</td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1,28) = 4.20

The analysis of student teacher scores obtained from the second classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Class Participation category. The interaction effect was also insignificant.
Table 3-9

Accountability Category
Second Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student teachers</td>
<td>1</td>
<td>.003</td>
<td>.003</td>
<td>.052</td>
</tr>
<tr>
<td>Cooperating teachers</td>
<td>1</td>
<td>.027</td>
<td>.027</td>
<td>.467</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>28</td>
<td>1.638</td>
<td>.058</td>
<td></td>
</tr>
</tbody>
</table>

F(.05) (1,28) = 4.20

The analysis of student teacher scores obtained from the second classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Accountability category. The interaction effect was also insignificant.
Table 3-10

Reinforcement Category
Second Classroom Videotape

<table>
<thead>
<tr>
<th></th>
<th>df</th>
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<th>M.S.</th>
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</tr>
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<td>Subjects within groups</td>
<td>28</td>
<td>.534</td>
<td>.019</td>
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</table>

F(.05) (1,28) = 4.20

The analysis of student teacher scores obtained from the second classroom videotape gave no significant main effect for student teachers or cooperating teachers in the Reinforcement category. The interaction effect was also insignificant.
Hypothesis 1

Changes in student teachers teaching style took place over the eight-week student teaching experience to indicate that modeling after cooperating teacher teaching style had taken place. Changes from the preclassroom videotape to the first classroom videotape showed significantly more movement of the student teacher scores toward their cooperating teacher scores than away with 72 student teacher scores moving toward the 40 moving away giving a chi square of 9.142, significant at the .01 level. (.01 level = 6.635). Further analysis of the preclassroom to first classroom videotape change scores showed that of the four pairing types ST- CT+ pairs contributed strongly to the overall chi square with significantly more movement toward than away from cooperating teacher scores. Twenty-six student teacher scores moved toward and 8 moved away for a chi square of 8.529, significant at .01 level. (See Table 2-1.)

Changes from the preclassroom videotape to the second classroom videotape showed 80 student teacher scores moving toward and 32 moving away from their cooperating teacher scores giving a chi square of 20.571, significant well beyond the .01 level. Further analysis of the preclassroom videotape to second classroom videotape student teacher style changes showed ST+ CT+ pairs having significantly more toward than away movement with 26 student teacher scores moving toward and 9 moving away from their cooperating teacher scores for a chi square of 8.257, significant at the .01 level (.01 level = 6.635) ST- CT+ pairs also had significantly more movement toward than away with 27 student teacher scores moving toward and 4 moving away from their cooperating teacher scores for a chi square of 17.064, significant beyond the .01 level. (See Table 2-2.)
Changes from the first classroom videotape to the second classroom videotape were not significant. Although analysis of the changes scores showed significant differences in toward and away movement for ST- CT-pairs with 6 student teacher scores moving toward and 15 moving away from their cooperating teacher scores for a chi square of 3.857, significant at the .05 level, the total movement chi square was only .221. (See Table 2-3.)

The results allow the rejection of null hypothesis 1 for score changes taking place between the preclassroom and first classroom videotapes and for score changes taking place between the preclassroom and second classroom videotapes. Null hypothesis 1 cannot be rejected for score changes taking place between the first classroom and the second classroom videotapes. (See Table 2-4.)

**Hypothesis 2**

Changes in student teachers' scores from the preclassroom to the first classroom videotape were not significantly different among pair types for either movement toward or away from cooperating teacher scores. Changes in student teachers' scores from the preclassroom to the second classroom videotape were not significantly different among pair types that moved toward their cooperating teacher scores. However, an analysis by pair type of the 32 student teacher scores that moved away from their cooperating teacher scores gave a significant chi square value at the .05 level of 5.184. The pair type breakdown was ST+ CT+ = 9, ST+ CT- = 8, ST- CT+ = 4, and ST- CT- = 11. (See Table 2-5.)

Changes in student teachers' scores from the first classroom to the second classroom videotape were not significantly different among pair
types that moved away from their cooperating teacher scores. But an analysis of the 59 student teacher scores that moved toward their cooperating teacher scores by pair types showed significant differences at the .05 level with a chi square of 5.643. The breakdown of toward movements was ST+ CT+ = 21, ST+ CT- = 16, ST- CT+ = 16, and ST- CT- = 6. (See Table 2-6.)

The results allow null hypothesis 2 to be rejected for away movement between the preclassroom and second classroom videotapes and also for toward movement between the first classroom and second classroom videotapes. Null hypothesis 2 cannot be rejected for any of the other cases.

**Hypothesis 3**

Analysis of changes in student teacher scores from the preclassroom to the first classroom videotape by teacher behavior categories showed Class Participation to be significant with 20 student teacher scores moving toward and 8 moving away from their cooperating teacher scores for a chi square of 5.143, significant at the .05 level. Accountability had 23 student teacher scores moving toward and 9 moving away from their cooperating teacher scores for a chi square of 6.125, significant at the .05 level. (See Table 2-7.)

Changes taking place between the preclassroom and second classroom videotapes showed that the category of Accountability had significantly more movement toward than away with 25 student teacher scores moving toward and 6 moving away from their cooperating teacher scores for a chi square of 11.645, significant at the .01 level. The Reinforcement category also had significantly more movement toward than away with 18 student
teacher scores moving toward and 4 moving away from their cooperating
teacher scores for a chi square of 8.909, significant at the .01 level.
(See Table 2-8.)

Changes in student teacher scores between the first classroom and
second classroom videotapes were not significantly different by teacher
behavior categories. (See Table 2-9.)

The results allow the rejection of null hypothesis 3 for changes
in student teacher scores in Class Participation and Accountability
taking place between the preclassroom and first classroom videotapes
and also for changes in Accountability and Reinforcement taking place
between the preclassroom and second classroom videotapes. Null hypothesis
3 cannot be rejected for changes occurring between the first and
second classroom videotapes.

Hypothesis 4

Analysis of variance of student teachers' scores on the first
classroom videotape over all teacher behavior categories showed the
differences among the pair types to be insignificant. Analysis of
variance by pair type of student teachers' scores on the second
classroom videotape were also insignificant. (See Tables 3-1 and
3-2.)

The analysis of the data does not allow the rejection of null
hypothesis 4 for scores obtained from either the first or the second
classroom videotapes.
Hypothesis 5

Analysis of variance was done to determine whether main and interaction effects existed within the separate teacher behavior categories. A main effect for cooperating teachers was found with $F = 6.523$ on the first classroom videotape in the Reinforcement category. ($F (.05) (1,28) = 4.20$). Student teachers paired with strong cooperating teachers had higher scores than student teachers paired with weak cooperating teachers. (See Table 3-6.)

An interaction effect was found on the first classroom videotape in the Group Alerting category with an $F$ of 6.072. Student teacher-cooperating teacher pairs that were alike had higher scores than dissimilar pairs. (See Table 3-3.)

Analysis of variance by pair types of the student teachers' scores in each of the teacher behavior categories for the second classroom videotapes showed no significant differences to exist among the scores.

The results allow the rejection of null hypothesis 5 for the Reinforcement and Group Alerting categories on the first classroom videotape scores. The null hypothesis cannot be rejected for any of the other cases.

Although the chi square results may appear to be in conflict with the analysis of variance results the basis of the two analyses must be remembered. The analysis of variance showed the student teachers to have scores not distinguishable by pair types. However, the significant results obtained from the chi square were dealing with the differences between student teachers' scores and their respective cooperating teachers' scores and not just student teachers' scores alone. The two methods of analysis are testing two fundamentally different sets of hypotheses.
CHAPTER V

Summary and Conclusions

Purpose of the Study

This study was designed to identify short term changes in student teacher teaching style as a function of cooperating teacher teaching style. A short term change was any change that occurred within a four week time span. The identification of student teacher changes of teaching style as a function of cooperating teacher teaching style could enable a more systematic pairing of student teachers with cooperating teachers that could improve student teacher education. Since the student teaching experience lasts eight weeks it might be possible to reassign student teachers to cooperating teachers if undesirable changes in student teacher teaching style could be identified after four weeks.

The Sample

Thirty-three student teachers and 33 cooperating teachers took part in the study. The teachers taught in the fourth, fifth, and sixth grades in schools located in Springfield, Westfield, Belchertown, Northampton, and Greenfield, Massachusetts. Special, "problem," and very small schools were excluded from the study. All persons were volunteers but the cooperating teachers were paid $100 for their help in running the study; and the student teachers were not paid.

The Method

Prior to the student teaching experience, cooperating teachers were videotaped in their classrooms as they taught a lesson of their choice. Student teachers were videotaped in a microteaching type of situation also teaching a lesson of their choice. The teaching behaviors of both the
student teachers and the cooperating teachers were then coded in the areas of Group Alerting, Class Participation, Accountability, Reinforcement, Slowdown, and Smoothness using the Steward Process and Movement Codes. From the coding a teaching style was identified by selecting those cooperating teachers above and below the median scores of their group and those student teachers above and below the median scores of their group and assigning a plus to those persons above the median and a minus to those persons below the median in each of the six Steward Code categories. Thus each person would have six plus or minus rankings, one for each of the six categories.

The pairing process placed student teachers with cooperating teachers in such a way as to have all four possible combinations of plus and minus student teachers and cooperating teachers equally represented by number in each of the first four areas of the Steward Process codes, Group Alerting, Class Participation, Accountability, and Reinforcement. The Movement Codes for Slowdowns and Smoothness were dropped from consideration due to the failure of the codes to discriminate among teachers on the basis of Slowdowns and Smoothness.

After the eight week student teaching experience had begun the student teachers were videotaped twice in the classroom of their cooperating teacher. Both times the directions were to teach a lesson that the student teacher considered to be a good lesson avoiding laboratory sessions if possible. One videotape was made after four weeks of student teaching, half way through, and the other videotape was made after eight weeks, at the end of the student teaching experience.
Analysis of the Data

Five Null Hypotheses were tested.

Hypotheses 1 - That student teacher scores in all teacher behavior categories will not change toward their respective cooperating teacher scores during the student teaching experience.

Hypotheses 2 - That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the type of student teacher-cooperating teacher pairings involved.

Hypotheses 3 - That the movement of the student teacher scores toward or away from their respective cooperating teacher scores will be without regard to the teacher behavior categories.

Hypotheses 4 - That the student teacher scores in all of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.

Hypotheses 5 - That the student teacher scores in each of the teacher behavior categories will not be significantly different with regard to the type of student teacher-cooperating teacher pairings involved.

The first three hypotheses were tested by recording the frequency of student teachers whose teaching style scores moved toward and away from the teaching style scores of their cooperating teachers. A chi square analysis was done to determine the significance of the frequency of toward and away movement.

The last two hypotheses were tested using a two way analysis of variance on the raw scores of the student teachers for the two videotapes made in their cooperating teachers' classroom.
The Findings

Hypotheses 1

An overall modeling effect was evidenced by the movement of student teacher scores toward cooperating teacher scores from the preclassroom videotape to the fourth week classroom videotape. The chi square was 9.142 which was significant at the .01 level (.01 level=6.635) indicating that student teacher scores moved toward the cooperating teacher scores significantly more than away. Seventy-two student teacher scores moved toward the cooperating teacher scores and 40 moved away. Of the four pair types only ST- & CT+ had a significant difference with 26 student teacher scores moving toward and 8 moving away from their cooperating teacher scores giving a chi square significant at the .01 level of 9.529.

Student teacher score changes from the first to the second classroom videotape were not significantly different with 59 student teachers moving toward and 54 student teachers moving away from their cooperating teachers. Only ST- CT- had significantly more movement away from than toward the cooperating teachers scores. Fifteen moved away and 6 moved toward for a chi square of 3.857 significant at the .05 level.

The modeling effect was seen most strongly from the preclassroom to the second classroom videotape. Eighty student teachers moved toward their cooperating teachers and 32 moved away from their cooperating teachers for a chi square of 20.5, significant at the .01 level. ST+ CT+ pairs had 26 toward and 9 away movements for a chi square of 8.26, significant at the .01 level. ST- CT+ had 27 toward and 4 away movements for a chi square of 17.1 significant at the .01 level. ST+ CT- and ST- CT- were not significantly different regarding movement toward and away from the cooperating teacher scores.
The first null hypothesis was rejected for the preclassroom to first classroom score change and preclassroom to second classroom score change cases. The first null hypothesis was not rejected for the first classroom to second classroom score change case.

This suggests that student teachers tend to become significantly more like their cooperating teachers by half way through the student teaching experience and even more so by the end. Whether the cooperating teacher or the classroom environment or some combination of the two shapes the student teacher's behavior is another question, but that shaping takes place seems evident.

It is important to note that in particular ST- CT+ pairs produced the greatest change as seen by the contributions made to the total chi square values. The ST+ CT+ and ST- CT- pairs were also significant for two cases in which the ST+ CT- pairs evidenced modeling of the cooperating teacher and ST- CT- pairs displayed a reverse situation with the student teachers' scores moving away from their cooperating teachers' scores.

The indication seems to be that student teachers tend to become more like cooperating teachers displaying strong teacher behavior characteristics and tend to become less like cooperating teachers displaying weak teacher behavior characteristics. If these findings are generalizable student teaching programs would be well advised to make a reassessment of their placement procedures.

**Hypothesis 2**

Analysis of toward and away movements from the preclassroom to the second classroom scores by pairs gave significance only for away movements with 9 ST+ CT+, 8 ST+ CT-, 4 ST- CT+ and 11 ST- CT- pairs moving away.
This differed from the expected to give a chi square of 5.184 significant at the .05 level. Among those student teachers moving toward their cooperating teachers from the first to the second classroom scores significant differences did exist between pair types. Twenty-one ST+ CT+, 16 ST+ CT-, 16 ST- CT+ and 6 ST- CT- pairs had student teachers who moved toward their cooperating teacher. This differed from the expected to give a chi square of 5.643 significant at the .05 level. Toward and away movement by pairs from the preclassroom to the first classroom videotape was not significantly different.

Null hypothesis 2 was rejected for away movement from the preclassroom to the second classroom videotape and for toward movement from the first classroom to the second classroom videotape. The null hypothesis 2 was not rejected for any of the other cases.

Where significant differences arose more student teacher scores were seen to move toward their cooperating teacher scores that would be expected for ST+ CT+. Fewer student teacher scores were seen to move toward their cooperating teacher scores than would be expected for ST- CT- pairs. Also more student teachers than would be expected moved away from their cooperating teacher scores for ST- CT- pairs and fewer student teachers moved away from their cooperating teacher scores than would be expected for ST- CT+ pairs.

The tendency seems to be for student teachers to model after strong cooperating teachers and to reject the behavior of weak cooperating teachers. These findings would justify further research into the placement processes used to place student teachers with cooperating teachers since differences seem to be evident.
Hypothesis 3

Analysis of Class Participation and Accountability gave significant differences between toward and away movement from the preclassroom to the first classroom videotape with chi squares of 5.143 and 6.125 respectively, both significant at the .05 level.

From the preclassroom to the second classroom videotapes, Accountability had 25 toward and 6 away movements for chi square of 11.6 and Reinforcement had 18 toward and 4 away movements for a chi square of 8.9, both significant at the .01 level.

None of the teacher behavior categories had significant differences between toward and away movement from the first to the second classroom videotapes.

The third null hypothesis was rejected for the Class Participation and Accountability categories from the preclassroom to the first classroom videotapes and for the Accountability and Reinforcement categories from the preclassroom to the second classroom videotape. The null hypothesis was not rejected for any of the other cases.

The findings indicate a very strong modeling effect for the Accountability category indicating that perhaps Accountability is the easiest behavior for a student teacher to identify and imitate. Class Participation and Reinforcement also had more movement toward than away from the cooperating teacher indicating perhaps a similar but less evident ease of identification of behavior.

Hypothesis 4

Taking all teacher behavior categories together the student teacher scores on the first and second videotapes were not different when analyzed
by pair types using analysis of variance. Therefore, the fourth null hypothesis could not be rejected.

Although the scores of the student teachers were not significantly different by pair types it is still true that the student teachers tendency to become more or less like their cooperating teachers was related in some cases to the pair types. Dealing with differences between scores is entirely different from dealing with scores alone. In particular it must be remembered that ST+ scores range from the maximum to the median scores within the group, similarly for ST-, CT+ and CT- scores, thus allowing a considerable range in scores to exist. However, it would be valid to say that the final teacher behavior scores of the student teacher were not distinguishable by the type of student teacher-cooperating teacher pairs involved.

Hypothesis 5

Considering the individual categories only the first classroom videotape for Group Alerting and Reinforcement yielded significant F values. Group Alerting gave an F=6.072 (F(.05) = 4.20) for an interaction effect with student teacher-cooperating teacher pairs that were alike scoring higher than dissimilar pairs. Reinforcement gave an F=6.523 (F(.05) = 4.20) for the main effect of cooperating teachers with student teachers having cooperating teachers that were strong in reinforcement scoring higher than student teachers having cooperating teachers that were weak in reinforcement. These results are seen on Table 1-1 and 1-4. Although the fifth null hypothesis may be rejected for these two cases the results did not repeat on the second classroom scores. In fact, none of the categories gave significant results on the second classroom videotape scores.
The fact that among the individual teacher behavior categories the scores of the student teachers were for the most part indistinguishable by pair types again implies that the scores were not related to the type of student teacher-cooperating teacher pairs involved.
Conclusions and Implications

The modeling effect was seen most clearly in student teacher score changes from the preclassroom videotape to the first classroom videotape and from the preclassroom videotape to the second classroom videotape. This tends to weaken somewhat the implication that all student teacher score changes were due to the influence of the cooperating teacher with which the student teacher was paired. It would be expected that student teachers would display teaching behavior more closely resembling that of their cooperating teachers in a classroom situation than a micro-teaching situation since the cooperating teacher was videotaped in a classroom situation.

Whether the classroom situation forces student teacher scores toward cooperating teacher scores or the cooperating teacher is the change agent is of importance and merits further study. However, the fact remains that student teachers' scores changed from the preclassroom situation to the first and second classroom situations in such a way as to become more like the scores of the cooperating teacher with which they were paired than unlike.

The implication of the changes in the student teacher style would seem to be that for a large percentage of student teachers it might be possible to control to some degree the teaching behaviors that eventually comprise their teaching style. This might be accomplished through a selection process aimed at identifying certain cooperating teacher and classroom characteristics prior to the assignment of student teachers to cooperating teachers and then assigning student teacher-cooperating teacher pairs based on these characteristics. The fact that a considerable modeling effect was
seen after only four weeks means that it might also be possible to re-assign student teachers based on data collection half way through the student teaching experience. This might make possible the correction of some poor pairings that resulted from the first matching process.

An analysis of modeling effect by pairing from the preclassroom videotape to the second classroom videotape showed that at the .01 level significantly more movement of student teacher style scores toward than away from their cooperating teacher scores occurred in ST+ CT+ and ST- CT+ pairs. ST+ CT- and ST- CT- pairs also had more movement toward than away but it was not significant. This seems to indicate that strong or weak student teachers model after a strong cooperating teacher to a large degree but weak cooperating teachers seem to influence their student teaching styles to a much lesser degree.

The words "strong" and "weak" as used in this study were not used in the sense of good or bad but rather as indicators of the extent to which student teachers or cooperating teachers exhibited certain teaching behaviors indicative of teaching styles. However, judgmental procedures regarding what constitutes good and bad teaching have been used for some time in teacher training programs. The ability of teacher training programs to give grades to its trainees is evidence of such judgments. If such judgments are indeed valid and if the results of this study are generalizable to some degree, student teachers could be expected to model more readily after the cooperating teachers strong characteristics than after the cooperating teachers weak characteristics. The implication is that a cooperating teacher displaying a large amount of a given teacher behavior is in effect telling the student teacher that the given behavior
is one that is appropriate for a teacher. The student teacher then begins to adopt this behavior and the question of whether or not the behavior is one deemed appropriate by teacher education programs is not asked. The student teacher only assumes that obvious behaviors are to be copied if a good grade is desired. Likewise a cooperating teacher displaying very little of a given teacher behavior is not likely to influence the student teacher toward imitating that behavior. How is a student teacher to reproduce behavior that is not seen?

The situation seems to be that the obvious is imitated and the obscure is ignored. It would seem, therefore, to be advantageous for teacher education programs to identify those cooperating teachers displaying both the obvious and obscure teacher behaviors considered important by the particular program. The procedures used in this study could be helpful in such an identification process.

The purpose of this research was to identify short term changes in student teacher teaching behavior as a function of cooperating teacher teaching behavior to enable the assignment and reassignment of a student teacher to a cooperating teacher based on the needs of the student teacher and the competencies of the cooperating teacher. Changes in student teacher teaching behavior were found and a relationship was seen to exist between those changes and the cooperating teacher teaching behavior. Although the relationship may not be one of cause and effect regarding the cooperating teacher as the sole cause of changes in student teacher teaching behaviors a modeling effect was found.

Changes in student teacher teaching behaviors were found after four weeks of student teaching as well as after eight weeks which would indicate
that the assignment of student teachers as well as the reassignment of student teachers based on teaching behaviors collected after four weeks would be possible.

The results of this research should encourage further research in the area of practical student teacher placement systems for the student teaching experience.


Munro, B.C. The Minnesota Teacher Attitude Inventory as a prediction of teaching success. Journal of Educational Research, 1964, 58, 138-139.


APPENDICES
Appendix A

PROCESS CODE

The Process Code is used to observe the way in which the teacher sets up the teaching-learning situation. The four components of the set up for which the teacher is responsible are: 1) gaining the attention of the students—group alerting; 2) providing a structure within which the students may respond—participation; 3) checking on student response—accountability; 4) giving information about the student response—reinforcement.

I. GROUP ALERTING

The ways in which a T gains the attention of the students for the learning activity is called group alerting.

Cues of Group Alerting.

In group alerting, cues are used to make a global judgment about the extent to which the teacher is able to gain the attention of the students for the learning activity.

   a. T solicits a group response. E.g., T asks for mass unison; T says, "Let's put on our thinking caps"; T asks for show of hands before call on.

   b. T presignals students that they will be available for call ons. E.g., T alerts non-performers that they will be called on if performer makes a mistake; T points out student who is not attentive, alerting him of possible participation.

   c. T creates suspense prior to calling on. E.g., T pauses and looks around class to bring students in before calling on.

   d. T maintains physical and visual contact with students. E.g., T circulates and looks around at students; T deliberately looks around at students during recitation.

   e. T presents new, alluring material (high attention-getting value of lesson or prop).
f. Any other cues, even if unique to individual T, which have the effect of alerting students in order to involve them in academic task. E.g., T at back of room communicating with reciter at front.

A. Signal Delivery

Signal delivery refers to the frequency of group alert cues.

1. Group Alert - High
   
   T shows three or more different group alert cues.

2. Group Alert - Moderate
   
   Two different cues.

3. Group Alert - Low
   
   A single positive cue.

4. Focus Only
   
   T directs her statements to the total group without having any group alerting techniques.

B. Signal Effect

Signal effect refers to whether or not the group alerting effort has succeeded.

1. Strong Signal
   
   This is coded when the student's attention is gained smoothly and efficiently.

2. Moderate
   
   This is coded when the student's attention is gained.

3. Weak Signal
   
   This is coded when the attention pull actually lessens as the signal is being given. The teacher may "fade away" either physically or vocally. (If a "fade away" is used to focus attention, it is not coded here.)
4. Signal Failure

Signal failure occurs when the group alert does not succeed in a satisfactory manner. Such failure will be coded, as well as the teacher's response to it. The teacher may:

a. Repeat the signal.

b. Continue with the original activity.

c. Initiate an alert signal in a different direction.

II. PARTICIPATION.

When conducting a lesson, T sets up certain requirements for the pupils with respect to their participation in the lesson. Participation will be judged according to the degree of response required of students.

A. High Participation

T presents issues to the entire class and all students are required to participate actively during the performance. Such participation will involve active, overt manipulation of props.

E.g.: Each child has arithmetic flash cards and individually works out the problem assigned to the entire group, each child manipulating flash cards to get his own answer.

Several children work at board simultaneously while students at seats contribute by performing their own work.

B. Moderate Participation

Part of the class perform while the rest of the class participate passively, i.e., without overt manipulation of props.

E.g.: During oral reading T asks group to notice particular feature of the story or language.

Students in reading circle follow by reading silently as one student reads orally.

All students read orally in unison from book or board or recite a passage (not a quick response).

C. Low Participation

All students participate passively and there may or may not be
a student performer.

E.g.: One child performs actively while non-performers watch and listen. Quick mass unison responses such as giving one word, but most of the time children watch and listen.

T presents explanation or demonstration which any child could do (T talk).

D. No Participation

T directs her demands to the total group without having engaged in any group set-up.

III. ACCOUNTABILITY

Accountability refers to the extent to which T checks the student's work. Accounting occurs as T required students to produce or demonstrate work that is being done. The number of students whose product T checks and when T checks will serve as a basis for scoring.

A. High Accountability

T checks entire group as individuals, or the performing subgroup and some non-performers, or otherwise checks about half the group as individuals in a random fashion.

E.g.: T asks all children to hold up their props, showing their answers clearly, and T appears to pick out errors.

Row of students perform at blackboard and are checked individually by T as she also glances around room at work of non-performing students at seats.

B. Moderate Accountability

T checks at least 1/4 of the group as individuals or the entire group as a whole.

E.g.: T circulates among performers and non-performers, checking visible products of at least 25% of the group.

T asks for mass unison answers or corrections and checks on these responses.

T checks at least 1/4 of group as individuals, each student giving an individual response.
C. **Low Accountability**

T checks less than 1/4 of the group as individuals, or asks for response in a predictable order.

E.g.: T circulates and checks several children on first example, then several others on second example, etc.

T checks one child after another one the same word or example and children are required to give same response.

T circulates and looks casually at papers of non-performers while checking on student reciting.

T checks only on student demonstrating task.

T asks for mass unison but gives no cue of checking performances of individual students in the group.

D. **No Accountability**

T gives no cue of actually checking work of any child.

E.g.: As student recites T circulates without any evidence of her attending to performance or reciter or of checking other children.

T does not attend to performance of student reciting.

T calls for mass unison, but apparently does not attend to response.

T asks for show of hands of for students to say "yes" or "no" in answer to question regarding their performing correctly or agreeing, but does not ask for demonstration.

E. **Delayed Accountability**

T checks student's work sometime after the assignment is completed. This category is double coded with A through D above.

E.g.: T collects assignment papers done in class for checking.

IV. **REINFORCEMENT**

A. **Anticipates Response**

T attempts to elicit compliance with a new task. It may be accomplished in two ways, affective or cognitive. When it is
affective it promises pleasure value (e.g., when T tries to connect the new task with some personal involvement or interest of the student). When it is cognitive it appears in the form of intellectual challenge.

1. Hi: T uses more than one appeal

2. Some: T uses one appeal

3. No: Task is presented but no attempt is made to add appeal

4. Nag: This is coded when 1 or 2 above would be coded for appeal but when, in the coder's judgment, the T overdoes these attempts to the point that the students perceive it as really ineffective. Always double code with 1 or 2 if nag exists.

B. Follows Student Response

T gives a response to a child's performance which has the possibility of carrying both information about the performance, and an emotional quality. This may be communicated verbally, e.g., "Great, you got it right" or non-verbally e.g., a smile, stern look, etc.

1. Reward: Positive information directed toward the child or class about this performance accompanied by affect.

   a) Affect positive: "Great, you got it right."

   b) Affect negative: "That's correct, are you sure you didn't copy that from Jimmy?"

2. Punishment: Negative information directed toward the child or class about their performance accompanied by affect.

   a) Affect Positive: "You missed it, but that's all right."

   b) Affect Negative: "Did you miss another one, Harry (accompanied by a frown from T)"
3. Information only: Positive or negative information about the correctness of child's response with no affect noted, e.g., "O.k.," "That's the wrong page."
Appendix B

MOVEMENT CODE

The movement code is used to observe the progress of a teacher toward a pedagogical goal. It deals with molar behavior interactions which contribute to the flow of class activity. For this reason the units to be observed are variable in length and are conceptualized with reference to ongoing classroom interaction. Movement in the classroom is conceptualized as a function of two variables: 1) the interpersonal sensitivity of teacher toward the student (withitness), and 2) departure from the expressed goal of the teaching session (deviation from goal).

I. WITHITNESS

Withitness is based on evidence of exceptional awareness or lack of usual awareness on the part of the teacher in response to student performance.

A. Present Withitness

Present withitness refers to the T's communicating to the students that she knows what is going on (has "eyes in the back of her head"), or does not know what is going on (communicates lack of knowledge of classroom events that most students would expect a teacher to know in the present classroom setting).

1. Positive Withitness

Positive withitness about present performance is coded if the T shows exceptional alertness about students' performance in the current setting.

E.g.: 30 students hold up flash cards in arithmetic and the T quickly picks out a student who has a mistake-giving the coder the impression that the T must have 30 pairs of eyes to see it.

Student reciter reads correctly and T says, "Fine, I'm glad to see you read correctly the word 'than' which you missed earlier today."
2. Negative Withitness

Negative withitness about present performance is coded when T makes a mistake about performance in the current setting.

E.g.: "Sue, you read before," when Sue didn't read before; or "Let's see, who was just reading?"

B. Past Withitness

Past withitness refers to the T's communicating to the children exceptional knowledge about a student's performance outside the setting with which she is dealing, or mistakes about performance that might reasonably be remembered.

1. Positive Withitness

E.g.: "You had trouble with that word yesterday, Mark."

"Last week you drew a red rabbit, Deborah."

"Cathy and John did their problems on the board yesterday."

2. Negative Withitness

E.g.: "Tell us what your group learned about seashells yesterday, Marsha." (Marsha wasn't in the seashell group.)

II. DEVIATION FROM GOAL

The task of the teacher in directing a classroom towards a goal is to maintain a clear path with as few digressions as possible. Efficient teaching will move smoothly and directly toward the goal. There are three basic deviations from efficient movement. 1) The teacher may substitute a secondary goal for the planned goal. (off-beam) 2) The teacher may slow down movement by giving ineffective directions, inserting unnecessary material, or fragmenting a presentation. (slow-down) 3) The teacher may absent herself from the goal-directed activity at a point where her leadership is needed. (go-out)

A. Off-Beam

An off-beam takes place when a teacher and her class digress from the planned goal in such a way that the planned goal is forsaken and replaced by another goal. There are two sources for an off-beam.
1. **Teacher initiates.**

   a. **Teacher-initiated digressions may be configured in two ways.**

      1) **Dangle.** In a dangle the teacher begins a goal directed activity, leaves it in the middle for an extraneous activity, but returns later to pick up the first strand.

      2) **Truncation.** In a truncation the teacher shifts to an activity leading to a second goal before completing the initial activity. The first goal is never pursued to completion.

   b. **Teacher-initiated digressions may be stimulated in two ways.**

      1) **Thrust.** When there is no perceivable object which stimulates a digression, it is assumed that the stimulus is internal in the teacher. Shifts due to internal stimulation are thrusts.

      2) **Stimulus Bound.** When a teacher is drawn to an external person or object which is not disturbing the flow of the class, the teacher is stimulus bound. Shifts due to external stimulation fit here.

2. **Teacher permits.**

   a. **Child Digression.** Some off-beams are a product of the inability of the teacher to prevent a child from drawing a class off target. Child digression takes place when a child succeeds in frustrating the teacher's direction by usurping the role of teacher and successfully gaining the attention of the class.

B. **Slow-Down**

   A slow-down takes place when the teacher in some way inhibits the progression of goal directed activity. It differs from off-beam in that all the activity is directed toward the same goal: the problem is in the activity's inefficiency.

1. **Teacher Initiates.**

   a. **Direction Giving.** Often class movement is slowed down by the presentation of ineffective directions by the teacher.

   E.g.: Confusing directions: Children might be asked to look at a picture during their rest period, after the lights have been turned out.
Conflicting directions: The teacher might say "will the children who have finished their work put their heads down on the tables?" And then add, "All children put your heads down."

b. Interrupted Sequence. Here the teacher simply leaves out a necessary step in the progress of an activity and has to break the sequence in order to return to pick it up. For example, the teacher presenting an assignment may say, "We will do questions 10-20 on page 38." She may suddenly realize that her students don't have their books, so she interrupts the sequence by saying, "Get your books." Usually the assignment will have to be re-issued. Now she is ready for the final direction, "Begin your work."

c. Over-Done. The basic dynamic of an over-done is unnecessary repetition.

1) Behavior. This takes place when a teacher berates a student or class too extensively, for poor behavior or performance.

2) Talk. This takes place when a teacher simply uses too many words and thereby belabors the point.

3) Prop. This takes place when a teacher repeats a point unnecessarily in order to make use of an attractive prop.

d. Fragmented Activity. The teacher has children do singly what the group as a whole could do more efficiently. In this way the group is kept waiting. For example, students may be asked one by one to take their chairs and form a circle.

2. Teacher Permits.

a. Child Immersion. The teacher permits a child to control the direction and pacing of the group. Unlike child digression, the goal remains the same, but the task is pursued more slowly due to the unnecessary association by the child. For example, in a discussion on transportation, a teacher might get caught into letting a child tell about his summer trip in excessive detail.

b. Sub-Group Immersion. Similar to child immersion except that the control is held by a portion of the class.
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### Slowdowns

**Group Alerting**
- 4: 3 or more cues
- 3: 2 cues
- 2: 1 cue
- 1: Focus only

**Class Participation**
- 4: HI
- 3: Moderate
- 2: Low
- 1: None

**Accountability**
- 4: Over 3 students checked
- 3: 2
- 2: 1
- 1: None

**Reinforcement**
- 4: 3 and over
- 3: 2
- 2: 1
- 1: None
### Appendix D

Cooperating Teacher Scores

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Key

1 means a ST+ CT+ pair.
2 means a ST+ CT- pair.
3 means a ST- CT- pair.
4 means a ST- CT- pair.
APPENDIX E
FORMULAS

Category score = average[ judge 1 + judge 2 + judge 3 ]
Judge score = average[ sum of two minute interval scores over sixteen minutes]

Interjudge correlation = average[ correlation between judge 1 and judge 2 + correlation between judge 1 and judge 3 + correlation between judge 2 and judge 3 ] Correlated using the Pearson product-moment coefficient of correlation.