THE EFFECTS OF A COMPETENCY-BASED INTERVENTION ON
STUDENT-TEACHER AND PUPIL BEHAVIOR

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Paul W. Darst, B.S., M.S.

* * * * *

The Ohio State University

1974

Reading Committee:

Dr. Daryl Siedentop
Dr. Barbara Nelson
Dr. Lewis Hess

Approved By

Advisor
Department of Physical Education

ACKNOWLEDGEMENTS

I would like to express my most sincere gratitude to all those people who have contributed to this study. Special thanks go to the following people:

Dr. Daryl Siedentop, who contributed an unmeasurable amount of time and effort toward the inception and development of the study;

Dr. Barbara Nelson, who contributed a great deal of time and effort towards preparing me for the general examination;

Keith Hamilton and Jack Boehm, who helped to formulate and finalize all aspects of the study;

Bill Dessecker, Larry Kehres and Willis J. Knight, who all helped by checking reliability;

The seven student-teachers and the five cooperating teachers whose efforts were greatly appreciated;

My parents, who have encouraged me all the way;

Juanita Davenport, who helped in proof reading and typing;

Curt Severance, who helped in plotting the data;

Cheryl Severance, who typed the final draft in a very short time;

And finally Charlene, who has encouraged and helped me in a million different ways.

VITA

March 30, 1947 Born; Akron, Ohio

1969 B.S.; University of
Akron; Akron, Ohio

1969-1972 Science and Biology
Teacher
Wadsworth High School
Wadsworth, Ohio

1971 M.S., University of
Akron; Akron, Ohio

1972-1974 Teaching Associate,
School of Health,
Physical Education and
Recreation, The Ohio
State University;
Columbus, Ohio

FIELDS OF STUDY

Major Field: Physical Education
Dr. Daryl Siedentop
Dr. Barbara Nelson

Minor Field: Health Education
Dr. Robert Kaplan

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	i
VITA	ii
LIST OF TABLES	v
LIST OF FIGURES	vii
Chapter	
I. INTRODUCTION	1
Statement of the Problem	
Analysis	
Scope of the Study	
Hypotheses	
Basic Assumptions	
Definitions	
II. REVIEW OF LITERATURE	13
Competency-Based Approaches to Teacher-Training	
Changing Teacher or Student Teacher Behavior	
Changing Pupil Behavior and Academic Performance	
The Effect of Changing Teacher or Student Teacher Behavior upon Pupil Behavior	
Summary of the Literature	
III. METHODS AND PROCEDURES.	35
Subjects and Settings	
Observations and Behaviors	
Experimental Conditions	
Analysis and Design	

	Page
IV. ANALYSIS AND DISCUSSION OF THE DATA . . .	55
Reliability	
Management Time Reliability	
Placheck Reliability	
Time Sample Reliability	
Reliability Discussion	
Behavior Profiles of the Subjects and Pupils	
Rate and Percentage Change by Category	
Discussion of Behavior Profiles and the Rate and Percentage Change by Category	
Terminal Behavioral Objective Analysis	
Discussion of Terminal Behavioral Objectives	
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.	139
Summary	
Conclusions	
Recommendations	
APPENDIX	148
A	148
B	150
C	152
D	159
E	166
F	172
G	176
H	186
I	190
BIBLIOGRAPHY	192

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Reliability of Total Number of Events Observed for Each Subject	58
2. Reliability of Classifying Events for Each Subject	59
3. Category Reliability for Each Subject . . .	61
4. Reliability of Management Time for Each Subject	63
5. Reliability of Placheck Recordings Observed for Each Subject's Class Behavior (Appropriate/Inappropriate). . .	65
6. Reliability of Placheck Recordings Observed for Each Subject's Class Behavior (Active/Inactive)	66
7. Reliability of Total Number of Time Sampling Recordings Observed for Each Subject's Pupils "A" and "B" (Appropriate/Inappropriate)Behavior . . .	68
8. Reliability of Total Number of Time Sample Recordings Observed for Each Subject's Pupils "A" and "B" (Active/Inactive Behavior)	69
9. Rate of On-Task Positive Reactions and Percentage Change for Seven Student Teachers	89
10. Percentage of On-Task Positive Reactions With Specific Information and Percentage Change for Seven Student Teachers	91
11. Rate of Off-Task Negative Reactions and Percentage Change for Seven Student Teachers	93
12. Rate of First Name Use and Percentage Change for Seven Student Teachers	95
13. Rate of Instructional Feedback and Percentage Change for Seven Student Teachers	97

LIST OF TABLES

<u>Table</u>	<u>Page</u>
14. Percentage of Instructional Feedback With Specific Information and Percentage Change for Seven Student Teachers	99
15. Rate of Group Interactions for On-Task Behavior or Skill Attempts and Percentage Change for Seven Student Teachers	101
16. Percentage of Appropriate Class Behavior and Percentage Change for Seven Student Teachers' Classes	103
17. Percentage of Management Time and Percentage Change for Seven Student Teachers' Classes	105
18. Percentage of Active Learning and Percentage Change for Seven Student Teachers' Classes	107
19. Percentage of Appropriate Behavior of Pupils "A" and "B" and Percentage Change of these Pupils in Each Subject's Class	110
20. Percentage of Active Learning of Pupils "A" and "B" and Percentage Change of these Pupils in Each Subject's Class	114

LIST OF FIGURES

<u>Figures</u>	<u>Page</u>
1. Format of Pupil Observation	40
2. Order and Schedule of Intervention	47
3. Example of a Multiple Baseline Design	52
4. Profile of Behavior Rates for Subject One	73
5. Profile of Pupil Behavior Rates for Subject One	74
6. Profile of Behavior Rates for Subject Two	75
7. Profile of Pupil Behavior Rates for Subject Two	76
8. Profile of Behavior Rates for Subject Three	77
9. Profile of Pupil Behavior Rates for Subject Three	78
10. Profile of Behavior Rates for Subject Four	79
11. Profile of Pupil Behavior Rates for Subject Four	80
12. Profile of Behavior Rates for Subject Five	81
13. Profile of Pupil Behavior Rates for Subject Five	82
14. Profile of Behavior Rates for Subject Six	83
15. Profile of Pupil Behavior Rates for Subject Six	84
16. Profile of Behavior Rates for Subject Seven	85
17. Profile of Pupil Behavior Rates for Subject Seven	86
18. Rate of On-Task Positive Reactions for Seven Student Teachers	88

LIST OF FIGURES

<u>Figures</u>	<u>Page</u>
19. Percentage of On-Task Positive Reactions With Specific Information for Seven Student Teachers	90
20. Rate of Off-Task Negative Reactions for Seven Student Teachers	92
21. Rate of First Name Use for Seven Student Teachers	94
22. Rate of Instructional Feedback for Seven Student Teachers	96
23. Percentage of Instructional Feedback With Specific Information for Seven Student Teachers	98
24. Rate of Group Interactions for On-Task Behavior and Skill Attempts for Seven Student Teachers	100
25. Percentage of Appropriate Pupil Behavior for Seven Student Teachers	102
26. Percentage of Management Time for Seven Student Teachers	104
27. Percentage of Active Pupil Behavior for Seven Student Teachers	106
28. Percentage of Appropriate Behavior for Pupil "A" in the Classes of Seven Student Teachers	108
29. Percentage of Appropriate Behavior for Pupil "B" in the Classes of Seven Student Teachers	109
30. Percentage of Active Behavior for Pupil "A" in the Classes of Seven Student Teachers	112
31. Percentage of Active Behavior for Pupil "B" in the Classes of Seven Student Teachers	113

CHAPTER I

INTRODUCTION

In recent years, much has been said relative to the inadequacies of teacher training programs (Commission on Public School Policies in Ohio, 1972; College of Education Deans - State Universities of Ohio, 1973; and Essex, 1973). These programs have been criticized for being less than helpful in preparing competent teachers. Both new teachers and experienced teachers have voiced complaints about the training that they have received from their respective institutions. One major problem is that teacher education programs have not had to demonstrate the effectiveness of their graduates as teachers (Feingold, 1972; McDonald, 1972).

With the reduction in educational budgets, and the rise in emphasis on accountability and relevance, teacher educators are being forced to examine new models for training teachers. A new movement that has swept rapidly through the country and captured the attention of teacher educators is the performance or competency-based approach to certification (Elam, 1972; McDonald, 1974; Houston and Howsam, 1972; and Rosner, 1972). As of April 1973, the American Association of Colleges of Teacher Education estimated that more than

six hundred institutions were working toward developing performance or competency-based programs (Kay and Rosner, 1973).

The beginning of the competency-based movement can be traced to a project funded by the United States Office of Education: the Elementary Teacher Education Models Program. The project included ten educational institutions and was started in 1968. The purpose of the project was to reconceptualize both the preservice and inservice elementary teacher education models at each respective institution. All of the models contained two common characteristics: 1) a systems approach was used to design and operate the programs and 2) all models were a competency-based approach (Anderson et. al., 1973).

The competency-based model is quite different than the traditional teacher education program. The competency-based model places its emphasis on demonstrated teacher competencies rather than successful completion of a series of courses. These teaching competencies can be assessed by three types of criteria: 1) teacher knowledge (facts, principles, generalizations) 2) teacher performance (behaviors that the teacher must demonstrate) and 3) teacher consequences (outcomes that the teacher is expected to bring about in the emotional and intellectual growth of his pupils). The greatest emphasis is placed on the performance and consequence competencies.

Elam (1972) points out that the competency-based model has essential elements, implied elements and desirable elements. The following are the essential elements:

- 1) Focus on teaching competencies to be demonstrated;
- 2) Competencies are stated in behavioral terms so that they are observable and measurable;
- 3) Competencies are stated publicly;
- 4) Criteria used to measure the competencies are criterion rather than norm referenced;
- 5) Emphasis on the learner's performance rather than his knowledge;
- 6) Student can progress at his own rate.

The following are some of the implied elements:

- 1) Instruction is individualized and personalized;
- 2) Emphasis on providing the learner with feedback;
- 3) The program is systematically designed;
- 4) Emphasis is on exit rather than entrance requirements;
- 5) The student is held accountable for his progress and performance.

The following are some of the desirable elements:

- 1) The program is field-centered;
- 2) The program is based on parity of decision-making among colleges, school teachers, teacher organizations, state departments, and parents;
- 3) Students participate in developing their goals, designing their programs and guiding their own instruction;
- 4) The program has a research component to determine what works.

The Competency-Based Teacher Education (CBTE) movement is not without a number of problems, unresolved issues and critics (Maxwell, 1974; Sandoz, 1974; and Brody, 1972). Some of the problems and issues center around the identification of needed teaching competencies, the development of assessment systems, the development of instructional materials for teaching the competencies and a management system for monitoring the flow of students through the program. Practically every article written about CBTE points out the thin research base for the movement (Houston and Howsam, 1972; McDonald, 1974; Rosner and Kay, 1974; Siedentop, 1973; Houston and Howsam, 1974; Maxwell, 1974; and Burden and Mathieson, 1972).

These problems should be used to generate research strategies in the area of competency-based certification. There is no reason why this model should not be tested to its fullest. This research is necessary for demonstrating the value of the model, for recognizing and understanding any possible limitations and for making any needed changes. If competency-based certification is going to become a reality, then research strategies must be designed and utilized in solving the many related problems.

An important aspect of the CBTE model requires prospective teachers to exhibit certain competencies in a classroom or gymnasium situation. In most teacher education institutions, the student teaching experience is the longest and most important classroom or gymnasium experience. Some

people feel that the student teaching experience is the most important step in the sequence of becoming certified to teach, and yet, the entire experience is seldom based on any research or realistic assessment of field situations (Oestreich, 1974).

If the student teaching experience is really as important as many teacher educators feel it is, then student teachers should be required to demonstrate certain teaching competencies during this experience. Research strategies must be developed to determine these needed teaching competencies and assessment systems for measuring these competencies. Another specific area that needs to be explored is the relationship between changes in student-teacher behavior and the effect on pupil behavior, which is the heart of the competency-based model. It is within this framework that a study is proposed for the effects of a competency-based intervention on various measures of student-teacher and pupil behavior.

Statement of the Problem

1. What are the effects of a competency-based intervention on student teacher behavior in an elementary school?
2. Do changes in student teacher behavior produce changes in pupil behavior?

Analysis

It was the purpose of this study to investigate the effects of a competency-based intervention on the behavior

of student teachers at the elementary level and to determine if there was any subsequent change in several categories of student behavior. Data were collected by the observation techniques of event, duration, placheck and time sampling recording. Observations were made by both the supervising teacher (experimenter) and the cooperating teacher. Intervention occurred at different points in time in order to show that the intervention and not some other variable, was the cause of the changes in behavior. A multiple baseline design (Hall, 1971) was utilized for data analysis. This design compares the changes in behavior of one subject with the behavior changes in other subjects. If changes occur in subjects immediately after intervention while subjects that have not been intervened on remain stable, then the claim that the intervention caused the change is strengthened.

Scope of the Study

1. The independent variables of competency-based intervention, directions, target behaviors and verbal feedback were employed;
2. An attempt was made to alter the behavior of seven student teachers at Ohio State University;
3. The target behaviors were observable and measurable with an inter-observer agreement of 85 percent or greater concerning the occurrence of selected behaviors.

Hypotheses

1. If there are inappropriate levels of student teacher behavior, there will be changes in the desired directions after intervention.
2. If there are inappropriate levels of pupil behavior, there will be changes in the desired directions as student teacher behavior is modified.
3. If the levels of pupil behavior are considered appropriate, they will be maintained as student teacher behavior is modified.

Basic Assumptions

The following are assumed to be true:

1. High inter-observer reliability increases the probability that the subject's behavior was altered and not the observer's;
2. After competency-based intervention on different behaviors of the same subject and different subjects, any changes that occur after intervention are a result of that intervention and reduces the probability that change was caused by factors unaccounted for in the design of the study.

Definitions

For the purposes of this study, the following terms were defined:

Active Learning. Any actual physical involvement in the

activity that is the appropriate activity of the class.

Activity Episode. The cumulative time from the beginning of an active learning period to the teacher initiated behavior that ends the period.

Appropriate Behavior. Any pupil behavior other than skill attempts that is considered to be contributing to the educational environment.

Ascending Baseline. The level of behavior that is increasing before intervention is made.

Baseline. The level at which behavior is occurring before attempts are made to modify it (Hall, 1971).

Behavior. An observable response of the human organism.

Behavior Game. Any technique which has the entire class or a number of groups within the class striving toward a standard or criterion of good behavior. The ultimate goal of the class or class group would be attaining the standard. The reward for attaining the standard could range from free time to simple teacher verbal reinforcement.

Behavior Modification. An applied technique of the principles of operant psychology.

Behavioral Objective. A statement which communicates the intention of the teacher as to what the learner will do to demonstrate his achievement. The objective states a terminal performance, the conditions underwhich the performance will occur, and the criterion for successful completion of the performance.

Competency-Based Intervention. The independent or experimental variable that consists of a planning module, a management module, an interpersonal relationship module, an instructional feedback module and a student assessment module. Each module consists of the following: 1) goals of the module; 2) definitions; 3) learning resources and assessment procedures.

Contingency Contracting. The contingency or performance contract is an agreement between the teacher and the student that a specified reinforcement will be earned by the student following the completion of a specified task.

Descending Baseline. The level of behavior that is decreasing before intervention is made.

Duration Recording. An observation technique which involves recording the total elapsed time of a specific behavior during a specific observation period (Hall, 1971).

Event Recording. Making a tally of discrete events of a certain class, a frequency of events as they occur (Hall, 1971).

Extinction. Refers to a situation where reinforcement is discontinued. No reinforcement, positive or negative, is given contingent upon student response.

General Verbal Interaction. All vague or unprecise spoken teacher reactions to pupil behavior. These reactions could be positive or negative.

Inappropriate Behavior. Any pupil behavior that is considered to be detracting from the educational environment.

Instructional Feedback. All teacher verbal or non-verbal reactions to an appropriate skill attempt by a pupil. These reactions could be positive or negative which would include corrective feedback.

Interactions. All verbal and non-verbal teacher-pupil communications. These communications could be positive or negative.

Intervention. The act of exposing the subject to a variable in an attempt to modify his behavior.

Lesson Plans. A detailed guide to teacher and pupil behaviors which will occur during a single class meeting. It refers to teacher-student interaction, management methods, equipment required and objectives to be accomplished.

Managerial Activities. All events needed to get organized for the first class activity, to change from one activity to another, or to end a final activity and leave the gymnasium or playground.

Managerial Episode. The cumulative time from the beginning of a teacher initiated managerial behavior to the beginning of the next pupil activity.

Multiple Baseline. Two or more graphs showing levels of the same behavior in two or more individuals or two or more graphs showing different levels of behavior in the same individual.

Negative Interactions. All negative verbal and non-verbal teacher reactions to pupil behavior other than skill attempts.

Non-Verbal Interactions. All non-spoken teacher reactions to pupil behavior, either negative or positive.

Operant Behavior. Observable actions that are developed and maintained by environmental consequences.

Placheck Recording. A technique used for observing a group of pupils, (group time sampling). At a designated point in time, the observer counts and records the number of pupils engaged in a predefined behavior.

Positive Interactions. All positive verbal and non-verbal teacher reactions to pupil behavior other than skill attempts.

Reliability. The percent of agreement of independent observers on what they have observed in the same subject during the same observation session.

Specific Verbal Interactions. All precise or explicit spoken teacher reactions to pupil behavior, either positive or negative.

Student Contacts. All verbal teacher-pupil communications.

Target Behavior. The behavior toward which interventions are directed.

Time Sample. An observation of a specific behavior in one individual at a designated point in time during an observation session.

Time-Out. A procedure which interrupts the potential for reinforcement for a period of time (Siedentop and Rushall, 1972).

CHAPTER II

REVIEW OF LITERATURE

The vast majority of information relative to the competency-based movement for teacher education points out the lack of research on the model (Cooper, Jones and Weber, 1973; Kay and Rosner, 1973; Siedentop, 1973 and McDonald, 1974). However, despite this lack of empirical research on the competency-based model, there are several areas of related research which are relevant to this study. The following four categories of research will be discussed:

- 1) Research related to competency-based approaches to teacher education;
- 2) Research related to changing teacher or student-teacher behavior;
- 3) Research related to changing pupil behavior and academic performance;
- 4) Research related to the effect of changing teacher or student-teacher behavior upon pupil behavior.

The lack of research in the first and fourth categories is a primary reason for undertaking a study of this nature.

Research Related to Competency-Based Approaches
to Teacher Training

The competency-based movement as an instructional model for training teachers has gained a high degree of visibility at practically every professional education conference (Siedentop, 1973). At the American Educational Research Association's Annual Meeting in April, 1974, approximately nine papers were discussed relative to the competency-based movement. Professional education literature has also reflected this high interest in the competency-based movement. Phi Delta Kappan (January, 1974), Educational Technology (November, 1972), and The Journal of Teacher Education (Fall, 1973) have devoted entire issues to the competency-based movement.

The competency-based model, in theory, does offer a number of advantages for educational programs. The model is student centered, makes better use of the conditions conducive to learning, and focuses on what the student can do rather than what they know. However, as numerous people have pointed out (Rosenshine and Furst, 1971; Siedentop, 1973; McDonald, 1974; Burden and Mathieson, 1972; and Maxwell, 1974), the competency-based model has not generated an empirical research base, especially in the area of the relationship between teacher behavior and student performance, which is the heart of the model.

Many of the completed studies focusing on competency-based teacher education are merely descriptive types of

research (Crossley, 1973; Givens, 1973; Sipkens and Turkovich, 1973; and Clegg and Ochoa, 1970). These studies have described the following: a) the characteristics of competency-based teacher education, b) the status of competency-based teacher education in Texas, c) the development of performance based modules and d) the implementation of a performance-based teacher education program at the University of Washington.

There are a few studies available on the effects of a competency-based format on teacher and pupil behavior (Cohan, 1973; Hurst, 1973; Crain, 1973; Miles, 1973 and Levine, 1972). Cohan (1973) developed and field tested a competency-based module designed to instruct student teachers in aspects of critical thinking and teacher behaviors which promote critical thinking. Results of the study indicated that student teachers' verbal behavior was significantly changed and that this change was maintained over a period of time. Hurst (1973) compared three groups of prospective teachers receiving instruction for what he defined as "probing-inquiry teaching behavior". Group one followed an individualized competency-based module; group two followed a competency-based module designed for a group of students; and group three followed a regular classroom instruction course. Results of the study indicated that both module groups produced a significantly higher increase in knowledge, attitudes and performance. Hurst (1973) concluded that flexible learning modules that are developed

through a systems approach may be a means to creative reform in teacher education in the future.

Levine (1972) compared the effects of two methods of training prospective teachers to produce pupil achievement in their respective teaching opportunities. One group of prospective teachers was trained in a criterion-referenced instructional model while the other group followed a traditionally taught course. After seven weeks of training, the teacher trainees were told to prepare and teach a specific unit. Pupils in the trainees' classes were given a pretest and a post test to serve as evidence of learning. The data collected indicated that the pupils who were taught by the criterion-referenced trainees did significantly outperform those pupils taught by the control group trainees.

Crain (1973) compared a competency-based preservice elementary physical education program to a conventional program at Pembroke State University. The results showed the following:

- 1) The CB group performed better on a knowledge test;
- 2) The CB group performed better on the AAHPER Fitness Test;
- 3) The CB group performed better on teaching skills (behaviors);
- 4) Elementary pupils taught by the CB group scored better on a knowledge test;
- 5) Elementary pupils taught by the CB group performed better on the AAHPER Fitness Test.

Miles (1973) compared a competency-based course with the effects of a traditional lecture course on knowledge gain concerning the teaching of elementary school physical education. Results indicated that both groups showed a significant gain (.001 level of confidence) in knowledge, with the CB group performing significantly higher than the traditional method.

Research Related to Changing Teacher or Student-Teacher Behavior

Numerous independent variables have been tested alone and in combination to determine the degree to which they can affect teaching behavior. Some of the popular examples that have been utilized are modeling, microteaching, minicourses, pre-service courses, in-service courses, various types of feedback and interaction analysis. A variety of sources for feedback have been utilized in these studies. Feedback from supervisors, fellow teachers, students and self-analysis have been researched. The dependent variable in the majority of these studies has been the teacher's verbal behavior.

One popular technique used for changing teacher behavior is called microteaching. Microteaching requires a student or intern to learn a set of teaching skills which he will utilize in a five to ten minute lesson with a limited number of students. The lesson is videotaped and the intern will receive feedback immediately after teaching the lesson. The lesson can then be replanned and retaught. Studies involving microteaching have produced some inconsistent results. (Young

and Young, 1969; Borg, Kallenbach, and Friebe1, 1969; Brashear, 1970; Davis, 1969; Perlberg, 1968; and Mocadlo, 1973). Perlberg (1968) found that microteaching techniques and the use of a portable video-tape recorder would significantly improve teaching behaviors of intern teachers in a vocational-technical program. Davis (1969) used a microteaching model in a teaching laboratory and found it to be effective in changing teacher behavior. Young and Young (1969) tested the effects of an individually prescribed microteaching training module on an intern's subsequent classroom performance. Results indicated that the interns acquired and implemented a significantly greater number of specific teaching behaviors. These interns were also more flexible and utilized alternate teaching patterns. Borg (1969) tested the effects of an instructional microteaching package on specific teaching behaviors of forty-eight teachers. He found that teachers made substantial changes in behavior, predominantly those teachers working in lower-class areas. He also found that the teachers retained most of the skills when retested two months after the microteaching session. Borg, Kallenbach, and Friebe1 (1969) found no significant difference between subjects that received videotaped feedback in a microteaching format and subjects that did not take part in the microteaching. Brashear (1970) found that behavior changes that occur during microteaching were not maintained. Mocadlo (1973) found microteaching an effective

strategy for changing inquiry strategies of science and math teachers.

A number of people have investigated the effects of modeling on teacher behavior (Orme and Oliver, 1966; Hill and Medley, 1968; Koran, 1970; Rousch, 1969; and Rutherford, 1971). Orme and Oliver (1966) combined modeling with both verbal and pictorial feedback in order to determine the acquisition of a complex teaching strategy. Results indicated that pictorial modeling produced significantly higher gains in teaching behavior. When modeling is combined with feedback, differences were obscured.

Rutherford (1971) studied the effects of a model videotape, a feedback tape and a combined tape. Results showed that the combined videotape and the model videotape were most effective. Koran (1970) found that modeling was as effective for changing inquiry behavior as a problem solving technique.

Numerous studies on changing teaching behaviors have utilized some type of feedback. As mentioned earlier, this feedback has been given to teachers in a variety of methods and from a variety of individuals.

Hughley (1973) used directed information feedback with cues for application of teaching strategies and found that this would increase the positive interactions of student-teachers and reduce the negative interactions. Wetzel (1969) found that behavior modification techniques would change the rate of positive verbal behaviors in teacher

aides. Jones (1969) used systematic feedback in order to get teachers to interact more with their students. Holmberg, Thomson and Bear (1972) used graph feedback, observer feedback, on-the-spot feedback and self-counting to change reinforcement and priming behaviors of teachers. Thompson and Cooper (1969) used immediate feedback through a hearing-aid receiver to improve the reinforcing techniques of teachers. Saudargas (1972) used videotape feedback and criterion rates to change teachers' rates of praise.

Thomas (1971) used videotapes to have teachers analyse specific categories of their behavior. Teachers were required to count and graph these categories of behavior. His results showed this process to be effective in changing the teacher's behavior. Another study on videotaped feedback evaluation showed this technique to be more effective than standard observation techniques (Adair and Kyle, 1969). Magaro (1973) compared the interrogative behavior of pre-service teachers after they were trained with the following:

- 1) videotaped feedback, 2) audiotaped feedback and
- 3) no feedback. Results indicated no significant difference between groups.

Graubard, Rosenberg and Miller (1971) showed that a supervisor could change a teacher's tolerance for noise. Baseline recordings were taken and then teachers were given verbal praise for tolerating noise and allowing freedom of expression in the class. Post-intervention recordings were taken and the noise level tolerance had increased.

A comparison of three different types of feedback on three categories of teacher behavior was completed by Rule (1972). The categories of teacher behavior were: verbal praise, on-task contacts, and off-task contacts. The categories of feedback were: 1) instructor's and experimentalist's feedback; 2) videotape scoring of one's own behavior; and 3) direct intervention by the experimentalist when the teacher fell below criterion level. The third technique produced the most effective behavior change. However, subjects in the study indicated that direct intervention was very embarrassing and served as a form of punishment. Cummins (1973) compared the verbal behavior patterns of elementary classroom teachers that received a self-evaluation course with teachers that did not receive the course. Results indicated no significant difference between the two groups.

Silverman and Kimmel (1972) studied the effects of immediate feedback, by way of a wireless hearing aid, on student teachers. These teachers were provided immediate feedback while they were teaching. Results demonstrated that those teachers who received the immediate feedback showed greater changes in verbal behaviors than those teachers who did not receive immediate feedback. Kiser (1969) made a comparison of the effects of three methods of feedback procedures on student teachers. The three feedback procedures were: videotape, audiotape and regular feedback procedures. He concluded that videotape feedback or a

combination of videotape and audiotape together would be most effective in changing teaching behaviors.

Rutherford (1971) and Roush (1969) both conducted studies that utilized videotape feedback in trying to change teaching behavior. These studies found no significant changes between those teachers who received videotape feedback and those that did not receive feedback. These studies probably suggest that feedback must meet some type of standard in order to be effective.

Pollack (1971) used behavior modification techniques in a supervisory role in order to determine its effect on teacher behavior. The dependent variable was the time that the teachers spent in "actual teaching". Results found an increase in appropriate teacher behavior but there was no increase in the time teachers spent in "actual teaching". A study by Tuckman and Oliver (1968) produced dissimilar findings. Results showed that the behavior of teachers receiving feedback from supervisors changed in the direction opposite to that desired by the experimenter.

Research involving feedback from pupils has produced a number of interesting results. Gage (1960) provided elementary teachers with information from students' ratings on what the ideal teacher should be. Results showed that teaching behaviors began to change in the direction of the pupil's ratings. Thomas (1969) found that students had different ideas than teachers on what an ideal teacher should be. He felt that the use of student feedback

was questionable. Krumboltz (1971) also feels that teachers need other sources of feedback than their pupils in order to develop good teaching behaviors.

Another study on using student feedback for changing teaching behaviors was completed by Graubard, Rosenberg and Miller (1971). They trained children to apply positive and negative reinforcement relative to specific teaching behaviors. Results of the study indicated that pupils can modify teachers' behavior. Edwards (1973) found that student feedback changed teacher behavior in the opposite direction of the target behavior. He stated that the probable reason was too short of a time period for behavior change. Centra (1973) found that college teachers will modify their teaching behaviors after receiving student feedback.

A number of studies have tested the effectiveness of preservice and inservice teacher education programs on changing specific teaching behaviors. Briet and Butts (1969) tested the effectiveness of a teacher education program on changing specific teaching behaviors. Results of the study indicated that the program was successful in changing instructional decision behavior. Sandefur (1967) compared the effects of an experimental teacher education program with the effects of a traditional program. The experimental program combined laboratory experiences of observations and participating with selected readings and seminars. Results of the study indicated that student

teachers in the experimental program exhibited more desirable teaching behaviors, classes were better behaved and student teachers interacted more with their pupils. Additional conclusions of the study indicate that factual information is not sufficient to alter teaching behavior and that behavior changes are more readily effected when student-teachers are directly involved in the teaching-learning process.

Sandefur (1971) completed a follow-up study to the above mentioned study. Results indicated that student-teachers in the experimental group exhibited behaviors that were considered more responsible, understanding, original, kindly, confident and mature than those student-teachers in the conventional group.

Research Related to Changing Pupil Behavior and Academic Performance

A wide variety of independent variables have been utilized relative to changing pupil behaviors. The majority of these studies have used operant techniques. Some of the particular pupil behaviors that have been studies are as follows: 1) disruptive behavior; 2) attentive behaviors to academic tasks; 3) biology performance; 4) standardized test performance; 5) reading performance; 6) math performance; 7) spelling performance; 8) acquiring phonetic sounds; and 9) creative behaviors.

Disruptive pupil behaviors such as tardiness, speaking out in class, getting out of their seat and talking to other pupils in class, have been successively modified through the use of various reinforcement strategies (Hall, 1970; McLaughlin and Malaby, 1972; Clark et. al., 1973; Long and Williams, 1973; Ringer, 1973; Solomon and Wahler, 1973; Harris and Sherman, 1973; and Brown et. al., 1972). Hall (1970), Brown et. al., (1972), Ringer (1973) and McLaughlin and Malaby (1972), all utilized some form of a token reinforcement system to successfully modify pupil behavior. Solomon and Wahler (1973) used peer interactions to modify the disruptive behavior of five elementary students. Clark et.al., (1973) used a brief period of isolation which he called "timeout" to modify a retarded child's disruptive classroom behavior. Long and Williams (1973) compared the effects of group versus individual contingent free time to modifying pupil behavior. Both group and individual contingent free time produced substantially higher levels of appropriate behavior and the group reinforcement procedure appeared to be slightly more effective. Harris and Sherman (1973) used a "good behavior game" to reduce disruptive talking and out-of-seat behavior.

The time that pupils spend attending to academic tasks has been successfully modified in a number of studies (Mawhinney, 1971; Nichols, 1970; Glaser and Sarason, 1970; Kirby and Shields, 1972 and Kazdin, 1973). Nichols (1970)

used a systematic program of reinforcement to change the learning styles and behaviors of previously unmotivated students. Kazdin (1973) studied the effects of social reinforcement delivered to target subjects on the attentive behavior of adjacent peers. Results indicated that reinforcement of both attentive and inattentive behaviors of target subjects caused an increase in attentive behaviors of adjacent peers.

A number of studies have dealt with the effects various combinations of behavioral and performance contingencies on behavior and academic performance (Ferritor et. al., 1972; Young, 1973; Webb and Cormier, 1972; McLaughlin and Malaby, 1972; and Williams and Anandam, 1973). Ferritor et. al., (1972) used behavioral contingencies, performance contingencies, and a combination of both; his results indicated that specific contingencies are needed for specific target behaviors. Williams and Anandam (1973) found that a combined academic and social behavior contract would increase the grades of junior high school students.

Webb and Cormier (1972) found that the use of behavioral objectives, criterion evaluation and remediation could significantly improve both the classroom behavior and academic achievement of pupils in the eighth grade. McLaughlin and Malaby (1972) experimented with a token economy system on the assignment completion and quiet behavior of fifth and sixth graders. Results indicated that a token economy system with a point exchange every four days would increase

assignment completion to almost 100 percent. Introduction of a reinforcement contingency for quiet behavior increased quiet behavior but caused a drop in assignment completion. These results also indicate the need for specific contingencies for specific target behaviors.

Stedman (1972) found that the introduction of behavioral objectives into programmed materials designed for biology students had no significant effect on the student's biology performance. Bridgeman (1974) compared the effects of success feedback, failure feedback and no feedback on students repeating a scholastic aptitude test. Results indicated that the success feedback group scored higher on the subsequent test. Ayllon and Kelly (1972) found that pupils showed a significant increase in performance on a standardized test given under reinforcement conditions as compared to test results under normal conditions.

Studies relative to pupil reading behaviors have produced some interesting results (Willis et. al., 1972; Statts et. al., 1970; and Knapczyk and Livingston, 1973). Willis et. al., (1972) found that tokens and verbal reinforcement caused a significant improvement in the reading behaviors of 95 percent of the subjects studied. Knapczyk and Livingston (1973) used a token system to effectively improve the reading comprehension of special education students.

Math performance is another behavior that has been changed in several studies (Kirby and Shields, 1972; Ferritor et. al., 1971; Parsons, 1972; Harris and Sherman, 1973; and Conlon et. al., 1972). Parsons (1972) found that a variety of reinforcement strategies favorably influenced pupils' arithmetic behaviors. Harris and Sherman (1973) and Conlon et. al., (1972) found that a peer correction procedure could increase the subject's arithmetic rates and accuracy.

Massod and Etzel (1972) found that a high pupil response rate was more effective than a high instructor reinforcement rate on the acquisition of pointing to a letter in response to hearing its phonetic sound. Massod and Etzel (1972) also found that pupils could acquire letter-sounds faster by tactile response to a sandpaper letter as compared to a pointed letter.

Salzberry et. al., (1971) successfully modified writing skills of pupils through operant psychology principles. Goetz and Salmonson (1972) increased creativity in easel painting in preschool pupils by applying general and descriptive verbal reinforcement. The use of descriptive praise was more effective. Harris et. al., (1972) found that peer tutoring sessions could effectively improve the spelling performance of elementary pupils. Zimmerman and Dialessi (1973) found that the effects of modeling influences on pupils' creative behavior were inconclusive.

Young (1973) studied the effects of various reinforcement contingencies on a second grade physical education class.

Results of his study indicated the following:

- 1) Appropriate behavior increased due to positive reinforcement;
- 2) An increase in appropriate behavior was not accompanied by an increase in skill acquisition;
- 3) The number of skills a student can do in a given period of time was not increased by the use of positive reinforcement;
- 4) No conclusions were made about how the intervention on skill affected the appropriate behavior level.

Huber (1973) investigated the effects of a contingency management program upon the behavior and performance of motor tasks of mentally retarded children. Results of the study indicated the following:

- 1) Reinforcement applied directly to appropriate behavior resulted in behavior improvement and in increase in the level of motor task performance;
- 2) Contingencies structured for motor task performance caused a minimal positive change in appropriate behavior while the number of motor tasks completed declined;
- 3) When reinforcement was contingent on both appropriate behavior and the number of tasks completed, a significant increase in the level of appropriate behavior occurred. However, the reinforcement

was not of sufficient strength to increase the level of motor performance.

Research Related to the Effect of Changing Teacher or Student-Teacher Behavior upon Pupil Behavior

Most of the research relative to changing pupil behavior has been with direct approaches. Very little research has attempted to effect pupil behavior by changing teacher behavior first. Rosenshine and Furst (1971) reviewed the empirical research that attempted to relate teaching behaviors to desired pupil outcomes and concluded that there are very few teaching skills that have been empirically related to pupil outcomes. McDonald (1973) also points to the need for locating teaching behaviors which will show a significant effect on student learning. He also points out that previous research has been of little help in this respect.

Widell et. al., (1969) utilized feedfack from supervisors and videotapes to change identified teacher behaviors and found no significant difference in student achievement as a result of the teacher changes. Contrary to this study, Cooper and Thomson (1969) used a hearing aid device to provide immediate feedback to the teacher and found a significant change in desired teacher and pupil behaviors.

Kosier (1971) used a behavior modification lecture to increase the teacher's complimentary rate and reduce the use of reprimands. Results indicated that the change in teacher behavior caused an increase in the percentage of pupils engaged in on-task behaviors. Thompson et. al., (1974)

found that changing teacher behavior relative to reinforcing appropriate pupil conduct and ignoring inappropriate conduct would create a dramatic change in pupil behavior. i.e. fewer disruptions and higher task involvement. Klein (1972) also found that an increase in teacher attention for pupil on-task behavior will produce an increase in the pupils' on-task behavior rate.

Rife (1973) found that modeling and feedback were effective in changing such teaching behaviors as: negative feedback for skill attempts, negative reactions to off-task behavior, positive feedback for skill attempts and positive reactions to on-task behavior. He concluded that an existing high level of appropriate pupil behavior was maintained while these desirable changes in teaching behavior occurred.

Cossairt et. al., (1973) experimented with instructions, feedback, and feedback plus social praise in an attempt to increase teacher praise for attending pupil behavior. Results indicated that feedback plus social praise produced higher rates of teacher praise and that as the rates of teacher praise increased, the intervals of pupil attending behavior also increased. Kazdin and Klock (1973) found that as contingent nonverbal teacher approval increases, pupil attentive behavior will also increase. Friedman (1973) found that increases in teacher reinforcement behavior can effectively increase what he defined as spontaneous pupil verbalization within the classroom.

Hasazi and Hasazi (1972) used a reversal design to show that changes in teacher attentive behavior can effectively cause desired changes in a pupil's digit-reversal behavior. Pinkston et. al., (1973) also demonstrated that contingent teacher attention is an effective method for changing a child's aggressive behavior and his peer interaction behavior.

Allington (1973) found that training teachers in practical applications of Guilford's Structure of Intelligence Model will significantly modify a teacher's verbal behavior and will also cause a significant change in pupil behavior. Draheim (1973) compared the classroom behavior of student teachers and the behavior of pupils within their classes with another group of student teachers and the pupils within their classes. One group was trained with a handbook developed by Draheim (1973) and the other group did not use the handbook. Results indicated that both teacher and pupil behavior increased in the desired direction for the group trained with the handbook.

Strickler (1973) found that both teacher behavior and pupil performance in reading could be improved by a minicourse training program for both in-service and pre-service teachers.

Summary of the Literature

The studies reviewed in the first category of research obviously point out the need for additional research on the competency-based model. Most of the research investigating

the competency-based model has been descriptive. If the competency-based model is going to be implemented, then research strategies must be devised and tested. Results from the few studies that have been completed seem to indicate that the competency-based model is an effective method of training teachers. Teachers who have been trained in a competency-based program seem to be able to produce more changes in their pupils as compared to the changes that traditionally taught teachers can produce in their pupils.

The studies reviewed in the second category of research point out the variety of effective methods and procedures that are available for changing teacher behavior, i.e. modeling, microteaching, minicourses, and various types of feedback. The focus of the majority of these studies was the teacher's verbal behavior. Relatively little formal research on changing physical education teaching behaviors has been completed besides the studies of Rife (1973), Hughley (1973) and Schwartz (1972).

The studies reviewed in the third category of research indicate a variety of effective procedures for changing pupil behavior and academic performance. The majority of these studies have utilized operant techniques, which emphasize the events that follow the behavior rather than the antecedent events. These studies point out the success of changing pupil behavior by a direct approach.

The fourth and final category of research seems to indicate that an indirect approach to changing pupil behavior can also be an effective technique. Changing specific teacher behaviors can sometimes have a significant effect on pupil behavior and achievement. Research in this area seems to be growing steadily due to the push of many teacher educators. These teacher educators want to know what specific teaching behaviors will have an effect on pupil behavior and achievement (McDonald, 1972).

CHAPTER III

METHODS AND PROCEDURES

The hypotheses state: 1) if there are inappropriate levels of student teacher behavior, there will be changes in the desired direction after intervention; 2) if there are inappropriate levels of pupil behavior, there will be changes in the desired directions as student teacher behavior is modified; 3) if the levels of pupil behavior are considered appropriate, they will be maintained as student teacher behavior is modified. In order to test these hypotheses, data were collected through behavioral observation techniques of event recording, placheck, time sampling and duration recording. The data were analyzed by means of a multiple baseline design (Hall, 1971).

The study was carried out as a "reality test" for a college supervisor. The "reality test" refers to the fact that the experimenter was involved with a "full load" of student teachers. The collection of data and time spent for feedback sessions approximated the normal time spent on supervision by both the cooperating and supervising teachers. The experimenter assumed that a weekly observation would constitute a "real" supervision situation.

Subjects and Settings

The subjects were seven students of The Ohio State University enrolled in their student teaching field experience at the elementary school level. The study took place during the Spring Quarter of the 1973-1974 school year. All subjects were physical education majors. Subjects included four females and three males whose ages ranged from twenty-one to twenty-three. Four of the subjects were teaching one-half day at the elementary and one-half day at a junior high school. The remaining three subjects were teaching at the elementary level only because they had taught at the secondary level during the Winter Quarter. Previous teaching experience of the subjects ranged from summer swimming lessons to coaching for the Clintonville Boys Association. All seven subjects had completed a physical education course in applied behavioral analysis. However, they did not have any direct field experience in applying these principles to a teaching situation.

The seven subjects were assigned to a variety of elementary schools located in the Columbus area. The head of the student teaching program made these assignments in the normally followed procedure. The subjects were not given any special assignments. Subjects one and two were assigned to Fishinger Elementary School, which is part of the Upper Arlington School System. Subjects three and four were assigned to Brookside Elementary School, which is part

of the Worthington School System, while subjects five and six were assigned to Parsons Elementary School, which is part of the Columbus City School System and finally, subject seven was assigned to Winterset Elementary School, which is also part of the Columbus City School System.

Fishinger Road Elementary and Brookside Elementary both employ a full time physical education specialist, who served as the cooperating teacher for the subjects assigned to these respective schools. Parsons Elementary and Winterset Elementary do not employ a specialist in physical education and therefore, an elementary classroom teacher served as the cooperating teacher for the subjects assigned to these schools.

There is a great deal of variability in the physical education programs at these four schools. Fishinger Road and Winterset pupils received two forty minute periods of physical education per week, while the Parsons pupils received one fifty minute period per week. Available equipment is another variable in these schools' physical education programs. Brookside and Fishinger Road both have a great deal more equipment than Parsons and Winterset. Another factor affecting the physical education program to some degree at both Parsons and Winterset Elementaries is that the gymnasium in these schools serve as storage area for such equipment as: voting machines, cafeteria tables and folding chairs.

These variables within each physical education program tend to create a wide range of situations in which to field test the CBTE model. Each situation is somewhat different.

Observations and Behaviors

The pupil behaviors were recorded by techniques referred to as placheck, time sample and duration recording (Hall, 1971). Placheck consists of making a tally, at a designated time, of the number of pupils in the class engaged in a previously defined behavior. This tally is then divided by the total number in the group and then multiplied by one-hundred to give the observer the percentage of pupils engaged in that defined behavior. Time sample is a similar observation technique that is used to focus on one specific individual at predetermined instances in an observation session. Duration recording is a technique used for determining total cumulated time spent in a particularly defined behavior.

The first category of pupil behavior that was observed is called appropriate and inappropriate pupil behavior. Appropriate pupil behavior was defined as behavior that contributes to the educational environment. Examples of appropriate behavior would include: carrying out directions, maintaining eye contact with the teacher while the teacher is demonstrating, helping a classmate with a skill and cheering a classmate's performance. Inappropriate behavior

was defined as behavior that detracts from the educational environment such as: talking during a teacher's demonstration, failure to carry out directions and hitting or pushing a classmate while standing in line.

The second category of pupil behavior was labeled as active or inactive learning during activity episodes. Active learning was defined as actual physical involvement in the activity that is the appropriate activity of the episode. Examples included were shooting, dribbling, defending, working on a balance beam, spotting, running, timing and swinging a golf club. Inactive learning during an activity episode included the following: waiting in line, sitting or standing on the sidelines and making no attempts at practicing a skill. Activity episodes were defined as the cumulative time from beginning of pupil participation to the teacher initiated behavior that ends the episode.

The third and final category of pupil behavior that was observed was called time pupils spend in managerial episodes. Managerial episodes were defined as that time needed to get organized for the first class activity, to change from one activity to another, or to end a final activity and leave the gymnasium or playground. Examples would include: the time needed to rotate from station to station, the time spent checking attendance and the time spent terminating an activity and lining up at the door.

The experimenter asked the cooperating teacher in each elementary school to designate a student "A" and a student

"B" in each of the student teachers' class that would be observed by the experimenter. Student "A" was supposed to be noted for high rates of inappropriate behavior and student "B" noted for high rates of inactive behavior.

In an effort to secure cooperative efforts of the university supervisor and the cooperating teacher for changing student teacher and pupil behavior, the cooperating teacher of each elementary school was asked to become a part of the observation team needed to complete this study. The cooperating teacher recorded the pupil behavior categories defined as appropriate, inappropriate, active and inactive. The cooperating teacher made his recordings on a recording sheet (See Appendix A) and was cued to record the behaviors by a portable cassette tape recorder, with an earplug. This allowed the classes to proceed uninterrupted. The format of this observation technique was as follows (See Figure 1).

Placheck (Appropriate/Inappropriate)	Rest	Placheck (Active/Inactive)	Rest
10 Second	20 Sec.	10 Seconds	20 Sec.
Time Sample (Student A - App/Inapp.)	Rest	Time Sample (Student B-App/Inapp.)	Rest
10 Seconds	10 Sec.	10 Seconds	10 Sec.
Time Sample (Student A-Active/In.)	Rest	Time Sample (Student B-Active/In.)	Rest
10 Seconds	10 Sec.	10 Seconds	2 Min.

Fig. 1 - Format of Pupil Observation

The cooperating teacher completed this cycle eight times in each observation session.

The experimenter recorded the time pupils spent in managerial activities on a recording sheet (See Appendix B). This managerial time was recorded in episodes and then totaled at the end of each observation session in order to determine the percentage of class time spent in managerial activities.

Teaching behaviors were recorded by an observation technique referred to as event recording. Event recording consists of making a tally of every predefined, observable behavior as the behavior occurs. The experimenter did event recording for three minutes using a recording sheet (See Appendix B). At the end of the three minute period, the experimenter rested for a period of three minutes and then repeated the cycle until the class period was completed. A portable, cassette tape recorder with an earplug was used to cue the experimenter to record the specific behaviors. Since the observations were focused on the student teacher's behavior, the experimenter had to be close enough to the subject to observe the specific behavior.

During each observation session, the experimenter had to decide whether a specific behavior had occurred. The decision was based on the predetermined definitions of the behavior. In order to assure that there was a change in the subjects' behavior, and not a change in the experimenter's recording of the behavior, reliability checks were made both during baseline conditions and after intervention. A total of three reliability checks were made on each subject. The

reliability checks were made by situating the experimenter and another observer at distant points in the gymnasium to assure independence of observations. Reliability was then determined by dividing the agreements by the sum of the agreements and disagreements and then multiplying by one hundred.

Teacher behaviors that were observed and recorded are defined as follows:

General Positive Reactions to On-Task Behavior - This includes all general positive verbal and non-verbal teacher reactions to pupil behavior other than skill attempts. Examples would include praising row two for looking good or patting a pupil on the back.

Specific Positive Reactions to On-Task Behavior - This includes all verbal teacher reactions, to pupil behavior other than skill attempts, that convey precise information about the behavior. Examples would include praising a class for listening to directions or telling squad five that they have a straight line.

Negative Reactions to Off-Task Behavior - This includes all general or specific verbal or non-verbal teacher reactions to off-task behavior. Examples would include telling students to stay in line and stop talking or fooling around.

Positive General Feedback for any Skill Attempts - This refers to general positive reactions to a pupil's skill

attempt. These reactions could be verbal or non-verbal. Examples would include, "Nice job, Mike" and "Way to go, girls".

Positive Specific Feedback for any Skill Attempts - This refers to all precise positive teacher reactions to a pupil's skill attempt. Examples would include praising pupils for keeping their arms straight for a volleyball bump or praising a pupil for getting good height on a shot put throw.

Negative or Corrective General Feedback for any Skill Attempts - This includes all general negative or corrective teacher reactions to a pupil's skill attempt. These reactions could be verbal or non-verbal. Examples would include, "No that is wrong" or a teacher frowning at a pupil's skill attempt.

Negative or Corrective Specific Feedback for any Skill Attempts - This includes all precise negative or corrective teacher reactions to a pupil's skill attempt. Examples would include telling a pupil to keep his arms straight for a bump or to keep the left arm straight during a golf swing.

First Name Use - This refers to all pupil teacher contacts where the teacher uses the pupils' first name.

Direction of All Teacher Feedback - This refers to the direction of the teacher's feedback. This feedback could be directed toward an individual pupil or a group of pupils. Two or more pupils were considered as a group.

These target behaviors for both the subjects and the pupils were categorized into three of the six modules designed as the competency-based intervention (See Appendices C, D, E). The targeted teaching behaviors were partially based on the Ohio State Teacher Behavior Scale (Siedentop and Hughley, in press). The three additional modules (See Appendices F, G, H) were developed for varying reasons. The Policies and Procedures Module was developed in an effort to make subjects accountable for specific school policies and procedures necessary for proper maintenance of a school system (See Appendix F). The Planning Module was developed to help subjects gain competence in writing lesson plans and specific strategies for dealing with certain pupil behavioral problems (See Appendix G). The Student Assessment Module was developed to provide an additional assessment channel for evaluation of the subject (See Appendix H).

Experimental Conditions

In an attempt to modify the rates of the specific target behaviors, the experimenter provided the subjects with a competency-based intervention (Elam, 1972; Houston and Howsam, 1972; Anderson, et. al., 1973 and Siedentop, 1973). The intervention consisted of the following areas or modules:

- 1) Planning - This module was aimed at improving the subject's planning ability. Included in this

module were three terminal behavioral objectives that focused on lesson plans, performance objectives and strategies for handling both class and individual problems (See Appendix G);

- 2) Interpersonal Relationships - The focus of this module was on developing the skills of positive interaction in order to enhance personal relations with pupils and faculty members. Included were five terminal behavioral objectives (See Appendix C);
- 3) Management - This module focused on reducing inappropriate pupil behavior, inactive pupil behavior and the time pupils spend in managerial episodes (getting organized, rotating squads and terminating an activity). Included were four terminal behavioral objectives (See Appendix D);
- 4) Instructional Feedback - This module was focused on improving the subjects' instructional feedback rates, the quality of instructional feedback and the direction of instructional feedback. There were three terminal behavioral objectives included in the module (See Appendix E);
- 5) Pupil Assessment - The focus of this module was on the subject's attitude toward teaching and their pupils as seen by their pupils. The subjects were asked to demonstrate levels of behavior that would ensure seventy per cent of student responses in

the "yes" category on specific questionnaires
(See Appendix H).

Included in each module was the following information: goals of the module expressed as terminal behavioral objectives, module definitions, learning activities, learning resources and assessment procedures. In addition, each module contained a reading sheet to guide the subjects and to provide additional module explanations.

Baseline rates of behavior were established when the majority of observed behaviors showed no evidence of an ascending or descending rate for three sessions; or after three sessions in which the behaviors were moving in the opposite direction of the desired results. Baseline rates of behaviors for subject one were established after three observations and the baselines for each of the remaining six subjects were established by adding one observation for each remaining subject. (See Figure 2). After a baseline was established for a subject, intervention was instituted. Besides the competency-based package, intervention consisted of instructions, graphic feedback, cuing and reinforcement and targets for building toward the terminal goal.

Fig. 2 - Order and Schedule of Intervention

At a meeting between the subjects and experimenter, held prior to the first day of student teaching, the subjects were told that the experimenter would be doing an analysis of their teaching as part of a new method of student teaching supervision. In addition, it was explained that the subjects would be given no feedback until a specific point in time when the experimenter and the subject would have a conference and some specific goals would be determined. At this same meeting, the subjects were given the School Policies and Procedures Module (See Appendix F). The Module was explained and subjects were told that the assessment must be completed by the end of the second week of student teaching.

After baseline rates were established and intervention had occurred, subjects were given a goal sheet (See Appendix I)

which listed the mean baseline rates for the target behaviors. The goal sheet also contained sections for listing the weekly goals, the obtained results for each week and the terminal goal. These goals were established by the nature of the teaching situation, the teaching competencies of the subject and the behavior of the pupils in each school. In essence, these goals were "situation specific". These goals or criterion rates of behavior for both the subjects and the pupils were set in a progressively ascending or descending order until the terminal objective for each category of behavior had been reached.

The intervention consisted of instructions, graphic feedback, cuing and reinforcement and target setting.

Instructions

- 1) Subjects were given the competency-based intervention along with detailed explanations of each module.
- 2) Subjects were given the goal sheets and detailed explanations of the specific behavior categories.
- 3) Subjects were told that they would be observed teaching the same class once a week.
- 4) Subjects were told that a weekly feedback session would be held after the weekly observation session of the same class.
- 5) Subjects were told to emphasize for the following week those modules where low rates were evident.
- 6) At the end of the baseline observations, subjects

were told what the terminal behavioral rates would be for attaining a passing grade in student teaching.

Graphic Feedback

Graphic feedback was provided by the competency-based modules, the goal sheets and the observation sheets.

Cuing and Reinforcement

Specific examples of the use of good techniques were pointed out and subjects were complimented for their effort to use these techniques.

Target Setting

Once the terminal behavior goals were established, successive weekly targets were established during the weekly feedback session that followed the observation session. These targets were used to help build toward accomplishing the terminal goals. Since there exists no empirical research to support specific behavior rates of "good" teachers, the experimenter set the terminal goals that were believed to be realistically attainable for each subject according to the baseline rates of behavior.

Analysis and Design

During baseline conditions, the experimenter made no attempts to alter any of the subjects' teaching behaviors and the subjects received no feedback related to any of the behaviors in this study. Cooperating teachers were asked to follow the same procedures. The data were observed by

event, time sample, placheck and duration recording; then they were converted to a rate per minute for purposes of analysis. Graphs were made for both subject and pupil behavior relative to each observation session.

The competency-based format with a number of modules was considered as a "package" intervention. This idea of a "package" intervention has been criticized because it is not possible to determine what effects can be attributed each variable (Kazdin, 1973). However, Wolf (1973) has pointed out that behavioral research is concerned with methods used to modify behavior. He points out that if a "package" does affect specific behaviors, then the importance of each variable within the "package" can be sorted out in further research.

Generalization or induction may also negate specific attempts to isolate effects of specific variables. For example, a portion of the Interpersonal Relationships Module may affect subject's behavior which falls under the Instructional Feedback Module. Specific cause - effect relationships are therefore very hard to show in a study of this nature.

Since this study was completed in an applied setting, a multiple baseline design (Hall, 1971) was utilized for data analysis. This design was selected over a reversal design because it can show causality without having to reverse important gains in behavior. Repeated modifications of the same behaviors in different people or different

behaviors in the same people can show causation. For example, subject one may be intervened on after five observations, subject two after six observations and subject three after seven observations. If changes occur in the subjects immediately after intervention while subjects still under baseline conditions remain stable, then the assumption that the intervention caused the change is strengthened. Successive changes in additional subjects after intervention will further strengthen the causal relationship.

In this study, nine teaching behaviors as well as three pupil behaviors were observed under two conditions. These two conditions are seen in Figure 3 as baseline and competency-based intervention.

Pilot observation sessions were completed during the Winter Quarter of the 1973-1974 school year. These training sessions were held until behavioral definitions were determined in such a manner as to produce an eighty five percent observer reliability. Reliability was determined by dividing the observer agreements by the sum of agreements and disagreements and then multiplied by one hundred. Reliability checks were made during the baseline and intervention conditions of the study. Three reliability checks were made for each subject.

For purposes of analysis, the data were converted to a rate per minute during intervention, amount of rate increase or decrease and percent of increase or decrease were calculated

Fig. 3--Example of a Multiple Baseline Design

into baseline rates, intervention rates, amount of rate increase or decrease and percent of increase or decrease.

In addition to the previously mentioned factors of causality and reliability, the factors of significance and generality are very important in research studies.

Significance in a behavioral design refers to a comparison between the accomplished behavior change and the level necessary for social usefulness (Risley, 1969). Social usefulness is likely to be determined by those individuals who deal directly with the behavior. Baer (1968) pointed out that significance in behavioral studies refers to changes that are important to the client. In this particular study, changes in student teacher or pupil behavior are judged to be significant by the university supervisor, the cooperating teacher and the student teacher. If the student teacher feels that a pupil or group of pupils has changed enough to be considered contributing to the learning atmosphere of the gymnasium or playground, then a significant change has occurred. The opinion of the student teacher relative to the significance of the behavioral change may be more important than any other person or statistical treatment.

Behavioral scientists usually focus on intensive studies with a limited number of subjects in order to determine what procedures can produce significant changes in behavior. Once this is completed, the independent

variables can be generalized to other situations and other subjects. Consequently, the range of variations of the methods needed to produce significant changes in all subjects can be determined.

CHAPTER IV

ANALYSIS AND DISCUSSION OF THE DATA

The basic data for this study were teacher behavior and pupil behavior. Nine categories of teacher behavior were defined and event recording was used for collecting the data. Teacher behavior events were recorded during five three minute intervals of event recording per teaching session. These recordings were converted to rates per minute or percentage of events observed. The behavior rates were plotted during baseline and intervention. Teaching behaviors were analyzed by considering the behavior profile of each subject, the multiple baseline for each category across subjects, rate of increase or decrease after intervention and percentages of increase or decrease after intervention.

Three categories of pupil behavior were defined and placheck, duration and time sample observations were used for collecting the data. The first category of pupil behavior was defined as appropriate and inappropriate. This behavior was recorded by a system called placheck recording. This pupil behavior was recorded during eight ten-second intervals placed uniformly throughout each observation session. These recordings were converted to percentages of appropriate pupil behavior.

The second category of pupil behavior was defined as active and inactive learning. This behavior was also recorded by placheck recording. The behavior was also recorded during eight ten-second intervals throughout the observation session. These recordings were converted to percentages of active pupil learning.

The third category of pupil behavior was defined as management time. Duration recording was used to record the time of each managerial episode. Episodes for each session were totalled and converted to percentage of class time.

Eight time sample observations were made uniformly throughout each observation session on two designated pupils in the class. The time sample observations were made on the appropriate/inappropriate behavior and the active/inactive behavior of each of the designated pupils. These time sample observations were then converted to a percent of intervals in appropriate and active behavior.

The differences between rates of pupil behavior during baseline and intervention periods were plotted. The data were further analyzed by considering rate increase or decrease during baseline and intervention periods and percentages of increase and decrease between the baseline and intervention periods.

Reliability

Subject Reliability

As a check on the experimenter's tally, an independent observer tallied behaviors during at least three three-minute intervals during three observation sessions. These reliability checks were made during baseline and after intervention. Reliability was calculated by three different methods. The first method gives the percent of agreement for the total number of events observed per session. The larger total of events was divided into the smaller total of events (Hall, 1971). Table 1 illustrates the percent of agreement of the total number of events recorded by the experimenter and the additional observer for each of the three reliability sessions.

TABLE 1
RELIABILITY OF TOTAL NUMBER OF EVENTS
OBSERVED FOR EACH SUBJECT

Subject	Reliability Checks			Mean
	1	2	3	
S ₁	.92	.96	.94	.94
S ₂	1.00	.89	.98	.95
S ₃	.90	.91	1.00	.95
S ₄	.95	1.00	.93	.95
S ₅	.87	1.00	.93	.93
S ₆	.95	.96	.93	.95
S ₇	1.00	.84	.94	.92
Mean	.93	.93	.95	

The second method of reliability yields the reliability of classifying events for each subject during each observation session. This was determined by totalling the number of agreements and disagreements in each category and inserting the sums of all categories into the following formula (Hall, 1971, p. 18).

$$\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100$$

TABLE 2
RELIABILITY OF CLASSIFYING EVENTS
FOR EACH SUBJECT

Subject	Reliability Checks			Mean
	1	2	3	
S ₁	.92	.88	.90	.90
S ₂ (7/7)	1.00	.89	.87	.89
S ₃	.82	.91	.92	.89
S ₄	.92	1.00	.91	.92
S ₅	.87	.90	.88	.88
S ₆	.95	.89	.81	.89
S ₇ (6/6)	1.00	.83	.93	.91
Mean	.91	.90	.90	

Table 2 shows the percent of agreement in classifying events for each subject during each of the three reliability checks.

The third and final method of reliability was the percent of agreement between independent observers for behavior categories one through nine for each subject. The smaller total number of events tallied by one observer was divided by the larger total number of events tallied by the other observer. Table 3 shows the percentages for category reliability.

TABLE 3
CATEGORY RELIABILITY FOR EACH SUBJECT

Subject		Teacher Behavior Categories			
		1	2	3	4
S ₁	(3/4)	.75	-	(2/3) .66	.96
S ₂		-	-	(1/1) 1.00	.92
S ₃		-	-	.87	.89
S ₄	(1/1)	1.00 (1/1)	1.00	1.00	.94
S ₅	(1/1)	1.00 (4/4)	1.00	.87	.77
S ₆		.85 (3/3)	1.00	.80	.94
S ₇	(1/2)	.50	-	.93	.93
Mean		.80	1.00	.87	.91

Subject		Teacher Behavior Categories				
		5	6	7	8	9
S ₁	(2/2)	1.00 (1/2)	.50	.93	.94	.95
S ₂	(5/5)	1.00 (1/1)	1.00	.82	.80	1.00
S ₃		.87	-	.93	.93	1.00
S ₄		1.00 (2/3)	.66	.85	.94	1.00
S ₅	(3/4)	.75 (1/1)	1.00	1.00	1.00	1.00
S ₆		-	-	1.00	.94	1.00
S ₇	(4/6)	.66	-	1.00	1.00	1.00
Mean		.87	.71	.91	.94	.98

Management Time Reliability

Management time reliability was calculated by a method which gives the percent of agreement of the total number of seconds per observation session that were used for managerial activities. This percent was found by dividing the smaller total of seconds recorded by one observer by the larger total of seconds recorded by the other observer. Table 4 shows these percentages.

TABLE 4
RELIABILITY OF MANAGERIAL TIME
FOR EACH SUBJECT'S CLASS

Subject's	Reliability Checks			Mean
	1	2	3	
C ₁	.97	.96	1.00	.98
C ₂	.92	.98	.92	.95
C ₃	.98	.95	.94	.97
C ₄	.99	.96	.94	.97
C ₅	.99	.98	.94	.97
C ₆	.97	.96	.97	.97
C ₇	1.00	.96	1.00	.98
Mean	.98	.97	.95	

Placheck Reliability

As a check on the cooperating teacher's tally, an independent observer tallied behaviors during at least four of the eight placheck intervals during three reliability sessions. A percentage of agreement was obtained between the cooperating teacher and the independent observer. This percentage was calculated by dividing the agreements by the sum of the agreements and disagreements and then multiplying by one-hundred. Table 5 shows the percentages for appropriate/inappropriate behavior while Table 6 shows the percentages for active/inactive behavior.

TABLE 5

RELIABILITY OF PLACHECK RECORDINGS OBSERVED FOR EACH
SUBJECT'S CLASS (APPROPRIATE/INAPPROPRIATE BEHAVIOR)

Subject's	Reliability Checks			Mean
	1	2	3	
C 1	1.00	1.00	.94	.98
C 2	.95	.99	1.00	.98
C 3	.99	.98	.98	.98
C 4	1.00	1.00	.96	.99
C 5	.95	.98	1.00	.97
C 6	.97	.95	1.00	.97
C 7	1.00	1.00	.98	.99
Mean	.98	.98	.98	

TABLE 6

RELIABILITY OF PLACHECK RECORDINGS OBSERVED FOR EACH
SUBJECT'S CLASS (ACTIVE/INACTIVE) BEHAVIOR

Subject's	Reliability Checks			Mean
	1	2	3	
C ₁	.95	.94	.94	.95
C ₂	.91	1.00	.94	.97
C ₃	1.00	.98	.93	.98
C ₄	1.00	.97	.91	.97
C ₅	.98	.98	1.00	.98
C ₆	1.00	.98	1.00	.99
C ₇	1.00	1.00	1.00	1.00
Mean	.98	.98	.96	

Time Sample Reliability

Reliability was calculated here by the same method used for placecheck reliability. The percentages of agreement for appropriate/inappropriate behavior are shown in Table 7 and the percentages for active/inactive behavior are shown in Table 8.

TABLE 7

RELIABILITY OF TOTAL NUMBER OF TIME SAMPLE
RECORDINGS OBSERVED FOR EACH SUBJECT'S PUPIL "A" AND "B"
(APPROPRIATE/INAPPROPRIATE BEHAVIOR)

Subject's Pupils	Reliability Checks			Mean
	1	2	3	
P ₁ -A	1.00	1.00	1.00	1.00
P ₁ -B	1.00	1.00	1.00	1.00
P ₂ -A	1.00	1.00	1.00	1.00
P ₂ -B	1.00	1.00	1.00	1.00
P ₃ -A	1.00	1.00	1.00	1.00
P ₃ -B	1.00	1.00	1.00	1.00
P ₄ -A	1.00	1.00	1.00	1.00
P ₄ -B	1.00	1.00	1.00	1.00
P ₅ -A	.87	-	1.00	.90
P ₅ -B	1.00	-	1.00	1.00
P ₆ -A	1.00	-	1.00	1.00
P ₆ -B	1.00	-	1.00	1.00
P ₇ -A	1.00	1.00	-	1.00
P ₇ -B	1.00	1.00	1.00	1.00
Mean	.98	1.00	1.00	

TABLE 8

RELIABILITY OF TOTAL NUMBER OF TIME SAMPLE
RECORDINGS OBSERVED FOR EACH SUBJECT'S PUPIL "A" AND "B"
(ACTIVE/INACTIVE BEHAVIOR)

Subject's Pupils	Reliability Checks			Mean
	1	2	3	
P ₁ -A	1.00	1.00	1.00	1.00
P ₁ -B	1.00	1.00	.66	.90
P ₂ -A	.75	1.00	1.00	.93
P ₂ -B	1.00	1.00	.75	.92
P ₃ -A	1.00	1.00	1.00	1.00
P ₃ -B	1.00	1.00	1.00	1.00
P ₄ -A	1.00	1.00	1.00	1.00
P ₄ -B	1.00	1.00	1.00	1.00
P ₅ -A	1.00	-	1.00	1.00
P ₅ -B	.87	-	.66	.81
P ₆ -A	1.00	-	1.00	1.00
P ₆ -B	1.00	-	1.00	1.00
P ₇ -A	1.00	.75	-	.85
P ₇ -B	1.00	1.00	1.00	1.00
Mean	.97	.98	.94	

Reliability Discussion

Subject Reliability

The first method of subject reliability was the percent of agreement on the total number of events observed per session of each subject. In almost all observations the percent of agreement was well over the predetermined eighty-five percent that was set in the hypotheses. Only three of the twenty-one observations were below the ninety percent level. The mean agreement for all seven subjects across the three reliability sessions ranged from ninety-two to ninety-five percent.

The second method of subject reliability was the percent of agreement in classifying events for each subject. This method of reliability presents the accuracy of the observer in categorizing specific events on the nine category coding format. The reliability data show, as expected, that the task of placing the teaching behaviors into the proper category was more difficult than selecting teacher behaviors of any category. However, even though this type of reliability was somewhat lower than the previous type of reliability, the mean percent of agreement was still over the predetermined eighty-five percent. The mean agreement ranged from eighty-eight to ninety-two percent.

The third and final method of subject reliability was the percent of agreement between independent observers for categories one through nine. With the exception of categories one (general on-task reactions) and six

(negative general feedback for skill attempts), the mean percent of agreement for each category was over the eighty-five percent level. The problem in both of these categories was the low number of behaviors that occurred. There simply were not enough instances of that behavior in order to attain an accurate percent of agreement. Category two (positive specific behavioral feedback) also had a very low number of events even though the percent of agreement was high.

Management Time Reliability

This type of reliability was determined by dividing the smaller number of seconds accumulated by one observer by the larger number of seconds accumulated by the other observer. A slight definitional problem was encountered. Observers were not sure exactly when to end the managerial episode. However, the data indicates a very high percentage of agreement between observers. The mean percent of agreement ranged from ninety-five to ninety-eight percent.

Pupil Reliability - Placheck

The placheck reliability for both appropriate/inappropriate behavior and active/inactive behavior proved to be exceptionally high. The percent of agreement between observers was well over the eighty-five percent level and the mean agreement percent ranged from ninety-seven to ninety-nine for the appropriate/inappropriate behavior and from ninety-five to one-hundred percent for the active/inactive behavior.

Pupil Reliability - Time Sample

The time sample reliability also proved to be very high for both categories of pupil behavior. Again the percent of agreement was well over the predetermined eighty-five percent level. The ranges were from ninety-eight to one-hundred percent of appropriate/inappropriate behavior and from ninety-four to ninety-eight percent for active/inactive behavior.

Behavior Profiles of the Subjects and Pupils

The behavior rates of the student teachers and the pupils in their respective classes present a profile of both teaching behaviors and pupil behaviors. These profiles illustrate the way that each student teacher and each class spent their time in the physical education class. The plotting of these behavior rates will show the individual style of each student teacher and each class during both baseline and intervention conditions. The following are the profiles of each subject and their respective classes.

Observation and Feedback Sessions

Fig. 4--Profile of Behavior Rates for Subject One

Observation and Feedback Sessions

Fig. 5--Profile of Pupil Behavior Rates for Subject One

Observation and Feedback Sessions

Fig. 6--Profile of Behavior Rates for Subject Two

Observation and Feedback Sessions

Fig. 7--Profile of Pupil Behavior Rates for Subject Two

Observation and Feedback Sessions

Fig. 8--Profile of Behavior Rates for Subject Three

Fig. 9--Profile of Pupil Behavior Rates for Subject Three

Observation and Feedback Sessions

Fig. 10--Profile of Behavior Rates for Subject Four

Fig. 11--Profile of Pupil Behavior Rates for Subject Four

Observation and Feedback Sessions

Fig. 12--Profile of Behavior Rates for Subject Five

Fig. 13--Profile of Pupil Behavior Rates for Subject Five

Observation and Feedback Sessions

Fig. 14--Profile of Behavior Rates for Subject Six

Observation and Feedback Sessions

Fig. 15--Profile of Pupil Behavior Rates for Subject Six

Observation and Feedback Sessions

Fig. 16--Profile of Behavior Rates for Subject Seven

Observation and Feedback Sessions

Fig. 17--Profile of Pupil Behavior Rates for Subject Seven

Rate and Percentage Change by Category

The mean baseline rate, mean intervention rate, rate increase or decrease and percent increase or decrease were calculated by category for all seven subjects and for the pupil categories. A multiple baseline was plotted for each category to compare all seven subjects by category. The multiple baseline design is used to determine the degree to which changes in behavior were attributable to the intervention strategy. The graphs and charts will be followed by a discussion section on the rate and percentage change by category. The following are the graphs and charts by category:

Fig. 18--Rate of On-Task Positive Reactions for Seven Student Teachers

TABLE 9

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
ON-TASK POSITIVE REACTIONS

Behavior: On-Task (+)	Mean Rate/Min.		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	.02	.30	+.28	+1400%
S 2	.02	.23	+.21	+1050%
S 3	0	.32	+.32	
S 4	.03	.40	+.37	+1233%
S 5	0	.52	+.52	
S 6	.08	.85	+.72	+ 900%
S 7	.02	.33	+.31	+1550%

Table 9 shows a significant change in the behavior of all seven subjects. Figure 18 shows that the change was caused by the intervention.

Fig. 19--Percentage of On-Task Positive Reactions with Specific Information for Seven Student Teachers

TABLE 10

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
ON-TASK POSITIVE REACTIONS WITH SPECIFIC INFORMATION

Behavior: On-Task # Specific Info.	Mean Percentage		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	0	8.25	+ 8.25	
S 2	0	18.00	+18.00	
S 3	0	33.25	+33.25	
S 4	0	43.75	+43.75	
S 5	0	41.00	+41.00	
S 6	0	33.75	+30.75	+1075%
S 7	0	35.40	+35.40	

Table 10 shows a significant change in the behavior of subjects two through seven while Figure 19 shows that the change was caused by the intervention.

Fig. 20--Rate of Off-Task Negative Reactions for Seven Student Teachers

TABLE 11

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
OFF-TASK NEGATIVE REACTIONS

Behavior:	Mean Rate/Min.		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
Off-Task (-)				
S 1	.03	.08	+.05	+166%
S 2	.23	.07	-.16	- 69%
S 3	.22	0	-.22	
S 4	.27	.09	-.18	- 66%
S 5	.28	.32	+.04	+ 14%
S 6	.67	.25	-.42	- 62%
S 7	.35	.09	-.26	- 74%

Table 11 shows a significant reduction in the behaviors of five subjects. Figure 20 shows that the intervention caused the change in five subjects.

Fig. 21--Rate of First Name Use for Seven Student Teachers

TABLE 12

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
FIRST NAME

Behavior: First Name	Mean Rate/Min.		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	0	2.12	+2.12	
S 2	.03	2.38	+2.35	+7833%
S 3	0	1.55	+1.55	
S 4	0	2.10	+2.10	
S 5	0	1.62	+1.62	
S 6	.5	1.47	+ .97	+ 194%
S 7	.01	1.70	+1.69	+16,900%

Table 12 shows that a significant change occurred in the behavior of all seven subjects while Figure 21 shows that the intervention was the cause of the change.

Fig. 22--Rate of Instructional Feedback for Seven Student Teachers

TABLE 13

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
INSTRUCTIONAL FEEDBACK

Behavior: Instructional Feedback	Mean Rate/Min.		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	.6	3.46	+3.40	+566%
S 2	1.6	4.14	+2.54	+158%
S 3	1.1	3.30	+2.20	+200%
S 4	1.8	4.50	+2.70	+150%
S 5	1.3	2.10	+ .80	+ 61%
S 6	1.3	1.95	+ .65	+ 50%
S 7	1.1	4.10	+3.00	+290%

Table 13 shows that a significant change occurred in the behavior of six of the seven subjects. The change was caused by the intervention. Figure 22 supports this conclusion.

Fig. 23--Percentage of Instructional Feedback with Specific Information for Seven Student Teachers

TABLE 14

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
INSTRUCTIONAL FEEDBACK WITH SPECIFIC INFORMATION

Behavior: Instruction Feedback Specific Info.	Mean Percentage		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	29%	40.4 %	+11.4	+ 39%
S 2	21%	47 %	+26	+123%
S 3	30%	58.75%	+28.75	+ 95%
S 4	38%	56.25%	+18.25	+ 48%
S 5	45%	57 %	+12	+ 26%
S 6	33%	46.25%	+13.25	+ 40%
S 7	39%	54.40%	+15.40	+ 39%

Table 14 shows that a significant change took place in the behavior of all seven subjects. Figure 23 shows that intervention stabilized and maintained the behavior in subjects one, two, three, four, and seven.

Fig. 24--Rate of Group Interactions for On-Task Behavior and Skill Attempts for Seven Student Teachers

TABLE 15

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS
GROUP INTERACTION FOR ON-TASK BEHAVIOR OR SKILL ATTEMPTS

Behavior: Group Interactions for On-Task	Mean Number		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
S 1	1	4.6	+ 3.6	+360%
S 2	4	8.2	+ 4.2	+105%
S 3	2.8	10.5	+ 7.7	+275%
S 4	5.5	13.75	+ 8.25	+150%
S 5	1	10.25	+ 9.25	+925%
S 6	2.1	11.0	+ 8.9	+423%
S 7	3	13.6	+10.6	+353%

Table 15 shows that a significant change took place in the behavior of all seven subjects while Figure 24 shows that the intervention was the cause of the change.

Fig. 25--Percentage of Appropriate Pupil Behavior for Seven Student Teachers

TABLE 16

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS' CLASSES
APPROPRIATE CLASS BEHAVIOR

Behavior: Appropriate Class Behavior	Mean Percentage		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
C 1	94	96.2	+2.2	+2
C 2	94	99.2	+5.2	+5
C 3	95	99.5	+4.5	+4
C 4	95	97.5	+2.5	+2
C 5	92	94.25	+2.25	+2
C 6	85	93.75	+8.75	+10
C 7	95	98.6	+3.6	+3

Table 16 shows that a slight change occurred in the behavior of the pupils in all seven classes. These changes are not enough to be considered significant changes. Figure 25 offers little evidence that the intervention had any effect on the appropriate behavior of the classes.

Fig. 26--Percentage of Management Time for Seven Student Teachers

TABLE 17

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS' CLASSES
MANAGEMENT TIME

Behavior: Management Time	Mean Percentage		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
C 1	8	3.6	-4.4	-55%
C 2	6	5.4	- .6	-10%
C 3	10	4.5	-5.5	-55%
C 4	11	6.5	-4.5	-40%
C 5	7	4.25	-2.75	-39%
C 6	9	4.25	-4.75	-52%
C 7	8	3.6	-4.4	-55%

Table 17 shows significant changes in six of the seven classes. Figure 26 shows that the intervention was the cause of these changes.

Fig. 27--Percentage of Active Pupil Behavior for Seven Student Teachers

TABLE 18

RATE AND PERCENTAGE CHANGE FOR STUDENT TEACHERS' CLASSES
ACTIVE LEARNING

Behavior: Active Learning	Mean Percentage		Mean Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
C 1	66%	37.2	-28.8	-43%
C 2	59%	37.6	-21.4	-36%
C 3	56%	67.5	+11.5	+20%
C 4	53%	66.25	+13.25	+25%
C 5	48%	72.5	+24.5	+51%
C 6	47%	85.75	+38.75	+82%
C 7	73%	94.8	+21.8	+29%

Table 18 shows that a significant change occurred in five of the seven classes. Figure 27 shows that the intervention stabilized and maintained the behavior of four of the seven classes. Classes of subjects one and two were in a descending baseline and the differences between baseline and intervention can not be attributed to the intervention.

Fig. 28--Percentage of Appropriate Behavior for Pupil 'A' in the Classes of Seven Student Teachers

Fig. 29--Percentage of Appropriate Behavior for Pupil 'B' in the Classes of Seven Student Teachers

TABLE 19

TIME SAMPLING - RATE AND PERCENTAGE CHANGE
APPROPRIATE BEHAVIOR

Behavior: Appropriate Behavior	Mean %		Mean % Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
P 1-A	83.5	100	+16.5	+19%
P 1-B	91	100	+ 9	+ 9%
P 2-A	95.66	97.4	+ 1.74	+ 1%
P 2-B	96	83.6	-12.4	-12%
P 3-A	68.5	97.75	+28.25	+41%
P 3-B	100	100	0	0
P 4-A	93.5	96.75	+ 3.25	+ 3%
P 4-B	100	96.75	- 3.25	- 3%
P 5-A	60	70.50	+10.5	+17%
P 5-B	100	85.75	-14.25	-14%
P 6-A	75	81.25	+ 6.25	+ 8%
P 6-B	41.5	58.66	+17.16	+41%
P 7-A	87.5	100	+12.5	+14%
P 7-B	100	100	0	0

Figures 28 and 29 show that the intervention did not affect the appropriate behavior of these designated pupils. Table 19 shows that the majority of pupils "A" and "B" made slight increases in appropriate behavior.

Fig. 30--Percentage of Active Learning for Pupil 'A' in the Classes of Seven Student Teachers

Fig. 31--Percentage of Active Learning for Pupil 'B' in the Classes of Seven Student Teachers

TABLE 20

TIME SAMPLING - RATE AND PERCENTAGE CHANGE
ACTIVE LEARNING DURING ACTIVITY EPISODES

Behavior: Active Learning	Mean %		Mean % Increase Decrease	% Increase or Decrease
	Baseline	Intervention		
P 1-A	67.5	65.60	-1.9	-2
P 1-B	83.0	64.25	-18.75	-22
P 2-A	55.0	73.60	+18.60	+33
P 2-B	62.0	57.00	-5	-8
P 3-A	100.0	77.00	-23	-23
P 3-B	50.0	89.25	+39.25	+78
P 4-A	100.0	100.00	0	0
P 4-B	100.0	89.50	-10.50	-10
P 5-A	100.0	83.75	-16.25	-16
P 5-B	100.0	78.00	-22.00	-22
P 6-A	100.0	87.50	-12.50	-12
P 6-B	62.5	83.33	+20.83	+33
P 7-A	100.0	93.00	-7	-7
P 7-B	100.0	87.60	-12.4	-12

Table 20 shows that the majority of pupils "A" and "B" reduced the active learning time during activity episodes after intervention. Figures 30 and 31 show that the intervention did not affect the active behavior of these pupils.

Discussion of Behavior Profiles and the Rate and Percentage Change by Category .

Changes in all seven categories of teacher behavior occurred. These behavior changes in each of the seven categories were in the appropriate direction. Especially large changes occurred in the following categories: positive reactions for on-task behavior, percent of positive reactions for on-task behavior with specific information, first name rates, instructional feedback, percent of instructional feedback with specific information and group interactions relative to on-task behavior or instructional feedback. A smaller change also occurred in the negative reactions to off-task behavior category. This change was also in the appropriate direction. The changes in behavior for all categories were caused by the intervention. These changes appear to be significant changes in all categories except for the negative reactions to off-task behavior category. However, five of the seven subjects did decrease the number of these behaviors even though the decrease was small.

In the categories of pupil behavior as a class, changes in behavior did occur in all three categories. These changes were also in the appropriate direction. The multiple baselines show that the changes were caused by the intervention. In the appropriate/inappropriate pupil behavior category, the change was very slight and could not be called a significant change. In the majority of the

schools, the appropriate behavior of the pupils was quite high during baseline conditions and during intervention. It was obvious that some agent other than the student-teacher had an effect on the pupils' appropriate behavior. The second class behavior, management time, was reduced quite significantly in six of the seven subjects. The third category of class behavior was active learning during activity episodes. In five of the seven subjects a significant increase occurred. Classes of subjects one and two showed a drop in active learning because of the nature of the activities that they were required to teach. During baseline conditions, both subjects taught two group activities - the parachute and kickball. During baseline conditions, they were required to administer the American Association of Health, Physical Education and Recreation Fitness Test because of a school system requirement. A great deal of inactive pupil behavior occurred because of this testing.

The data for students "A" and "B" do not reflect any changes in appropriate or active behavior, it merely reflects a low attendance rate. These students were selected because they were noted for high rates of inappropriate and inactive behavior. It is obvious that they were probably also noted for high rates of absence. These data make it impossible to link changes in teacher behavior with changes in specific behavior of individual students.

During baseline conditions, all seven subjects reacted to off-task behavior in a negative manner, especially subjects five, six and seven. Subjects five and six taught in an inner-city school that had no physical education specialist, while subject seven taught in an upper class elementary school that did not have a physical education specialist. Subjects one, two, three and four emitted the lowest rates of negative reactions to off-task behavior. These four subjects all taught in upper class community elementary schools that had physical education specialists. One of these specialists seemed to emit high rates of positive reactions to on-task behavior or skill attempts. After intervention, six subjects decreased this behavior immediately and, in these subjects, the behavior slowly increased after the first initial drop.

Since the rates per minute of positive reactions to on-task behavior were very low during baseline, it was obvious that the percentage of positive on-task reactions with specific information would also be very low. After intervention, the data show that subjects became more sensitive to on-task behavior and gradually increased their rates and their percentages of specific information.

During baseline conditions, the rates of utilizing pupils' first names were affected in subject six because he asked the classroom teacher to make up name tags for the pupils. Subject five also used name tags for her

pupils but she did not show any increase of this behavior until after intervention. The remaining five subjects did not use name tags at any time. The data show a substantial increase in first name rates. Baselines for subjects four, five and seven were stable and low even though they had additional time to learn pupils' first names.

During baseline and intervention conditions the rate of instructional feedback was influenced by the subject's interest and ability in a particular activity. For example, subject four is very interested in hockey. During observation session ten, which was a floor hockey activity day, subject four emitted feedback at a rate of 5.5 per minute. Subject seven emitted a 5.7 rate per minute on a baseball skills day. She is very interested and capable in baseball.

The intervention seemed to have a stabilizing effect on the percent of instructional feedback with specific information. During baseline conditions, there seemed to be many high and low percentages and during intervention conditions, the highest percentage or near the highest percentage seemed to be stabilized or maintained.

The subjects' ability to interact with a group of pupils seemed to be influenced by the physical skills of the subject. Subjects seemed to interact more with a group when the activity of the session was such that the

subject had pretty good physical skills. For example, subject four had twelve group interactions on a floor hockey day, which is an activity that the subject has exceptional skills in and enjoys teaching.

Terminal Behavioral Objective Analysis

The following charts state the terminal behavioral objective under their respective modules. The charts present the mean baseline, the terminal goal, the maximum rate attained, the observation session on which the terminal goal was attained and the maintenance of the terminal goal for each terminal behavioral objective.

The terminal behavioral objectives that were based on the judgement of the experimenter and the cooperating teacher are found in the discussion section that follows the terminal behavioral objective analysis section.

The following are the charts for the TBO analysis:

TBO ANALYSIS

Interpersonal Relationships Module

1. The student teacher will emit a specific rate per minute of positive interactions relative to pupil behavior other than skill attempt.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S ₁	.02	No Goal	.5	_____	_____
S ₂	.02	No Goal	.6	_____	_____
S ₃	0	No Goal	.5	_____	_____
S ₄	0	No Goal	.6	_____	_____
S ₅	0	1.0	1.0	4th Session	4th Session
S ₆	.1	1.0	1.3	1st Session	1 of 3 Additional Sessions
S ₇	.01	No Goal	.6	_____	_____

No specific goals were set for subjects one, two, three, four and seven because of the high rates of appropriate pupil behavior during baseline conditions. Subjects were encouraged to emit positive reactions to on-task behavior and were told that if the appropriate behavior of the pupils begins to drop, then specific goals would be required.

TBO ANALYSIS

Interpersonal Relationships Module

2. The student teacher shall emit a specific ratio of positive to negative verbal or non-verbal interactions relative to pupil behavior.

	TBO $\bar{X}$ Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	1-2	2-1	5-0	2nd Session	3 of 3 Additional Sessions
S 2	0-3	2-1	7-2	1st Session	4 of 4 Additional Sessions
S 3	0-3	3-1	8-0	1st Session	3 of 3 Additional Sessions
S 4	1-3	3-1	9-1	1st Session	3 of 3 Additional Sessions
S 5	0-3.6	3-1	9-1	3rd Session	1 of 1 Additional Sessions
S 6	1-7	3-1	6-1	1st Session	2 of 3 Additional Sessions
S 7	0-5.5	2-1	7-2	1st Session	3 of 4 Additional Sessions

TBO ANALYSIS

Interpersonal Relationships Module

3. The student teacher will emit specific information in a specific percentage of all positive behavioral interactions.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	0	No Goal	33%	_____	_____
S 2	0	No Goal	50%	_____	_____
S 3	0	No Goal	100%	_____	_____
S 4	0	No Goal	50%	_____	_____
S 5	0	40%	60%	2nd Session	2 of 2 Additional Sessions
S 6	3%	40%	70%	1st Session	1 of 3 Additional Sessions
S 7	0	No Goal	70%	_____	_____

Again, no specific goals were set for subject one, two, three, four, and seven because of the high rates of appropriate pupil behavior.

TBO ANALYSIS

Interpersonal Relationships Module

4. The student teacher will initiate student contacts on a first name basis at a specified rate per minute.

	TBO $\bar{X}$ Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	0	2.0	3.3	1st Session	2 of 4 Additional Sessions
S 2	.03	2.0	4.0	2nd Session	2 or 3 Additional Sessions
S 3	0	2.0	2.1	4th Session	Final Session
S 4	0	2.0	2.6	2nd Session	1 of 2 Additional Sessions
S 5	0	2.0	2.6	3rd Session	1 of 1 Additional Sessions
S 6	.5	2.0	2.3	4th Session	Final Session
S 7	.01	2.0	2.5	3rd Session	2 of 2 Additional Sessions

TBO ANALYSIS

Management Module

1. The student teacher shall attain or maintain a specific percentage of appropriate pupil behavior during class time.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	94	95	100	1st Session	2 of 4 Additional Sessions
S 2	94	95	100	1st Session	4 of 4 Additional Sessions
S 3	95	95	100	1st Session	3 of 3 Additional Sessions
S 4	95	95	99	1st Session	3 of 3 Additional Sessions
S 5	92	95	100	4th Session	Final Session
S 6	85	95	99	2nd Session	0 of 2 Additional Sessions
S 7	95	95	99	1st Session	4 of 4 Additional Sessions

TBO ANALYSIS

Management Module

2. The student teacher shall spend no more than a specified percentage of class time in managerial activities.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	8	10	2	1st Session	4 of 4 Additional Sessions
S 2	6	8	2	1st Session	2 of 4 Additional Sessions
S 3	10	10	2	1st Session	3 of 3 Additional Sessions
S 4	11	10	3	1st Session	2 of 3 Additional Sessions
S 5	7	10	2	1st Session	3 of 3 Additional Sessions
S 6	9	10	3	1st Session	3 of 3 Additional Sessions
S 7	8	10	3	1st Session	4 of 4 Additional Sessions

TBO ANALYSIS

Management Module

3. The student teacher shall organize each class so that at least a specific percentage of the students are engaged in active learning during each activity episode.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	66	40	41	3rd Session	1 of 2 Additional Sessions
S 2	59	40	47	2nd Session	1 of 3 Additional Sessions
S 3	56	60	98	2nd Session	2 of 2 Additional Sessions
S 4	53	60	100	2nd Session	2 of 2 Additional Sessions
S 5	48	60	96	1st Session	2 of 3 Additional Sessions
S 6	47	65	95	1st Session	3 of 3 Additional Sessions
S 7	73	75	100	1st Session	4 of 4 Additional Sessions

Terminal goals for subjects one and two were set lower than the baseline rates because of the nature of the activities that were taught. During baseline, two group activities (parachute, kickball) were covered and after intervention, the AAHPER Fitness Test was administered. The cooperating teacher required the subjects to follow a specific format that required many pupil to be inactive.

TBO ANALYSIS

Instructional Feedback Module

1. The student teacher shall emit instructional feedback at a specific rate per minute.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	.6	3.0	3.9	1st Session	3 of 4 Additional Sessions
S 2	1.6	3.5	5.0	1st Session	4 of 4 Additional Sessions
S 3	1.1	3.0	4.0	1st Session	2 of 3 Additional Sessions
S 4	1.8	3.5	5.5	1st Session	3 of 3 Additional Sessions
S 5	1.3	2.5	3.6	4th Session	Final Session
S 6	1.3	2.5	2.9	4th Session	Final Session
S 7	1.05	3.5	5.4	1st Session	4 of 4 Additional Sessions

TBO ANALYSIS

Instructional Feedback Module

2. The student teacher shall emit specific information in a specific percentage of all instructional feedback.

	TBO $\bar{X}$ Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	29	40	50	3rd Session	1 of 2 Additional Sessions
S 2	21	45	51	1st Session	3 of 4 Additional Sessions
S 3	30	50	68	1st Session	2 of 3 Additional Sessions
S 4	38	50	68	1st Session	2 of 3 Additional Sessions
S 5	45	50	75	2nd Session	2 of 2 Additional Sessions
S 6	33	45	67	3rd Session	1 of 1 Additional Sessions
S 7	39	55	60	2nd Session	0 of 3 Additional Sessions

TBO ANALYSIS

Instructional Feedback Module

3. The student teacher shall direct instructional feedback and behavioral feedback toward the entire class or groups within the class a specific number of times per class.

	TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	1	6	9	3rd Session	2 of 2 Additional Sessions
S 2	4	8	17	2nd Session	1 of 3 Additional Sessions
S 3	2.8	10	13	2nd Session	1 of 2 Additional Sessions
S 4	5.5	12	18	1st Session	2 of 3 Additional Sessions
S 5	1	8	16	1st Session	2 of 3 Additional Sessions
S 6	2.1	8	16	1st Session	2 of 3 Additional Sessions
S 7	3	10	16	2nd Session	2 of 3 Additional Sessions

TBO ANALYSIS

School Policies and Procedures Module

1. The student teacher will demonstrate an awareness of school policies and procedures as demonstrated by carrying out such procedures during his tenure as a student teacher and by passing a written exam over the policies (See Appendix F).

TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	90%	100%	1st Attempt	
S 2	90%	100%	1st Attempt	
S 3	90%	100%	1st Attempt	
S 4	90%	100%	1st Attempt	
S 5	90%	100%	1st Attempt	
S 6	90%	100%	1st Attempt	
S 7	90%	100%	1st Attempt	

TBO ANALYSIS

Student Assessment Module

1. Based on student evaluation, the student teacher will demonstrate levels of behavior which will insure 70% of student responses in the "yes" category of a questionnaire.

TBO X Baseline	Terminal Goal	Maximum Rate	Goal Attained	Goal Maintained
S 1	70%	80%	1st Attempt	
S 2	70%	77%	1st Attempt	
S 3	70%	81%	2nd Attempt	
S 4	70%	80%	1st Attempt	
S 5	70%	73%	1st Attempt	
S 6	70%	74%	1st Attempt	
S 7	70%	73%	1st Attempt	

Discussion of Terminal Behavioral Objectives
Interpersonal Relationships Module

Five of the seven subjects were not given a specific rate per minute of positive interactions for pupil behavior other than skill attempts due to the fact that the appropriate pupil behavior was very high in their classes. However, all subjects were encouraged to praise appropriate pupil behavior and ignore inappropriate behavior if it was not disrupting the class. The two subjects that were given specific rates were quite different in their ability to attain the specific goals. Subject five very gradually increased her weekly rate and finally achieved the terminal goal on the last session. She had problems trying to focus on appropriate behavior. Subject six achieved his goal on the first session past intervention but was able to maintain the rate only once out of the following three sessions. A higher rate should probably have been set for subject six in order to force him to continually be sensitive to the behavior.

All seven subjects attained and maintained the specific ratios quite easily for the second TBO, which required a specific ratio of positive to negative behavioral interactions. It is interesting to note that all seven subjects had a baseline ratio that was higher on the negative side. The TBO ratio is somewhat questionable because of the ease in which almost all subjects attained it. Possibly, the ratio should have been set higher.

The third TBO refers to the percent of positive behavioral interactions with specific information. Again only two subjects had specific goals and these were easily attained. A better method for this particular TBO would be to require a specific rate per minute rather than a percentage because a specific rate per minute would not be affected by the general positive interactions. Then it would be clearer to see specific changes in this category.

The fourth TBO, which refers to first name contacts, seemed to have an adequate required rate. All subjects were able to attain the goal but most subjects needed two or three sessions to meet the goal.

All cooperating teachers seemed to agree that their particular student teacher was able to identify the teachers and administrators in that school. Subjects were encouraged to interact with the faculty members and administrators in order to improve relations and pick up teaching suggestions.

Management Module

The subjects were able to attain and maintain appropriate pupil behavior at the specified levels during baseline conditions in most cases. This pupil behavior was obviously under the control of agents other than the behavior of the subjects. This pupil behavior remained stable as the subjects' behavior was modified. It is impossible to link changes in subjects' behavior

to changes in pupil behavior for this category because very little change occurred in the pupil behavior.

The management time TBO is important in determining the subject's ability to manage. The terminal goal was easily attained and maintained; therefore, it is possible that the goal should have been lower.

The third goal, which pertains to the percent of students engaged in active learning during each activity episode, was important in making the subjects sensitive to active and inactive learning. This particular TBO is very hard to set a legitimate specific goal because of the presence of many variables such as the activity, the facilities, the methods of the cooperating teacher and the pupils.

The fourth and final goal was to make the pupils aware of the rules and regulations that govern the gymnasium. With all seven subjects, the experimenter and cooperating teachers agreed that these rules were spelled out in an acceptable manner.

Instructional Feedback Module

Five of seven subjects attained the first TBO on the first session after intervention. This implies that the goals may have been slightly low. The TBO was important for improving the subject as an agent of instructional feedback. This TBO forced the subjects to concentrate on providing the pupils with instructional feedback.

The second TBO focused on the percentage of instructional feedback with specific information. This was an attempt to improve the quality of the feedback. The problem that was encountered was that subjects maintained the percentage goal by emitting high rates of specific corrective feedback and very low rates of specific positive feedback. A better method may have been to use a ratio of positive to corrective feedback or to require a specific rate per minute of specific positive.

The third TBO was important in getting the subjects to interact more with the entire class or a group within the class. A better method for this type of a TBO would be to require the subjects to model the particular skills and corrections for the entire class. It seems that most beginning student teachers do not model, make corrections, or make suggestions to the entire class or a group within the class. Modelling is an important teaching behavior for physical education teachers because it provides pupils with a type of visual feedback.

School Policies and Procedures Module

All subjects were able to pass the written exam on the first attempt. The exam was probably too general and would have been better if an exam had been made for each particular school. However, the cooperating teachers seemed to think that each student teacher was aware of the policies and procedures and that each followed these procedures throughout the student-teaching experience.

Planning Module

The majority of subjects were able to hand in lesson plans one week in advance of the next observation session. In all cases, the lesson plans included explicit behavioral objectives that were judged to be adequate by the cooperating teacher and the experimenter. Subjects five and six were asked to devise and implement some specific contingencies relative to appropriate behavior for their class and for specific members of their class. It was judged by the cooperating teacher and the experimenter to have made a slight improvement in the behavior of their classes and the specific pupils even though the data do not reflect this statement.

Student Assessment Module

All subjects except one were able to attain the 70 percent criterion level on the first time the pupils were administered the questionnaire. The other subject attained the criterion level on the second attempt. Question eight was eliminated because of faulty construction.

The competency-based format with the terminal behavioral objectives was useful in holding the student teachers accountable for many aspects of teaching that are traditionally assumed to take place but in reality, they do not always happen. There is an obvious need to collect data on "good" teachers in various teaching situation. It is obvious that some of the TBO's in this study need to be revised and the terminal goals need to be investigated.

Other methods of consequence assessment need to be developed and tested. It is important to develop strategies that measure the amount of pupil learning that has taken place.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Research utilizing a competency-based approach is rare. Studies that have been completed seem to indicate that this approach is effective in changing teacher and pupil behavior. Additional studies must be completed in order to develop an empirical research base for the competency-based movement. Related research studies point out a variety of methods and procedures for changing teacher and pupil behavior. Other studies have been able to link changes in teacher behavior with changes in pupil behavior. However, a limited amount of research exists in the physical education literature. This type of research is needed to improve teacher training programs.

The purpose of this study was to determine the effects of a competency-based intervention on the behavior of seven elementary student-teachers and the pupils in their respective classes. The subjects, four girls and three boys, were all seniors majoring in physical education at The Ohio State University. The subjects were placed in four elementary schools located in urban and suburban Columbus, Ohio. Their placement in these schools followed

the normal placement procedures utilized by the chairman of student-teacher supervision.

Nine categories of teacher behavior and three categories of pupil behavior were observed during baseline and intervention conditions. Five three-minute intervals of event recording were used for observing teaching behaviors. Pupil behavior was observed by placheck observations, time sample observations and duration recording. After data were collected and converted to rates per minute or percentages, they were analyzed by a multiple baseline design.

The nine categories of teacher behavior were as follows:

- 1) positive reactions to on-task pupil behavior,
- 2) positive reactions to on-task pupil behavior with specific information,
- 3) negative reactions to off-task pupil behavior,
- 4) general positive instructional feedback,
- 5) specific positive instructional feedback,
- 6) general negative or corrective instructional feedback,
- 7) specific negative or corrective instructional feedback,
- 8) pupil contacts using the pupil's first name, and
- 9) the direction of verbal or non-verbal feedback.

The three categories of pupil behavior as an entire class were: 1) appropriate/inappropriate behavior, 2) active/inactive behavior, and 3) management time. Two designated pupils "A" and "B" were observed for appropriate/inappropriate and active/inactive behavior.

Cooperating teachers at each elementary school were used as part of the observation team. The cooperating teacher focused on pupil behavior while the supervising teacher (experimenter) focused on the teacher behavior. The cooperating teachers for four of the subjects were physical education specialists while the cooperating teachers for the other three subjects were elementary classroom teachers.

Intervention consisted of competency-based modules, instructions, cuing and reinforcement, graphic feedback and goal setting. The competency-based modules consisted of: a general goal, specific terminal behavioral objectives, definitions, learning methods, learning materials, assessment procedures and a reading sheet.

Three reliability checks were made on each subject and class in order to insure that no change took place in the observers' behavior. Teacher behavior reliability checks produced a ninety-five percent agreement for total number of events observed and ninety percent agreement for categorization of events. Placheck reliability for appropriate/inappropriate was ninety-eight percent and for active/inactive behavior it was ninety-eight percent. Time sampling reliability was ninety-nine percent for appropriate/inappropriate and ninety-six percent for active/inactive behavior.

Conclusions

Within the limits of this study, and as a result of analyzing data through the multiple baselines, the TBO analysis section and other techniques, the following conclusions were drawn.

- 1) The observation system that was developed from a competency-based format with explicit behavior objectives exerted a measure of accountable control over the behavior of seven student-teachers and the behavior of their classes that were observed. This conclusion is supported by the following data:
 - a) all seven student teachers made a significant increase in positive reaction behaviors to on-task pupil behavior;
 - b) six of seven student teachers made a significant increase in the percentage of positive reaction behaviors to on-task pupil behavior with specific information;
 - c) all seven student teachers made a significant increase in the percentage of instructional feedback behaviors with specific information;
 - d) six of seven student teachers made a significant increase in instructional feedback behaviors;

- e) five of seven student teachers made a significant reduction in negative reaction behaviors to off-task behavior.
- f) all seven student teachers made a significant increase in the use of pupils' first names;
- g) all seven student teachers made a significant increase in the number of group interactions for on-task pupil behavior and skill attempts by the pupils;
- h) all seven student teachers' classes made a slight increase in appropriate behavior while the student teachers' behavior was modified;
- i) five of the seven student teachers' classes made a large gain in the percentage of pupils engaged in active learning during each activity episode;
- j) all seven student teachers' classes decreased the percent of class time engaged in managerial activities;
- k) all seven student teachers' handed in acceptable lesson plans prior to the observation session;
- l) all seven student teachers made their classes aware of the rules and regulations of the gymnasium.

- m) all seven student teachers learned the last names and grade levels taught by fellow teachers and administrators;
- n) all seven student teachers gained some knowledge about the policies and procedures of their respective schools and followed these procedures in their daily teaching.

Recommendations

This study offers no evidence as to whether the changes in student-teachers' behavior would persist into the student-teachers' junior high or senior high school student teaching experience. It would be interesting to see if these behaviors did indeed carry over to the higher level of teaching. Another area of study needed is to see if these behaviors would persist into the student-teachers' first and following years of teaching.

Developing different strategies and methods for measuring pupil learning is another area that needs concentration. The ultimate measure of success for a teacher is getting their pupils to learn. Perhaps such strategies as counting the number of performance objectives completed or measuring the amount of productive time of the pupil would be possibilities for research.

Since the research literature does not offer any recommended rates of behavior for "good" teachers, it is important that studies begin to develop and compile

mean rates of behavior for "good" teachers in specific situations. It would be interesting to carry out this observation system and compute rates per minute and percentages for a number of experienced teachers that are considered successful by our traditional standards. It would be useful to carry out this study in varying school systems throughout the community and then compare the rates per minute, ratios and percentages.

The experimenter feels that future studies utilizing a competency-based format with terminal behavior objectives should experiment with behavior objectives that are expressed as rates per minute rather than percentages. The behavior objectives with percentages as terminal goals provide more than one way to reach the goal. Sometimes the way used to reach the goal was not the intention of the experimenter. For example, specific rates per minute should be required for positive specific instructional feedback and negative specific instructional feedback.

Future studies that utilize a competency-based format with specific terminal behavioral objectives also need to make the terminal behavioral objectives more complex in the areas that were easily attained in this study. For example, student-teachers could be required to maintain specific rates of non-verbal feedback as well as verbal feedback. Student-teachers could also be required to emit positive reactions to a variety of student cues.

Perhaps, another competency would be to require student-teachers to use verbal and non-verbal feedback to effect specific changes in target behaviors of designated students. It is important for future terminal behavioral objectives to be both challenging and discriminating for student-teachers.

Of the five cooperating teachers in this study, two were physical education specialists while three were elementary classroom teachers. No differences appeared to exist in their attitudes relative to this new approach of supervision. All cooperating teachers were very dependable and interested in this method. All teachers admitted to having little information about competency-based teacher education. Some teachers found positive approaches to controlling student behavior contrary to their philosophy. It appears that in-service training would be useful in improving the cooperating teachers concepts of competency-based teacher education. The value of the observation format which calls for a cooperative effort between the university supervisor and the cooperating teacher relative to the improvement of the student-teacher appears to have merit for use in the future.

Student-teachers explained that they felt quite anxious about their teaching during baseline conditions when no feedback was provided. They explained that they were not sure if they were teaching in the manner that

the supervisor expected. Other possible methods of observation such as peer observation or videotape analysis could be used to lessen the anxiety of the student-teachers.

Continued efforts to determine the desired competencies of elementary physical education teachers must be maintained in order to provide the proper direction for teacher trainees during the student-teaching experience.

APPENDIX A
TIME SAMPLING AND PLACHECK
OBSERVATION SHEET

TIME SAMPLING OBSERVATION SHEET

PLACHECK OBSERVATION SHEET

Student Teacher _____ Date _____

Time _____ Observer _____

Number in Class _____ Activities _____

Student A _____

(name)

Student B _____

(name)

	1	2	3	4	5	6	7	8
Placcheck - Appropriate/ Inappropriate								
Placcheck - Active/ Inactive								
Student A								
Time Sample - Appropriate/ Inappropriate								
Student B								
Student A								
Time Sample - Active/ Inactive								
Student B								

APPENDIX B
EVENT AND DURATION RECORDING
OBSERVATION SHEET

Student Teacher _____ Date/Time _____
 Class _____ Observer _____

Activities	1	2	3	4	5	6	Total
1) (+) Behavior General							
2) (+) Behavior Specific							
3) (-) Behavior							
4) (+) Skill Attempt General							
5) (+) Skill Attempt Specific							
6) (-) Skill Attempt General							
7) (-) Skill Attempt Specific							
8) First Name Use							
Managerial Episodes	1.	2.	3.	4.	5.	6.	
	7.	8.	9.	10.	11.	12.	

Marking 1 = Individual
 0 = Group, Entire Class, Squad, Row

APPENDIX C
INTERPERSONAL RELATIONSHIPS MODULE

Interpersonal Relationships Module

Goal - To enable the student-teacher to develop the skills of positive interaction to enhance his or her personal relations with students in order to establish an environment conducive to learning.

Terminal Behavioral Objectives

The specific rates for each of the following TBO's will be determined by baseline observations.

1. The student-teacher will emit a specific rate per minute of positive interactions relative to pupil behavior other than skill attempts.
2. The student-teacher shall emit a specific ratio of positive to negative verbal or non-verbal interactions relative to pupil behavior other than skill attempts.
3. The student-teacher will emit specific information in a specific percentage of all positive behavioral interactions.
4. The student-teacher will initiate student contacts on a first name basis at a specified rate per minute.
5. The student-teacher will be able to identify the last names and grade level of certified teachers and administrators in the school at a criterion level established by the supervisor.

Definitions

1. Interactions - all verbal and non-verbal teacher pupil communications. These communications could be positive or negative.
2. Positive interactions - all positive verbal and non-verbal teacher reactions to pupil behavior other than skill attempts. Examples would include:
 - a. Thanks for paying attention to my demonstration.
 - b. Squad three really has a straight line
 - c. Nice job of getting quiet after the whistle.
3. Negative interactions - all negative verbal and non-verbal teacher reactions to pupil behavior other than skill attempts. Examples would include:
 - a. Squad three is really noisy
 - b. Be quiet, Jim
 - c. If this class does not stop fooling around, then you will be sent back to the classroom.

4. Behavior - refers to the things people do; e.g. talking, kicking, going to school, reading.
5. Appropriate behavior - any pupil behavior that is considered to be contributing to the educational environment other than skill attempts. Examples would include:
 - a. Carrying out directions quickly.
 - b. Maintaining eye contact with the teacher when the teacher is demonstrating
 - c. Putting away or getting out materials at the request of the teacher
6. Inappropriate behavior - any pupil behavior that is considered to be detracting from the educational environment. Examples would include:
 - a. Talking during a teacher demonstration
 - b. Failure to carry out directions
 - c. Pushing a classmate while standing in line.
7. General verbal interaction - all vague or unprecise spoken teacher reactions to pupil behavior. These reactions could be positive or negative. Examples of positive:
 - a. Nice going, John
 - b. Squad three is really doing a good job
 - c. Row two looks good
 Examples of negative:
 - a. That is terrible, Joe
 - b. Not very good, Cindy
 - c. The class is pretty bad today
8. Specific verbal interaction - all precise or explicit spoken teacher reactions to pupil behavior. These reactions could be positive or negative. Examples of positive:
 - a. John is paying close attention to me
 - b. Row two has a very straight line
 - c. The class entered the gym very quietly
 Examples of negative:
 - a. Stop talking to your partner, John
 - b. Row three was the last to get quiet
 - c. Get in line right now, girls
9. Nonverbal interaction - all nonspoken teacher reactions to pupil behavior. These reactions could be positive or negative. Examples of positive:
 - a. Making an okay sign with the thumb
 - b. Patting a pupil on the head
 - c. Putting an arm around the shoulder of a student for appropriate behavior
 Examples of negative:
 - a. Staring at a pupil and shaking your head sideways
 - b. Pointing a student back to the end of a line
 - c. frowning at the entire class
10. Student contacts - all verbal teacher pupil communications. Examples:

- a. Calling on a pupil to answer a question
- b. Giving a pupil some skill attempt feedback
- c. Giving a pupil some behavioral feedback

Learning Activities

1. Read module reading sheet Interpersonal Relationships.
2. Read reference book pages 51-55, 68-69, 71-73, 82-90, 156-168.
3. Listen to audio tape on interpersonal relationships.
4. Observe video tapes of a teacher and look specifically for positive and negative interactions.
5. Tape one of your own classes and record your interactions with students.

Learning Resources

1. Reading sheet for Interpersonal Relationships Module.
2. Rushall, B. and Siedentop, D., The Development and Control of Behavior of Sport and Physical Education, Lea and Febiger, Philadelphia, 1972.
3. Audio Tape for module #3 located in The Applied Behavior Analysis Resource Center, Pomerene, Room 312.
4. Video tape for Module #3 located in The Applied Behavior Analysis Resource Center, Pomerene, Room 312
5. Tape recorder and recording sheet.

Assessment

Weekly observation sessions by the cooperating teacher and supervising teacher. Also periodic observation sessions by the cooperating teacher.

Reading Sheet
Interpersonal Relationships
Techniques

Introduction

The interpersonal relationships between a teacher and a student are important to learning. These relationships play a prime role in creating the environmental atmosphere in which students spend most of their school time. An atmosphere that is conducive to learning will help to insure more student learning. Since students tend to repeat those experiences that are pleasing to them and avoid those that are not, you as a teacher should strive to make the atmosphere as pleasant as possible. Many times beginning teachers take this aspect of teaching for granted and assume that students will always be motivated and interested in bettering their personal physical education skills. This is evidenced many times in teachers who become annoyed with students who do not have a high interest level in some activity skill development. It does not just happen, we help to plan for it. Interpersonal relationships with other faculty and administrators is also important. Conversations and contacts with them are very helpful in providing you with more information about the children in your school. This information should be of some help in planning and teaching your classes.

This module will show you ways to help create an environment that should enable you to have personal contact with a large percentage of your class, focusing on positive interactions in order to develop high student interest and also appropriate student behavior. Interaction with other school faculty and administrators will also be stressed to help you strengthen your involvement as a teacher.

Goals

Goal #1. As mentioned before, pupils tend to repeat experiences that are pleasing to them. One way to make learning enjoyable for students is to compliment them when they are performing well. In this goal you will raise your rate per minute of positive interactions in an effort to help create a good climate for learning and also to force you to interact more with your students. Many beginning student-teachers do not interact enough with their students and learning is very difficult without interaction.

Goal #2. This second goal refers to the positiveness or negativeness of how you relate to students in regard to their behavior. Do you spend lots of time criticizing bad behavior or do you compliment students when they are behaving well? You will be required to have a specific ratio here in order to meet the goal.

Goal #3. The third goal will require you to be specific in your positive behavioral interactions. For example, telling a class that they are decreasing the amount of time it takes them to get quiet after the whistle and that this will mean they have a chance to learn more skills. An unspecific example of the above situation would be telling the class they are behaving better.

Goal #4. Learning student's names can sometimes be troublesome but we feel that this is important in creating optimum conditions. You will be required to obtain the attentions of a student by calling him or her by their first name at a specific rate per minute.

Goal #5. In this goal the supervising teacher and cooperating teacher will assess your knowledge of other school faculty and administrator's last names. The degree of your interaction with other school personnel will closely approximate your ability to remember the names of these people. Therefore get involved right from the start and get to know as many people in the school as possible.

The attainment of these goals should have some important effects on your physical education class. First, there will be a shift in your verbal and non-verbal behavior from negative to positive, thus improving the atmosphere of the teacher-pupil relationship. Evidence suggests that positive reinforcement is considered a very effective means of increasing and maintaining appropriate class behavior. Positive reinforcement has demonstrated the ability to increase the probability of occurrence of behavior. Second, since attention often serves as a positive reinforcer, the focus of attention on appropriate behavior should increase the rate of that behavior and reduce the rate of inappropriate behavior. Third, the use of pupil's first name should also improve the atmosphere of the class and should also improve your relationships to your students. Fourth, your interaction with other school faculty and administrators should provide you with added knowledge that should make your teaching more effective.

Specific Techniques Used to Reach Each Goal

1. Have a clear understanding of the definitions used in the goals stated above. Read the references, view the available video tapes,

- view your own tapes, or ask your supervising teacher to clear up any definitional problems.
2. Plan your class adequately so that the students are all active. This should eliminate students standing around with an opportunity for inappropriate behaviors. Specific terminal behavioral objectives for each student should help. Let each student know what is expected of him or her.
 3. Use name tags on adhesive tape, taking roll in a prescribed place on the gymnasium floor, or some other method to learn your student's first names. For the first few days don't be hesitant in asking students their name.
 4. Go to faculty meetings, sit with other faculty during lunch, introduce yourself to faculty and administrators you do not know, ask your cooperating teacher the names and positions of unfamiliar school personnel.

Teacher Responsibilities

This module refers to teacher initiated actions that will help to provide a better learning environment. So remember that you as the teacher must initiate the changes. Think positive! Try to force yourself to look at the behaviors in class that are appropriate. When the class, a specific subset of the class, or an individual responds appropriately, be sure to add some positive verbal feedback. Do not overdo it. Do not be phony. Do not underestimate the effects of some simple and sincere words of appreciation. For example, complimenting a class on how well they behaved during class will help to provide an environment where the good behavior may occur more often. Students usually tend to behave appropriately if there is some reason to behave this way. Your positive verbal feedback may be all that is needed to help lower class inappropriate behavior.

Become familiar with the names of your students, other faculty and administrators, interaction with those you come in contact with provide worthwhile information to help you be more effective in your teaching.

APPENDIX D
MANAGEMENT MODULE

Management Module

Goals - to enable the student teacher to:

1. Maintain appropriate pupil behavior through positive interactions.
2. Increase the probability that pupils will respond quickly to teacher directions.
3. Reduce the total time that pupils spend getting organized, changing activities and terminating activities.
4. Reduce the number of teacher managerial behaviors while maintaining adequate organizational control.
5. Involve a high percentage of pupils in active learning.

Terminal Behavioral Objectives - The specific rates for each of the following TBO's will be determined by baseline observations.

1. The student teacher shall attain or maintain a specific percentage of appropriate pupil behavior during class time.
2. The student teacher shall spend no more than a specific percentage of class time in managerial activities.
3. The student teacher shall organize each class so that at least a specific percentage of the students are engaged in active learning during each activity episode.
4. The student teacher shall make all pupils aware of the rules and regulations that govern the physical education class (i.e., listen to the teacher during explanations or quiet when the whistle blows). The cooperating and supervising teacher will judge the performance of the student teacher relative to this TBO.

Definitions

1. Appropriate Behavior - any pupil behavior that is considered to be contributing to the educational environment other than skill attempts. Examples would include:
 - a. Carrying out directions quickly
 - b. Maintaining eye contact with the teacher when the teacher is demonstrating.
2. Inappropriate Behavior - any pupil behavior that is considered to be detracting from the educational environment. Examples would include:
 - a. Talking during a teacher demonstration
 - b. Failure to carry out directions

3. Managerial Activities - this refers to all events needed to get organized for the first class activity, to change from one activity to another, or to end a final activity and leave the gymnasium or playground.
4. Managerial Episode - the cumulative time from the beginning of a student teacher initiated managerial behavior to the beginning of the next pupil activity.
5. Active Learning - refers to actual physical involvement in the activity that is appropriate activity of the class. Examples would include:
 shooting, dribbling, passing, catching
 (Basketball)
 passing, setting, spiking
 (Volleyball)
 working on a balance beam, spotting
 (Gymnastics)
6. Activity Episode - the cumulative time from the beginning of an active learning period to the teacher initiated behavior that ends the period.

Learning Activities

1. Read Management Module Reading Sheet
2. Read the article by Siedentop, Rife and Boehm, "Modifying the Managerial Efficiency of Student Teachers in Physical Education."
3. Practice in a live setting or with a video tape using the coding format for managerial efficiency.

Learning Resources

1. Management Module Reading Sheet
2. Siedentop, Rife, Boehm, "Modifying the Managerial Efficiency of Student Teacher in Physical Education".
3. Coding format and video tapes available in Applied Behavior Analysis Resource Center, Pomerene, Room 312.

Assessment

1. Weekly observation sessions by cooperating and supervising teachers.
2. Periodic observations by cooperating teacher.

Reading Sheet

Class Management Techniques

Introduction

The techniques of class management utilized by a teacher will indirectly influence the amount of learning that takes place in the class. If students are allowed to spend large amounts of time for getting organized and changing activities, then obviously, they are spending less time participating and practicing physical education skills. Teachers must devise and utilize class management strategies that motivate students to organize and change activities as quickly as possible so that more time is available for participation and instruction. If the teacher can reduce the number of managerial behaviors to a minimum, then students will begin to manage themselves without teacher cues. The ideal situation would be for the class to change activities as quickly as possible with only one managerial behavior emitted by the teacher.

Since students tend to repeat those behaviors which provide them with some type of positive reinforcement, teachers must focus positive verbal and non-verbal interactions for appropriate managerial and classroom behaviors of the students. Teachers must force themselves to reward students who are following directions quickly, standing quietly in line, rotating positions quickly and paying attention to demonstrations by the teacher. Evidence suggests that positive interactions are considered a very effective means of increasing and maintaining appropriate class behavior.

Goals - Terminal Behavioral Objectives

1. Appropriate pupil behavior should be attained and maintained by using positive verbal and non-verbal interactions at a specific rate per minute. If normal verbal means does not bring the class to the specified level, then the use of a group behavior game or individual student contracting (Planning Module) may be used.
2. Classes must be planned in such a manner that a specific percentage or less of the class time is spent on managerial activities. The reduction of time per managerial episodes will encourage self management in the pupils. Teachers can then spend more time for instruction and feedback which seems to be more valuable to pupil learning.
3. Classes must be planned in a manner that enable a high percentage of the pupils to be involved in active learning. Pupils learn very little while standing in line and watching from the sidelines.

4. Explicit explanations of all rules that pupils are to follow will let the pupils know exactly what is expected of them. The student teacher must be consistent in enforcing these rules.

The accomplishment of these goals should have some important effects on your physical education class. First, there should be an increased rate of appropriate pupil behavior which should be pleasing to you as the teacher. Second, less time will be spent on managerial activities which should free you to instruct more and provide more feedback. Third, pupils should begin to manage themselves. And fourth, more pupils will become involved in active learning which should be pleasing to them.

Specific Techniques used to Reach Goals (Siedentop:
OSU:HPER:10/24/73)

1. The first activity for the day and the organization for that activity should be written and placed so that students can look at it when they enter the gym and proceed to carry out the instructions. The teacher should have predesignated a "starting time" for the class. This "starting time" should be such that students have sufficient time to get dressed and get organized, but should be soon enough after the official beginning time that the efficient student doesn't have to sit around waiting. The "starting time" will remain constant for each class even though the first activity may vary daily. The rule for this aspect of the project should be: "By 9:28 the students will be at their assigned places, quiet and attentive to the teacher for the first instruction of the day". If the entire class meets this criterion, they will earn 2 minutes of "free time" at the end of class.
2. A signal for class attention should be developed (a whistle is probably the easiest signal to use). When the class hears this signal, they should immediately stop what they are doing and be attentive to the teacher for instruction. If the entire class is quiet within 5 seconds of the signal (i.e., five seconds after the whistle is blown) they earn 1 minute of "free time" for each such response.
3. Changing activities during the class period should proceed quickly and smoothly. The teacher, having given the signal for attentions, should state clearly and fully the next organizational pattern. Students should not begin to change activity until

all instructions are given and the teacher gives a verbal signal (o.k., let's move!). Once the "go" signal has been given, the students should move to the new organizational pattern and be quiet and attentive for further instruction. If they complete this "reorganization" within 20 seconds of the "go" signal and are quiet and attentive, they earn 1 minute of "free time" for each such reorganization.

Teacher Responsibilities

1. This is a group contingency. There is a group criterion for each part of the game. If one of the students is not meeting the criterion, the "minute" is not won. You must be stringent in your application of the criterion. Group pressure will quickly bring any consistent "offenders" under control. You are not helping the students by giving them a break on the rules. BE CONSISTENT!
2. Time each organization episode and each group response to your attention signal. First report if the minute of free time was won or not won. Make sure to keep a record of the accumulated free time won during each class. Do not use verbal prompts (hurry, let's go, you're going to be late, etc.). This is precisely the kind of control we want to eliminate. Do not react negatively beyond reporting that a point was not won. Don't hassle them! Let the "game" develop.
3. Whenever the class responds appropriately (whenever they have won some free time) be sure to add some verbal reinforcement. This can be done with individuals, small groups, or the class as a whole. Try to vary the object of the reinforcement and the words used.

Way to go, Harry!
Squad 3 was terrific

Don't overdo it. Don't be phony. Don't underestimate the effects of some simple and sincere words of appreciation.

4. Watch the clock so the "free time" can begin on time.
5. Use the "free time" to interact with your students in a little different way. This is an opportunity to get out of the "instructor" role. This

doesn't mean that you can't do some teaching if the opportunity arises, but let it be student initiated. Play with them! Have fun with them!

Free Time Procedures:

1. State clearly the rules that exist during free time, i.e., no fighting or hassling, one at a time on apparatus, etc.
2. Free time activities should offer some choice, but be sufficiently limited that mayhem does not ensue.
 1. Play basketball
 2. Further work on apparatus or mats
 3. Sit in stands and talk

Summary

Some groups may earn a lot of free time. Don't worry. You have seen how much time was previously spent in management activities. You are getting as much or more instructional-activity time plus the benefit of the free time activity. Some time you might want to use the free time to teach a particularly intriguing skill to those who want to learn. You can announce this and then let those who want to learn the skill gather around during the free time period. In this way you can begin to create a situation where learning is considered to be a reward activity.

APPENDIX E
INSTRUCTIONAL FEEDBACK MODULE

Instructional Feedback Module

Goal - to enable the student teacher to emit a high rate of instructional feedback that contains specific information and is directed toward specific pupils in the class.

Terminal Behavioral Objectives

The specific rates for each of the following Terminal Behavioral Objectives will be determined by baseline observations.

1. The student teacher shall emit instructional feedback at a specific rate per minute.
2. The student teacher shall emit specific information in a specific percentage of all instructional feedback.
3. The student teacher shall direct instructional feedback toward the entire class or groups within the class a specific rate per session.

Definitions

1. Instructional Feedback - this refers to all student teacher verbal or non-verbal reactions to an appropriate skill attempt by a pupil. These reactions could be positive or negative which would include corrective feedback. Examples of positive instruction feedback include:

1. "Nice forward roll, Jim!"
2. "Mike, good job keeping your eyes on the defensive tackle."
3. "Beautiful work by both linebackers."

Examples of negative or corrective feedback:

1. "Larry, stay in your tuck longer."
2. "That is poor defense by team A."
3. "This class seems to be dribbling the ball too high."

2. Specific information in Instructional Feedback - this refers to precise or explicit information within the instructional feedback.

Examples would include:

1. "Way to grab your knees in that forward roll, Mike."
2. "Jim, that is perfect hand position on the hockey stick."

3. "Keep your left arm straight during the swing."

Examples of general information would include:

1. "Good shot, Mary."
 2. "Larry, you can dribble better than that."
 3. "Nice job, class."
3. Specific Individuals - this refers to any one pupil in the class.

Learning Activities

1. Read Instructional Feedback Module Reading Sheet.
2. Read Reference Book - pp. 204-207, pp. 55-62.
3. Tape record your instructional feedback for one class period and count the number of positive and negative (corrective) instructional feedbacks.
4. Count and record instructional feedback emitted by another teacher in a live teaching situation.

Learning Resources

1. Instructional Feedback Module Reading Sheet.
2. Siedentop, D. and Rushall, B. Development and Control of Behavior in Sport and Physical Education. (Philadelphia: Lea and Febiger, 1972).

Assessment

1. Weekly observation sessions by cooperating and supervising teachers.
2. Periodic observations by cooperating teacher.

Reading Sheet

Instructional Feedback

Introduction

There is evidence to suggest that positive instructional or information feedback will often serve as positive reinforcement for pupils. (Siedentop and Rushall, 1972). It has already been mentioned that positive reinforcement has demonstrated the ability to increase the probability of occurrence of a behavior (Skinner, 1953). Since student teachers are interested in motivating pupils to repeat certain physical education skill attempts, then student teachers must provide pupils with some positive instructional or information feedback. Positive instructional feedback is therefore a very important teaching behavior that must be increased and maintained. When pupils are attempting physical education skills, student teachers must provide them with some simple positive verbal instructional feedback. Student teachers must force themselves to focus on pupil's skill attempts and to provide the needed positive instructional feedback.

Some type of negative instructional or information feedback, especially in the form of corrective feedback, is very important to the process of learning. As the skill level of the performer goes up, the value of corrective feedback also seems to rise. It is certainly important for student teachers to correct the common errors that pupils are making during their skill attempts. However, it is also important for a student teacher to have some sort of a balance between positive and negative instructional feedback. It is not good for a student teacher to focus only on the aspects of a skill attempt that needs to be corrected because it is also important to provide feedback relative to the aspects of a pupil's skill attempt that are already correct.

Goals - Terminal Behavioral Objectives

1. This goal simply refers to the rate per minute that you emit instructional feedback. Obviously, activities must be planned so that you are able to emit the specified rate per minute. You must be thoroughly prepared to emit both positive and corrective instructional feedback.
2. This goal requires you to include specific information in a certain percentage of your instructional feedback. General feedback is important in learning but evidence seems to

suggest that specific feedback is more important than general information feedback.

3. This goal refers to the direction of your instructional feedback. Is your feedback directed towards the entire class, a small subset of the class, or specific individuals in the class? you must make sure that you are providing feedback for all individuals in the class. Some student teachers seem to direct all of their feedback toward the highly skilled or the low skilled and they seem to neglect the large majority of average skilled pupils in the middle of the class. Some student teachers also seem to direct feedback toward the boys only and seem to neglect the girls. Be sure that you are directing your feedback to all individuals in the class.

The accomplishment of these goals should have some important effects on your physical education class. First, pupils should become more motivated to learn and improve physical education skills. Second, pupils should have more time for learning additional skills that are meaningful to them. And third, all pupils in the class should feel that the student teacher is interested in helping them to improve their physical education skills and is providing them with some successful experiences.

Specific Techniques Used to Reach Each Goal

1. Have a clear understanding of the definitions and examples previously mentioned in the above goals. Read the reference book, tape record your instructional feedback and record the instructional feedback emitted by another teacher. Ask your supervising teacher to clear up any definitional problems.
2. Plan your class activities adequately so that you will be able to emit high rates of instructional feedback. You should be able to walk around the gymnasium or playfield and emit the specified rate per minute of feedback.
3. Write down the specific teaching points and common errors for each of the day's activities. Learn these points and errors so that you can observe them in your pupils' attempts. When a pupil makes a skill attempt, provide him with some instructional feedback. Point out the aspects of the skill that they are performing correctly and also the aspects that are being performed incorrectly.

4. Try to provide your feedback for specific pupils in the class. Do not always provide the feedback for a group or the entire class unless there is some feedback necessary for the entire class or some subset. Try to provide feedback for all levels of the class (i.e., high skilled, average skilled, low skilled).

Teacher Responsibilities

The importance of instructional feedback in the learning process has already been mentioned. You must plan and organize the learning activities so that instructional feedback is provided for the pupils. You must know how, when and where to provide the feedback. Remember, this is your responsibility. If you have any problems in understanding what you are required to perform, be sure to ask your supervising or cooperating teacher.

APPENDIX F
SCHOOL POLICIES AND PROCEDURES MODULE

SCHOOL POLICIES AND PROCEDURES MODULE

Just as you expect your students to carry out procedures you have established in your classes, policies must be maintained for organizational functions within the entire school, including those governing the teachers. Part of the anxiety brought about by the student teaching experience is due to the student teacher's lack of awareness regarding the policies he is to follow in certain situations.

This module is designed to help you become acquainted with some of these procedures. It is assumed that this awareness will make you a more effective and better-organized teacher. What if a student becomes injured in your class? What if you become ill or your car breaks down on the way to school? Answers governing your behavior relative to such incidences are important for normal functions within the school to continue. Your mastery of the TBO's will prepare you to pass the criterion level required for the written examination and, more importantly, to respond appropriately when certain situations arise.

Goal - to enable the student teacher to become aware of and carry out those policies, rules and procedures which are necessary for the normal occurrence of organizational processes within the school setting.

Terminal Behavioral Objectives

1. The student teacher will demonstrate an awareness of school policies and procedures as demonstrated by carrying out such procedures during his tenure as a student teacher and by passing a written exam over the following policies: (See assessment criteria)
 - a. Teacher attendance
 - b. Teacher dress regulations
 - c. Teacher tardiness
 - d. Guidance Office - reviewing pupil records
 - e. Discipline and corporal punishment
 - f. Pupil excuses and pupil tardiness
 - g. Hallway passes
 - h. Fire drills
 - i. Bomb Threats
 - j. Unusual weather conditions - school closings
 - k. First aid and injury
 - l. Grading
 - m. Smoking; pupil-teachers

Learning Activities and Resources

1. Visit with other teachers and administrators to ascertain these policies.
2. See if your school has a "Policies Book" for teacher use.
3. Talk to the guidance counselors regarding procedures in their office
4. Talk to students to become aware of their concepts of school rules.
5. Discuss grading procedures with your cooperating teacher in order to be consistent with his philosophy and that of the school.
6. Talk with the school nurse regarding absence and injury procedures and legitimate student excuses for not participating in physical education.

Assessment

- A. Throughout student teaching there will be informal assessments by the cooperating teacher to determine if the student teacher is following rules and procedures.
- B. At the end of the first week of student teaching, a short written examination covering specific areas relating to the school policies and procedures listed above will be taken. Criterion for passing is 90%. The test must be passed at the criterion level prior to the second week of student teaching.

School Policies and Procedures

Examination

1. Describe the procedure you are to follow when you are unable to report to school due to illness or emergency.
2. If your class is in the locker room dressing or on the gymnasium floor changing from shoes to sneakers, what procedure would you follow if a fire drill begins?
3. In order to review pupil records in the guidance office, what procedures should be followed?
4. What procedures would you follow if you were having trouble starting your car or, for some other reason, you were going to be tardy?
5. Does this school allow corporal punishment. What is the procedure? What are your limitations as a student-teacher?
6. If a pupil reports to class ten minutes late, what procedure should you follow as the teacher of that class?
7. If an injury such as an apparent broken arm or serious laceration occurs in your class, what procedures should you follow?
8. What is the school policy relative to teacher dress and appearance? Does the policy differ for the physical education teacher?
9. If a discipline problem erupts in class that you feel you cannot manage, what procedure should be followed?
10. List the starting time and ending time for each day you are scheduled to teach.

Passing Criterion - 9 out of 10 correct responses

APPENDIX G
PLANNING MODULE

Planning Module

Goal - to enable the student teacher to plan for lessons which include explicit performance criteria for students and to cope with individual and total class behavioral problems.

Terminal Behavioral Objectives

1. The student teacher will hand in copies of lesson plans one week in advance, i.e., on the day he is observed, which will meet the criterion level established by the supervisor and cooperating teacher.
2. The student teacher will include explicit behavioral objectives as part of the lesson plans which satisfy the criteria established by Mager or an additional approved authority.
3. The student teacher will devise and implement behavior games and strategies for use with total class and individual inappropriate behavior resulting in significant improvement in appropriate behavior, including:
 - a. Individual and class contracting
 - b. Extinction

Definitions

1. Behavioral objective - a statement which communicates the intention of the teacher as to what the learner will do to demonstrate his achievement. The objective states a terminal performance, the conditions under which the performance will occur, and the criterion for successful completion of the performance.

Examples Include:

1. By dropping the ball from his hands, the student will kick 4 out of 5 balls that land within boundaries at a minimum distance of 40 feet.
 2. Given a diagram of a tennis court, the student will correctly label all the court markings.
 3. While standing in four feet of water, the student will submerge and correctly count the number of fingers his partner extends.
-
2. Lesson plans - a detailed guide to teacher and student behaviors which will occur during a single class meeting. It refers to teacher-student interaction, management methods, equipment

needed to carry out instruction and objectives to be accomplished. Generally, the lesson plan details the means by which learning activities are established and carried out. (See suggested lesson plan)

3. Behavior - things that people do such as walking, talking, reading, etc.
4. Appropriate behavior - any pupil behavior that is considered to be contributing to the educational environment in other than skill attempts.

Examples include:

1. Carrying out directions quickly.
2. Maintaining eye contact with the teacher when the teacher is demonstrating.
3. Putting away or getting out equipment at the request of the teacher.
5. Inappropriate behavior - any pupil behavior that is considered to be detracting from the educational environment.

Examples include:

1. Talking during a teacher demonstration.
2. Failure to carry out directions.
3. Pushing a classmate while standing in line.
6. Contingency contracting - refers to the most sophisticated form of contingency management (changing behavior by controlling and altering the relationship between a behavior and a consequence). The contingency or performance contract is an agreement between the teacher and the student that a specified reinforcement will be given the student following the completion of a specified task.

Examples include:

1. If the student completes three volleyball behavioral objectives, he will be permitted to participate in a volleyball game.
2. If the student completes fourteen tasks included in handball lead-up activities and game situations, he will receive an "A" grade.

7. Extinction - refers to a situation where reinforcement is discontinued. No reinforcement positive or negative is given contingent upon student response.

Examples include:

1. Ignoring a student who is misbehaving
 2. Having the class ignore an individual who is talking constantly during teacher demonstrations.
8. Behavior games - any technique which has two or more class groups competing against each other for good behavior, with the ultimate goal of each group being the winning of the game. The reward for winning could range from free time to simple teacher verbal reinforcement. Other rewards might include charts or posters listing the class that was best behaved or allowing a class to participate in an activity of their choice contingent upon winning the behavior game. Once the student behavior is brought under control, the reward is gradually diminished at a rate which does not lower the rate of appropriate behavior.
 9. Significant improvement - a level of improvement that meets the criterion level as determined by the supervising and cooperating teacher. Baseline levels of behavior will determine what each individual student teacher's significant improvement will be.

Learning Activities

1. Read the Planning Module Reading Sheet, "Planning".
2. Refer to the format for the Suggested Lesson Plan.
3. A. Read the reference book by Siedentop and Rushall: pp. 232-234
B. Read the book by Robert Mager, Preparing Instructional Objectives.
4. Read the reference book by Siedentop and Rushall Chapter 9; pp. 225-231, pp. 46-98.
5. Listen to Audio Tapes:
"Contingency Management in Physical Education"
"Behavior Games in Physical Education"
6. View the Video Tape of the Behavior Game
7. Read the article by Siedentop and Rife, "Developing a Learning Environment for Badminton".

Learning Resources

1. The Planning Module Reading Sheet
2. The Suggested Lesson Plan Format
3. The Development and Control of Behavior in Physical Education and Sport by Siedentop and Rushall.
4. Preparing Instructional Objectives by Robert Mager.
5. Audio Tapes number 1 and 1a - Applied Behavior Analysis Resource Center, Room 312, Pomerene Hall
6. Video Tape number 1 - ABA Resource Center, Room 312, Pomerene Hall
7. "Developing a Learning Environment for Badminton" by Siedentop and Rife.

Assessment

1. Weekly observation and feedback session with supervisor and cooperating teacher.

Reading Sheet

Planning Module

Preparation for effective teaching is an aspect of the educational process that goes unrewarded, yet is of paramount importance. We've all had teachers who seemed disorganized and ill-prepared for some lessons. A lesson presented without preliminary preparation and thorough planning is readily perceived by the students and is a pitfall one must avoid to be an effective teacher. Teaching guides, hereafter referred to as lesson plans, provide the means by which teachers can organize for the activities they will be teaching. A lesson plan is simply the guide or route the teacher will follow from the start of a class period until the end of the period.

Overreliance on the lesson plan to the point of constant referral can also point to organizational weaknesses on the part of the teacher. It becomes essential, therefore, to become familiar enough with the plan so as to need it only for quick glances leading to subsequent management. The stress is on planning prior to, and not during, the lesson to be taught. Often, you may find that you are unable to complete the lesson you planned for simply due to a need for emphasis on a particular skill. These are unforeseen circumstances which are important for student learning. The lesson plan is a general guide, not a hard and fast absolute to which you must adhere. The plan does ensure accountability for the class period for which you are responsible, however and is an aspect of your teaching that will require your careful attention.

Inherent motivation devices you will employ in your lesson plans are the use of the behavioral objectives. Students who know exactly what is expected of them will respond with sincere efforts to master the criteria you have established. Behavioral objectives have a wide range of possibilities for your use in the gymnasium. In order to know ability levels prior to the introduction of an activity, students can be assessed easily by having them attempt pre-established criteria levels. They can be used as terminal objectives for units of activity, the mastery of which ensures participating in a new skill at a high enough level for continued enjoyment. Grading becomes objective, meaningful and readily accomplished. Using the mastery of the criterion level you have established for a skill, a requirement for playing a game is a specific motivation device for the skill development to occur. Behavioral objectives will be a valuable aspect of your lesson plans.

You will be confronted with individuals who will misbehave in your class. Strict disciplinarians eliminate misbehavior through punishment techniques. Your approach will be to plan positive means by which you can decrease inappropriate behavior levels emitted by an entire class or by individuals within the class. Verbal praise directed at students who are behaving is one method of dealing with this situation. Earning points by behaving appropriately which enables the class to "buy" time in a favored activity is another approach. Ignoring attention-getting misbehavior, the process termed extinction, is still another. These contingencies may vary from class to class. Free-time is a contingency that has worked very well at the elementary level. What contingencies will strongly affect the behavior of high school students? The answer to this question will have to be planned for if, indeed, you will control your class at a satisfactory level of appropriate behavior.

TBO 1. You have been given a format for lesson plans. This is a suggested format. If you have another that is effective, feel free to use it - as long as the cooperating teacher and the supervisor agree. You are expected to plan lessons one week in advance. On the day you are observed, you will present a copy of your lesson plan to the supervisor and the cooperating teacher for the lesson you will be presenting one week hence.

TBO 2. As previously stated, your lesson plan will include explicit behavioral objectives. Methods for writing these objectives are included in the learning activities. You will be expected to teach to the criteria you have established for student accomplishment during your lesson. Their practice time should be directed at meeting this criteria. Part of your lesson plan evaluation should be directed at the ability or inability of your students to meet the criteria you have set down. Was the criterion level too High? Did they have enough time to work on the skill? Answers to these questions will improve subsequent presentations of the same lesson.

TBO 3. Class and individual rates of inappropriate behavior are being observed during the class meeting. Where a low rate of class appropriate behavior is observed which cannot be improved through verbal praise, contingency contracts will be planned for and implemented in an effort to improve the rate of appropriate behavior. The same procedure for target individuals within the class will be employed. Because some students misbehave in an effort to get attention from their peers or from the teacher, your efforts to ignore their misbehavior, extinction, may well prove to be the device which will eliminate his inappropriate behavior.

It will be necessary for you to plan for using this technique, planning which might include other members of the class.

Techniques for Objective Attainment

1. Have a clear understanding of the definitions used in the terminal behavioral objectives. Consult the supervisor or the cooperating teacher if you don't fully understand them.
2. Spend time on the preparation of your lesson plan. Be sure you understand it beyond what is written on paper. Don't use it to read to your students, but refer to it quickly enough to simply refresh your memory as to the next phase of your lesson.
3. Refer to the learning activities which will enable you to grasp the essence of behavioral objectives. Use them in your daily plan. They ensure class participation. Students who are busy will not misbehave.
4. Refer to the learning activities you need to use contingency contracting for classes and individual students with which you might be having difficulty. Get to know things they especially like to do. Be interested in them as individuals and communicate with them on that basis.
5. Behavior that is not reinforced will diminish. Practice extinction as an objective method you are using to eliminate a student's inappropriate behavior. Try to keep in mind that this is a technique you are using. Make it a game, if you will. This attitude might help you keep the student who is misbehaving from "getting to you".

Teacher Responsibilities

This module is designed to help you plan for an effective setting in which you will teach. Planned teaching can be much more effective where chaos is not the order of the day. Your ability to help students behave themselves will make your setting much more conducive to learning. Devise the objectives you deem necessary to reflect the accomplishments of your students. Work at ways you can use objectives to motivate your students. Once the setting is established, diligent planning of what will be taught, what is needed to facilitate your teaching and the budgeting of time in which to carry out the various phases of your teaching plan will enhance your ability as a teacher.

SUGGESTED FORMAT FOR LESSON PLANS

Name _____ Unit No. _____ Lesson No. _____

Date _____ Teaching Stations Needed:

- a.
- b.
- c.

General Objective - Usually very broad in scope and related to your personal philosophy of physical education. Are you intending to develop fitness, character or an environment where students can have fun?

Specific Objective - Why are you teaching this lesson? What purpose are you trying to fulfill? An example might include your efforts to acquaint the student with some basic skill required for enjoyment of the activity you are teaching.

Behavior Objectives - This facet includes the need for you to include explicit performance criteria established for assessing your students.

Equipment Needed - Prior attention to this detail will prevent having to seek out an item of equipment during the lesson. This detracts from your organization. List all pieces of equipment, including your whistle.

Teaching Procedure - This aspect requires you to itemize from start to finish what you will be doing on this particular day and this particular period. How much time will be required for each item you will be teaching? How long for pre and post class locker room time?

Teaching Plan - You should think through the class period and in a detailed manner, develop your plan from the beginning of the class period to the end.

Lesson Evaluation - Having taught the lesson, there may be

a number of items you would change for future lessons. What went well and what did the students have problems with? Was enough time for student practice or play provided? Evaluating each lesson for its strengths and weaknesses will enhance future teaching.

APPENDIX H
STUDENT ASSESSMENT MODULE

Student Assessment Module

In addition to the detailed and sophisticated observations of your efforts to attain the criterion level involved in the various modules, an informal assessment of your teaching will be made by the students.

Questionnaires will be completed by the students at the end of week three and again at the end of week eight. The purpose of the questionnaire is to determine the effects of your attitude toward teaching and the students you teach as seen through the eyes of your students. How do they evaluate your teaching worth? Do you interact with them favorably? Do you control the behavior in their class? It will prove interesting to examine the answers to these questions as given by your students.

TBO - Based on student evaluation, the student teacher will demonstrate levels of behavior which will ensure 70% of student responses in the "yes" category of a questionnaire in the following areas:

- a. Attitude toward activities he teaches
- b. Attitude toward his students:
 - 1. Names of students
 - 2. Like or dislike of students
 - 3. Helping students increase skill levels
- c. Well planned lessons
- d. Class control

PUPIL QUESTIONNAIRE

CIRCLE YOUR ANSWER

1. Does the student teacher know your first name?
A) Yes
B) No
C) I do not know
2. Does the student teacher like you?
A) Yes
B) No
C) I do not know
3. Does the student teacher enjoy teaching your class?
A) Yes
B) No
C) I do not know
4. Does the student teacher plan well for your class?
A) Yes
B) No
C) I do not know
5. Does the student teacher help you to learn new skills?
A) Yes
B) No
C) I do not know
6. Does the student teacher keep good class discipline?
A) Yes
B) No
C) I do not know
7. Are the rules of the class clear to you?
A) Yes
B) No
C) I do not know
8. Does the student teacher punish you for misbehaving in class?
A) Yes
B) No
C) I do not know
9. Does the student teacher allow enough time for you to practice your skills?
A) Yes
B) No
C) I do not know

10. Is the student teacher good at the skills that he teaches?
- A) Yes
 - B) No
 - C) I do not know

APPENDIX I
WEEKLY GOAL SHEET

School

191

BIBLIOGRAPHY

BIBLIOGRAPHY

- Adair, Charles H., and Allan R. Kyle. "Effects of Feedback on Teacher Behavior: An Explosion into the Use of Videotaping in Teacher Education Programs," Southeastern Education Laboratory, Atlanta, Georgia, Office of Education, Washington, D.C.: Bureau of Research, 1969.
- Allington, E. "A Study of Teacher Behavior Modification Resulting from Training in Practical Applications of Guilford's Structure of Intelligence Model," Unpublished Doctor's dissertation, University of Utah, 1973.
- Anderson, Dan W., James M. Cooper, M. Vere DeVault, George E. Dickson, Charles E. Johnson and Wilford A. Weber. Competency Based Teacher Education. (Berkeley: McCutchan Publishing Co., 1973), 3-4.
- Ayllon, Teodoro and Kathy Kelly. "Effect of Reinforcement on Standardized Test Performance." Journal of Applied Behavior Analysis, 5, No. 4 (Winter, 1972). 477-484.
- Baer, D. M., M. M. Wolf and T. R. Risley. "Some Current Dimensions of Applied Behavior Analysis." Journal of Applied Behavior Analysis, I (Spring, 1968), 91-97.
- Borg, Walter R., Warren Kallenback and Allen Friebe. "Videotape Feedback and Microteaching in a Teacher Training Model." The Journal of Experimental Education, 37, No. 4 (1969), 9-16.
- Brashear, Robert M. "The Persistence of Teaching Laboratory Effects Into Student Teaching: A Comparative Study of Verbal Teaching Behaviors and Attitudes." Paper presented at Annual Meeting AERA, Minneapolis, 1970.
- Bridgeman, Brent. "Effects of Test Score Feedback on Immediately Subsequent Test Performance." Journal of Educational Psychology, 66, No. 1 (1974), 62-66.
- Briet, Frank and David P. Butts. "A Comparison of the Effectiveness of an Inservice Program and Preservice Program in Developing Certain Teacher Competencies." A Paper presented at a meeting of the National Association for Research in Science Teaching, Pasadena, California, February, 1969.

- Brody, Harry S., A Critique of Performance-Based Teacher Education., (Washington, D.C.: American Association of Colleges for Teacher Education, 1972), 3.
- Brown, Ronald E., Rodney E. Copeland and R. Vance Hall. "The School Principal as a Behavior Modifier." The Journal of Educational Research, 66, No. 4 (December, 1962), 175-180.
- Burdin, Joel L. and Moira B. Mathieson. "A Review of the Research on Performance-Based Teacher Education." Educational Technology. 12, No. 11 (November, 1972) 61-66.
- Centra, John A. "Effectiveness of Student Feedback in Modifying College Instruction." Journal of Educational Psychology, 65, No. 3 (1973), 395-401.
- Clark, Hewitt B., Trudylee Rowbury, Ann M. Baer and Donald M. Baer, "Timeout as a Punishing Stimulus in Continuous and Intermittent Schedules." Journal of Applied Behavior Analysis, 6, No. 3 (Fall, 1973) 443-455.
- Clegg, Ambrose A. and Anna Ochoa. Evaluation of a Performance Based Program in Teacher Education: Recommendation for Implementation. (Seattle: University of Washington, College of Education, August, 1970).
- Cohan, Sali Lee. "The Development and Field Test of a Module Designed to Instruct Student Teachers in Aspects of Critical Thinking and the Teacher Behaviors Which Promote Critical Thinking," Unpublished Doctor's dissertation, Columbia University, 1973.
- College of Education Deans - State Universities of Ohio. "Ohio Teacher Education: A Position Paper." A Paper developed at a meeting of the College of Education Deans from the State Universities of Ohio on March 15, 1973.
- Commission on Public School Policies in Ohio. Realities and Revolution in Teacher Education Report No. 6., November, 1972.
- Conlon, Mirian F., Carolyn Hall and Edward M. Hanley. "The Effects of a Peer Correction Procedure on the Arithmetic Accuracy for Two Elementary School Children." in Behavior Analysis and Education - 1972 George Semb (ed.). University of Kansas Department of Human Development, Lawrence, 1972.

- Cooper, James M., Howard L. Jones and Wilford A. Weber. "Specifying Teacher Competencies." Journal of Teacher Education, XXIV, No. 1 (Spring, 1973), 17-23.
- Cooper, Margaret L., Carolyn L. Thomson and D. M. Baer. "The Experimental Modification of Teacher Attending Behavior." Journal of Applied Behavior Analysis, 3 (1970), 153-157.
- Cossairt, Ace, R. Vance Hall and B. L. Hopkins. "The Effects of Experimenter's Instructions, Feedback and Praise on Teacher Praise and Student Attending Behavior." Journal of Applied Behavior Analysis, 6, No. 1 (Spring, 1973), 89-100.
- Crain, Edward W. "An Evaluation of a Competency-Based Teacher Education Program." Unpublished Doctor's dissertation, West Virginia University, 1973.
- Crossley, P. R. "Development of an Example Set of Performance-Based Content Area Modules for a Speech Methods Course." Unpublished Doctor's dissertation, University of Mississippi, 1973.
- Cummins, Margaret E. "Changing the Verbal Behavior Patterns of Elementary Classroom Teachers Through Self-Evaluation." Unpublished Doctor's dissertation, University of Akron, 1973.
- Davis, O. L. and B. R. Smoot. "Effects on the Verbal Teaching Behavior of Beginning Secondary Teacher Candidates' Participation in a Program of Laboratory Teaching," Paper delivered at the Convention of the AERA, Los Angeles, February 7, 1969.
- Draheim, Diana D. "The Effect of the Use of a Handbook for Divergency on Classroom Behavior of Student Teachers for Grades 4, 5 and 6," Unpublished Doctor's dissertation, Boston University School of Education, 1973.
- Edwards, Ron Loren. "Changing Teacher Behavior Through Feedback from Students: An Intensive Study of Four Physical Education Teachers," Unpublished Doctor's dissertation, Stanford University, 1973.
- Elam, Stanley. "Performance-Based Teacher Education: What is the State of the Art?" Quest, 18 (June, 1972), 14-19.
- Feingold, R. S. "The Evaluation of Teacher Education Progress in Physical Education." Quest, 18 (June, 1972).

- Ferritor, D. E., D. Bukholdt, R. L. Hamblin and L. Smith. "The Non-effects of Contingent Reinforcement for Attending Behavior on Work Accomplished." Journal of Applied Behavior Analysis, 5, (1972), 7-17.
- Friedman, Philip. "Relationship of Teacher Reinforcement to Spontaneous Student Verbalization Within the Classroom." Journal of Educational Psychology, 65 No. 1 (1973), 59-64.
- Gage, N. L., P. J. Runkel and B. B. Chatterjee. "Equilibrium Theory and Behavior Change: An Experiment in Feedback from Pupils to Teachers," Report No. 6 in Studies in the Generality and Behavioral Correlates of Social Perception. Urbana: Bureau of Educational Research, College of Education, University of Illinois, 1960.
- Givens, J. L. "Status of Teacher Education Institutions in Texas Related to New Standards for CBTE and Certification in Fall 1972," Unpublished Doctor's dissertation, University of Houston, 1973.
- Glaser, Edward M. and Irvin G. Sarason, "Reinforcing Productive Classroom Behavior: A Teacher's Guide to Behavior Modification. Final Report," Los Angeles, California: Human Interaction Research Institute, 1970.
- Goetz, E. M. and Mary M. Salmonson. "The Effect of General and Descriptive Reinforcement of Creativity in Easel Painting." in Behavior Analysis and Education - 1972 George Semb (ed.), University of Kansas Department of Human Development, Lawrence, 1972.
- Graubard, Paul S., Harry Rosenberg and Martin Miller, "Student Application to Teachers and Environments or Ecological Approaches to Social Deviancy 1, 2." in A New Direction for Education: Behavior Analysis - 1971, Eugene A. Ramp and Bill L. Hopkins (eds.) University of Kansas Department of Human Development, Lawrence, 1971.
- Hall, R. Vance. Behavior Modification: Applications in School and Home. (Lawrence, Kansas: H and H Enterprises, Inc., 1971).
- Hall, R. Vance. Behavior Modification: The Measurement of Behavior. (Lawrence, Kansas: H and H Enterprises, Inc., 1971).

- Hall, R. Vance, Connie Cristler, Sharon Cranson and Bonnie Tucker. "Teachers and Parents as Researchers Using Multiple Baseline Designs." Journal of Applied Behavior Analysis, 2 (1970), 247-255.
- Harris, V. William, James A. Sherman, David G. Henderson and Melissa S. Harris. "Effects of Peer Tutoring on the Spelling Performance of Elementary Classroom Students." in Behavior Analysis and Education - 1972 George Semb (ed.), University of Kansas Department of Human Development, Lawrence, Kansas, 1972.
- Harris, V. William and James A. Sherman. "Effects of Peer Tutoring and Consequences on the Math Performance of Elementary Classroom Students." Journal of Applied Behavior Analysis, 6, No. 4 (Winter, 1973), 587-597.
- Harris, V. William and James A. Sherman. "Use and Analysis of the Good Behavior Game to Reduce Disruptive Classroom Behavior." Journal of Applied Behavior Analysis, 6, No. 3 (Fall, 1973) 405-417.
- Hasazi, Joseph E. and Susan E. Hasazi. "Effects of Teacher Attention on Digit-Reversal Behavior in an Elementary School Child." Journal of Applied Behavior Analysis, 5, No. 2 (Summer, 1972) 157-162.
- Hill, Russell A. and Donald M. Medley. "Change in Behaviors of First Year Intern Teachers," Paper presented at the American Educational Research Association meeting, Chicago, Illinois, February, 1968.
- Holmberg, Margaret C., Carolyn L. Thomson and Donald M. Baer. "Analysis of Training Procedures for Preschool Teachers," Paper presented at Empirical Basis for Teacher Training Conference, Lawrence, Kansas, April, 1972.
- Houston, W. Robert and Robert B. Howsam, eds. Competency-Based Teacher Education (Chicago: Science Research, Inc., 1972).
- Houston, W. Robert and Robert B. Howsam. "CBTE: The Eyes of Texas." Phi Delta Kappan, LV, No. 5 (January, 1974), 299-303.
- Hughley, C. "Modification of Teaching Behaviors in Physical Education," Unpublished Doctor's dissertation, Ohio State University, 1973.

- Huber, Joseph Henry. "The Effects of a Token Economy Program on Appropriate Behavior and Motor Task Performance of Educable Mentally Retarded Children in Adapted Physical Education," Unpublished Doctor's dissertation, the Ohio State University, 1973.
- Hurst, Joseph B. "Competency-Based Learning Modules in Elementary Teacher Training: A Comparison of Individualized and Group Instruction for Proving-Inquiry Teaching," Unpublished Doctor's dissertation, Florida State University, 1973.
- Jones, John Carl. "The Effect of Feedback on the Verbal Behavior of Beginning Teachers," Unpublished Doctor's dissertation, University of Oregon, 1969.
- Kay, Patricia M. and Benjamin Rosner. "Will the Promise of C/PBTE be Fulfilled?" Phi Delta Kappan, LV, No. 5 (January, 1974), 306-311.
- Kay, Patricia M. and Benjamin Rosner. "Are Teachers Colleges Really Prepared to Handle Competency-Based Teacher Education?" Journal of Research and Development in Education, 7, No. 7 (Fall, 1973), 47-52.
- Kazdin, Alan E. and Joan Klock. "The Effects of Nonverbal Teacher Approval on Student Attentive Behavior," Journal of Applied Behavior Analysis, 6, No. 4 (Winter, 1973), 643-654.
- Kazdin, Alan E. "The Effect of Vicarious Reinforcement on Attentive Behavior in the Classroom," Journal of Applied Behavior Analysis, 6, No. 1 (Spring, 1973) 71-78.
- Kazdin, Alan E. "Methodological and Assessment Considerations in Evaluating Reinforcement Programs in Applied Settings," Journal of Applied Behavior Analysis, 6 No. 3 (Fall, 1973), 517-531.
- Kirby, Frank D. and Frank Shields. "Modification of Arithmetic Response Rate and Attending Behavior in a Seventh-grade Student," Journal of Applied Behavior Analysis, 5, No. 1 (Spring, 1972), 79.
- Kiser, Luther et. al. "Project Evaluation: The Effect of Selected Media Feedback Upon the Interactive Behavior of Student Teachers," A report prepared by the Missouri University, Columbia College of Education. Washington, D.C.: Office of Education, 1969.

- Klein, Roger D. et. al. "The Effects of a Systematic Manipulation of Contingencies Upon Overt Work Behavior in a Primary Classroom." Pittsburgh: Pittsburgh University, Pennsylvania, Learning Research and Development Center, 1972.
- Knapczyk, Dennis R. and Gary Livingston. "Self-Recording and Student Teacher Supervision: Variables Within a Token Economy Structure," Journal of Applied Behavior Analysis, 6, No. 3 (Fall, 1973) 481-486.
- Koran, John J. "The Relative Effects of Imitation Versus Problem Solving on the Acquisition of Inquiry Behavior by Intern Teachers," a report prepared by Stanford University Center for Research and Development in Teaching, Washington, D.C.: Office of Education, 1970.
- Kosier, Kenneth P. "Effects of Behavior Modification Lecture on Teachers' Rate of Compliments and Reprimands, and Their Students' Time-on-Task." Madison, Wisconsin: Madison Public Schools, March, 1971.
- Krumboltz, J. D. "Increasing Task-Oriented Behavior: An Experimental Evaluation of Training Teachers," in Reinforcement Techniques J. D. Krumboltz and D. L. Goodwin (eds.) Palo Alto, California: School of Education, Stanford University, 1971.
- Levine, Martin G. "The Relationship Between Knowledge, Practice and Pupil Achievement in the Use of a Criterion Referenced Instructional Model," The Journal of Experimental Education, 41, No. 2 (Winter, 1972), 47-50.
- Long, James D. and Robert L. Williams. "The Comparative Effectiveness of Group and Individually Contingent Free Time With Inner-City Junior High School Students," Journal of Applied Behavior Analysis, 6, No. 3 (Fall, 1973), 465-474.
- Magaro, John David. "The Use of Audiotape and Videotape in a Program to Improve Interrogative Ability of Pre-Service Teachers." Unpublished Doctor's dissertation, University of Pittsburgh, 1973.
- Massed, Virginia I. and Barbara C. Etzel. "Acquisition of Phonetic Sounds by Preschool Children," in Behavior Analysis and Education - 1972 George Semb (ed.) University of Kansas Department of Human Development, Lawrence, 1972.

- Mawhinney, V. T., D. E. Bostow, D. R. Louis, G. J. Blumenfeld and B. L. Hopkins. "Comparison of Student Studying Behavior Produced by Daily, Weekly and Three-week Testing Schedules," Journal of Applied Behavior Analysis, 4, (1971), 257-264.
- Maxwell, W. David. "PBTE: A Case of the Emperor's New Clothes," Phi Delta Kappan, LV, No. 5 (January, 1974), 306-311.
- McDonald, F. J. "Evaluation of Teaching Behavior," in W. Robert Houston and Robert B. Howsam, eds., Competency-Based Teacher Education (Chicago: Science Research, Inc., 1972), 56.
- McDonald, F. J. "Behavior Modification in Teacher Education," in Behavior Modification in Education, ed. by Carl E. Thoresen (Chicago: The University of Chicago Press, 1973), 41-76.
- McDonald, F. J. "The National Commission on Performance-Based Education," Phi Delta Kappan, LV, No. 5 (January, 1974), 296-298.
- McLaughlin, Thomas F. and John Malaby. "Intrinsic Reinforcers in a Classroom Token Economy," Journal of Applied Behavior Analysis, 5, No. 3, (Fall, 1972), 263-270.
- McLaughlin, Thomas and John Malaby. "Reducing and Measuring Inappropriate Verbalizations in a Token Classroom," Journal of Applied Behavior Analysis, 5, No. 3 (Fall, 1972), 329-333.
- Miles, Gloria Gladys. "An evaluation of the Elementary Physical Education Competency-Based Component in the Georgia Educational Model." Unpublished Doctor's dissertation, Florida State University, 1973.
- Mocadlo, Paul Edward. "An Investigation of the Effects of Microteaching on the Abilities of Prospective Secondary Science and Mathematics Teachers to Use the Inquiry Strategy of Instruction." Unpublished Doctor's dissertation, Case Western Reserve University, 1973.
- Nichols, Shirley. "Pupil Motivation: A rewarding Experience," Maryland English Journal, Vol. 8 (Spring, 1970), 36-41.
- Oestreich, Arthur H. "The Professional Growth of the Student Teacher." Phi Delta Kappan, LV, No. 5 (January, 1974) 335-337.

- Orme, M. E. and W. F. Oliver. "The Effect of Modeling and Feedback Variables on the Acquisition of a Complex Teaching Strategy." Unpublished Doctor's dissertation Stanford University, 1966.
- Parsons, Joseph A. "The Reciprocal Modification of Arithmetic Behavior and Program Development," in Behavior Analysis and Education - 1972 George Semb (ed.), University of Kansas Department of Human Development, Lawrence, 1972.
- Perlberg, Arye, et. al., "The Use of Portable Video Tape Recorders and Microteaching Techniques to Improve Instruction in Vocational-Technical Programs." Urbana: University of Illinois Department of Vocational and Technical Training, 1968.
- Pinkston, Elsie M., Nancy M. Reese, Judith M. LeBlanc and Donald M. Baer. "Independent Control of a Preschool Child's Aggression and Peer Interaction by Contingent Teacher Attention," Journal of Applied Behavior Analysis, 6, No. 1 (Spring, 1973) 115-124.
- Pollock, Barbara Lee. "Effects of Behavior Modification Consultations on Teacher Behavior." Unpublished Doctor's dissertation, Columbia University, 1971.
- "Redesigning Teacher Education," Ohio Schools, LI, No. 1 (October 12, 1973), 16.
- Rife, F. "Modification of Student-Teacher Behavior and Its Effects Upon Pupil Behavior." Unpublished Doctor's dissertation, The Ohio State University, 1973.
- Ringer, V. M. J. "The Use of a Token Helper in the Management of Classroom Behavior Problems and in Teacher Training," Journal of Applied Behavior Analysis, 6, No. 4 (Winter, 1973), 671-677.
- Risley, Todd R. "Behavior Modification: An Experimental-Therapeutic Endeavor." Paper prepared for Banff International Conference on Behavior Modification, April, 1969.
- Rosenshine, Barak and Norma Furts. "Research on Teacher Performance Criteria," in Research in Teacher Education ed. by B. Othanel Smith (Englewood Cliffs, N. J.: Prentice-Hall, 1971), 37-73.
- Rosner, B. The Power of Competency-Based Teacher Education: A Report. (Boston, Massachusetts: Allyn and Bacon, Inc., 1972).

- Rousch, Robert E. "A Study of Change in Selected Teacher Education Interns' Behavior Using Videotape Recordings." Office of Education, Washington, D. C.: Bureau of Research, 1969.
- Rule, Sarah. "A Comparison of Three, Different Types of Feedback on Teachers' Performance," in Behavior Analysis and Education - 1972 George Semb (ed.) University of Kansas Department of Human Development, Lawrence, 1972.
- Rushall, Brent S. and D. Siedentop. The Control and Development of Behavior in Sports and Physical Education. (Philadelphia: Lea and Febiger, 1972).
- Rutherford, Jr., Robert Bruce. "The Effects of a Model Videotape and Feedback Videotapes on the Teaching Styles of Teachers in Training." Unpublished Doctor's dissertation, George Peabody College for Teachers, 1971.
- Salzberry, Bernard, Andrew Wheeler, Linda Taylor, B. L. Hopkins. "The Effect of Intermittent Feedback and Intermittent Contingent Access to Play on Printing of Kindergarten Children," Journal of Applied Behavior Analysis, 4, No. 3 (1971), 163.
- Sandefur, J. T. "Changing Teacher Behavior: A description of Three Experimental Programs," Paper presented at the annual meeting of the North Central Association of Colleges and Secondary Schools, Chicago, March, 1971.
- Sandefur, J. T. et. al. An Experimental Study of Professional Education for Secondary Teachers (Emporia: Kansas State Teachers College, July, 1967).
- Sandoz, Ellis, "CBTE: The Nays of Texas," Phi Delta Kappan, LV, No. 5 (January, 1974), 304-306.
- Sardargas, Richard A. "Setting Criterion Rates of Teacher Praise: The Effects of Videotape Feedback in a Behavior Analysis Follow Through Classroom," in Behavior Analysis and Education - 1972 George Semb (ed.) University of Kansas, Department of Human Development, Lawrence, 1972.
- Schwartz, S. "A Learning-Based System to Categorize Teacher Behavior," Quest, 27 (January, 1972), 52-55.
- Siedentop, D. L. "How to use Personalized Systems of Instruction in College Teaching," a speech delivered

at the national convention of the National College Physical Education Association for Men, Kansas City, December, 1973.

Silverman, Stuart and Ellen Kimmel. "The Influence of Immediate Feedback on the Behavior of Teachers-In Training." Washington, D. C.: Office of Education, 1972.

Sipkens, J. F. and T. F. Turkovich. "Competency-Based Teacher Education and Its Characteristics." Unpublished Doctor's dissertation, Montana State University, 1973.

Solomon, Robert W. and Robert G. Wehler. "Peer Reinforcement Control of Classroom Problem Behavior," Journal of Applied Behavior Analysis, 6, No. 1 (Spring, 1973), 49-56.

Statts, A. W. and W. A. Butterfield. "Treatment of Non-Reading in a Culturally Deprived Juvenile Delinquent: An Application of Reinforcement Principles," Child Development, 32, (1965) 925-942.

Stedman, Carlton A. "Is Providing Students with Behavioral Objectives Incorporated Into Programmed Materials Efficient?" The Journal of Experimental Education, 41, No. 2 (Winter, 1972), 73-77.

Strickler, D. J. "Teacher Behavior and Pupil Performance Related to a Training Program for In-Service and Pre-Service Teachers Based Upon Minicourse Eighteen: Teaching Reading as Decoding." Unpublished Doctor's dissertation, State University of New York at Buffalo, 1973.

Thomas, Don R. "Preliminary Findings on Self-monitoring for Modifying Teaching Behaviors," in A New Direction for Education: Behavior Analysis - 1971. E. A. Ramp and B. L. Hopkins (eds.) University of Kansas Department of Human Development, Lawrence, 1971.

Thomas, Hollie B. "Changing Teacher Behavior: An Experiment in Feedback from Students to Teachers." Unpublished Doctor's dissertation, Purdue University, 1969.

Thompson, Carolyn L. and Margaret L. Cooper. "The Modification of Teacher Behaviors Which Modify Child Behaviors," Lawrence Kansas: Head Start Evaluation and Research Center, 1969.

- Thompson, Marion, William R. Brassell, Scott Persons, Richard Tucker and Howard Rollins. "Contingency Management in the Schools: How Often and How Well Does it Work?" American Educational Research Journal, 11, No. 1 (Winter, 1974), 19-28.
- Tuckman, B. W. and W. F. Oliver. "Effectiveness of Feedback to Teachers as a Function of Source," Journal of Educational Psychology, 59 (August, 1968), 297-301.
- Webb, A. Bert and William H. Cormier. "Improving Classroom Behavior and Achievement," The Journal of Experimental Education, 41, No. 2 (Winter, 1972), 92-96.
- Wetzel, Ralph J. "Behavior Modification Techniques and the Training of Teacher's Aides." Paper presented at the American Psychological Association Meeting, 1969.
- Widell, Waldo, R., et. al. "The Study of Student Achievement as a Result of Modification of Certain Identifiable Teacher Behaviors." La Crosse, Wisconsin: Wisconsin State University, June, 1969.
- Williams, Robert L. and Kamala Anandam. "The Effect of Behavior Contracting on Grades," The Journal of Educational Research, 66, No. 5 (January, 1973), 230-236.
- Willis, Jerry, Jeane Crowder and Betty Morris. "A Behavioral Approach to Remedial Reading Using Students as Behavioral Engineers," in Behavior Analysis and Education - 1972 George Semb (ed.) University of Kansas Department of Human Development, Lawrence, 1972.
- Wolf, Montrose, M. Sidman and L. Keith Miller. "Methodological and Assessment Considerations in Applied Settings: Reviewers Comments," Journal of Applied Behavior Analysis, 6, No. 3 (Fall, 1973), 532-534.
- Young, Dorothy A. and David B. Young. "The Effectiveness of Individually Prescribed Microteaching Training Modules on an Intern's Subsequent Classroom Performance." Paper presented at the annual meeting of AERA, February, 1969, Los Angeles, California.
- Young, Richard M. "The Effects of Various Reinforcement Contingencies on a Second Grade Physical Education Class." Unpublished Doctor's dissertation, Ohio State University, 1973.
- Zimmerman, Barry J. and Frank Dialessi. "Modeling Influences on Children's Creative Behavior," Journal of Educational Psychology, 65, No. 1 (1973), 127-134.