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THE EFFECTS OF A COOPERATING TEACHER TRAINING PROGRAM IN APPLIED BEHAVIOR ANALYSIS ON SELECTED TEACHER BEHAVIORS OF SECONDARY PHYSICAL EDUCATION STUDENT TEACHERS.

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Education, physical

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THE EFFECTS OF A COOPERATING TEACHER TRAINING PROGRAM IN
APPLIED BEHAVIOR ANALYSIS ON SELECTED TEACHER
BEHAVIORS OF SECONDARY PHYSICAL
EDUCATION STUDENT TEACHERS

DISSERTATION

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

By
Carolyn Ann Cramer, B.A., M.S.E.

* * * * *

The Ohio State University
1977

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TO MOM AND DAD
ACKNOWLEDGMENTS

I wish to express special appreciation and gratitude to the members of my committee for their assistance during the course of my graduate career and the guidance they provided throughout this project.

Grateful appreciation is extended to Dr. Daryl Siedentop, who as adviser and chairman, served as an excellent role model of a teacher educator.

I am especially indebted to Dr. Mary Jensen for her careful reading of earlier drafts of this manuscript. Her incisive suggestions have significantly enriched the quality of this work.

To Dr. William Heward, I am thankful for the opportunity to work with a caring professional. His support and encouragement were very much appreciated.
VITA

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Studies in Applied Behavior Analysis. Professors Daryl
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CHAPTER I

INTRODUCTION

If there has been a single theme that has characterized teacher education in America over the last century it is the diversity of views surrounding the proper preparation of teachers. From the earliest decades of the nineteenth century, American educators and laymen alike have disagreed about the qualities of good teachers and the best means of developing and maintaining those qualities. James Conant's critical report on *The Education of American Teachers* in 1963 added another chapter to a debate that has gone on for generations, and Clark [1969], Goodman [1964], Holt [1964, 1969], Illich [1971], Postman [1969], Rafferty [1963], and Silberman [1970] offer additional criticism of teacher training institutions. Lawrence Cremin [1965] characterizes the situation concerning teacher education in America as follows:

... inasmuch as men disagree on the ends and means of education, they will inevitably disagree on the preparation of teachers. Thus, it is no surprise that as education has moved increasingly to the forefront of public affairs, teacher education has become a matter of spirited political controversy. The conflict is both external, among segments of the public and internal among the educators themselves. And like all conflicts over educational policy, it goes on in the press, in legislatures, in professional organizations, in scholarly journals and in the councils of individual colleges and universities [p. vii].
Consensus is rare in teacher education. Nevertheless, teacher educators, critics, state officials and students agree that student teaching is the most significant aspect of teacher preparation. During the typical student teaching experience, the pre-service teacher performs under the direction and guidance of both a university supervisor and a classroom cooperating teacher. Because the university supervisor visits the student teacher on a periodic basis, the amount of feedback given on a student teacher's actual teaching performance is limited. Medley [1971] indicates:

It has always been something of a puzzle how a supervisor could have much effect on a student teacher's behavior, when all he can do is talk and all the time he spends with her is five hours, spread over a semester in which he must compete for her attention with the overpowering and often contradictory stimuli . . . . [p. 159].

Trosi [1959] suggests that since pre-service student teachers spend considerably more time with their cooperating teacher than any other staff member, that this fact alone puts the cooperating teacher in a position of great influence concerning the development of prospective teachers [p. 19]. The Eighth Annual Conference on Student Teaching [1957] stated that:

The person who has the greatest influence upon the student teacher is the cooperating teacher. The quality and amount of the student's growth depends to a very great extent upon the cooperating teacher and to her insight into the relationship involved in the student teaching situation [p. 107].

Since the cooperating teacher works with the student teacher on a daily basis, it seems likely that it is the cooperating teacher who exerts the greater influence on what is learned by the student teacher. The cooperating teacher becomes the primary source of feedback and
guidance for his student teacher and, therefore, is in the most favorable position to assist in the development of the teaching skills.

Although occupying a position of influence, too often the cooperating teacher does not feel that he or she is really a legitimate part of the total student teaching experience. Rather, the public school teacher is likely to feel that he/she does most of the work and receives little in return. Cotten [1975] surveyed eighteen cooperating teachers who worked regularly with student teachers in the physical education program at The Ohio State University. In this survey, a number of their concerns were identified. These concerns focused on three main areas:

1. their role in relation to their authority for input and decision-making regarding the actual experience the student teacher should have.

2. their role in relation to working with the student teacher in terms of providing feedback, making suggestions and, in general, guiding the learning experience of the student teacher.

3. their role in the evaluation process of the student teacher.

In many traditional student teaching programs, the cooperating teacher has little input into the decisions concerning student teaching. University supervisory personnel make decisions as to how lesson plans and unit plans are to be done, how these plans are to be evaluated and how to help the student teacher assume the total responsibility of classroom teaching. As a consequence, the cooperating teacher is left with the job of conducting a program into which there is no real opportunity for input: In short, with responsibility but no control.
With respect to providing feedback and guidance to the student teacher, the cooperating teachers indicated that they did not know specifically what goals the student teachers were expected to accomplish and, therefore, found it difficult to know the type of feedback that should be given. The cooperating teachers felt that this situation could be minimized by having joint planning sessions with the university supervisors prior to the student teaching experience.

Student teacher evaluation was the third area of concern. Most cooperating teachers indicated they did not know the specific procedures for evaluating their student teacher. The evaluation forms they used were not given to them in advance; thus, they did not know which specific skills should be evaluated. As a result, evaluations were based largely on recall and there was little opportunity to use evaluation as a guide for feedback during the student teaching experience.

The Commission on Public School Personnel Policies in Ohio, *Realities and Revolution in Teacher Education* [1972], cited the immense variability between institutions concerning what student teachers are supposed to do and how their success will be evaluated. The Commission stated that very few teacher training institutions have a precise outline of what a student teacher is to accomplish, although it is assumed that as a result of supervision, the pre-service student teacher is expected to do or say things differently than he or she did prior to supervision. According to Koran [1969], a common problem with this expectation in practice,
is the failure of public school and university supervisors to identify specific behaviors to be influenced and then to attempt to influence these behaviors in ways which are suggested by contemporary research [p. 754].

With the reduction in educational budgets and the continued emphasis on relevance and accountability, teacher education programs are being forced to consider new possibilities for training prospective teachers. One possible solution to these problems is the development of a partnership between teacher training institutions and the public schools. A joint effort by public school teachers and university faculties would help identify the types of experiences needed by pre-service teachers. Special attention then could be given to the specific outcomes of the student teaching experience. Cooperating teachers could be better utilized in providing feedback and serving as models for specific teaching behaviors of their student teacher. Student teacher evaluation could focus on specific teacher and student behaviors and become a continuous feedback process in which the cooperating teacher would collect descriptive data which could be used by the student teacher to improve his or her teaching effectiveness. At the same time, data collection would remedy the problem of final evaluations being made on the basis of recall.

If this procedure were adopted, a training program for cooperating teachers would be necessary. The purposes of this program would be to (1) define desirable teaching behaviors, (2) learn objective observation techniques, and (3) learn intervention techniques which would bring about desirable teaching behaviors of student teachers. It is in relation to the training of cooperating teachers
that this study was conducted.

Few studies have focused on the importance of the cooperating teacher's role in student teaching. Studies which investigated the effect of the attitudes of cooperating teacher upon the attitudes of their student teacher have been conducted, however. These studies indicate that student teachers tend to change their attitudes during the student teaching experience and that there was a tendency for their attitudes to change in the direction of the attitudes held by their cooperating teachers [Price, 1961; Johnson, 1969]. Studies in which cooperating teachers are trained in the use of interaction analysis systems for the purpose of changing teacher behavior have shown consistently positive results [Moskowitz, 1966; Finske, 1967; Kirk, 1963].

Since the role of cooperating teachers is primarily one of modifying behavior, literature in the area of applied behavior analysis becomes relevant. Research in this area has demonstrated consistently that specific target behaviors of individuals can be modified. When used in educational settings by trained personnel, applied behavior analysis has been effective in the elimination of undesirable behaviors, as well as in the acquisition and maintenance of socially significant behaviors.

Research in behavior modification has shown that non-professionals--nurses, parents, teachers and others--can be trained in the successful application of applied behavior analysis techniques [Allen and Harris, 1964; Ayllon and Michael, 1959; and Patterson, Ebner and Shaw, 1969], and while initial applications focused
primarily on the behavior of specific individuals, recent studies have shown that classroom teachers can be trained to use behavior analysis techniques in controlling the behavior of entire classrooms [Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis and Porcia, 1971].

Studies which focused on training the cooperating teacher in the techniques of applied behavior analysis to effect change in the teaching behavior of student teachers were conducted by Clark, McCraw, Ida and Smith [1975] and Hutslar [1976]. The study by Clark, et al. used a package intervention system, consisting of written instructions, modeling and verbal and graphic feedback, to establish a variety of teaching skills and to increase the rate of praise by student teachers.

Hutslar's study focused on training elementary physical education cooperating teachers in applied behavior analysis techniques as a means of changing student teacher behaviors. The independent variable was a package intervention technique utilized by the cooperating teacher. This consisted of written materials, verbal and graphic feedback, reinforcement, cueing and modeling. The dependent variables or teacher behaviors included in the observation format were management, instruction and activity time; management episodes per class; positive, negative, specific and general behavior statements; and positive, corrective and negative skill feedback.

Results of the multiple baseline analyses in Hutslar's study indicated that cooperating teachers, following a five week training program, were able to use applied behavior analysis techniques successfully in changing selected teacher behaviors of their student teachers. The range of specific interventions made by each
cooperating teacher during the student teaching experience was from three to five, and desirable changed occurred in twenty-three out of twenty-four interventions. Using Wilcoxin's rank sum statistic, a statistically significant change in student teacher behavior occurred for five out of the six student teachers in the experimental group. The behavior of student teachers in a control group, a regular student teaching experience, produced no statistically significant changes in the selected teacher behavior categories.

Student teaching is generally the most expensive field experience for pre-service teachers. If cooperating teachers trained in behavioral techniques could obtain significantly greater improvement in selected teaching behaviors of student teachers than presently occurs with traditional methods of supervision, pre-service teachers would have considerably greater skills to call upon when they face the challenges of the classroom following graduation. With trained cooperating teachers, both the quantity and quality of student teacher supervision would be increased. The cost factors associated with such a supervision program are unknown at this time. However, having public school teachers assume a more predominant role in the supervision of pre-service teachers would allow for better utilization of teacher education faculties. In situations where student teachers are often placed a great distance from the university, visits from the university supervisor are limited because of time and travel requirements. Trained cooperating teachers could provide regular and competent supervision in these cases.
In physical education, there has been little attempt to focus on behavior change or to utilize the strategies of behavior analysis for student teaching [Siedentop, 1972, p. 28]. The purpose of this study was to replicate Hutslar's procedures to ascertain the generality of those findings to a secondary physical education setting.

Statement of the Problem

The primary purpose of this study was to investigate the following question: Will secondary school cooperating teachers trained in the techniques of applied behavior analysis effect a significant change in selected teacher behaviors of their physical education student teachers?

The study has attempted to provide answers to the following sub-questions:

1. Can the methodology of the Hutslar study be replicated and the findings generalized to a secondary physical education setting?

2. Can the cooperating teacher, following a training program, effectively use applied behavior analysis techniques?
   a. Can the cooperating teacher reliably use observational techniques in recording target behaviors?
   b. Can the cooperating teacher effectively implement intervention strategies that will result in a change in specified teacher behaviors?
   c. Can the cooperating teacher set reasonable criterion levels of teacher behaviors to be attained by the student teacher?

In addition to the primary research question, the study compared changes in the performance of selected teacher behaviors of
student teachers involved in the experimental group with the changes in performance of the same teacher behaviors of student teachers in the regular student teaching experience. It was hypothesized that secondary student teachers receiving supervision from a cooperating teacher trained in applied behavior techniques would show greater improvement in selected teacher behaviors than would student teachers in a regular student teaching experience.

Limitations of the Study

1. The study was limited to a cooperating teacher training program which used the techniques of applied behavior analysis.

2. The study was limited to the investigation of a cooperating teacher training program on selected teacher behaviors of student teachers.

3. The study was limited to cooperating teachers in secondary physical education and their student teachers.

Definition of Terms

Activity Time—The total cumulative time when more than half of the class members are physically involved in movement activity that is considered appropriate behavior at that time.

Active Learning—Any actual physical involvement in the activity that is the appropriate activity of the class.

Applied Behavior Analysis—The systematic application of the principles of operant conditioning to effect a desirable change in the behaviors under study.

Appropriate Behavior—Any student behavior other than skill attempts that is considered to be contributing to the educational environment.
Baseline—The level or amount of a specified behavior prior to an intervention procedure.

Corrective Skill Feedback--Teacher verbal or non-verbal reactions to errors in student performance.

Duration Recording--An observation technique which involves recording the total elapsed time of a specific behavior during a specified observation period.

Event Recording--A tally or frequency count of discrete events as they occur.

General Skill Feedback--Positive, corrective or negative teacher reactions to student skill attempts which communicate a general teacher response to the attempt, but do not identify the exact part of the movement pattern to which the teacher reacted.

Instruction Time--Total cumulative time that the teacher is giving content information to more than half of the class members.

Managerial Activities--Teacher initiated events directed toward organizing the beginning of the lesson, for changing from one lesson part to another, or for ending the final part of the lesson and returning to the gymnasium, putting equipment away, or leaving for the lockerroom.

Managerial Episode--Cumulative total time from the beginning of a teacher initiated managerial behavior to the start of actual student movement activity or a different teacher activity.

Management Time--The percent of the total class period spent in managerial activities.

Nags--Teacher reactions which call attention to undesirable classroom behaviors in a low intensity manner.

Nasties--Teacher reactions which call attention to undesirable classroom behaviors in an high intensity manner.

Negative Behavior Interaction Statements--Teacher responses that disapprove of student behaviors other than movement skill attempts. This category includes nags and nasties.
Negative Skill Feedback—Teacher responses that disapprove of a student's skill attempt.

Package Intervention—The systematic instructional interventions used to change behavior which includes a number of independent variables to which the behavior change may be attributable.

Placheck Recording—Making a tally, at a specified time, of the number of individuals in a group who are engaging in previously determined behaviors.

Positive Behavior Interaction Statements—Teacher responses that approve of student behavior other than movement skill attempts.

Positive Skill Feedback—Teacher responses that approve skill attempts of a student.

Reliability—The percentage of agreement of independent observers on what has been recorded on the same subject during the same recording session.

Selected Teacher Behaviors—The target teacher behaviors of this study included the percent of management, instruction and activity time per class; average time per management episode; positive, corrective and negative skill feedback per minute for general and specific statements; positive and negative behavior interaction statements per minute; percent of appropriate student behavior per class and active student learning during activity time.

Significant Change—Significance in applied behavior analysis refers to the degree to which the change is considered effective by the client (the student teacher) and/or by those who are responsible for the client (the cooperating teacher).

Specific Skill Feedback—Positive, corrective, or negative teacher reactions to student skill attempts which tells the student exactly what part of the skill pattern was performed correctly or incorrectly.
CHAPTER II

REVIEW OF RELATED LITERATURE

The study under investigation is a replication of Hutslar's [1976] recently completed research. Thus, this chapter will present the highlights of Hutslar's survey of literature, as well as provide additional research findings. The present discussion will consist of the following topics:

1. The effect of the student teaching experience on the attitudes of student teachers.
2. The training of cooperating teachers and its effect on the performance of student teachers.
3. The training of non-professionals in the techniques of applied behavior analysis.
4. The use of applied behavior analysis to change the behaviors of teachers and student teachers.
5. The effect of goal setting, feedback, reinforcement and modeling on behavior change.

The Effect of Student Teaching on the Attitudes of Student Teachers

A review of the literature indicates that most student teachers change their attitudes during the student teaching experience. The changes that do occur are generally in the direction of the attitudes held by the cooperating teacher. In addition, the attitude changes
have been toward a more negative and less favorable rating. As a result of the student teaching experience, there is consistent evidence which shows that the student teacher becomes more authoritarian, more impersonal, more negative and more rigid [Hutslar, 1976].

The research that support these findings utilized the Minnesota Teacher Attitude Inventory as the most common assessment tool.

The survey of literature concentrated on two areas of research: (1) those studies which focused on the general effects of the student teaching experience on the attitudes of student teachers and (2) those studies which have focused on the effects of cooperating and/or supervising teachers on the attitudes of their student teachers. In the first category, Osmon [1950] found the following factors to be consistently associated with secondary student teachers' negative change in attitude during the student teaching experience:

1. difficulty in motivating students.
2. difficulty with student control and discipline.
3. belief that students were not achieving commensurate with their abilities.
4. belief that students had cooperated poorly.
5. belief that supervision by supervising teacher had been inadequate.
6. decision not to seek a teaching position the following school year.

Similarly, a study conducted by Gewinner [1968] indicated that a highly significant negative change in student teacher attitude occurred during the practice teaching experience. Student teachers tended to change markedly in the direction of more authoritarian attitudes.
Day [1959] found that very little change took place in the attitudes of education graduates who prepared for, but did not enter, teaching. This was in sharp contrast to the rather drastic shift toward less desirable attitudes experienced by those who entered the teaching profession and worked directly with children for six months. A similar drift toward less desirable attitudes occurred when pre- and post student teaching attitudes were measured.

Jacobs [1976] found that student teachers became more rigid and impersonal during their student teaching experience. Additionally, Hoy [1967] showed that student teachers were significantly more custodial in their pupil control ideology after student teaching than before.

Studies by Price [1961] and Yee [1969] investigated the extent to which cooperating teachers determine the attitudes and performances of the student teachers they supervise. Both of these studies showed that there was a considerable change in student teacher's attitudes during the student teaching experience and that changes were in the direction of the attitudes held by their cooperating teachers. Price noted that one of the most significant conclusions of his study was that student teachers seem to acquire many of the teaching practices of their cooperating teachers.

The results of Johnson's study [1969] tend to support the findings of other investigators who have examined the relationship of the change in student teacher personality to the personalities of their cooperating teachers. The data suggest that the change in the degree of open and closed mindedness of student teachers may be a
function of the dogmatism of their cooperating teachers.

Hayes [1969] reported somewhat contradictory results to the previously mentioned studies of Price and Yee. He concluded that beliefs student teachers held prior to their field experience had a greater effect on their later beliefs than did the external influence of the cooperating teacher or the college supervisor. Nonetheless, he did find a tendency for student teachers to shift toward the dogmatism score of their cooperating teachers, particularly in the case of highly open-minded student teachers. Contrary to previous research findings, college supervisors had about as much influence on the attitudes of student teachers as cooperating teachers.

Sanford [1960] investigated the change in attitude of elementary student teachers toward pupils during the practice teaching experience. An analysis of the data showed that student teachers who shared the same basic attitudes toward students at the beginning as their cooperating teachers tended to move even closer toward the cooperating teacher's position. On the other hand, student teachers who initially held attitudes opposed to those of their cooperating teachers tended to change even farther away from the teacher's position.

In summary, it seems apparent that the attitudes of student teachers do change during the student teaching experience. Further, these attitudes change in the general direction of the attitudes held by the cooperating teachers, except when they are initially opposed. The practical significance of these results is that the attitudes of student teachers toward young people generally reflect the predominant
influence of their cooperating teachers. Based on these findings, it seems extremely important that student teachers be placed with the best possible cooperating teachers. It is imperative that teacher educators continue their efforts to improve the conditions under which student teachers are influenced by their cooperating teachers.

The Training of Cooperating Teachers and its Effect on the Performance of Student Teachers

A review of the literature indicates that there has been insufficient research in the area of training cooperating teachers and the effects of that training on the teaching effectiveness of student teachers. Those studies which made an attempt to evaluate their training program fall into one of two categories: (1) in-service training programs generally provided by the university and (2) a less frequently used procedure of training cooperating teachers in the use of interaction analysis, with the expectation that such training would have a positive effect on the attitudes and/or teaching patterns of student teachers.

Much has been written regarding the training of cooperating teachers as a means of improving the student teaching experience. Unfortunately, most of the training programs have failed to include a systematic evaluation of the effects of training the cooperating teacher on the performance of student teachers. Of the studies reviewed, two attempted to evaluate the effects of their in-service training program.
Nelson [1975] attempted to determine if there was a correlation between the behaviors that a cooperating teacher acquired in a training program and the classroom performance of their student teacher. The data indicated that a six hour training program in observing, analyzing and modifying another's performance did have an effect on the style of supervision performed by the cooperating teacher. In addition, the cooperating teachers' trained behaviors did correlate with the student teacher's post-practice teaching behaviors.

Olmo's [1973] in-service training program consisted of micro-teaching, interaction analysis, inquiry techniques, levels of questioning and thinking and session planning. An analysis of the data indicated that integrating the above methods with in-service training sessions involving cooperating teachers provided a higher level of performance in these variables than was typically found in the traditional student teaching experience.

Moskowitz [1966] investigated the effects of training cooperating teachers and student teachers in Flanders Interaction Analysis System (FIAS) on the teaching patterns of student teachers. The results indicated that in order for the teaching pattern of student teachers to be significantly changed, both the student teacher and the cooperating teacher must have received training in FIAS.

Amidon's [1967] research lends support to the previous findings regarding the use of FIAS in the training of cooperating teachers. The purpose of this study was to determine the effects of training only the cooperating teachers in FIAS on the attitudes,
teaching effectiveness, teaching patterns and pupil interaction of student teachers. The data indicated that the behaviors and attitudes of the student teachers were not significantly changed. The investigator concluded that training only the cooperating teacher in FIAS is not sufficient to produce a change in selected teacher behaviors and attitudes of student teachers.

Hutslar [1976] indicates that in-service programs for cooperating teachers may be of value, but there needs to be considerably more research and follow-up study before one type of program can be recommended over another. Early indications are that training programs for cooperating teachers may affect the behaviors of their student teachers, although at least one study suggests that training both cooperating teachers and student teachers in the same behaviors results in the most congruence.

The Training of Non-Professionals in the Techniques of Applied Behavior Analysis

There is a substantial body of evidence which demonstrates that human behavior can be changed through the systematic application of behavior modification techniques. Initially, clinical psychologists served as the agents for behavioral change. More recently, people in other fields have been trained successfully to use the techniques of behavior modification in applied settings. Studies involving parents, nurses, teachers, children and others have demonstrated that relatively little time is needed to train an individual
with the skills necessary to change human behavior.

Five representative studies will be presented which demonstrate that parents can be trained to be successful change agents for their child's behavior. The results of a study by Hawkins, Peterson, Schweid and Bijou [1966] show that it is possible to treat behavioral problems in the home, with the parents as a therapeutic agent. Using the technique of differential reinforcement, a parent received specific instructions on when and how to interact with her misbehaving child. As a consequence of the parent changing her behavior in reacting to her child, the child's objectionable behavior was substantially reduced. A study which replicates the general findings of Hawkins, et al. was conducted by Zeilberger, Samper and Sloane [1968]. This study illustrates that the frequency of a child's undesirable behavior can be controlled by differential reinforcement contingencies programmed by his parents.

Ryback and Staats [1970] trained parents to use token economy procedures to help their children overcome reading difficulties. A four hour training program, using demonstrations, role playing, question and answer sessions and additional group meetings was sufficient in training parents to administer positive reinforcement (tokens) for appropriate reading behaviors of their children. The tokens were backed up by a monetary reward system. The results of the study indicate that parents can provide complex behavior therapy to their children when given standard procedures to follow and are provided with some outside supervision. A similar procedure, using a home point system of token reinforcement was successfully utilized by parents in
treated children with behavior problems [Christopherson, Arnold, Hill and Quiltch, 1972].

In a study by Hall, Cristler, Cranson and Tucker [1970], two teachers and a parent used multiple baseline designs to investigate the effects of systematic reinforcement and punishment procedures in the classroom and in the home. The results of the study showed that tardiness in an elementary school was reduced to near zero rates at the points where contingencies were applied. In high school, D and F grades were eliminated when students had to stay after school for individual tutoring. Similarly, a parent increased their child's engagement in desired practice activities when a contingency management system was introduced in the home.

The literature indicates that nurses can serve as reliable change agents. Ayllon and Michael [1959] used psychiatric nurses as behavioral engineers to bring about desired changes in the behavior of institutionalized patients. After receiving verbal training in the use of social reinforcement and extinction procedures, psychiatric nurses were able to bring about significant changes in the behavior of their patients.

There is considerable research which indicates that teachers can be trained in the use of applied behavior analysis. Hall, Panyan, Rabon and Broden [1968] carried out a study in the classroom of three first year teachers. The teachers were not initially familiar with learning theory principles and the systematic application of contingencies. All three teachers were experiencing significant problems in classroom control. The results of the study showed that
beginning teachers at three different grade levels could be taught to use systematic reinforcement procedures to increase classroom study behavior, even when previous attempts at assistance by principals and helping teachers had been relatively ineffective. Numerous studies by Hall and his associates indicate the success of classroom teachers in the use of applied behavior analysis [Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis and Porcia, 1971; Hall, Lund and Jackson, 1968; Hall, Cristler, Cranson and Tucker, 1970].

Ringer [1973] designed a study in which he served as a token helper in the management of classroom behavior. As the token helper, Ringer trained a classroom teacher in the use of token and verbal reinforcement by modeling the techniques in the teacher's classroom. When the token helper withdrew from the classroom, the teacher managed the token system and maintained disruptive behavior at lower than baseline levels.

An increasing number of studies have shown that children can be trained successfully in the use of applied behavior analysis. Long and Masden [1975] conducted a study to determine if five-year-olds could function as behavioral engineers for three- and four-year-old children in a day care center. The five-year-olds were trained in the use of an observational system, in systematically recording specified behaviors and in administering appropriate reinforcement. The data indicates that five-year-olds can be trained in a short period of time to consistently reinforce the appropriate social behavior of younger children.

McLaughlin and Malaby [1975] indicated that young children can be effective behavioral engineers in the following roles:
1. as self observers for routine data collection.

2. as observers of specified target behaviors such as inappropriate verbalizations.

3. as proctors in a Keller-type personalized system of instruction.

4. as experimenters who actually design and conduct simple behavior control experiments.

Children have also served in the role of academic tutor for their peers. Davis [1972] studied the effect of having remedial students tutor other remedial students. The tutor used the techniques of prompting for error correction and awarding positive reinforcement for appropriate responses. The data showed an increase in reading skill for the tutored children. Further, the reading skill of the tutor increased when the opportunity to assist another student was contingent upon completion of their own assignments.

In addition to the research previously reviewed in the field of behavior modification, two other models have proven successful in training people with various backgrounds in the use of applied behavior analysis. The first model is the Responsive Teaching Model developed by Hall and Copeland at the University of Kansas. This model was designed to help teachers and parents learn to use applied behavior analysis in the classroom and/or home. The primary goals of this model are:

1. to give the participant an understanding of the principles of applied behavior analysis.

2. to acquaint the participant with experimental studies in the literature.

3. to train the participants how to define, observe and record behavior.
4. to have the participants use applied behavior analysis techniques in carrying out experimental studies.

5. to provide contact with other participants and the experimental studies they have conducted.

Hall, et al. [1972] has conducted a number of studies demonstrating the effectiveness of this model. Graduate classes involving classroom teachers and parents meet once a week for three hours during a typical sixteen-week semester. The model uses lectures, films, group discussions and quizzes to relay information on research designs, recording and measurement skills, principles of learning theory and examples of applied research. Each parent or teacher designs and carries out an experiment using the techniques of reinforcement, extinction or punishment to reduce a particular behavior problem of their child or student.

The second model, a competency-based intervention model, was developed from a series of studies attempting to find an effective means of developing and/or changing selected teacher behaviors of student teachers in physical education settings. The following competency-based studies were conducted at The Ohio State University under the direction of Daryl Siedentop: Hughley, 1973; Boehm, 1974; Darst, 1974; Hamilton, 1974; Dessecker, 1975; Dodds, 1975; and McKenzie, 1976.

In this model each student teacher was given a series of modules by a supervisor trained in the use of applied behavior analysis. The student teacher had to reach a criterion level on each module before subsequent modules could be introduced. At the
beginning of the student teaching experience, baseline rates were established for all categories of selected teaching behaviors. Using a multiple baseline design across behaviors or across subjects, the modules were successively introduced throughout a ten week teaching practicum. These studies indicate that supervising teachers trained in applied behavior analysis can effectively use a competency-based intervention model to develop and/or change selected teaching behaviors of their student teachers.

Research on the Responsive Teaching Model and the competency-based model indicate that parents, teacher and peers can be trained in applied behavior analysis. A summary of the research dealing with training in the use of applied behavior analysis shows that both adults and children can be trained effectively to use the techniques of applied behavior analysis, and that only a relatively short training program is needed in order to obtain significant behavior change.

Based on these findings, it would appear that teacher training institutions could utilize the techniques of applied behavior analysis to improve and maintain the teaching performance of its pre-service teachers. Hutslar [1976] offers the following concluding remarks:

Programs could be designed in which teacher educators are trained in the use of applied behavior analysis for the purpose of developing and maintaining selected teacher behaviors of pre-service teachers. Teacher educators skilled in the use of reinforcement and contingency management techniques should be able to structure a learning environment that would optimize the probability that pre-service teachers would be able to demonstrate desired teacher behaviors and strategies [p. 37].
The Use of Applied Behavior Analysis to
Change the Behaviors of Teachers
and Student Teachers

Several studies in the area of physical education have used the techniques of applied behavior analysis in order to develop and maintain selected teacher behaviors of pre-service teachers. These studies were done in connection with the student teaching experience. All of the studies used a package intervention system as the independent variable. The package intervention included written instructions, modeling, verbal and graphic feedback, positive reinforcement and cueing. These techniques were designed to collectively bring about the desired change in student teacher behavior. Each of the studies used a multiple baseline design to demonstrate a causal relationship between the package intervention technique and the subsequent change in student teacher behavior.

In an effort to determine the extent to which a behavioral focus in physical education teacher training was effective in the acquisition of appropriate teaching behaviors, Rife [1973] examined the changes in student teacher behavior and its effects upon pupil behavior. Rife's study utilized a modeling intervention technique. Modeling consisted of the experimenter teaching a class and emphasizing a particular teaching behavior while student teachers observed. After the modeling intervention, the student teachers attempted to demonstrate the same teaching behaviors in his/her class. Feedback consisted of instructions, cueing, reinforcement and graphic feedback. The results showed that modeling and combined feedback were effective
in decreasing teacher behavior rates of negative feedback for skill attempts and negative reactions to off-task behavior. These techniques were also effective for increasing teacher rates of positive skill feedback and positive response for on-task behavior. The category of management behavior remained unaffected by the intervention techniques.

Hughley [1973] investigated the effect of directed information feedback on the teaching behavior of physical education student teachers. The directed information feedback variable utilized a similar package intervention technique to effect change in eight categories of teaching behavior. Based on the results of this study, Hughley drew the following conclusions:

1. Directed information feedback is effective in producing teaching behavior changes in physical education student teachers.

2. Beginning teachers in physical education emit primarily negative behaviors.

3. Negative behaviors do not automatically decrease as a result of increases in positive behaviors.

4. The beginning student teacher of physical education is very likely to emit very low rates of feedback either positive or negative.

Boehm [1974], Darst [1974] and Hamilton [1974] studied the effects of a competency-based intervention model on the behavior of student teachers and the pupils in their classes. These studies were conducted in an elementary, junior high and high school physical education setting. Nine categories of teacher behavior and three categories of pupil behavior were observed during baseline and intervention. Intervention consisted of competency-based modules,
instructions, cueing, reinforcement, graphic feedback and goal setting. In each study, the student teachers progressed systematically through the following competency-based modules: planning, interpersonal relations, management, instructional feedback and pupil assessment. Specific behavioral objectives were stated for each module. Criterion rates of performance were determined for each student teacher, based on his/her baseline data. The combined results indicated that significant change occurred in all of the specified teacher behaviors.

Dodds [1975] developed a competency-based peer assessment model which successfully changed student teacher verbal behavior in an elementary physical education setting. The student teachers coded one lesson taught by their peer on a daily basis. Based on the coded information, the student teachers provided graphic and verbal feedback and reinforcement after the lesson, and indicated when goals were met and when modules were completed so that the next instructional unit could be started. The supervisor designed the modules; set competency goals for each behavior for each student teacher according to his/her own baseline data; provided cueing, reinforcement and feedback during supervisory visits; and coded with the student teacher collecting data for reliability checks. Results of the study indicated that student teachers acquired behavioral intervention skills at designated competency levels and that all specified teacher behaviors changed significantly in the desired direction. Dodds found that for the majority of teacher behaviors, the percentages and rates reverted toward baseline levels once the intervention phase had ceased. Dodds concluded that specific maintenance contingencies should be set if
intervention levels of behaviors are to be maintained.

McKenzie [1976] developed a behaviorally-based teacher training center for pre-service physical education teachers. A peer assessment model, similar to the one developed by Dodds, was utilized to develop specific teaching skills. The student teachers participated in a behavioral workshop and implemented a variety of behavioral techniques to alter pupil behavior. These techniques included gym rules, positive reinforcement, extinction, modeling, token economy procedures, behavior games, behavior contracting, response costs and time out. A package intervention consisting of instructions, goal setting, cueing and prompting, feedback, reinforcement, modeling, self-monitoring, remedial loops and mini-studies was utilized to alter student teacher behavior. An analysis of the data indicated positive changes in both pupil and student teacher behavior. Additionally, the training project was inexpensive to operate.

Dessecker [1975] used a self-assessment model for supervision via tape recorded lessons on the verbal interactions of physical education student teachers. After recording a lesson the student teachers coded their tapes for a particular teaching behavior being intervened. The computed results and tape were sent to the on-campus supervisor for reliability checks and further analysis. The intervention consisted of a self-assessment of student teacher made tapes, a practicum every other week, instructions, goal setting, graphic feedback, cueing and reinforcement. Results of the data indicated that significant changes were made in all categories of skill and behavior feedback statements, variety of feedback statements, percent
managerial time per class and use of student's first name.

Hutslar [1976] studied the effects of training cooperating teachers in applied behavior analysis on the performance of selected teacher behaviors of elementary physical education student teachers. Cooperating teachers observed and recorded data for the student teachers in one class each day for the duration of the student teaching experience. Data were converted to ratios, percentages and rates per minute and displayed graphically. Based on the data for the student teacher, each cooperating teacher initiated specific interventions on those teacher behaviors he/she felt were most important to the improvement of the teaching performance of the student teacher. Results of the multiple baseline analyses indicated that cooperating teachers, following a training program, were able to use applied behavior analysis techniques successfully in changing selected teacher behaviors of their student teachers. The regular student teaching experience for a control group did not produce any substantial change in teaching performance. Significant change in teaching performance occurred for five out of six student teachers in the experimental group. Additionally, results of a student teacher questionnaire indicated that student teachers in the experimental group felt that their elementary experience was significantly superior to their secondary student teaching experience on six out of twelve items. The student teachers in the control group found their elementary and secondary student teaching experiences to be of similar quality.

A pair of studies conducted outside the field of physical education lend additional support for the use of a package intervention
technique. Clark, Macrae, Ida and Smith [1973] used a combination of variables to compose a training package for elementary student teachers. The teacher training package consisted of written instructions, modeling, verbal and graphic feedback. A multiple baseline analysis across teaching skills suggests that the package intervention is effective in establishing the use of a variety of teaching skills and in increasing the rate of praise given by student teachers. Further, the data suggest that the contingent use of graphic feedback, grades and quizzes may not be necessary to the acquisition of all skills by every student teacher. In a similar study, Clark and Macrae [1976] suggest that trainees be permitted to choose the components that are to be used in their training.

One study was found which did not use a package intervention approach in the training of student teachers. Wilde [1972] found that student teachers trained in the use of positive reinforcement techniques had a higher frequency of approval response following appropriate student behavior, and lower frequencies of disapproval following inappropriate pupil behavior than did untrained student teachers. It was hypothesized that trained student teachers would have a lower frequency of errors in awarding approval or disapproval statements and that they would have a more positive self concept at the end of the student teaching experience. Neither of these hypothesis were supported by the data.

A review of the research indicates that training the university supervisor and/or the student teacher in the techniques of applied behavior analysis can result in significant and desired changes in
selected teacher behaviors of student teachers [Hutslar, 1976]. In addition, a package intervention approach allows a wide variety of teacher behaviors to be developed during the student teaching experience. When a package intervention is used, it should include some, or all, of the following techniques: written instructions, modeling, verbal and graphic feedback, cueing, goal setting and positive reinforcement. One study indicated that not all of these techniques may be needed by all student teachers in order to achieve the desired level of performance on some of the target teaching behaviors. Further, it has been suggested that student teachers be permitted to choose the intervention techniques to be used in their training.

The Effect of Goal Setting, Feedback, Reinforcement and Modeling on Behavior Change

A brief review of each intervention technique will be presented in order to provide additional support for the collective use of these techniques in a package intervention approach to behavior change. The following techniques will be briefly discussed in regard to its effectiveness in promoting behavior change:

1. Goal Setting
2. Feedback
3. Positive Feedback
4. Modeling

Goal Setting

There is considerable research which indicates that teaching to specified objectives is effective in improving student learning. Two
studies by Mager and McCann [1961] and Allen and McDonald [1963] indicated that when objectives were given prior to instruction, students learned the required material in less time without any loss in the quality of the learning. In Mager's study, the instructor simply told his students what they were expected to learn and then dismissed them to learn the material on their own. The data indicated that the students learned the material on their own in one-half the time taken by students enrolled in the traditional course.

Dalis [1969] studied the effect of precise instructional objectives upon student achievement in a health class. Analysis of the data revealed that students who were given precise objectives prior to instruction achieved at significantly higher levels than did students given either vague or placebo objectives. This suggests that vague or placebo objectives lead to confusion on the part of the learner, hampering his/her ability to select activities that relate to the instructional intent of the class.

Moffet [1966] found that pupils of student teachers who were given written instructional objectives achieved better results than did a control group of student teachers who did not make their behavioral objectives known to their pupils. The experimental group of student teachers indicated more satisfaction with their mid-term grades and the student teaching experience.

McNeil [1967] designed a study to collect evidence as to whether or not supervision by objectives produced predicted consequences. The data provide evidence that the emphasis and use of operational definitions or instructional goals, including specification
of criterion measures in the supervisory process, is accompanied by more favorable assessment of teachers by supervisors and greater gain in desired directions on the part of learners.

Saudergas [1972] found that teacher praise increased or decreased with systematic setting of criterion rates. The data indicated that teachers who counted, graphed and met specified criterion rates could raise and lower their academic approvals reliably.

These representative studies suggest that the use of instructional objectives result in improved student learning and higher achievement for those working toward the goal specified in the behavioral objective.

Feedback

In reviewing the research in teacher education, Peck and Tucker [1973] made the following statements regarding the use of feedback:

All in all, the research evidence looks quite consistent in confirming the utility of giving teachers objective feedback about specific aspects of their teaching behavior. Furthermore, the available evidence all indicates that teachers use such feedback to make instructive changes in their teaching style, only if another person participates in the feedback session. The presence of another human being adds a potent factor which does induce positive change. Simply looking at one's own performance does not lead to much new insight into what one is doing, or else it does not provide adequate motivation to alter that pattern [p. 947].

Fuller, Veldman and Richek [1966] tested the effect of feedback on the self ratings of student teachers. The data indicated that listening to tape recordings alone did not reduce the discrepancies between a student teacher's self rating and the ratings by others
who observed their teaching performance. But, there was a significant reduction in these discrepancies when the playback was accompanied by instructor or peer commentary.

Tuckman and Oliver [1968] investigated the source of feedback and its effect on teacher performance. It was found that feedback from students led to improved teaching behavior, as measured by change in student ratings. Feedback from the supervisor produced no additional effect when combined with student feedback and actually had a negative effect when used alone.

When studying the use of interaction analysis, Tuckman, McCall and Hyman [1969] found that verbal feedback from another person had to be added to a teacher's self-observation before any changes were achieved. They also found that the more a teacher's self-perception disagreed with the facts about his actual teaching behavior, the more likely the teacher was to change his/her self-perceptions to match the observed facts. Similar results were found by Young [1968].

The literature suggests that in order for optimum learning to occur, feedback must be given in relation to one's progress toward specified goals. The literature also suggests that when feedback is given by another individual, it is more effective than when an individual engages only in self-directed feedback.

The following statement by Laurance J. Peter [1975] summarizes the use of goal setting and feedback as it relates to the student teaching phase of teacher education:

Like other complex skills, learning to teach requires practice. Practice that is goal oriented provides feedback that modifies performance in a
positive direction. Practice teaching that lacks precise instructional objectives is like trying to improve your accuracy in pitching a ball at a target when the target is hidden from view.

... goal oriented practice teaching that employs precise instructional objectives, including observation and feedback, gives the student teacher a specific framework within which to assess his skills.

Reinforcement

There is considerable evidence to indicate that reinforcement is an effective means of changing human behavior. In addition to the literature supporting the use of positive reinforcement as part of a package intervention technique, numerous studies have been conducted which show that a singular use of positive reinforcement can also be an effective means of changing behavior.

Thomson, Becker and Armstrong [1968] demonstrated the importance of the teacher's role in decreasing classroom disruptions and increasing or maintaining appropriate student behaviors. Positive reinforcement maintained students' appropriate responses, while teacher disapprovals increased disruptive behaviors. This study suggests the practical value of positive instead of aversive classroom control procedures. Similar results were found in studies by Hall [1968, 1971], Kazdin and Klock [1973], Klein [1972], Kosier [1971] and Thompson, Brassell, Persons, Tucker and Rollins [1974].

Hall, Lund and Jackson [1968] studied the effects of teacher attention on the study behavior of elementary school children. The data indicated that teacher attention, when made contingent upon study behavior, resulted in a significant increase in the study behavior of school children.
Altman and Linton [1974] made the following statement regarding the effects of teacher attention:

Teacher attention in the form of praise, smiles and reprimands, when made contingent upon the behavior of students in a classroom, may serve to increase the rate those behaviors are emitted regardless of the nature, positive or negative, of that attention [p. 87].

Cossairt, Hall and Hopkins [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.

Thus, it appears that both teacher approval and/or disapproval may serve as a positive reinforcer for student behavior. Further, the literature indicates that only when teacher attention is made contingent upon the performance of a particular behavior does it function effectively as a behavior change agent.

Modeling

The use of modeling as a means of influencing human behavior has been well documented [Bandura, 1962, 1963; McDonald, 1969; and Young, 1969]. This research suggests that new responses may be acquired or existing responses changed as a function of observing or listening to the behaviors of others and observing the consequence of their responses.

There have been relatively few studies which have investigated modeling in natural settings, particularly as a teacher training technique. One modeling procedure that was effective involved a
supervisor who replaced the teacher for five minutes whenever the teacher had not used enough praise. During this five minute period, the teacher was to observe the model of the supervisor's use of teaching skill [Rule, 1972].

In a previously mentioned study, Ringer [1973] demonstrated the effectiveness of a model token helper to increase the use of a classroom teacher's verbal and token reinforcement. Modeling was used as part of a training package to improve selected teaching skills of student teachers [Clark, et al., 1975; and Rife, 1973].

Research by Zevin [1974] indicates that cooperating teachers have a great modeling influence on their student teachers. From the results of his data, it would appear that student teachers tend to imitate their cooperating teachers, regardless of the approval or disapproval of college supervisors. Based on these findings, Zevin concluded that cooperating teachers need to actively model those skills that student teachers are supposed to learn, as well as arrange the conditions that will foster those outcomes.

Summary

Although student teaching is regarded as the most practical and useful part of pre-service education, there is a substantial body of evidence to indicate that student teaching is by no means beneficial in all its effects.

From the studies reviewed, it seems apparent that student teachers tend to adopt both the attitudes and teaching behaviors of their cooperating teacher. Perhaps the real world modeling effect
of the cooperating teacher, along with the fact that the cooperating teacher helps determine the student teacher's grade and letter of recommendation, may serve as incentives for student teachers to adopt specific characteristics of their cooperating teacher. These findings suggest the importance of placing student teachers with the best possible cooperating teachers. If student teachers do imitate their cooperating teachers, it becomes essential that cooperating teachers be selected on the basis of their ability to actively model those teacher behaviors that are important to the student teaching experience.

The literature indicates a growing data base in support of applied behavior analysis techniques which have been effective in the development, change and maintenance of a variety of teaching behaviors. The Responsive Teaching Model, the competency-based intervention model and the package intervention technique have proven successful in applied behavior settings.

Since cooperating teachers are in a position to exert a great deal of influence on their student teachers, it would seem appropriate that cooperating teachers be trained in techniques which would help bring about desirable changes in the teaching performance of their student teachers. A training program which would involve the use of observational recording techniques and the use of reinforcement, cueing, modeling and verbal and graphic feedback should enable the cooperating teachers to help their student teachers improve in their performance of selected teacher behaviors.
The current investigation replicates a training program for cooperating teachers. The program was designed to train cooperating teachers in observational techniques and in the use of applied behavior analysis as an intervention technique for the purpose of changing selected student teacher behaviors.
CHAPTER III

METHODS AND PROCEDURES

The purpose of this study was to analyze the effects of training secondary cooperating teachers in applied behavior analysis on the performance of selected teacher behaviors of physical education student teachers. Data were collected by the cooperating teachers and analyzed in multiple baseline designs across behaviors for each subject. Reliability of data was insured through independent observation. A statistical comparison of the differences in mean performance scores for each teacher behavior was made between the experimental group of student teachers and those in the control group. Prior to student teaching, a questionnaire was given to both groups of student teachers concerning their expectations of the student teaching experience. A follow-up questionnaire was administered to note the changes in their feelings following the student teaching experience. Finally, a questionnaire was given to cooperating teachers and student teachers in the experimental group, and to student teachers in the control group to determine their perceptions of the regular and experimental methods of supervising student teachers.

The multiple baseline design is a single organism, $n = 1$, design. Single organism research is useful for studying a limited number of subjects in order to determine the effects of an independent
variable upon the dependent variable of the study. Like any other empirical design, the conditions of reliability, causality and significance must be satisfied.

The independent variable in this study was the package intervention techniques utilized by the cooperating teacher. The dependent variables were the selected teacher behaviors upon which the intervention were made. Sidman [1960] has suggested that causality can be demonstrated by performing several manipulations of the independent variable and noting the effects on the dependent variable.

The data for most applied behavior analysis studies are gathered through observational recordings. It is, therefore, important in this type of research that the data be reliable. Reliability in single organism research refers to the degree to which two or more independent observers, using the same procedures for collecting the data, obtain the same results.

Johnson and Bolstad [1973] suggest that reliability checks be made at least once during each phase of baseline, intervention, reversal and/or maintenance. In addition, the reliability of each data collector should be established prior to the start of the study. In single organism research, reliability is most commonly determined by use of the following formula:

\[
\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100 = \text{Percent of Agreement}
\]

Reliability of .80 with the investigator was established for the cooperating teachers at the conclusion of the training program. During the actual study, reliability for the cooperating teachers with
the investigator was set at .85. For the control group data, a reliability of .80 was established.

Significance in parametric and non-parametric statistics is based on the statistical probability that the results obtained were not due to chance. Significance in n = 1 research "refers to a comparison between the accomplished behavior changes and the level necessary for social usefulness" [Risley, 1969]. Baer, Wolf and Risley [1968] make the following comment concerning the degree to which behavior must change to be considered significant:

In evaluating whether a given application has produced enough of a behavioral change to deserve the label [significant], a pertinent question can be, how much did that behavior need to be changed? Obviously, that is not a scientific question, but a practical one. Its answer is likely to be supplied by people who must deal with the behavior [p. 96].

Applying these standards of significance to the present study, to be significant, a student teacher's behavior change must be judged so by the cooperating teacher, the supervising teacher and the pupils of the student teacher.

Internal significance, that of the client being satisfied with the behavior change, is also important in single organism research. If the client is pleased with the behavior change and views it as significant, he/she is more likely to continue behaving in the changed manner. In addition, if the student teacher views the changes that occurred in his/her teaching as significant, he/she may be more likely to use applied behavior techniques in the analysis and improvement of his/her teaching in the future [Hutslar, 1976].
"Replication is the essence of believability" [Baer, Wolf and Risley, 1968, p. 95]. It is through replicated studies that statements of generalization can be made. The present study, which utilizes five student teachers and their cooperating teachers, is actually five replications of a single organism multiple baseline design. With these replications, the investigator attempted to extend Hutslar's findings to a secondary school physical education setting.

Subjects

Experimental Group--Cooperating Teachers

The subjects for the experimental group were five secondary physical education teachers in the metropolitan area of Columbus, Ohio. This included three junior high teachers, one high school teacher and one teacher from a combination junior/senior high school setting. The study was conducted during the Spring Quarter of 1977.

The cooperating teachers were selected on the basis of their reputation for being successful teachers in the Columbus area and capable of assuming the new responsibilities that would be involved in this study. Three of the teachers were recommended by the Coordinator of Physical Education for the Columbus Public School District. Four of the five teachers had previous experience in supervising student teachers. The one cooperating teacher who had no prior supervisory experience with student teachers was the only teacher who had previous experience in using the techniques of applied behavior analysis. The general characteristics of the cooperating teachers
are listed in Table 1 (page 46).

Each teacher was personally contacted by the investigator during the Fall Quarter of 1976. All five teachers indicated a desire to participate in the study. Six hours of graduate credit was earned by the cooperating teachers for their participation in the in-service training program during the Winter Quarter of 1977 and the actual conduct of the study in the Spring.

**Control Group--Cooperating Teachers**

Four secondary physical education teachers from the metropolitan area of Columbus, Ohio served as the cooperating teachers in the control group. This included three high school teachers and one junior high school teacher. All four cooperating teachers had previous supervisory experiences and have been utilized extensively for student teaching placements of The Ohio State University. These placements were typical of the student teaching experiences encountered at the secondary level. The general characteristics of the cooperating teachers in the control group are listed in Table 1 (page 46).

**Experimental Group---Student Teachers**

All five student teachers were senior physical education majors at The Ohio State University. The student teachers were assigned to their student teaching placements by the departmental coordinator for student teaching.

The experimental group consisted of two men and three women physical education majors. They were assigned to the following
<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Sex</th>
<th>Total Years Teaching</th>
<th>Years in Present School</th>
<th>Number of Students in School</th>
<th>Number of Student Teachers</th>
<th>Highest Degree Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control</strong></td>
<td></td>
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<td>1</td>
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<td>7</td>
<td>5</td>
<td>950</td>
<td>6</td>
<td>M.A.</td>
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<td>2</td>
<td>38</td>
<td>M</td>
<td>11</td>
<td>11</td>
<td>1540</td>
<td>20</td>
<td>M.A. + 10</td>
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<tr>
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<td>39</td>
<td>Fe</td>
<td>15</td>
<td>12</td>
<td>1540</td>
<td>17</td>
<td>M.A.</td>
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<td>4</td>
<td>35</td>
<td>M</td>
<td>14</td>
<td>14</td>
<td>1300</td>
<td>10</td>
<td>M.A. + 10</td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
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<tr>
<td>1</td>
<td>28</td>
<td>M</td>
<td>5</td>
<td>1</td>
<td>1000</td>
<td>1</td>
<td>B.S. + 36</td>
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<tr>
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<td>28</td>
<td>Fe</td>
<td>4½</td>
<td>1</td>
<td>2000</td>
<td>6</td>
<td>B.S. + 31</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td>Fe</td>
<td>8</td>
<td>1</td>
<td>1200</td>
<td>3</td>
<td>B.S. + 10</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>Fe</td>
<td>4</td>
<td>3</td>
<td>825</td>
<td>6</td>
<td>B.S.</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>M</td>
<td>8</td>
<td>8</td>
<td>825</td>
<td>5</td>
<td>M.Ed. + 20</td>
</tr>
</tbody>
</table>
schools: Hastings Junior High School and Upper Arlington High School in Upper Arlington, Ohio; Beechcroft Junior/Senior High and Buckeye Junior High School in Columbus, Ohio. All five students were teaching half-days for ten weeks at the secondary level. The other half-day the student teachers were teaching in an elementary school.

Each of the student teachers had the following previous teaching experiences during their undergraduate training at Ohio State: participation in an Early Experiencing Program, four weeks of elementary and six weeks of secondary school field experience. The general characteristics of student teachers for both the experimental and control groups are shown in Table 2 (page 48).

Control Group--Student Teachers

The control group of student teachers consisted of two men and two women senior physical education majors from The Ohio State University. Three of the student teachers taught half-days in a secondary physical education setting and one taught on a full-time basis. Their teaching assignments were assigned by the departmental coordinator for student teaching. Because of time commitments and scheduling conflicts of the investigator, a pure random selection of control subjects was not possible. Random selection was made only on those subjects who were given afternoon teaching assignments. Three of the student teachers were assigned to two high schools and one junior high school in the Columbus School District and one was assigned to a high school in Westerville, Ohio. Only two of the subjects taught the other half-day in an elementary school. One of the subjects had already completed her student teaching at the elementary level and was taking
<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Sex</th>
<th>Year In School</th>
<th>Date Of Graduation</th>
<th>Time Of Secondary S. T.</th>
<th>Taking Course Work</th>
<th>Other Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>23</td>
<td>Fe</td>
<td>Sr.</td>
<td>June '77</td>
<td>PM</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>26</td>
<td>M</td>
<td>Sr.</td>
<td>June '77</td>
<td>All Day</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>Fe</td>
<td>Sr.</td>
<td>June '77</td>
<td>PM</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>M</td>
<td>Sr.</td>
<td>June '77</td>
<td>PM</td>
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<td>X</td>
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<tr>
<td>Experimental</td>
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<td>1</td>
<td>23</td>
<td>M</td>
<td>Sr.</td>
<td>June '77</td>
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<td>Dec. '77</td>
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</table>
course work at the university during the other half-day. One student was teaching full-time in the secondary school. Characteristics of the control group of student teachers are shown in Table 2 (page 48).

Schools

Experimental Group

Two of the four schools were located in the city school system of Columbus, Ohio. The other two schools were located in the suburban school district of Upper Arlington, Ohio. The student populations were comprised of children from middle to upper class families. School populations ranged from 825 to 2,000 and included grades seven through twelve. Physical education time per week varied from school to school—one school had classes which met once a week for eighty-four minutes, two schools held classes twice a week for forty-five and forty-eight minutes, respectively, and another school held physical education classes five days a week for fifty-five minute periods.

Control Group

Two of the three schools were located in the city school system of Columbus, Ohio. The other school was located in the suburban school district of Westerville, Ohio. The students were from middle and upper middle class families. The school populations ranged from 950 to 1,540 and included grades seven through twelve. The physical education time per week varied from school to school—one school held classes two times a week for forty-eight minutes and two of the other schools held classes five days a week for forty-eight and fifty-five minutes per day, respectively.
Cooperating Teacher Training Program

Experimental Group

Prior to working with the student teacher, the cooperating teachers in the experimental group participated in a six week training program during the Winter Quarter of 1977. The training program was designed to teach the following skills and knowledges:

1. The observational techniques of duration and event recordings.
2. An understanding of the principles of applied behavior analysis.
3. Graphing techniques for presenting data to the student teacher.
4. Selected intervention techniques.

The program consisted of one group meeting on campus and six weeks of individual on-site practice with the observational recording techniques. The group meeting took place during the first week of the program. During this meeting the cooperating teachers were acquainted with the study and each was given a training manual that he/she was to follow (Appendix A). The categories of the observational format were explained and examples were given. Following this, three video tapes were shown: one on skill feedback and one each on negative and positive behavior interactions. Each tape also showed segments of management, instruction and activity time. As the tapes were shown, the teachers orally practiced identifying the categories as they were presented. Also during this initial meeting, a time was set when the investigator could work with the teachers at their schools to practice the observational techniques.
During the fifth and sixth week of the program, a review of the procedures to be used with the student teachers was undertaken. The review included taking baseline data, graphing the data, the use of intervention techniques and the setting of criterion and maintenance rates. Also discussed was the technique of contracting with the student for his/her responsibilities during the student teaching experience.

The cooperating teachers handled all supervisory functions during the student teaching experience. The assigned university supervisor, the investigator, had no direct contact with the student teachers. Rather, the supervisor functioned in the role of consultant for the cooperating teacher, and did periodic reliability checks on the data collected by the cooperating teacher.

During the training period, the cooperating teachers had an opportunity to practice the observational recording techniques on their school colleagues several times a week. Reliability checks were made during the fifth and sixth week of the training program. A criterion level of .80 was set by the investigator.

Control Group

The control group of cooperating teachers did not receive any special training prior to or during the conduct of the study. Any training they have received would have been typical of that received by all cooperating teachers associated with the Division of Physical Education at The Ohio State University. A university supervisor was assigned to each of the student teachers and carried out regular supervisory duties. These duties included observing the student
teacher at least once every two weeks in an active teaching situation, and meeting with the student teacher and/or the cooperating teacher to discuss the student teacher's progress in order to help the student teacher improve his or her teaching effectiveness.

Observational Techniques

Three observational techniques were utilized by the cooperating teachers in making daily observations of their student teachers. These techniques included duration, event and plachek recording. Duration recording was used to do a cumulative time analysis of each student teacher's lesson. Data for management, instruction, activity and average management time per episode were gathered using duration recording. A stopwatch was used to time the duration of each management, activity and instructional episode throughout the entire lesson. Using a continuously running stopwatch, the cooperating teacher drew a vertical line through the time segment on the coding sheet to the nearest ten seconds. Each time category was marked with an M, I or A to indicate management, instructional or activity episode (See sample of recording sheet, Figure 1, page 53). At the completion of the lesson, each category was summed to determine the total time.

Event recording involves making a tally or frequency count every time a previously defined behavior is observed during the designated observation period. Event recording was used to gather data on the following teacher behaviors: the number of positive, negative and corrective skill feedback statements of a general or specific nature during activity time, and the number of positive and
**Record of Student Time Allotment in Class, Behavioral Interactions and Skill Feedback Statements.**

<table>
<thead>
<tr>
<th>Observer</th>
<th>Date</th>
<th>School</th>
<th>Grade</th>
<th>Environment</th>
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**Time Started | Time Finished | Total Minutes Observed | Experimental | Generalization |
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**Number of Students in Class | Activity | Student Teacher |
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(Time Analysis Codes: I - Instruction; A - Activity; M - Management)

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<th>(minutes)</th>
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**Placheck 1**

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**Placheck 2**

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**Placheck 3**

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**Placheck 4**

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**Placheck 5**

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**Placheck 6**

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**Placheck 7**

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**Placheck 8**

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</tbody>
</table>

**Time Analysis**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>% Management Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Instructional Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Instructional Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Activity Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Activity Time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Average Mgmt. Time/Episode | Rate (M)** |        |
|-----------------------------|----------|--------|

**Skill Feedback Statements**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Corrective</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Specific</td>
<td>General</td>
</tr>
<tr>
<td>Specific</td>
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<td>Specific</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Plachecks</th>
<th>Total App. Beh.</th>
<th>Total Active Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Behavioral Interactions**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy</td>
<td>Nasty</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Rate</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

**Figure 1**
negative behavior statements that occurred during management, instruction or activity time. Event recording was used to collect data only during specified intervals. With the exception of the first interval being two minutes in length, all other intervals were in three minute units (see shaded areas on the sample coding sheet, page 53).

To free the cooperating teacher from having to continually watch the stopwatch, a cassett tape recorder cued the teacher when to observe throughout the lesson. The tape recorder was fitted in a small carrying case and secured to the teacher's waist by a belt. The tape recorder was equipped with an ear jack so as not to disrupt the class setting. At the start of each recording interval, the tape cued the teacher to "record all skill feedback and behavior interactions." At the conclusion of the interval, the tape cued the teacher to "stop."

Placheck recording is a group time sampling technique which is used to record the number of individuals within a group who emit a previously defined behavior immediately following a specified time interval. Plachecks were done by counting, in a left to right direction, the number of individuals who are engaging or not engaging in a particular behavior. This is usually accomplished within a ten second time frame. Placheck recording was used at the completion of each shaded event recording interval. The tape cued the teacher to do a placheck for appropriate student behavior. After a ten second interval, another cue was given to do a placheck for active student learning. Plachecks for appropriate student behavior were recorded in the upper half of the placheck box, while plachecks for active student learning were recorded in the lower half of the box (see placheck box on the
sample coding sheet, page 53). In this study, it was easier to count the number of students engaging in inappropriate behavior or non-active learning and then subtract this number from the total group of students.

Data Collection

Experimental Group

The cooperating teachers observed and recorded data for the student teacher during one class period each day for the duration of the student teaching experience. The same classes were observed for each recording session. The investigator did weekly reliability checks on the data collection of each cooperating teacher.

When the student teacher assumed full teaching responsibility for the classes to be observed, the cooperating teacher recorded baseline data for all teacher behaviors under study. One reliability check was done with each cooperating teacher during the collection of baseline data. The cooperating teachers continued observational recording on all teacher behaviors through the intervention and maintenance phases of the study. The investigator made reliability checks for each cooperating teacher at least three times during intervention and at least once during maintenance for each student teacher.

Control Group

Data on all teacher behaviors were collected on each student teacher in the control group by the investigator. The data were collected for one class period once a day during the second or third week of the quarter and again during the ninth or tenth week of the
student teaching experience. Reliability checks were made on the investigator by a trained observer three times during the first data collection period and twice during the second collection period.

**Intervention**

Following the collection of baseline data, each cooperating teacher converted the raw scores to appropriate ratios, percentages and rates per minute. The information for all behaviors was then displayed graphically. Based on the data collected during baseline, each cooperating teacher initiated a specific intervention on one behavior which he/she felt was most important to the initial improvement of the teaching performance of the student teacher. The cooperating teacher used a package intervention in order to help the student teacher improve his/her performance of that particular behavior. The techniques used in the package intervention were: setting criterion levels of performance, using written materials, giving verbal and graphic feedback, giving cues relating to the target behaviors, giving positive reinforcement and modeling the desired teaching behaviors (see package intervention, p. 57). Once the criterion level of performance was achieved, a maintenance level was established for that behavior. The maintenance level was set slightly lower than the initial criterion level to insure that once a behavior was reached, it was not lost when another behavior became the focus of an intervention.

Subsequent interventions were made by the cooperating teachers when the performance of each preceding target behavior either reached criterion level or indicated a definite trend in that direction. In
all cases, it was the cooperating teacher who decided the order in which interventions were made. They also decided the criterion and maintenance levels for each behavior and the appropriate time to begin each new intervention. In addition, the cooperating teachers had the option to add other teacher behaviors to the observation sheet if they felt other behaviors needed changing.

Package Intervention

Wolf [1973] suggests that if a package intervention produces a desired behavior change, its significance in relation to the research problem is established.

In technological research, the primary goal is to find some way to modify specific behaviors. Thus, in technological research rather than simply introducing one variable at a time and studying its effect, the investigators usually introduce multi-variable packages to see whether the whole thing has any effect. If indeed the package does have an effect and then if there is some practical or theoretical reason for examining the role of the individual components, these roles can then be teased out [p. 532].

With this in mind, the following package intervention techniques were used to bring about behavior changes in the experimental group of student teachers: goal setting, written materials, verbal and graphic feedback, reinforcement and modeling.

Goal Setting

Goal setting involved the establishment of specific percentages, rates or ratios for the teaching behaviors under investigation. Criterion levels were set on an individual basis by each cooperating teacher.
Written Materials

Written material was available for each student teacher for each of the teaching behaviors under investigation. Student teachers were encouraged to read selections from the text, *Developing Teaching Skills in Physical Education* [Siedentop, 1976]. These materials included precise definitions of the target behaviors, with examples and suggestions for improving one's teaching in relation to those behaviors. In addition, this text served as the primary source of information for the training program of the cooperating teachers.

Verbal and Graphic Feedback

Verbal and graphic feedback was given only for those behaviors directly involved in the intervention or maintenance phases of the study. This feedback involved presenting the student teacher with coded information and examples from the teaching situation immediately after it occurred. Feedback was not given for behaviors not included in the current intervention.

Reinforcement

Cooperating teachers gave reinforcement in the form of verbal and nonverbal praise for appropriate performance of target behaviors, the attainment of criterion levels of specific behaviors and for continued performance of target behaviors at maintenance levels. When giving praise, the cooperating teachers were encouraged to verbally identify the behaviors being reinforced and to give specific examples of those behaviors that were done particularly well. Siedentop [1976] considers the use of specific praise to be a more powerful reinforcer.
than generalized praise statements. By giving specific praise, the cooperating teacher served as a model for one of the target behaviors of the study (positive, specific praise statements).

**Modeling**

The cooperating teachers served as models for the various teaching behaviors during the student teaching experience. In three of the five teaching situations, the cooperating teachers taught at least one class where the student teacher could observe their cooperating teachers modeling the desired teaching behaviors. In addition to modeling the behavior, the cooperating teacher cued the student teacher as to when the behavior was to occur. This prior cueing, recommended by McDonald [1972], helped the student teacher focus on the essential elements of the behavior.

**Analysis and Research Design**

The cooperating teachers recorded all behaviors in the study on a daily basis. A composite profile was developed for each student teacher during baseline, intervention and maintenance phases. The raw data were converted by the cooperating teachers to rates per minute, ratios and percentages for the purpose of graphic comparisons. The investigator spot-checked this procedure on a regular basis. The investigator collected the data from each cooperating teacher once a week after the cooperating teacher had an opportunity to add the information to the graphs that were being used in the interventions. A separate graph was used for each teacher behavior under study.
The data were analyzed with multiple baselines across behaviors for each student teacher. This study represents five replications of a single organism, n = 1.

The primary intervention of this study was the cooperating teacher training program, which included the use of observational techniques and a package intervention system. The multiple baseline design involves measurement of several behaviors over time. Several baselines are established during the experimental situation. A strong inference of a causal or functional relationship was demonstrated if the various behaviors changed markedly subsequent to the introduction of the intervention procedure. Further evidence of a causal relationship would be shown by similar changes in the teacher behavior of all five student teachers following intervention.

The data were further analyzed to determine differences between the initial and final measures for each group and differences between final measures of both groups. Mean scores from both baseline and final measures were computed for each behavior of each subject. The Wilcoxin-rank sum statistic [Hollander and Wolfe, 1973] was used to determine differences within and between groups.

The Wilcoxin-rank sum statistic is a non-parametric statistic used to determine differences between sets of correlated data. These differences may be between two measures of the same group—pre- and post test scores—or between the scores of two different groups, obtained from a single instrument.

At the start of the student teaching experience, the experimental group of student teachers were given a questionnaire designed
to measure their expectations concerning the student teaching experience (Appendix C). At the conclusion of the study, the student teachers were given a post test questionnaire to measure changes in their initial expectations (Appendix D).

In addition, a Likert-type response questionnaire was given to the cooperating teachers and their student teachers to ascertain the participant's perception of the relative effectiveness of the experimental and regular methods of supervision.

The student teacher questionnaire (Appendix E) was designed to obtain the student teachers' appraisal of their student teaching experience under the regular and experimental method of supervision. Both groups of student teachers were given this questionnaire during the tenth and final week of student teaching.

The cooperating teacher's questionnaire (Appendix F) was designed to obtain an evaluation and comparison of the regular and experimental method for working with student teachers. Wilcoxin's rank sum statistic [Popham and Sirotnik, 1973] was used to analyze the questionnaire data.
CHAPTER IV

ANALYSIS AND DISCUSSION OF DATA

Thirteen student teacher behaviors were selected for observation in this study. These student teacher behaviors were defined and categorized into four behavior components:

1. Time Analysis Component
   a. Percent of management time per class
   b. Percent of instructional time per class
   c. Percent of activity time per class
   d. Average time per management episode

2. Skill Feedback Component
   a. Positive and corrective skill feedback statements per minute of activity time
   b. Negative skill feedback statements per minute of activity time
   c. Ratio of positive to corrective statements per minute of activity time
   d. Ratio of specific to general skill feedback statements

3. Behavior Interactions
   a. Positive behavior statements per minute
   b. Negative behavior statements per minute
   c. Ratio of positive to negative behavior statements

4. Student Behavior Component
   a. Percent of appropriate student behavior per class
   b. Percent of active student learning during activity time
Cooperating teachers participated in a six week training program which focused on observational recording of the student teacher behaviors, graphing of observational data and intervention techniques. Following the training program, cooperating teachers collected baseline data for their student teacher by observing one class per day for a period of one week. The recording format utilized duration recording for the time analysis component. Data for all other behavior categories included in the skill feedback and behavior interaction components were obtained using event recording. Placheck recording was used to collect the data relative to the student behavior component. Reliability checks for each cooperating teacher were conducted during baseline, intervention and maintenance phases of the study.

The raw data were converted to percentages, ratios and rates per minute. These figures were then plotted graphically by baseline and intervention phases for each teacher behavior. The analysis of these data was made using multiple baselines across behaviors for each student teacher.

Observational recording of data was also done for a control group of four student teachers. These observations were made by the investigator, with periodic reliability checks being performed by a trained observer. To provide a measure of initial and final student teaching performance, observations were initially done during the second or third weeks and were then repeated during the ninth or tenth weeks of the student teaching experience. Four observations were made for both the initial and final evaluations for each student teacher in
the control group.

Two questionnaires were administered to the participants in order to ascertain their perceptions relative to the effectiveness of the experimental method of cooperating teacher supervision. The Cooperating Teacher Questionnaire was given to the cooperating teachers in the experimental group. The Student Teacher Questionnaire was administered to all student teachers in both the control and experimental groups. Mean response scores by item were computed for each group—cooperating teachers, experimental student teachers and control student teachers. Statistical analysis of the questionnaires was done using Wilcoxin's rank sum statistic.

Additionally, a pre- and post test questionnaire was given to both groups of student teachers in an effort to measure the change in their expectations relating to their student teaching experience. Statistical analysis of the questionnaire was done using Wilcoxin's rank sum statistic.

Reliability

Studies which gather data through observational recordings must demonstrate that the data are reliable. In single organism research, this is accomplished through two or more independent observers using the same procedures to obtain the same results. High interobserver agreement indicates that the data that were obtained are reliable. A high degree of reliability ensures that when subsequent changes do occur, that these changes are changes in the behavior and not the observer.
The measures of reliability are influenced by the frequency count of each behavior category. In categories where a low frequency of occurrence exists, reliability is more difficult to obtain. Errors in classifying events are inflated by the small numbers used to calculate reliability.

Reliability measures are also influenced by observer training programs. The experimental group of cooperating teachers participated in an initial six week training program. The trained observer, who collected the data for the control group, received individual instruction and exceeded the .80 criterion level before making reliability checks on the investigator. Following each reliability check, the cooperating teachers and the trained observer were given feedback on their observational skill. Behavior categories in which reliability scores were low were discussed and definitions reviewed. As suggested by Johnson and Bolstad [1973], this served as an in-service training program and helped to keep the data reliable throughout the student teaching experience.

**Cooperating Teacher and Trained Observer Reliability**

Reliability checks were made by the investigator for each cooperating teacher. During the reliability checks the total observational format was utilized for the duration of one class period. The reliability checks were done at the completion of the cooperating teacher training program and during the phases of baseline, intervention and maintenance. Two types of reliability were computed:
1. Percentages of agreement for classifying events into categories for each subject.

2. Percentages of agreement for classifying events into categories across subjects.

Reliability for classifying events into categories for each subject was calculated by totaling the number of agreements and disagreements in each teacher behavior category and then inserting the sums into the following formula:

\[
\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100 = \text{Percent of Agreement}
\]

Reliability for classifying events into categories across subjects was computed by summing the total number of agreements and disagreements for each behavior category across all subjects. The reliability for each category was computed in the following manner:

\[
\frac{\text{Total Agreements Across Subjects by Category}}{\text{Total Agreements} + \text{Disagreements Across Subjects by Category}}
\]

Multiple Baseline Analysis

The primary analysis of the data was made using single subject multiple baselines across behaviors. Five multiple baselines were done, one for each subject in the experimental group.

The purpose of the multiple baseline design is to demonstrate a causal relationship between the intervention and the subsequent change in behavior. Causal relationships are established if changes in each behavior correspond temporally to experimental manipulations. By intervening upon one variable while maintaining baseline rates in other behaviors, a functional relationship is demonstrated. Cooper
[1974] states that:

The application of the same intervention procedure to the second behavior, condition, or individual may further increase confidence that the treatment variable was the factor responsible for behavior change. The multiple baseline design employing two baselines can provide strong implications concerning effectiveness of the intervention techniques . . . . Usually three or four baselines will produce almost completely convincing results [p. 137].

In the following section, each student teacher in the experimental group is discussed separately with a multiple baseline analysis across behaviors shown for the interventions made with each subject. Mean rates and percentages of behavior change for each student teacher may be found in Table 3 (page 68).

Subject One

The data for Subject One were collected from two different eighth grade co-educational classes. Activities taught by this subject included softball and track and field. Three interventions were initiated by the cooperating teacher: positive and corrective skill feedback statements per minute, the ratio of positive to corrective skill feedback statements and the rate of positive behavior statements per minute. Analysis of the data indicate that substantial improvement was made in all three behaviors following intervention. Additionally, as the rate of positive behavior statements increased, there was also a substantial increase in the ratio of positive to negative behavior statements. Subject One improved his initial performance of .08 to 1.06 positive behavior statements per minute. Also, negative behavior statements per minute decreased. The first week of baseline showed a mean rate of negative behavior statements to occur at a rate
TABLE 3
MEAN RATES AND CHANGES FOR SUBJECTS BY BEHAVIOR CATEGORY

<table>
<thead>
<tr>
<th>Behavior Categories</th>
<th>Mean Rates, Ratios And Percentages</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subject</td>
<td>Mean Baseline</td>
</tr>
<tr>
<td>Percent Management Per Class</td>
<td>3</td>
<td>31.30</td>
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<tr>
<td></td>
<td>5</td>
<td>21.20</td>
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<tr>
<td>Instruction Per Class</td>
<td>5</td>
<td>22.00</td>
</tr>
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<td>Positive and Corrective Feedback Statements/min.</td>
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<td></td>
<td>2</td>
<td>1.75</td>
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<td></td>
<td>4</td>
<td>1.32</td>
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<tr>
<td>Ratio of Positive Corrective Feedback Statements/min.</td>
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<td></td>
<td>3</td>
<td>.84</td>
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<td></td>
<td>5</td>
<td>.78</td>
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<tr>
<td>Ratio of Specific/General Feedback Statements</td>
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<td>2.19</td>
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<tr>
<td></td>
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<td>1.20</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1.30</td>
</tr>
<tr>
<td>Positive Behavior Statements/min.</td>
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<td>.02</td>
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<tr>
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<td>.01</td>
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<td>Ratio of Positive/Negative Behavior Statements</td>
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<td>.08</td>
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<tr>
<td></td>
<td>2</td>
<td>.01</td>
</tr>
<tr>
<td>Percent Appropriate Student Behavior</td>
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<td>90.60</td>
</tr>
<tr>
<td>Percent Active Student Learning</td>
<td>3</td>
<td>32.00</td>
</tr>
</tbody>
</table>
of .93 per minute. The last week of data revealed that negative behavior statements decreased to .23 per minute. The multiple baseline analysis for Subject One is shown in Figure 2 (page 70).

**Subject Two**

Observational recording for Subject Two took place in a combined tenth, eleventh and twelfth grade co-educational class. Activities taught by this subject included volleyball, soccer/speedball, golf and archery. Interventions were initiated on three of the behavior categories: positive behavior statements per minute, the ratio of positive to negative behavior statements and positive and corrective skill feedback statements per minute. Intervention procedures were initiated simultaneously on two interdependent behaviors—positive behavior and the ratio of positive to negative behavior statements. Desirable changes occurred with each intervention, with some induction effects noted in the rate of negative behavior statements per minute (decreased). Graphic presentation of each intervention can be found in Figure 3 (page 71).

**Subject Three**

Observational recordings for Subject Three were made in one seventh grade, two eighth grade and two ninth grade co-educational classes. Units in track and field and softball were the focus of Subject Three's student teaching experience. Six interventions were made: positive and corrective skill feedback statements per minute, the ratio of specific to general skill feedback statements per minute, the ratio of positive to corrective skill feedback statements, percent of active student learning, percent of appropriate student behavior and
MULTIPLE BASELINE ANALYSIS ACROSS BEHAVIORS

SUBJECT ONE

Figure 2
MULTIPLE BASELINE ANALYSIS ACROSS BEHAVIORS
SUBJECT TWO

* Indicates Reliability Checks

Figure 3
percent of management time per class. Desirable change occurred
following four of the six interventions. Substantial change occurred
in the percent of active student learning. This may have been
influenced by a change in class activity, from track to softball,
which occurred on the sixteenth day. The ratio of positive to correc-
tive skill feedback statements, percent of appropriate student behavior
and percent of management time per class showed smaller changes in
the desired direction. There was a small improvement in appropriate
student behavior. This was probably a function of the baseline rate
for this category. The mean baseline rate was computed at 90.6 per-
cent, which is already an acceptable level of performance. Induction
occurred in the category of negative behavior statements per minute.
An initial baseline rate of .63 decreased to .17 per minute in the
final measure of performance. The multiple baseline analysis for
Subject Three is shown in Figure 4 (page 73).

**Subject Four**

Subject Four was observed in two seventh grade and one combined
eighth and ninth grade co-educational class. Gymnastics, tennis and
softball were the activities taught by this student teacher. Inter-
ventions were initiated on three behavior categories: positive and
corrective skill feedback statements per minute, the ratio of specific
to general skill feedback statements and positive behavior statements
per minute. Substantial changes occurred following all three
interventions. Additionally, induction increased the ratio of positive
to corrective skill feedback statements from an initial baseline rate
of .60 to 1.25 per minute, an increase of over 50 percent. Figure 5
MULTIPLE BASELINE ANALYSIS ACROSS BEHAVIORS
SUBJECT THREE

* Indicates Reliability Checks

Figure 4
MULTIPLE BASELINE ANALYSIS ACROSS BEHAVIORS

SUBJECT FOUR

* Indicates Reliability Checks

Figure 5
(page 74) shows the multiple baseline analysis for Subject Four. Mean rates and percentages of increase and decrease for each intervention may be found in Table 3 (page 68).

**Subject Five**

Subject Five was observed in two seventh grade and one combined eighth and ninth grade co-educational class. Activities taught by this subject included tumbling, golf and softball. Five interventions were made: the ratio of specific to general skill feedback statements, the percent of management time per class, the percent of instruction time per class, the rate of positive behavior statements per minute and the ratio of positive to corrective skill feedback per minute. Desirable change occurred in three of the five interventions, with positive behavior statements per minute showing a small, but desired change. Analysis of the data reveals that on the eleventh and twelfth day, when outside activity (golf and softball) began, management time began to increase noticeably. The intervention was instituted at this point and management time was reduced, but not to the previous in-door rate. The multiple baseline analysis for Subject Five is shown in Figure 6 (page 76).

**Discussion of Intervention Techniques**

Each of the five cooperating teachers devised their own particular method of intervening upon the student teaching behaviors. The specific behavior subject to the intervention, the order in which the interventions were made and the actual methods of intervening were left to the discretion of the individual cooperating teacher.
All five of the cooperating teachers discussed the desired level of performance for the specific teacher behaviors with their student teacher. Together, they arrived at a joint agreement for the criterion level of performance. In addition, the cooperating teachers set guidelines for such general responsibilities as arrival and departure time from school, the types of responsibilities in addition to teaching that were expected and the specific requirements for turning in lesson and unit plans.

All of the cooperating teachers made observational records easily available to their student teachers. In some cases, graphs were posted on the office wall or file cabinet, while others were made available in a folder or notebook on the cooperating teacher's desk.

The cooperating teachers used the technique of reminding (cueing) their student teacher of the target behaviors that were to be focused upon during the lesson. Further, the student teachers were reminded of the desired level to be achieved for each behavior just prior to teaching their lesson. In several cases, the cooperating teachers again verbally reminded the student teacher to increase their rates of a particular behavior during appropriate parts of the lesson.

At the completion of each lesson, the cooperating teachers discussed with their student teacher the performance of the behaviors under intervention and made general comments regarding the overall effectiveness of their teaching for that day. Verbal and nonverbal reinforcement was given during these discussion periods, as well as at
Discussion of Reliability

A criterion level of .80 was set as the acceptable level for the reliability checks made immediately following the training program for cooperating teachers. Reliability scores were determined for each of the thirteen behaviors for each cooperating teacher. Reliability scores for the training program for individual cooperating teachers ranged from .67 to 1.00, with a mean score of .83. The percentage of agreement for each behavior category across subjects exceeded the .80 level of acceptability in all thirteen behavior categories. Reliability scores for combined measures across behavior categories ranged from .78 to 1.00, with a mean score of .86 during the training period.

Reliability scores were computed in a similar manner for the cooperating teachers during the actual conduct of the study and for checks made by the trained observer on data collected for the control group. The number of reliability checks made on each cooperating teacher varied with the particular schedule of each school. Seven reliability checks were made on two cooperating teachers, while the other three cooperating teachers received five, six and eight checks, respectively. A total of thirty-three reliability checks were made on the cooperating teachers. Reliability checks were distributed across all phases of the study--baseline, intervention and maintenance. Spreading the reliability checks across the entire range of the study and providing continuous in-service training in the form of feedback following each reliability check, aided in reducing the problem of
instrument decay. Johnson and Bolstad [1973] cited the problem of instrument decay as a potential problem in all observational recording. That is, estimates of observer accuracy obtained one week may not be representative of observer accuracy the next week. Instrument decay may result from forgetting, new learning or fatigue.

Reliability scores for individual teachers on each behavior category ranged from .50 to 1.00, with a mean score of .84. Summed measures across behavior categories were computed for each cooperating teacher. The results are as follows: two of the five cooperating teachers achieved the .85 level of acceptability on all thirteen categories, one on eleven out of thirteen, one on ten out of thirteen and one on six out of thirteen. Summed measures of agreement for all subjects combined on each behavior category ranged from .40 to 1.00, with a mean score of .89. The .85 level of acceptability was attained on eleven out of the thirteen categories. Reliability scores for cooperating teachers are shown in Table 4 (page 80).

A total of five reliability checks were made by a trained observer for the data collected on the control group. Reliability by category for single observations ranged from .50 to 1.00, with a mean score of .83. Reliability by category for all observations combined ranged from .76 to .99, with a mean score of .86. The .80 level of acceptability was exceeded in twelve of the thirteen behavior categories (see Table 5, page 81).

Discussion of Multiple Baseline Analyses

Similar to the findings of the Hutslar study, the multiple baseline graphs showed considerable variability for the behavior
### TABLE 4

**RELIABILITY MEASURES ACROSS CATEGORIES FOR EACH COEXISTING TEACHER**

<table>
<thead>
<tr>
<th>Behavior Categories</th>
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<th>(3)</th>
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<tr>
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<td>.83</td>
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</table>

*Table indicates that there were no behaviors recorded by either observer.

*Indicates that only one observer recorded the behavior; the disagreement was estimated in the final score.

**Indicates less than five behaviors were recorded.
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<tr>
<th>Behavior Categories</th>
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<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
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*Blanks indicate that there were no behaviors recorded by either observer. *Indicates that only one observer recorded the behavior. S indicates that disagreement was counted in the final score. (1) indicated less than five behaviors were recorded.
category of positive and corrective skill feedback per minute of activity time and for all behaviors computed as a ratio. Hutslar indicated several factors which may have contributed to this variability.

First, more than one discrete behavior was included in all of the categories in which there was high variability. Hutslar [p. 111] stated that in order for the rates of these behaviors to remain stable, the performance of each individual behavior would have to be consistent or the chance of variability would be inflated.

Second, some types of lessons and/or activities are better suited to providing positive and corrective skill feedback than others. In some cases the teacher may wish to avoid making critical or corrective statements to students about their performance in order to create a positive atmosphere in which students feel free to make varied responses, or the teacher may wish to avoid making too many corrective statements, which over a period of time, may take on a nagging or negative connotation. The investigator found the greatest variability to occur when the class activity moved from individual or small group practice sessions to organized game play on the part of the whole class. Feedback, overall, decreased.

A third possible source of variable influence may have been a function of not setting the maintenance level for the behavior at a sufficiently high level. Hutslar [p. 112] indicated that this would allow the student teacher to attain the desired level of performance, while still displaying considerable variability in scores.
As in the Hutslar study, categories involving only a single teacher behavior, such as positive behavior statements per minute and the percent of management and activity time per class, showed less variability during baseline and intervention phases of the study. Consequently, a causal relationship between the intervention and the subsequent change in behavior is demonstrated with a greater degree of confidence. The extreme variability in the behavior categories expressed as ratios does not allow a clear cut indication of functional relationships.

A third finding which parallels Hutslar's study is that the greatest changes occurred in the behavior interaction component. Positive behavior statements per minute showed the greatest percent of change. This category also had the lowest mean baseline rate. The ratio of positive to negative behavior interactions also showed considerable change. Hutslar [p. 112-113] suggests that the magnitude of the changes in the behavior interaction component may have been due to the fact that baseline scores for these behaviors were quite low, thus, allowing the most room for a high percent of change. On the other hand, a decrease in the percent of management time from 40 percent to a more desirable 20 percent constitutes only a 50 percent change. It is suggested that when interpreting the results from Table 3 (page 68), that the actual change between the mean baseline and mean intervention rate may be more revealing than the percent of change.

The changing of one behavior as a result of intervening on another behavior is called induction. Induction effects were frequent across the experimental group of student teachers. Hutslar stated that
in the practical sense of training student teachers, the induction effect "is desirable as it allows the cooperating teacher to focus the intervention on the more crucial behavior and still achieve desired results on other interdependent behaviors" [p. 101].

**Summary of Discussion**

The student teacher behaviors intervened upon by the cooperating teachers changed in the desired direction in eighteen out of twenty-one cases. Of the three interventions not producing desirable changes, one showed a decrease in the ratio of specific to general feedback statements from 2.19 to 1.85 per minute, another indicated a decrease in positive to corrective feedback statements from 2.35 to 1.36 per minute and the third showed an increase in management time from 21.2 to 30.5 percent of class time.

In the first two instances, the decrease in desirable behavior change involved the same subject. The third undesirable change occurred as a result of changing from in-door to out-door activities.

The multiple baseline analyses indicate that the intervention strategies selected and utilized by each cooperating teacher was effective in changing target behaviors of student teachers. This supports the general findings of the Hutslar study in which desired change occurred in twenty-three out of twenty-four interventions made by the cooperating teachers. The package intervention technique achieved a significant behavior change. Thus, its significance in relation to the research problem was established [Wolf, 1973].
Comparisons Between the Experimental and Control Groups

Initial teacher behavior data were recorded during the second or third week of student teaching for the four student teachers in the control group. Final performance scores were recorded during the ninth or tenth week. In computing scores for the experimental group, the first four days of observational recording comprised the initial performance scores and the last four days of recording constituted the final performance scores. Mean rates, ratios and percentages were computed on the initial and final scores for each student teacher.

Comparisons were made on initial scores for each behavior between the experimental and control group. The Wilcoxin rank sum statistic was used to analyze the data. Analysis of the initial performance scores revealed no statistically significant differences in eleven of the thirteen behavior categories. Statistically significant differences were found in favor of the experimental group for the number of positive and corrective skill feedback statements per minute and for the ratio of positive to corrective skill feedback statements per minute. The data for the comparisons of initial scores between groups are shown in Table 6 (page 86).

Comparisons of Initial and Final Measures for Individual Student Teachers

The Wilcoxin rank sum statistic was used to compare the initial and final performance scores for each student teacher. Individual comparisons were made on each of the behavior categories for all
<table>
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student teachers in both the experimental and control group.

Analysis of the data for the control group revealed statistically significant changes occurred in eleven teacher behaviors across the four student teachers. For one student teacher, significant changes occurred in three behavior categories, another student teacher changed significantly in two behavior categories, and for one student teacher, significant change occurred in one behavior category. For the remaining student teacher there were no statistically significant differences for any of the behavior categories. Of the eleven that showed a statistically significant difference, one was classified as a desirable change, nine were classified undesirable and one neutral. The neutral change occurred in the percent of instructional time. As coded by the observation system in this study, the percent of instruction did not seem to be a relevant indicator of the student teacher's teaching effectiveness. A high percent of instruction time indicated the student teacher spent considerable time talking to the class as a whole. A small percent of instruction time did not necessarily indicate that there was no instruction during the class. Rather, it may have indicated that what instruction was being given was occurring on an individual or small group basis. By definition of the time analysis behaviors, individual and small group instruction would not be recorded as instruction time. The comparisons for individual student teachers on initial and final performance scores is shown in Table 7. (page 88).

Analysis of the initial and final performance scores for the experimental group showed thirty-five statistically significant changes
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Note: * indicates a significant difference. ** indicates an undesirable direction of change. 
- Represents a significant increase in behavior. 
- Represents a significant decrease in behavior.
across the five student teachers. This averaged 7.0 changes per student teacher. Two student teachers had significant changes in seven behavior categories, one student teacher showed changes in nine behaviors and two student teachers had significant changes in six behavior categories. Of the thirty-five statistically significant changes, twenty were classified as desirable, twelve as undesirable and three as neutral. Table 7, on page 88, shows the comparisons for each student teacher on initial and final performance scores of all teacher behaviors.

Discussion of Comparisons

The comparisons between groups of initial performance scores showed the two groups to be similar for all behavior categories except positive and corrective feedback statements and the ratio of positive to corrective feedback statements per minute, both of which were higher in the experimental group.

An analysis of the final performance scores between groups revealed statistically significant differences in favor of the experimental group on eight of the thirteen behavior categories. The statistically significant differences in positive and corrective feedback statements and in the ratio of positive to corrective feedback statements per minute found in the comparison of initial scores were maintained in the comparison of final performance scores. Other categories which showed statistically significant differences were negative skill feedback statements per minute, specific and general feedback statements per minute, negative behavior statements per minute, the
ratio of positive to negative behavior statements per minute, appropriate student behavior and active student learning. This comparison indicates statistically significant differences favoring the experimental group in the majority of behavior categories.

Analysis of initial and final performance scores for each individual student teacher showed considerable differences which occurred between groups favored the experimental group. The control group averaged .25 statistically significant changes per student teacher. Of these changes, 9 percent were desirable, 82 percent were undesirable and 9 percent were neutral. The experimental group showed 57 percent desirable change, 34 percent undesirable change and 9 percent were considered neutral. The data revealed that 50 percent of the desirable changes were for those behaviors on which the cooperating teacher had made a specific intervention. Many of the remaining 50 percent of desirable changes were probably influenced through induction effects, or were due to the substantial change in one of the behaviors used to compute ratio scores. For the twelve cases in which there were statistically significant undesirable changes, only two were for behaviors in which a specific intervention were made. One of the behaviors involved the percent of management time, in which classroom activities changed from in-door to out-door activities, and the other behavior which showed an undesirable change was the category of positive and corrective skill feedback statements per minute. This student had particular difficulty giving feedback during game play situations.
As computed by Wilcoxin's rank sum statistic, the analysis of initial and final performance scores of individual student teachers indicated that specific interventions on behavior categories increased the likelihood of achieving a statistically significant desirable change in behavior. These results lend additional support to the findings of the multiple baselines across behaviors for each subject. Both analyses indicate that cooperating teachers can successfully use intervention techniques to significantly change student teacher performance of selected teacher behaviors.

**Analysis of Questionnaire Data of Student Teachers Perception of the Elementary and Secondary Teaching Experience and the Cooperating Teachers Method of Supervision**

Mean scores by item were computed for both the Cooperating Teacher and Student Teacher Questionnaires. Wilcoxin's rank sum statistic was used to analyze differences between elementary and secondary student teaching experiences on the Student Teacher Questionnaire, and between the regular and experimental method of supervision on the Cooperating Teacher Questionnaire.

The control group of student teachers showed statistically significant differences between the elementary and secondary experience on four of the twelve questionnaire items, all of which favored their secondary student teaching experience. This may have been the result of having specialists as cooperating teachers at the secondary level and...
regular classroom teachers at the elementary level. The items in which a statistically significant difference was found were:

1. I knew exactly what was expected of me in terms of lesson planning and teaching responsibilities.
2. The goals that were set for me by my cooperating and/or supervising teacher were precisely defined.
3. I received precise feedback following each lesson.
4. The feedback I received was helpful in improving my teaching.

The experimental group showed statistically significant differences between the elementary and secondary experience on five of the twelve items, all favoring the secondary experience. The items in which a statistically significant difference was found were:

1. I knew exactly what was expected of me in terms of lesson planning and teaching responsibilities.
2. The goals that were set for me by my cooperating and/or supervising teacher were precisely defined.
3. I received precise feedback following each lesson.
4. The feedback I received was helpful in improving my teaching.
5. I made considerable improvement in my ability to provide precise and accurate feedback to my students.

Comparisons for the Student Teacher Questionnaire are shown in Table 8 (page 93).

Analysis of the Cooperating Teacher Questionnaire showed statistically significant differences on five of the twelve items, all five favoring the experimental method. The items in which there was a statistically significant difference were:
<table>
<thead>
<tr>
<th>Item</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secondary</td>
<td>Elementary</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>Value</td>
</tr>
<tr>
<td>1</td>
<td>1.50</td>
<td>3.00</td>
</tr>
<tr>
<td>2</td>
<td>3.00</td>
<td>11.5</td>
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<tr>
<td>3</td>
<td>2.00</td>
<td>3.66</td>
</tr>
<tr>
<td>4</td>
<td>2.25</td>
<td>4.00</td>
</tr>
<tr>
<td>5</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>2.00</td>
<td>2.33</td>
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<tr>
<td>7</td>
<td>1.75</td>
<td>2.50</td>
</tr>
<tr>
<td>8</td>
<td>2.25</td>
<td>2.00</td>
</tr>
<tr>
<td>9</td>
<td>2.00</td>
<td>2.50</td>
</tr>
<tr>
<td>10</td>
<td>2.25</td>
<td>2.33</td>
</tr>
<tr>
<td>11</td>
<td>1.50</td>
<td>1.66</td>
</tr>
<tr>
<td>12</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

*A mean score of 1 corresponds to the most favorable response for an item. A mean score of 5 corresponds to the least favorable response for an item.*
1. I specified precise teaching goals for my student teacher.

2. I knew how well my student teacher was progressing toward the goals I had set for him/her.

3. I provided my student teacher with immediate and accurate feedback in relation to his/her teaching effectiveness.

4. I made considerable change in the teaching effectiveness of my student teacher in relation to their ability to correct errors in skill performance.

5. I made considerable change in the teaching effectiveness of my student teacher in relation to their ability to relate to students in a positive manner.

Comparisons for the Cooperating Teacher Questionnaire are shown in Table 9 (page 95).

The Cooperating Teacher Questionnaire contained a section of open response items in which cooperating teachers were to indicate what they liked best about both the experimental and regular method of supervision, and what they would suggest as improvements for the experimental method of supervision. Representative responses of these items are listed below.

A. What I like about the regular method of supervision.

1. Four of the five cooperating teachers did not indicate anything they liked about the regular method of supervision.

2. One cooperating teacher indicated that the regular method offered a more relaxed situation because the student teacher did not have to be followed so closely.

B. What I like about the experimental method of supervision.
TABLE 9
MEAN SCORES BY ITEM AND RANK SUM COMPARISONS
OF COOPERATING TEACHER QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean Score&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Sum Of Ranks</th>
<th>&quot;Y&quot; Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Experimental</td>
<td>Regular</td>
</tr>
<tr>
<td>1</td>
<td>2.0</td>
<td>1.0</td>
<td>40.0</td>
</tr>
<tr>
<td>2</td>
<td>2.6</td>
<td>1.0</td>
<td>40.0</td>
</tr>
<tr>
<td>3</td>
<td>2.0</td>
<td>1.0</td>
<td>37.5</td>
</tr>
<tr>
<td>4</td>
<td>1.6</td>
<td>1.4</td>
<td>30.0</td>
</tr>
<tr>
<td>5</td>
<td>1.0</td>
<td>1.2</td>
<td>25.0</td>
</tr>
<tr>
<td>6</td>
<td>2.4</td>
<td>2.2</td>
<td>28.0</td>
</tr>
<tr>
<td>7</td>
<td>2.0</td>
<td>1.4</td>
<td>35.0</td>
</tr>
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<td>8</td>
<td>2.4</td>
<td>1.2</td>
<td>38.5</td>
</tr>
<tr>
<td>9</td>
<td>2.2</td>
<td>1.6</td>
<td>36.0</td>
</tr>
<tr>
<td>10</td>
<td>1.8</td>
<td>1.8</td>
<td>37.0</td>
</tr>
<tr>
<td>11</td>
<td>1.6</td>
<td>1.0</td>
<td>35.0</td>
</tr>
<tr>
<td>12</td>
<td>2.2</td>
<td>2.0</td>
<td>29.5</td>
</tr>
</tbody>
</table>

<sup>a</sup>A mean score of 1 corresponds to the most favorable response for an item. A mean score of 5 corresponds to the least favorable response for an item.
1. I was able to give the student teacher a very specific goal to work toward. Also, we worked on one item at a time rather than a multiple, therefore, improvements were more rapid. The method of evaluation was more objective than subjective.

2. I could show my student teacher where he needed improvement and how fast and consistent this improvement was occurring.

3. The tangible evidence of the student teacher's progress and growth. I felt more secure as a cooperating teacher to have some direction.

4. The emphasis on a positive approach to teaching.

5. Continual and immediate feedback.

C. Improvements suggested for the experimental method.

1. Possibly allowing the student teacher an opportunity to code another teacher or cooperating teacher.

2. To use a wireless microphone so the cooperating teacher can hear the student teacher more clearly without having to get too close to the student teacher.

3. Instead of daily evaluations, change to two or three times a week of observational recording after the fifth week.

Discussion of Questionnaire Analyses

Analysis of the Student Teacher Questionnaire showed that the student teachers in the experimental group significantly favored their secondary experience over their elementary experience on five of twelve items. Hutslar found the experimental group favored their elementary teaching experience on six of the twelve questionnaire items.

Results of the Cooperating Teacher Questionnaire showed that the five cooperating teachers in the study significantly favored the
experimental method of supervision over the regular method on five of the twelve questionnaire items. No significant differences were found on any of the questionnaire items which favored the regular method of supervision. The responses of the cooperating teachers to the open questions gave additional support in favor of the experimental method. The experimental method of supervision was favored over the regular method on four of the twelve questionnaire items in Hutslar's study.

The findings from these two studies seem to indicate that cooperating teachers desire more concrete and tangible methods for evaluating the progress of their student teacher. The cooperating teachers favored the intervention techniques used in these studies as a way of bringing about desirable change in the teaching performance of their student teacher. In addition, the cooperating teachers felt they had some measure of control, as well as responsibility, for the success of their student teacher.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to analyze the effects of training cooperating teachers in applied behavior analysis on the performance of selected teacher behaviors of student teachers in a secondary school physical education setting. The package intervention technique utilized by the cooperating teachers served as the independent variable. The dependent variables were the student teacher behaviors upon which the interventions were made.

The study attempted to provide answers to the following questions:

1. Can the methodology of the Hutslar study be replicated and the findings generalized to a secondary physical education setting?

2. Will the cooperating teacher, following a training program, effectively use applied behavior analysis techniques?

   a. Will the cooperating teacher reliably use observational techniques in recording target behaviors?

   b. Will the cooperating teacher effectively implement intervention strategies that will result in a change in specified teacher behaviors?
c. Will the cooperating teachers set reasonable criterion levels of the teacher behaviors to be attained by the student teacher?

3. Will student teachers receiving supervision from cooperating teachers trained in applied behavior techniques show greater improvement in selected teacher behaviors than student teachers involved in the traditional method of supervision?

The performance of the student teachers in the experimental group were compared to the performance of a control group of student teachers in order to determine if the changes in student teacher behavior that occurred during the study were similar to those which normally occur in a regular student teaching experience. Questionnaires were administered to the cooperating teachers and student teachers in both the experimental and control groups. The Cooperating Teacher Questionnaire was designed to allow cooperating teachers to evaluate and compare the experimental and regular methods of supervising student teachers. Two questionnaires were given to the student teachers. One questionnaire was designed to measure the student teachers' expectations of the student teaching experience and then measure their feelings following the student teaching experience. The second questionnaire assessed the student teachers' perceptions of their elementary and secondary student teaching experiences.

The experimental group consisted of five senior physical education majors from The Ohio State University and their cooperating teachers. Prior to the onset of student teaching, each cooperating teacher for the experimental group participated in a six week training program. The training program was designed to acquaint the cooperating teachers with the principles of applied behavior analysis, give
them experience in using the observational recording system and familiarize them with graphing techniques.

Throughout the student teaching experience the cooperating teachers observed and recorded data for their student teacher in one class period each day. The data were converted to ratios, percentages and rates per minute. Each behavior category was displayed graphically. Based on the individual data collected for each student teacher, the cooperating teacher initiated specific interventions for those behaviors he/she felt were most important to the improvement of the teaching performance of the student teacher. The intervention techniques consisted of modeling, goal setting, verbal and graphic feedback, written materials, cueing and reinforcement.

Student teachers in the control group were supervised by the procedures normally recommended by the Division of Physical Education. Collection of initial and final performance data was done during the second or third week and the ninth or tenth week, respectively, of student teaching. Data for both the experimental and control groups were obtained using the same observational recording system.

The investigator made reliability checks of data collected by each cooperating teacher. Checks on the reliability of control group data were made by a trained observer.

Conclusions

As a result of analyzing data by mean rates and percentage of change, by multiple baselines across behaviors and by the Wilcoxin rank sum statistic, the following conclusions were drawn:
1. Following a six week training program in the techniques of applied behavior analysis, cooperating teachers demonstrated the following skills:

a. Ability to observe and record data at an acceptable level of reliability on eleven out of thirteen behavior categories. The behavior categories in which there were low frequencies of occurrence showed the lowest reliability scores.

b. Successful utilization of intervention strategies (modeling, verbal and graphic feedback, goal setting, written materials, cueing and reinforcement) to bring about desired changes in selected teacher behaviors of a student teacher. The number of specific interventions made by each cooperating teacher, during the ten weeks of student teaching, ranged from three to six with desirable changes in eighteen out of twenty-one interventions. Of the eighteen desirable changes, fifteen were of sufficient magnitude to be considered practically significant.

c. Ability to set criterion levels of performance for student teachers. This varied with the cooperating teacher. Since there is little research data to indicate what are acceptable levels of performance for each behavior category, each cooperating teacher and their student teacher agreed on the goal to be reached for each behavior under intervention. As the quarter progressed, the cooperating teachers and student teachers gained expertise in setting appropriate levels of teacher behaviors to be achieved.

2. Analysis of initial performance scores favored the experimental group in two of the thirteen behavior categories. Final performance scores favored the experimental group in eight of the thirteen categories. Experimental student teachers as a group made fewer negative behavior interactions per minute, achieved a higher percentage of appropriate student behavior and active student learning per class time than the student teachers in the control group.
3. Analysis of initial and final performance measures for individual student teachers yielded the following conclusions:

a. The regular student teaching experience for the four student teachers in the control group did not produce any substantial change in teaching performance as measured by scores for the teacher behavior categories used in this study.

b. Significant change in teaching performance did occur for the five student teachers in the experimental group as measured by scores for the behavior categories of this study.

4. Student teachers in the experimental group felt their secondary school student teaching experiences were significantly better than their elementary experience in the following ways:

a. I knew exactly what was expected of me in terms of lesson planning and teaching responsibilities.

b. The goals that were set for me by my cooperating and/or supervising teacher were precisely defined.

c. I received precise feedback following each lesson.

d. The feedback I received was helpful in improving my teaching.

e. I improved in my ability to provide precise and accurate feedback to my students.

Student teachers in the control group found their elementary and secondary experiences to be of similar quality, except in four of the twelve items. These items included knowing what was expected in terms of planning and teaching responsibilities, goals being precisely defined, receiving feedback following each lesson and the helpfulness of the feedback in improving the teaching performance of the student teacher.

5. Cooperating teachers found the experimental method of supervision to be superior to the regular method for the following stated reasons:
a. I specified precise teaching goals for my student teacher.

b. I knew how well my student teacher was progressing toward the goals I had set for him/her.

c. I provided my student teacher with immediate and accurate feedback in relation to his/her teaching effectiveness.

d. I felt I was able to help my student teacher improve in his/her ability to correct errors in skill performance.

e. I felt I was able to help my student teacher improve in his/her ability to relate to students in a positive manner.

Recommendations for Further Study

Based upon the results of this study, the investigator proposes the following recommendations for further research:

1. Extension of the present study to other settings.

2. Use of criterion levels of performance for selected teaching behaviors.

3. Use of student assessment as a measure of teaching effectiveness.

4. Use of pupil assessment of the student teacher as a measure of teaching effectiveness.

The use of applied behavior analysis techniques in the supervision of student teachers should be studied in a variety of elementary, junior and senior high school settings. The need for replicated studies is of particular importance due to the single organism design of the present study. The role of replication in applied behavior analysis occupies a different role from group designed statistical
studies. The same claims for treatment effect in $N = 1$ designs cannot be made with the same results from a group design using parametric statistics. The $N = 1$ design utilized in this study cannot make any claims for generalization until the study has been replicated several times at least, and the same kind of effects in different settings, with different subjects and different kinds of cooperating teachers are found. An adequately designed group study would allow the results to generalize to the population from which the subjects were sampled. Thus, to broaden claims for generalizability in applied behavior analysis, additional studies should be conducted in suburban, rural and inner city school settings of various levels.

Investigations are needed to determine desirable performance criteria for both pre-service and in-service teachers on those teacher behaviors that are associated with effective teaching. Performance scores, expressed in rates per minute, percentages and ratios, are needed in order to ensure adequate training of pre-service teachers and beneficial supervision of in-service teachers.

Future research on teaching effectiveness should include measures of pupil learning. Research must attempt to find effective and efficient methods for assessing student performance. When student responses can be accurately evaluated, the linkage between student performance and teacher effectiveness can be identified.

Pupil assessment of the student teacher may be a useful measure of the teaching performance of the student teacher. Several assessment checks made by the students throughout the student teaching experience may serve as useful indicators of how the students in the
classroom perceive the effectiveness of the student teacher's performance. These checks may indicate that students actually prefer teachers who exhibit certain teacher behaviors. Additional research in this area could tie in student perceived teaching effectiveness with actual student learning.

A post hoc analysis of the data collected from the experimental and control of student teachers seems to indicate the following trends:

1. Managerial time increases during classes held in out-door settings.

2. Inappropriate student behavior occurs more frequently during classes held out-doors.

3. Inappropriate student behavior occurs more frequently during managerial and instructional time than during active learning time.

4. Skill feedback decreases noticeably during game play situations as compared to group or individual drill practice sessions.

5. Positive behavior interaction was the most difficult category for the student teachers in the experimental group to increase during intervention. The student teachers felt that it was difficult to praise secondary students for engaging in appropriate behavior without seeming to sound phony. Positive behavior statements were not emitted by student teachers in the control group.

Each of these trends should be the focal point of further applied behavior research. Linkages between student behavior and teacher performance should be the main concerns of these investigations.

Findings from the Hutslar study and the present investigation provide the following suggestions for teacher education programs:

1. The adoption of applied behavior analysis techniques to the training and supervision of pre-service physical educators would offer an effective
educational approach to the development of specified teaching skills in physical education. The emphasis on continuous evaluation as an integral part in the development of teaching skills would allow pre-service teachers to develop selected teaching behaviors at an earlier rate and at a higher level than does now presently occur.

2. Setting behavioral goals, implementing behavioral techniques and measuring accomplishments promises to increase the effectiveness of educational services provided by teacher training institutions.

3. A behavioral approach to teacher training would also sensitize the physical educator to the importance of operationalizing and continually evaluating their physical education programs.

4. Model programs where students could observe behavioral techniques being applied in physical education settings and opportunities for pre-service physical educators to actually make behavioral interventions would be a valuable addition to teacher training programs.

5. Student teachers typically have a great deal of trouble managing large groups of students. Consequently, management time per class is usually high. Additionally, student teachers experience difficulty in emitting positive behavior statements for appropriate student behavior. Thus, it would seem appropriate that some attempt should be made to incorporate these skills earlier in the teacher training program. If students are to learn specific teaching skills, they will need many opportunities in which to practice those skills. Student teaching is a relatively short period of time in which to develop adequate teaching skills. Therefore, many of the skills that are important for effective teaching should be sequenced and practiced much earlier in teacher education programs.
APPENDIX A

IN-SERVICE TRAINING PROGRAM
IN-SERVICE TRAINING PROGRAM

The program will be designed to teach the following skills and knowledges:

1. The observational techniques of duration and event recording.
2. An understanding of the principles of applied behavior analysis.
3. Graphing techniques for presenting data to the student teacher.
4. Selected intervention techniques:
   a. Goal setting
   b. Cueing of behavior
   c. Written materials
   d. Verbal and graphic feedback
   e. Reinforcement
   f. Modeling

The following teacher behavior categories are presently selected to be the focus of the training program:

1. Time Analysis Component
   a. Percent of management time per class
   b. Percent of instruction time per class
   c. Percent of activity time per class
   d. Average time per management episode

2. Skill Feedback Component
   a. Positive and corrective skill feedback statements per minutes of activity time
   b. Negative skill feedback statements per minute of activity time
   c. Ratio of positive to corrective skill feedback statements
   d. Ratio of specific to general skill feedback statements

3. Behavior Interaction Component
   a. Positive behavior statements per minute
   b. Negative behavior statements per minute (Nags and Nasties)
   c. Ratio of positive to negative behavior statements
4. Student Behavior Component
   a. Percent of appropriate student behavior per class
   b. Percent of active student learning during activity time
TRAINING MODEL FOR COOPERATING TEACHERS

Winter, 1977

February 9

Group Meeting -- 7:00 p.m. TLC Lab, Larkins Hall

1. Present what has been done and what I'd like to do--find out teachers suggestions and what they would like to add.

2. Hand out books and study guide for the materials to be covered in the training program.

3. Discuss and show video tapes of teacher behavior categories (what they are and what they are not).

4. Set up a weekly time to meet with each teacher
   a. to answer questions about recording behaviors
   b. to do periodic reliability checks
   c. to discuss material that will be important to their work with a student teacher

WEEK OF
February 14

Introduction to Observational Systems

Helpful readings:

Introduction Materials--p. 7-14 and 16-22
Observational Systems--p. 27-31; see sample observation scales, p. 47-49 and 110-112
Defining Teacher and Student Performance--p. 42-46. The important concept here is that a person can not change a behavior unless he/she understands what the behavior is and how it is demonstrated.

*Time Analysis--Management, Instruction and Activity Time

Become familiar with the following definitions: p. 57 and 98-99 top. (Managerial activity, Management episode, and Managerial behavior.)

Managerial Activity--The cumulative amount of time students spend in class organization and changing activities (organizing for the beginning of the lesson, for changing from one lesson part to another, or for ending the final lesson part and returning to the gymnasium).
Management Episode--The cumulative time of one managerial activity sequence. The episode begins with a managerial behavior emitted by a teacher and continues until (a) the teacher begins instruction or demonstration, or (b) the next activity begins.

Managerial Behavior--A teacher initiated behavior that is done for the purpose of organizing the class (or subset of the class) or for changing from one activity to another, giving directions about equipment or formations, getting out or putting away equipment, or placing students in formations.

Examples:

a. giving a command for getting student's attention (blow whistle, clap hands, verbal request, etc.).

b. command for students to get into a particular organizational formation (find a partner, line up in shuttle formation, form a circle, etc.)

c. command for students to get equipment (get a ball; John, bring me the jump ropes; Group 1, set your hurdles up here)

Time Analysis

Helpful readings: p. 260-261 middle, #1, p. 261, #1, p. 264-265 top.

1. Percent of Management Time--the percent of the total class period spent in managerial activities. Percent of management time is computed by the following formula:

\[
\frac{\text{Total management time (in seconds)}}{\text{Total class time (in seconds)}} \times 100 = \%
\]

Average Management Time per Episode--the average amount of time the student spends in each managerial sequence or episode. Average management time per episode is computed by the following formula:

\[
\frac{\text{Total management time (in seconds)}}{\text{Number of management episodes}} = \text{Seconds}
\]
2. **Instruction Time**—instruction time is the total cumulative time the teacher is giving content information to more than half of the members of the class. Instruction time includes such teacher activities as lecture, demonstrations, and use of audio-visual materials, done for the purpose of imparting information related to the content of the lesson. Percent of Instruction time is computed using the following formula:

\[
\frac{\text{Total instruction time (in seconds)}}{\text{Total class time (in seconds)}} \times 100 = \% 
\]

3. **Activity Time**—the total cumulative time when more than half of the class members are physically involved in a movement activity that is considered appropriate behavior at that time. Percent of Activity time is computed using the following formula:

\[
\frac{\text{Total activity time (in seconds)}}{\text{Total class time (in seconds)}} \times 100 = \% 
\]

***Procedure for coding time analysis:*** The coding sheet is marked in 10 second intervals for each minute. Indicate on the coding sheet which time category is being used by placing an M, I, or A as they occur during the entire lesson. Draw a vertical line through the time sequence to the nearest 10 second mark (you will be using a stop watch). Then indicate the next time code and proceed as indicated above.

***Summarize raw data into Total Time and Percent of Time. Also graph Percent of Time for M, I, and A. (See graphs included in packet).***

**Feedback Given During Skill Practice (Activity Time)**

Helpful readings:

Definitions of the behaviors, p. 229-234.
See coding formats, p. 267-269 middle

*Continue to code time analysis this week!

***Procedure for coding skill feedback statements. Use the code sheet given in your packet. Make a tally mark for each time the behavior occurs. This is event recording. If the feedback statement is a combined statement (both positive and
corrective) record a tally under each category. If statements occur in a chain, record only one behavior (Example: good, good, that was a really nice serve).

Skill Feedback—All teacher reactions to appropriate skill attempts by a student.

Examples of Positive Skill Feedback:
   a. Good serve, Mike.
   b. Nice follow-through on your swing, Mary!
   c. You really kept your eyes on the ball that time!
   d. Good job!

Examples of Corrective Skill Feedback:
   a. Tuck your head more before you roll forward.
   b. Try to give more with the ball as you catch it.
   c. Contact the ball on the instep of your foot, rather than your toe.
   d. Swing the racket through faster to get more speed.

Examples of Negative Skill Feedback:
   a. That's no way to do a forward roll!
   b. Come on! You can do better than that!
   c. You really looked awkward that time!
   d. See if you can do it right for a change!

Positive, corrective, and negative skill feedback statements per minute are computed by using the following formula:

\[
\text{Number of statements (positive, corrective, or negative)} \quad \frac{\text{Total activity time (in minutes) during event recording time}}{}
\]

General Skill Feedback—Positive, corrective or negative reactions to student skill attempts which tell the student how the teacher responded to his/her attempt in general, but does not identify the exact part of the movement pattern to which the teacher reacted.

Examples:
   a. Good throw.
   b. Nice try, you've almost got it.
c. That's it.
d. Alright! Now you've got it.

Specific Skill Feedback--Positive, corrective, or negative teacher reactions to student movement activity which tells the student exactly what part of the movement he/she performed correctly or incorrectly.

Examples:

a. Good Sue, you really got your legs up high on the takeoff.
b. That was really good extension of your lead leg, Mary!
c. That was a good throw Jan, you got much more body rotation that time.
d. Good wrist snap on your release.

Behavioral Interactions (Positive, Nag and Nasty)

Helpful Readings: p. 58, p. 81-90 top, and p. 100, #5.

*Continue to code all previous categories--time analysis, and skill feedback statements this week!

Positive Behavior Interaction Statements--Teacher responses approving of student behavior other than movement skill attempts (behavior, effort).

Examples:

a. You did a good job in listening today.
b. John, you're following directions very well today, good!
c. Keep up the good work!
d. Squad three really got organized quickly today.
e. Thanks for putting the equipment away, I really appreciate that!

Negative Behavior Interaction Statements--Teacher responses that disapprove of student behaviors other than movement skill attempts.

NAGS--teacher reactions which call attention to undesirable class behaviors in a low intensity manner.
Examples: No, no! Will you line up? Come on Bob, move to your next station. Stop talking! Don't cut through the line! That's enough, Jim.

NASTIES--teacher reactions which call attention to undesirable class behavior in a high intensity manner.

Examples: Shouting at the students, cutting, sarcastic remarks--Stupid, you're a real jerk! Dummy! I don't know why I bother to teach you. Shut up, That was really awful!

*Positive and Negative Behavior Statements per minute are computed by using the following formula:

\[
\frac{\text{Number of Positive or Negative Behavior Statements}}{\text{Total Event Recording Time}}
\]

(This week graph the data as shown in the packet samples.)

Student Behavior Analysis (Placheck)


We will be working with two kinds of Placheck analysis:

1. Percent of appropriate student behavior per class
2. Percent of active student learning per class

(1) Percent of appropriate behavior--on code sheet you will notice that the placheck boxes follow each event recording session. Count the number of students engaging in appropriate behavior (should take approximately 10 seconds to scan the class in a left to right direction). Place the figure in the upper left of the placheck box. EXAMPLE: 22/28
To compute the percent of appropriate student behavior during class, use the following formula:

\[
\frac{\text{Number of students engaged in approp. behav.}}{\text{Total number of students in class}} = \% 
\]

(2) Percent of active learning—count the number of students who are physically active in movement activity. Record the raw score in the lower half of the placheck box. EXAMPLE: 10/28

To compute the percent of active learning during the class, use the following formula:

\[
\frac{\text{Number of students physically active}}{\text{Total number of students}} = \% 
\]

WEEK OF March 7

Use casett tape recorders—coded tape for event recording section will be practiced this week.

We will be coding all categories—time analysis throughout the entire class session, event recording for skill feedback and behavior statements at three minute duration periods, and the two placheck categories immediately following each event recording period.

Discussion for Weekly Meeting:

Setting criterion levels for the behaviors coded. Ways of helping student teachers achieve the criterion levels.

Discuss concept of maintenance of a criterion level once it has been achieved.

WEEK OF March 14

Group Meeting (time to be arranged)

Discussion for weekly meeting:

Meeting your student teacher, presenting your objectives, explaining your role. Graphing multiple baseline data.

THE END!!!!!!! YEAH!!!!!!!
*Readings from: Developing Teaching Skills in Physical Education, by Daryl Siedentop.
APPENDIX B

SAMPLE OF COMPLETED CODING SHEET
RECORD OF STUDENT TIME ALLOTMENT IN CLASS, BEHAVIORAL INTERACTIONS AND SKILL FEEDBACK STATEMENTS

Observer: Cramer  Date: 5-9  School: Buckeye  Grade: 8-9  Environment: Experimental
Time Started: 9:35  Time Finished: 11:15  Total Minutes Observed: 120
Number of Students in Class: 20  Activity Tasks: Student Teacher: H. Smith

TIME ANALYSIS CODES: I=INSTRUCTION; A=ACTIVITY; M-MANAGEMENT

TIME ANALYSIS

<table>
<thead>
<tr>
<th>TIME ANALYSIS</th>
<th>TOTAL MANAGEMENT TIME</th>
<th>% MANAGEMENT TIME</th>
<th>TOTAL INSTRUCTIONAL TIME</th>
<th>% INSTRUCTIONAL TIME</th>
<th>TOTAL ACTIVITY TIME</th>
<th>% ACTIVITY TIME</th>
<th>AVER. MGMT. TIME/EPISODE</th>
<th>RATE PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEASURE</td>
<td>530</td>
<td>.28</td>
<td>450</td>
<td>.24</td>
<td>930</td>
<td>.48</td>
<td>105</td>
<td></td>
</tr>
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</table>

SKILL FEEDBACK STATEMENT

<table>
<thead>
<tr>
<th>SKILL FEEDBACK STATEMENT</th>
<th>POSITIVE</th>
<th>CORRECTIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL</td>
<td>SPECIFIC</td>
<td>GENERAL</td>
<td>SPECIFIC</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>6</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL APP. BEH. 397.6  POSITIVE 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  NEGATIVE 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  SPECIFIC 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  GENERAL 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  CORRECTIVE 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  SPECIFIC 5 95  NAGS 90  NASTIES 1
TOTAL APP. BEH. 397.6  GENERAL 5 95  NAGS 90  NASTIES 1

BEHAVIORAL INTERACTIONS

<table>
<thead>
<tr>
<th>BEHAVIORAL INTERACTIONS</th>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAGS</td>
<td>NASTIES</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
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<td>5</td>
<td>1</td>
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</tr>
<tr>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 0 7 0  RATE PM 1
APPENDIX C

EXPECTATIONS OF STUDENT TEACHERS TOWARD THEIR STUDENT TEACHING EXPERIENCE
EXPECTATIONS OF STUDENT TEACHERS TOWARD THEIR STUDENT TEACHING EXPERIENCE

1. What three skills do you consider the most important skills that a student teacher needs to develop or improve during the student teaching experience? (List in order of importance to YOU)

1.
2.
3.

2. In what ways do you expect your cooperating teacher to help you acquire desirable teaching skills? (Rank in order of expectation)

_____ role modeling desirable teaching skills
_____ verbal feedback following teaching lesson
_____ written feedback following teaching lesson
_____ written materials to read and discuss
_____ progress chart showing daily progress toward goals
_____ general comments or impressions concerning the effectiveness of your teaching presentation and organization
_____ specific comments based upon concrete data collection
_____ setting specific goals to be attained during the quarter
_____ serve as a resource for curriculum or lesson planning ideas
_____ other (please explain)

3. Which person do you expect will have the most influence on you in terms of developing teaching skills during your student teaching experience? (Rank in order of expected influence)

_____ the students in my classroom
_____ my university supervisor
_____ my cooperating teacher
_____ my own peer group
_____ my university supervisor and cooperating teacher equally
_____ other (please explain)
4. Which categories of teaching skills do you expect to improve the most during your student teaching experience? (Rank in order of expectation)

____ planning of units and lessons
____ lesson evaluation
____ effective use of class time
____ ability to correct errors in skill performance
____ ability to relate to students in a positive manner
____ ability to handle problems as they arise in class
____ gaining confidence in my ability to teach
____ improvement in the skill performance of students in my class
____ knowledge of my progress toward achieving teaching skills
____ clarity of presentation in terms of directions, explanations, and demonstrations
____ ability to organize class
____ voice projection
____ professional role development
____ skill feedback to the students
____ increase knowledge of subject matter

5. How much time do you expect to spend preparing for your student teaching per week? (Indicate the number of hours)

   elementary = _____ hours   secondary = _____ hours

6. How do you expect to be evaluated during your student teaching experience? (Indicate 5 criteria that you think would be the best means of evaluating your progress in student teaching)

   1.

   2.

   3.

   4.

   5.
APPENDIX D

CHANGE IN INITIAL STUDENT TEACHING EXPECTATIONS
1. After completing your student teaching this quarter, what do you now feel are the most important skills that a student teacher needs to develop or improve during the student teaching experience? (List in order of importance to you)

<table>
<thead>
<tr>
<th>Secondary Level</th>
<th>Elementary Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
</tbody>
</table>

2. In what ways did your cooperating teacher help you to acquire desirable teaching skills? (List in order of greatest influence)

<table>
<thead>
<tr>
<th>Role Modeling Desirable Teaching Skill</th>
<th>Secondary</th>
<th>Elementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal feedback following teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written feedback following teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written materials to read and discuss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progress chart showing daily progress toward goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General comments or impressions concerning the effectiveness of your teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation and organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting specific goals to be attained during the quarter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serve as a resource for curriculum or lesson planning ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please explain)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Which person had the greatest influence on you in terms of developing teaching skills?

<table>
<thead>
<tr>
<th>Person Having Greatest Influence</th>
<th>Secondary</th>
<th>Elementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in my classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My university supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My cooperating teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My own peer group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My university supervisor and cooperating teacher equally</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Which categories of teaching skills did you improve the most during your student teaching experience? (Rank in order of improvement)

____ planning of units and lessons
____ lesson evaluation
____ effective use of class time
____ ability to correct errors in skill performance
____ ability to relate to students in a positive manner
____ ability to handle problems as they arose in class
____ gaining confidence in my ability to teach
____ improvement in the skill performance of students in my class
____ knowledge of my progress toward achieving specific teaching skills
____ clarity of presentation in terms of directions, explanations, and demonstrations
____ ability to organize class
____ voice projection
____ professional role development
____ skill feedback to the students
____ increase knowledge of subject matter

5. How much time did you spend preparing for your student teaching per week? (Indicate the number of hours)

Secondary = ____ hours  Elementary = ____ hours
APPENDIX E

STUDENT TEACHER QUESTIONNAIRE
STUDENT TEACHER QUESTIONNAIRE

Your Age _____  Year in School _____

I have done, or am doing, student teaching at both the elementary and secondary level. YES _____  NO _____.

Directions: For each of the following statements, circle the number of the response that is most appropriate for your secondary and elementary student teaching experience.

Possible Responses:

1 - Strongly Agree  4 - Disagree
2 - Agree  5 - Strongly Disagree
3 - Neutral

1. I knew exactly what was expected of me in terms of lesson planning and teaching responsibilities.

2. I was able to obtain planning materials, resources, and ideas from my cooperating and/or supervising teacher.

3. The goals that were set for me by my cooperating and/or supervising teacher were precisely defined.

4. I received precise feedback following each lesson.

5. The feedback I received was helpful in improving my teaching.

6. Through the help of my cooperating and/or supervising teacher, I made considerable improvement in my ability to:

   A. Plan a lesson
   B. Use class time effectively
   C. Provide precise and accurate feedback to my students
<table>
<thead>
<tr>
<th>Secondary</th>
<th>Elementary</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Relate to the students in my class in a positive manner</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E. Handle unusual problems that arose while I was teaching</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>F. Feel confident in my teaching</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>G. Improve the skill performance of students in my class</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

Please respond to the following questions:

1. What I particularly like about my student teaching experience at the elementary level.

2. What I particularly like about my student teaching experience at the secondary level.

3. My suggestions for improvement in the student teaching experience at the elementary level.
4. My suggestions for improvement in the student teaching experience at the secondary level.

5. Other comments:
APPENDIX F

COOPERATING TEACHER QUESTIONNAIRE
COOPERATING TEACHER QUESTIONNAIRE

Number of years you have taught _____

Number of student teachers you have supervised (including this quarter): _____

Number of students enrolled in your school _____

Direction: For each of the following statements, circle the number of the response which is most appropriate for both the regular and the experimental method of working with student teachers.

Possible Response:

1 - Strong Agree  4 - Disagree
2 - Agree          5 - Strongly Disagree
3 - Neutral        

<table>
<thead>
<tr>
<th>Statement</th>
<th>REGULAR</th>
<th>EXPERIMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I specified precise teaching goals for my student teacher.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I knew how well my student teacher was progressing toward the goals I had set for him/her.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. I provided my student teacher with immediate and accurate feedback in relation to his/her teaching effectiveness.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. The feedback I gave was helpful in improving the teaching of my student teacher.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I had a friendly, yet professional rapport with my student teacher.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I feel I made considerable change in the teaching effectiveness of my student teacher in relation to the following areas:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
132

| A. Careful planning of units and lessons. | REGULAR 12345 | EXPERIMENTAL 12345 |
| B. Effective use of class time. | 12345 | 12345 |
| C. Ability to correct errors in skill performance | 12345 | 12345 |
| D. Ability to relate to students in a positive manner | 12345 | 12345 |
| E. Ability to handle problems as they arose in class | 12345 | 12345 |
| F. Gaining confidence in their ability to teach | 12345 | 12345 |
| G. Improvement in the skill performance of the children | 12345 | 12345 |

Please respond to the following questions.

1. What I particularly liked about the regular method of working with a student teacher.

2. What I particularly liked about the experimental method of working with a student teacher.

3. My suggestions for improving the regular method of working with student teachers.


5. Other Comments:
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BIBLIOGRAPHY

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