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FOR PRESERVICE TEACHERS

DISSERTATION

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

By
James W. Currens, B. A., M. Ed.

The Ohio State University
1977

Reading Committee: Dr. Doryl Siedentop Dr. Charles Hand Dr. John Cooper

Approved by

Advisor
Department of Physical Education
Dedicated to

Mom and in memory of Dad.

They will always occupy a special place in my life.
ACKNOWLEDGMENTS

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CHAPTER I

INTRODUCTION

The problem of providing well-trained teachers for elementary and secondary schools has plagued this nation for decades. Teacher education has come under criticism from various quarters. (Conant: *The Education of American Teachers*, 1963; Silberman: *Crisis in the Classroom*, 1970; Toffler: *Future Shock*, 1970; Stranahan Report: *Realities and Revolution in Teacher Education*, 1972; Essex: *Teacher Education Re-Design*, 1973). Although national surveys of Teacher Education practices have been conducted, each citing the inability of the existing programs to train preservice teachers to be effective in-service teachers and each calling for major reform, little has been done to remedy the existing situation. Teacher education programs continue much as they have in the past, characterized by a lack of clear rationale, precise goals and objectives, sequential learning experiences, and properly supervised field-based components.

The findings of the Commission on Public School Personnel Policies in Ohio in a 1972 study of teacher education programs also presents supportive evidence to this concern. The following were identified as major deficiencies:
1. The standards for selection of students into teacher education are low and unrelated to the performance demands of teaching.

2. Course work for potential teachers is often inadequate and lacks relevance to the specific task of preparing students for the realities of teaching.

3. Personnel involved in the preparation of teachers are too often ill-prepared for the task and remote from the world of teaching practice.

4. Prospective teachers are provided with only a minimum amount of one of the most critical needs in teacher education—contact with children.

5. Certification requirements are too low and allow ill-prepared and incompetent individuals to teach in schools.

6. Teaching candidates are too quickly immersed into full teaching responsibilities and lack the opportunity to gradually gain competence in their new professional role.

7. There are neither clear expectations nor adequate opportunities for experienced teachers to continue their professional growth after initial certification.

8. Teacher education is an uncoordinated field with little cooperation among those agencies and groups responsible for the preparation and certification of teachers.

These are serious indictments against institutions preparing teachers. Fortunately, there are exceptions. Institutions are developing the concept of teacher centers (Maddox, 1972) and early
involvement of preservice teachers with children in field-based experiences (Ayers, 1969; Cook, 1973; Houston, 1972; Houston and Howsam, 1972; Lansing, 1973; Merritt, 1973). Still other institutions have made drastic changes in the over-all training programs involved in the preparation of preservice teachers. Probably the most noticeable changes have been those advocated by proponents of Performance/Competency-Based Teacher Education (CBTE) (Houston-Howsam, 1972; Hall-Jones, 1976; Cooper, et. al., 1973; Rosner, 1972, Elam, 1971).

Perhaps no movement has influenced American teacher education so rapidly or so forcefully as the CBTE movement. The CBTE movement can be traced to a project funded by the United States Office of Education; The Elementary Teacher Education Models Program in 1968. Ten educational institutions (nine universities and one consortium) received federal assistance to reconceptualize both the preservice and inservice elementary teacher education training models at each respective institution (Darst, 1974). Further evidence of the keen interest shown by the Office of Education in CBTE can be seen in a statement made by Allen Schmieder, Educational Program Officer, National Center for the Improvement of Educational System.

Competency-based teacher education appears to hold great promise and is a notion which deserves adequate testing (Cook, 1973, p. 1).

Within the CBTE movement many types of models and approaches are being tested and implemented.

As of April, 1973, the American Association of Colleges of Teacher Education estimated that more than six hundred institutions were working toward developing performance or competency-based programs (Darst, 1974, p. 2).
Although programs may vary in over-all appearance, at the heart of each lies two essential characteristics of CBTE, explicit objectives and accountability. In essence, the CBTE trainee knows exactly what is expected and the manner in which it can be accomplished, and knows that he/she is accountable for the outcomes.

CBTE advocates the system's approach to program design. Banathy (1972) and Cooper et al., (1972) define this approach as "a collection of interrelated and interacting components that work in an integrated fashion to attain predetermined purposes." In essence, purpose (system) determines process, which implies what components (sub-systems) are needed to produce a predetermined product (output).

Stanley Elam, in *Performance-Based Teacher Education: What is the State of the Art?* (1971) implied that in order for a program to be considered a conceptual model of Performance-Based Teacher Education it must contain the following elements: See Figure 1.

The CBTE movement is not without its critics. (Broudy (1972) rejected the notion that the teaching act is merely the sum of the parts; Silberman (1972) claimed CBTE is old wine in new bottles; Combs (1971) insisted CBTE is dehumanizing; Maxwell (1974) contended that CBTE does not exist. Most of the criticisms seem to center around the following questions:

1. Can teaching competencies be identified?

2. Can the instructional materials for these competencies be developed?
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**FIGURE 1**

CONCEPTUAL MODEL OF PERFORMANCE-BASED TEACHER EDUCATION
3. Can effective assessment and management systems be developed to realistically determine the progress and the flow of students within and through the CBTE models?

Many educators have cited the need for additional research in the area of CBTE (Houston and Howsam, 1972, 1974; Cooper and Weber, 1972; Siedentop, 1973; and Maxwell, 1974) to answer some of the critical issues and unanswered problems facing this youthful movement.

Research studies should be developed and undertaken to add to the over-all data base of CBTE. If the model is to stand as an effective means of training preservice teachers, it should be tested in reality situations, where results address themselves to unanswered problems and issues.

One important sub-system of the CBTE model is the student teaching experience. Here preservice teachers are required to demonstrate certain skills and competencies in actual teaching environments. Many people feel that this experience is the most relevant and helpful aspect of the preparation program of preservice teachers (Hilliard and Durrance, 1968; NEA Commission on Teacher Education and Professional Standards, 1966; Preil, 1968; and Horton, 1966).

If student teaching is one of the most important aspects of the preservice teacher's preparation program, then it would seem both reasonable and legitimate to engage in a research project to determine a more relevant and functional training model for that experience.
STATEMENT OF THE PROBLEM

The purpose of this study was to ascertain whether or not a more relevant and functional training model for preservice teachers in applied behavioral analysis can be developed by combining the "Responsive Teaching Model" (Hall and Copeland, 1972) developed by R. Vance Hall at the Human Development Center, Kansas University and the Ohio State University Model (Hughley, 1973; Rife, 1973; Boehm, 1974; Darst, 1974; Dode, 1975; and Dessecher, 1975) dealing with the "Effects of Competency-Based Intervention Techniques."

The specific research problems investigated in this study were as follows:

1. Can the college supervisor train preservice teachers in the use of basic principles and techniques of applied behavior analysis during the student teaching experience?

2. Can the preservice teacher use appropriate observational techniques to collect reliable data?

3. Can the preservice teachers determine a systematic plan of intervention which results in a desirable change in the target behavior under study?

4. Can the preservice teachers effectively use the ABA, ABAB, and multiple baseline designs to analyze functional relationships?

5. Can the college supervisor, through the use of competency-based "packaged" intervention modules, cause preservice teacher behaviors to change in the experimental environment?
6. If demonstrable changes in preservice teacher behaviors are effected in the experimental environment, will these changes generalize into other teaching environments?

ANALYSIS

The purpose of this study was two-fold. First, to investigate the effects of competency-based modular intervention techniques in changing selected target behavior of preservice teachers in an experimental environment. If desirable changes occurred, an attempt was made to determine whether or not these desirable changes were generalizing to other educational environments. The multiple baseline design was employed in order to accomplish this end. According to Hall (1974), Williams and Anandam (1973), Baer, et al. (1968), and Cooper (1974), the multiple baseline design is considered more appropriate for behavioral research in classroom environments than other designs used in applied behavior analysis. This design was employed to compare the changes in behavior in one subject with the changes in the other subjects and the changes in behavior in one experimental environment with the changes in other educational environments. If changes occur in subjects following the intervention techniques while subjects that have not been intervened on remain at baseline (stable), then reasonable statements can be made as to the functional relationship between the target behavior and the intervention strategy.

Second, this study investigated whether or not preservice teachers, following training sessions with the college supervisor, and upon recognition of selected target behaviors in their student teaching
environments, would be able to conduct individual mini-studies employing applied behavior analysis principles and techniques. The data during this phase of the study were analyzed according to the difference between mean rates established during baseline and the mean rates established after intervention and/or post checks. The degree to which desirable changes in target behaviors occurred was determined by those responsible for the subject and its (the desirable change) effect on the classroom environment.

LIMITATIONS OF THE STUDY

The study was limited by the following factors:

1. Sixteen student teachers at Baldwin-Wallace College were the subjects for this study. Four of the subjects were Special K-12 Physical Education majors and five were secondary Physical Education candidates of certification. One subject was seeking certification in Biology, another seeking certification in Social Studies Comprehensive, another certification in English, and four subjects were seeking Vocational Home Economics certification. School districts used were Bay Village City Schools, Berea City Schools, Brooklyn City Schools, Cleveland City Schools, North Olmsted City Schools, Olmsted Falls City Schools, Parma City Schools, and Strongsville City Schools.

2. Behaviors under study were limited to:
   a. Planning
   b. Behavioral Interactions
c. First name usage

d. Skill Feedback Statements

e. Time Analysis (Management, Instruction, and Activity Time)

f. Student appropriate behavior and appropriate learning behavior.

3. Competency-based modules served as the "package" intervention technique for each of the behaviors under study.

DEFINITIONS

Due to the number of terms defined for this study, the reader is referred to Appendix A. Here, the reader is provided with information concerning each individual term.

BASIC ASSUMPTIONS

The following are assumed to be true:

1. High inter-observer agreement (80 per cent or better) increased the probability that the target behavior(s) under study was changed and not the observer's behavior.

2. In a multiple baseline design, if changes occur regularly after intervention while other subjects remain at baseline rate, the changes are due to the intervention variables and not to some undefined variable.

3. Preservice teachers who engage in mini-studies, employ the basic principles and techniques of applied behavior analysis, follow suggested format for reporting data, and successfully
bring about desirable changes in selected target behaviors, have done so as a result of the training sessions with the college supervisor.

SIGNIFICANCE OF THE PROBLEM

The literature on teacher education is replete with criticism. Solutions offered for improvement are unclear. One of the major problems facing teacher educators is that of developing a system which will provide our nation's schools teachers possessing high levels of professional competence. This problem is far from being solved. While the last decade has been exciting in teacher education, developments have not kept pace with the demands of classroom teaching. Clearly a crucial challenge for the future is to improve the quality of teacher education programs now in existence.

The applied behavior analysis model can be utilized in formulating some answers as to the effectiveness of the behavioral approach to the student teaching experience. Baer, et. al., (1968) and Risley (1969) call for more experimentation in showing causal relationships and more applied research because of its importance to society.

However, the "experimenter-directed model" and the "lecture-model" have shown some definite shortcomings as training models in applied behavior analysis. Hall and Copeland (1972) cite the following as the major reason for failure of the experimenter-directed model:

"That teachers who have been involved in experiments contrived by someone outside the classroom have failed to continue carrying out experimental procedures after the experimenters have left the scene." (Hall and Copeland, 1972, p. 126)
Results of the "lecture-model" for training teachers, administrators, counselors and other school personnel in applied behavior analysis also suggest shortcomings, as indicated by the following:

"Very few teachers, counselors, principals, and school psychologists translate what they have learned in the usual workshop or lecture type class into actual practice in their roles as educators." (Hall and Copeland, 1972, p. 126)

The Responsive Teaching Model developed by R. Vance Hall and Rodney E. Copeland of the University of Kansas Human Development Center, seems to be an effective model for use in educational environments. The primary goals of this graduate level training model are:

1. to give the class participant an understanding of applied behavior analysis principles.
2. to acquaint the participant with experimental studies in the literature.
3. train the participants how to define, observe, and record behavior.
4. have the participants successfully carry out experimental studies.
5. provide contact with other participants and the experimental studies being conducted by them.

The research base provided by Hughley (1973); Rife (1973); Boehm (1974); Darst (1974); Hamilton (1974); Dodds (1975); and Dessecker (1975) under the direction of Daryl Siedentop of the Ohio State University, deals with the effects of competency-based package intervention techniques on selected preservice physical education teacher behaviors. This model has shown very positive results.
Therefore, the question then becomes, "What might be a more relevant and functional training model for preservice teachers?" The model would have to address itself to the following questions:

1. What kind of an approach will not only expose teachers to the basic applied behavior analysis principles they need to know, but will also result in getting them to apply these principles in their own educational settings?

2. What kind of an approach will be more likely to result in continuing development of the technology of applied behavioral analysis and maintain enthusiasm in order for the approach and its potential use in education to be realized to a greater degree?

3. What kind of approach will result in the early training of an increasingly large number of preservice teachers already participating in teacher education programs and improve the possibility of a greater number of these preservice teachers continuing to use the basic principle of applied behavioral analysis after initial training is completed? (Hall and Copeland, 1972)

The Responsive Teaching Model has provided results which indicate that the more relevant and functional the training model, the greater the chances for positive and lasting transfer into the actual classroom environments at the graduate level. On the other hand, the Ohio State Model seems to indicate that selected preservice teacher behaviors can be modified through the use of competency-based package
intervention at the undergraduate level, but the changes occur and are maintained only when:

1. the preservice teacher is working toward criterion levels established in the modules.

2. the experimenter has built in maintenance procedures (Boehm, 1974; Darst, 1974; Hamilton, 1974)

However, the Ohio State Model provides no evidence on the question as to whether changes which took place during the interventions generalized from one environment to another. Further evidence indicates that changes which occurred during interventions returned to baseline following the meeting of criterion levels and in the absence of maintenance procedures in the environment (Dodds, 1975).

The model used in this study was developed by combining the Ohio State Model with the Responsive Teaching Model. Figure 2 illustrates the model.

![Figure 2](image)

**Responsive Teaching Model**

**Ohio State Model**

**Present Study Model**

**AN APPLIED BEHAVIOR ANALYSIS TRAINING MODEL FOR PRESERVICE TEACHERS**

Therefore, this study attempted to implement the aforementioned model to ascertain whether or not: (1) a more relevant and functional
training model for preservice teachers in applied behavior analysis can be developed; (2) preservice teachers following training can apply the principles and techniques of applied behavior analysis to educational environments; (3) the "package" intervention techniques of external criteria, feedback, modeling and goals can affect changes in selected behaviors of preservice teachers; and (4) the resulting consequences of these applications and behavioral changes will internalize and generalize to similar or like environments.
CHAPTER II

REVIEW OF RELATED LITERATURE

Major areas in related professional literature found to be relevant to a training model for student teachers utilizing applied behavior analysis principles/techniques and competency-based modular packages are: (1) training of parents, teachers, principals, and students in applied behavior analysis, (2) training of non-professionals through different behavioral models generally, and the Responsive Teaching Model specifically, (3) training and implementation of behavior changes in undergraduate physical education preservice teachers through the CBTE modular package model developed at the Ohio State University, School of Physical Education, and (4) generalizations of target behaviors from one environment (setting) to another.

Training of Non-Professionals in Applied Behavior Analysis

Results of extensive research studies during the past decade utilizing the principles and techniques of reinforcement theory have clearly demonstrated that specific target behaviors in selected human subjects can be altered or modified. The early studies were generally conducted and directed by professionally trained clinical and professional psychologists. However, the literature reveals that as early
as 1962 research began to appear which indicated a move from clinical and institutional settings to the applied settings of homes, schools, hospitals, correctional institutions, and others. This research thrust has come to be known as applied behavior analysis.

The results of these research studies conducted in applied settings indicates that non-professionals such as parents, nurses, teachers, and students of varying ages can be trained in the use of principles and techniques of applied behavior analysis (Gladstone and Sherman, 1975). Further, this research literature indicates that following sufficient training, these non-professionals have been successful in the application of this newly acquired knowledge/skills to the applied settings.

Many research studies involving one or both parents have been generated as the result of various training models which will be discussed later in this chapter. Ten studies were selected as a representative sample of the literature involving parents as the change agents.

Allen and Harris (1966) taught a mother positive reinforcement procedures. The study was designed to eliminate excessive scratching behavior on the part of the daughter. The mother was instructed not to reinforce the scratching behavior, but to reinforce other desirable behaviors. After a period of six weeks the child's body was free of scabs and sores. After four months a post check revealed that the scratching behavior had not reoccurred and the mother was still using the positive reinforcement procedures.
Moore and Bailey (1973) trained a mother in the use of social punishment procedures to attempt to modify autistic characteristics displayed by her three year old daughter. The dependent variables were pre-academic behaviors and social behaviors. The mother was instructed through the use of one-way communication (earplug) when to give directions for a certain task, when to give reinforcement, and when to administer punishment. Results indicated a significant change in "autistic-like" behaviors displayed by the daughter. Post-checks were given at 1-5-7 months to monitor the degree the mother was able to maintain control over the child. Extreme stability was shown along with additional gains in social behavior.

A study by (Johnson and Lobitz, 1974) indicates that parents can be trained to manipulate child behaviors. The object of this study was to investigate the extent to which a child's behavior can be manipulated by making the child look "bad" and by making the child look "good." Results indicate that parents, through application of behavioral principles, can have a direct influence on a child's behavioral patterns.

In a study by (Wahler, et al., 1965) it was illustrated that a mother's social behavior may function as a powerful class of reinforcers for a child's deviant as well as normal behavior. Thus, with appropriate training in the application of social reinforcement procedures, three mothers serving as behavior therapists were able to bring about marked change in the deviant behavior of their sons.

A study involving differential reinforcement contingencies (Zeilberger, Sampen and Sloan, 1968) shows that parents can be trained to control undesirable behaviors in their children by appropriate
employment of time-out procedures in the home. Parents were taught the technique and followed a prescribed program for one month. The results indicated that positive behavioral changes can be effected by parents trained in this technique.

Herbert and Baer (1972) taught two mothers to attend to appropriate child behavior in their homes. The object of the study was to determine if there would be an increase in appropriate child behaviors resulting from an increase in maternal attention to appropriate child behaviors. Actually, the investigators were concerned with behavioral changes in both the mothers and their children. The results showed that the mothers increased their frequency of appropriate attending and delivery of reinforcement for appropriate child behaviors, and the children's rate of appropriate behaviors also increased. Again, demonstrable evidence can be shown to indicate that parents trained in self-recording technique and appropriate reinforcement delivery can effect positive behavioral changes in their own children.

In a study by (Hall, et. al., 1972) it was reported that four parents trained in the techniques of reinforcement, extinction, and punishment during a Responsive Teaching Model class at the University of Kansas were successful in effecting positive behavioral changes in their children. Behaviors under study were: (1) the wearing of an orthodontic device, (2) household tasks, (3) whining, complaining, and crying, and (4) duration of getting dressed. All four studies originated and were conducted by parents whose main exposure to behavior analysis principles was the course in which they were enrolled. Results of the four studies indicate that persons (in this case parents) with
relatively little training in behavior techniques can devise and conduct behavioral experiments that result in positive changes.

In a pair of studies (Christopherson, et al., 1972) and (Ryback and Staats, 1970) parents were trained in the use of token economy procedures. In these studies the parents who were trained in behaviorally identifying and stating desirable behaviors for their children, received instruction in the employment of the token system in the home, engaged in question-answer discussion, and were given actual practice by being involved in role-playing sessions. All parents were successful in engineering appropriate behavior changes in target behaviors such as social, task, reading difficulty, and others. Further, these studies again support previous findings, that some parents need only elementary or basic instruction in the use of reinforcement principles to become effective change agents.

Henderson and Swanson (1974) attempted to determine if Papago Indian parents in an isolated reservation setting could be trained to use modeling and reinforcement procedures to facilitate a behavioral change in question asking skills in their children. Mothers of the thirty randomly chosen students were assigned to one of three treatment groups. The mothers were trained at different points in time to use the techniques of modeling and reinforcement to influence the question asking performance of their children. Training of the mothers was done by Papago paraprofessionals who were trained by the investigators using direct demonstration, role-playing, and corrective feedback methods. The results indicate that once the mothers had received training and began employment of these techniques in the home, their
children's question-asking behavior increased significantly. Further, this study provided objective data suggesting the efficacy of parental applications of reinforcement theory based procedures for intellectual socialization.

Additional studies involving professional classroom teachers, principals, and counselors have provided sufficient data from which to draw some conclusions about the efficacy of applied behavior analysis to educational environments. Studies reviewed included both individuals and groups of students at the elementary and secondary school levels.

In a study designed to investigate the ability of beginning to employ systematic reinforcement procedures (Hall, Panyon, Rabon, and Broden, 1968) it was found that study behaviors increased contingent upon teacher attention, length of class break, and classroom games. This study also indicated that "no-cost reinforcers" can be used without added expense or administrative revision.

A study utilizing teacher praise, attention, and classroom activities (Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, Porcia, 1971) demonstrated that appropriate behavioral changes took place when a teacher praised desired behavior and ignored undesirable behavior of four different subjects. The study further demonstrated that the hand raising behavior of an entire class of thirty students was improved contingent upon a classroom game.

In a study by (Hall, Cristler, Cranston, and Tucker, 1970) the results show that teachers and parents can successfully use systematic reinforcement and punishment procedures in the classroom and at home. Reference should be made to the fact that this study involved data
collected at the elementary and secondary school levels as well as in the home. Further, the "mini-studies" were conducted by teachers and parents enrolled in the Responsive Teaching Model course at the University of Kansas. Reference to this model was made earlier in this chapter and will be discussed in more detail later. One of the studies dealt with the reduction of tardiness using contingency management techniques in a fifth grade classroom following morning, noon, and afternoon recess periods. Another study dealt with a mother using "going to bed early" contingent on 30 minutes of clarinet practice, campfire project work, and reading. Marked increases were observed when the contingency was applied. Similarly, a high school French teacher raised the daily quiz grades of three target students from below average and failing to average or better contingent upon an after school tutoring session.

Managing Behavior: Behavior Modification Applications in School and Home Part III by R. Vance Hall is a compilation of 21 studies conducted by participants in the graduate course offering at the University of Kansas Studies. Many of these studies were conducted by classroom teachers and further increased the existing research base which indicates applied behavior analysis techniques can be employed successfully by classroom teachers with minimal training.

Several studies were found in which principals have been instrumental in bringing about significant behavior changes in students and teachers. Although the number of studies conducted to date are limited, the results indicate that building principals can function as the change agent when employing applied behavior analysis techniques.
In a study reported by (Broun, Copeland, and Hall, 1972) an elementary school principal systematically followed children's appropriate behavior with various kinds of reinforcers. Reinforcers included in the three different investigations were: (1) delivering tokens with monetary back-ups, (2) working on bicycles in the school basement, (3) signing in at the principal's office, and (4) opportunities to engage in activities with the principal. The target behaviors of the students dealt with by the principal were: (1) promptness of school arrival, (2) school attendance, and (3) disruptiveness in the classroom. Studies one and three employed the reversal design. Study two employed the multiple baseline design to generate the data and the analysis. All three studies demonstrated that the principal was controlling the behavioral changes cited and that the techniques employed were compatible with the public school environment.

In still another study reported by (Copeland, Brown, Axelrod, and Hall, 1972) an attempt was made to determine the effects of a school principal praising parents for school attendance. This study took place in a school in which the principal was supervising a summer school program and had no previous contacts with the parents and students of this district.

The treatment involved brief telephone calls to parents whom the principal had never seen and would not see for the duration of the study. Results indicated that when the principal followed school attendance with telephone calls and praise to parents for their child's attendance, the child's attendance significantly improved as compared with the attendance of a child whose parents received only a phone call.
The previously cited work by (Brown, et al., 1972) provided the impetus for a study by (Copeland, Brown, and Hall, 1974) in which attempts were made to clarify whether or not certain aspects of treatment were, in fact, responsible for the cited behavior changes which had taken place. The object of this study was to determine the effects of direct social praise delivered by the principal in three different investigations of selected target behaviors. In the three different investigations, treatment and target behaviors included: (1) the principal entering the room of three students who were chronically absent and praising them for being present, (2) having three low-achieving students sent to the principal's office to receive praise for meeting predetermined criteria in word recognition and addition tutoring sessions, and (3) the principal entering the rooms of 74 third graders and praising them for improvement of arithmetic scores and recognizing the five highest scoring students. Results of Experiment I yielded verifying evidence that contingent daily attention by the principal did indicate significant increases in school attendance. Experiment II indicated that the attention delivered upon completion of predetermined criteria levels in regard to word recognition and addition was an effective reinforcer for the targeted students. Experiment III yielded evidence that the principal, in fact, increased the academic productivity in a number of the 74 third grade students involved in the investigations. The data showed marked increases in this productivity at the point of the principal's intervention technique.
The literature revealed a study by (MacPherson, Cande and Hohlman, 1974) whereby the principal, through a series of in-service workshops (14 fifteen minute sessions), trained six paraprofessional lunchroom aides in operant conditioning techniques. The purpose of the study was to compare three different treatment methods of controlling lunchroom behaviors emitted by fourth and fifth grade students. The three methods used were:

1. Basic modification procedures (BMP) including positive reinforcement, contingency management techniques, and time-out procedures.

2. Basic modification procedures, plus punishment essays (BMP + PE) included the above (BMP), plus writing an essay on a topic from a predetermined list.

3. Basic modification procedures, plus mediation essays (BMP + ME) including the above BMP, plus writing an essay from a predetermined list.

The targeted behaviors were talking while the aide speaks, out of seat behavior, and quarreling. Following the training sessions, the paraprofessionals were instructed by the principal when to use the treatments of (BMP, (BMP + PE), and BMP + ME) in dealing with the target behaviors. Results indicated that during the lunch periods when the paraprofessionals were instructed to use the (BMP + ME) treatment, the target behaviors were almost totally eliminated and occurred significantly less often in comparison with treatments (BMP) and (BMP + PE).
A study by (Trauer and Hall, 1974), in which punishment procedures were used to obtain an accurate lunch count in an elementary classroom, clearly indicates that principals can aid classroom teachers in obtaining desired behavior changes. Through the use of "isolation and loss of recess" punishment procedures, the principal was able to reduce the number of errors in the hot lunch count to zero errors within three days after experimental procedures were implemented.

The research efforts demonstrate that adults from a variety of backgrounds and occupational endeavors, and with varying degrees of training, can successfully define, observe, record (report), and implement techniques of applied behavior analysis in a variety of environments. However, the research has not been limited to adults alone. A number of research studies have been conducted utilizing adolescence, elementary and pre-school age children as behavioral engineers. Five studies involving these students with minimal training in applied behavior analysis are reported here.

Gladstone and Sherman (1975) conducted a study involving seven high school students as behavioral change agents working with institutionalized retarded students. Each student was asked to teach one child to follow certain basic instructions ("bring ball," "sit down," "come here") during baseline conditions and before any training in behavior modification skills. None of the students successfully taught the child to follow their instructions. Then the students were exposed to basic training procedures in behavior modification. Training procedures consisted of videotaped modeling, rehearsal techniques, and corrective feedback and praise. Following the training sessions, four of the seven
students successfully taught their child to follow the instructions of "sit-down" and "come-here."

Another study by (Rouse and Farb, 1974) illustrates how thirteen high school students were trained as behavior modifiers working with the severely handicapped persons. This study was designed, conducted, and coordinated by an undergraduate psychology student (second author) in cooperation with the professional staff at the Child Development Center of the University of Texas, Medical Branch at Galveston. The students received training in the following areas: (1) normal and abnormal development, (2) introduction to behavior analysis, (3) the shaping and modifying of behavior, (4) behavior modification techniques, (5) methods of recording and analysis of data, and (6) design and institution of programs for specific children. Other methods of instruction involved videotapes, simulations, and group discussions.

Results indicated that the thirteen students involved in the training program were highly successful in effecting behavioral changes in the severely handicapped subjects under their direction. Target behaviors under study were: (1) eye contact to verbal command, (2) eye contact with objects, (3) stacking rings, (4) taking spoon verbal command, (5) walking balance beam, (6) walking unassisted, and (7) grasping and holding object.

(Greenwood, Sloan and Baskin, 1974) conducted a study using peers as behavior managers in controlling small groups programmed in mathematics at the elementary level. Four students were trained in the appropriate use of social reinforcement, point reinforcement, and response cost. All four students were successful in supervising and
managing the small group (4-6 students) activities using these techniques.

In the previously mentioned study by (MacPherson, et. al., 1974) twelve students were selected and trained to observe and record the target behaviors under study (talking while the aide speaks, being out of seat, and quarreling) in the lunchroom setting. These students received tokens for appropriate observer behaviors which could be exchanged for certain "back-up" privileges. It was found that following training, these twelve students were continuously above the acceptable reliability factor of eighty per cent.

A study conducted by (McLaughlin and Malaby, 1975) further supports the notion that elementary school age students can, with minimal training, function as behavioral engineers. The results of their investigation suggests that sixth grade pupils need no more training, either qualitative or quantitative than do college students or other adults, and can become successful in the following areas:

(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 experimentors who actually design and conduct simple behavior control experiments.

(Long and Madsen, 1975) conducted a study to determine whether or not preschool children could apply behavioral principles with younger peers in structured activities in a day care center. Four kindergarten
children ranging in age from five years to five years seven months, served as reinforcing agents for four children ranging from three years four months to three years ten months. Training for the peer observers consisted of: (1) appropriate and inappropriate school behaviors for three-year-olds, (2) use of observational system, (3) systematically recording what they observed, and (4) appropriately delivering positive reinforcement for desired behaviors. The data indicated that five year olds can, following minimal training, function effectively as reinforcing agents and peer observers for younger children in dealing with the targeted appropriate social behaviors.


In the review of the related research and literature dealing with the feasibility and expediency of training non-professionals in the use and application of techniques rooted in applied behavior analysis, it becomes quite evident that these training procedures have been highly successful and have accomplished high levels of effectiveness.

Therefore, from the data yielded by these investigations, it would seem reasonable to assume that teacher training institutions could use the applied behavior analysis training model to improve the performance skills of their preservice teachers. Undergraduate programs in teacher education could be designed and coordinated to better equip preservice teachers in the observation, recording, and implementing of behavior techniques in their preservice field experiences and their classrooms upon graduation. Further, teachers of preservice teachers
with a professional background and training in the use of applied behavior analysis could formulate and develop a supervisory program throughout the preservice training program which would aid in the improvement and maintenance of selected teacher behaviors and skills necessary for more effective teaching and the creation of worthwhile learning environment.

Training Models Emphasizing Behavior Change

Until recently, most teacher training programs have relied heavily upon the traditional sequence of course work, observation, little if any, participation, and student teaching as the culminating experience in the program model. However, the focus was often blurred, feedback was vague, and the evaluative process was often opinionated. The process, at best, was lacking due to inadequate instruments of observation and/or analysis.

The development and refinement of conceptual tools for the analysis of teaching behaviors has opened up a whole new dimension in training models for inservice and preservice teachers, administrators, counselors, nurses, business personnel, and parents.

Significant contributions have been made by the interaction analysis system, developed by Ned Flanders, in the early 1960's. The following reference would support this statement:

The recent history of both educational research and teacher training has seen the use of some new and innovative techniques and designs. One of the newer approaches has been the use of descriptive category systems as a tool for collecting specifics, relatively objective data of teacher and pupil behaviors as they are manifested in classroom settings (Furst, 1971, p. 1).
Interaction analysis systems are as varied as they are many. Most systems are adaptations of the Flanders Interaction Analysis System and are concerned with analyzing pupil and teacher behaviors in the classroom in a descriptive way. Some of the adaptations now categorize both non-verbal and verbal behaviors. Two such systems are: The Observational System for Instructional Analysis (Hough and Duncan, 1965) and the Cheffers Adaptation of the Flanders Interaction System (Cheffers and Archambault, 1974).

The success of the interaction analysis systems used in the training of preservice teachers is evidenced by several studies conducted by (Hough and Amidon, 1967; Hough and Ober, 1966; Furst, 1965; and Moskowitz, 1966) most of which studied the effects of teacher behaviors and attitudes toward the interactive processes in the classroom. The results tended to show those inservice and preservice teachers who had been trained in the use of interaction analysis systems, were less direct or restrictive and more indirect and encouraging in their approach to the classroom interactive processes. Furthermore, one study (Hough and Ober, 1969) showed that interaction analysis systems can be taught to preservice teachers in methods courses and that positive transfer will occur in the student teaching experience.

More recently, the applied behavior analysis model has been espoused in the literature as a viable, inexpensive, and consistent training model for a variety of trainees. Perhaps the thrust of the applied behavior analysis model can best be summarized by the following:

The label applied is not determined by the research procedures used but by the interest which society shows in the problem being studied. In behavioral application, the
behavior, stimuli, and/or organism under study are chosen because of their importance to man and society, rather than their importance to theory (Baer, Wolf, and Risley, 1968, p. 92).

The development of training programs designed to teach the principles and techniques of applied behavior analysis to professionals, paraprofessionals, and parents is currently receiving a great deal of attention. This development largely reflects societal needs to combat some long-term social problems. The scope of the development of these training programs is underscored by the 1971 Baniff Conference, which was devoted entirely to the presentation of papers concerning strategies and approaches for implementing behavioral programs (Clark, Evans, and Hamerlynck, 1972). In essence, all the papers presented emphasized three major points. They are: (1) there is a growing need for training programs to produce effective agents of behavioral change, (2) in applying behavior modification procedures, training programs should focus on specific skill development, and (3) training programs should be evaluated systematically in order to establish the most effective and efficient procedures.

In reviewing the literature, the in-service training model and the academic (graduate course) training model seem to be the two major thrusts used to achieve the implementation of behavior programs. Twelve in-service training programs are cited here.

(Kirigin, Ayala, Braukmann, Brown, Minkin, Phillips, Fixsen, and Wolf, 1975) have been developing a training program designed to provide couples with sufficient skills and knowledge to implement community-based, family-style, and group home-treatment programs based on the Achievement Place Teaching-Family Model.
Achievement Place is a research project involving delinquent, dependent, neglected, emotionally disabled or mildly retarded adolescents living in teaching-family homes with a trained couple, known as teaching parents. These teaching parents are solely responsible for redirecting the lives of the youth under their charge by teaching them more acceptable behavior patterns at home, in school, and in the community.

The present training program has evolved from one which placed emphasis on academic skills, to one that stresses practical skill development and practice in applying the modification procedures. The present program consists of the following five-phase sequence to be completed in one year.

1. An initial five-day, fifty-hour workshop held at Kansas University to provide the basic knowledge of the program and the skills needed to implement the procedures,

2. A three-month practicum period with frequent consultation with the training staff, which begins when the trainees begin to operate their own treatment programs.

3. At the end of the three-month practicum, the training staff evaluates each trainee's program. The evaluation consists of sending questionnaires to the juvenile court, department of welfare, school personnel, board of directors, and the youths' parents to ask their opinions about the program's
effectiveness in correcting the youths' problems and about the cooperation of the teaching-parents.

In addition, a professional evaluator makes an on-site visit to rate the teaching skills of the teaching-parents, to evaluate the general social behaviors of the youths, and to give the youths a questionnaire asking them to evaluate the fairness, concern, and effectiveness of the teaching-parents and other dimensions of the program. We have found this to be an economical means of evaluating a program, one which provides the teaching-parents with valuable feedback from the important individuals and agencies in the community.

4. The next nine months of training include a second five-day workshop at Kansas University, followed by continued consultation with the training staff and additional program evaluations at six and nine months, if necessary, to provide the trainees with specific feedback about the strengths and weaknesses of their program. With such feedback, the trainees can make any necessary corrections.

5. After the trainees' program has been operating for twelve months, the first annual program evaluation will be conducted to determine the certification of the trainees as teaching-parents. (Ramp and Semb, eds, p. 162-163).
Throughout the year of training, emphasis is placed on a sequence of teaching behaviors seemingly important when teaching the adolescents interactive skills. They are: (1) initial phase, (2) description of inappropriate behavior, (3) rationale, (4) description of the appropriate behavior, (5) point consequences, (6) request for acknowledgment, (7) practice and feedback, and (8) final phase.

There is evidence which suggests (a study contained in the reference) the teaching-interaction skills as presently taught in the workshop training program are relevant to the operations of the treatment programs.

Quilitch, Miller, McConnell, Bryant (1975) maintain an effective program to train students with behavior modification skills should include: (1) well-specified terminal behavior and criteria to be employed in judging these behaviors, (2) a professional model should be present to demonstrate skills and to supervise the students, providing them with feedback and timely reinforcement for academic and performance skills and projects, and (3) formal incentives for students successfully completing the training program would be included.

The present training program was provided for 30 selected personnel working at a 400 bed state mental hospital. Classes met for three hours a session for 21 weeks. Students were shown films, given lectures, given knowledge tests over the assigned readings materials (Mager, Hall, Risley) and required to choose one of their patients who presented a problem for them and conduct a behavior modification project.

The results of the initial study involving this training program indicate that seventeen students successfully completed the inservice program, while twelve other students had to discontinue training due to
work schedules. One student expressed objection to behavior modification and was permitted to remove himself from further training.

Zimmerman and Zimmerman (1971) reported the success of a workshop conducted in the Indianapolis Public Schools dealing with the applied behavior analysis model. The purpose of the workshop was to expose volunteer teachers to the rationale and methodology of precision teaching and behavior management. Teachers in the workshop were recruited from seven different inner-city elementary schools and could earn either graduate credit (tuition paid) or a $50 honorarium. Specific goals of the workshop were to help the teachers acquire the skills of: (1) objectively defining academic and conduct behaviors; (2) systematically applying behavior management procedures of their own choice to improve academic performance or classroom conduct in individual students or groups of students, and (3) quantitatively assessing the behavioral effects of their management procedures. Teachers were encouraged to pursue problems that they had identified and wanted to improve upon within their own classrooms.

The fourteen teachers engaged in a total of 26 projects, ten of which were conduct deceleration projects (e.g. out of seat, talk-outs, etc.) and 16 academic acceleration projects, mainly arithmetic skills, spelling, and drawing correct symbols and letters.

A large variety of treatments were employed to obtain the results cited in the model. Among these were team competition for prizes, contingency management techniques, social reinforcement, "no-cost" reinforcers, and tutorial systems. A follow-up study one year after the workshop, involving ten of the original fourteen teachers, yielded the
following results. Ten of the teachers indicated that the workshop had influenced their teaching. Nine of them further indicated that they were presently using one or more of the techniques and skills acquired during the workshop.

Turner and Allen (1975) have designed a low-cost model of assessment known as the functional approach. The three components of this model are:

1. Goals should be stated in measurable terms.
2. Procedure should be agreed on by all involved in teaching process.
3. Evaluation should be designed to be simple and meaningful to the teacher.

This model provides for in-service training within the teacher's own school building. The training sessions, totaling twelve hours, were conducted by a behavioral consultant whose function was to help the teachers, not teach the teachers, the different strategies for identifying, assessing, and correcting academic and social behavior problems found in the classroom. The functional approach emphasizes "start where the teacher is with whatever repertoire is at hand." Thus, the model begins on the teacher's present level of understanding, and immediately an action-oriented plan is implemented, including identify a problem, decide upon a solution, and begin to gather information to show whether the solution is correct. The model further assumes the posture that effective training of teachers in applied behavior analysis procedures will not be self-maintaining or require any measure of generality until the principles/techniques become intrinsically
reinforcing as the result of successful application to "grass-root" problems.

Gardner (1972) conducted an in-service training model in lieu of evaluating the effectiveness of role-playing and lecture as instructional methods in teaching behavior modification procedures to institutional personnel. The results clearly suggest that role-playing was a more relevant training model in reference to subject proficiency, application and performance skills of group participants. The lecture model generated data which indicated a greater acquisition of knowledge on the part of the group participants. This study further supports the notion that performance skills are best taught within a teaching framework that emphasizes performance skills, while verbal skills (knowledge acquisition) are best taught in a framework emphasizing verbal skills.

Rockford and Brennan (1972) reported on a combination in-service education and graduate study training model designed to negate the severe shortage of trained and experienced teachers in the area of learning disabilities. Several unique features of this model include: (1) the cooperative planning and implementation by a local school district, a college, and parents, (2) the combining of inservice education into a college curriculum so teachers could obtain graduate credit, (3) the development of a teacher education program based on competency units which are translated into behavioral skills, and (4) the implementation of a course where knowledge and skills presented in the program are continuously implemented and evaluated in the classroom.
The program was established by the Board of Cooperative Educational Services (BOCES) in Erie County, New York, and comprises six separate phases which, if taken sequentially, lead to appropriate certification and a master's degree in special education. Both course content and course projects are devised so that they totally blend with the teacher's professional responsibilities. The teachers are continuously required to implement and field-test the concepts that are learned on the college campus within their own classroom environments. The authors believe the (BOCES) program to be highly individualized, concrete, and practical as it now stands.

Stachnik (1974) reported on a model being used to train in-service teachers in the procedures of applied behavior analysis at the graduate level at Oakland University in Michigan. The model (course) is designed to meet two main objectives: (1) to introduce the teachers to the principles of behavior upon which behavior modification strategies are based, and (2) to provide the teachers with experiences in utilizing these principles into effective classroom behavior management techniques.

The first objective of the model was met in a traditional didactic manner which included readings, discussions, films, modeling, and exercises.

The second objective was achieved through a classroom behavior modification project assigned to each teacher. Upon completion of the training model the following conclusions were drawn:

1. The teachers enrolled in the course were very receptive to learning the rudiments of behavior modifications and
showed considerable skills in translating the principles in useful classroom techniques.

2. Teachers can be made to see that automatically referring troubled children to staff professionals can be improved upon.

3. Teachers can be made to see that deviant social behavior or unsuccessful academic performance often precedes more serious problems within the classroom.

4. All the teachers in the course had received bachelor degrees from accredited teacher-training institutions, yet were unprepared to deal with behavior problems in any specific way.

This model adds further support to the notion stated earlier by Turner and Allen (1975) that training models must become an action-oriented functional approach to engender any generality of the model to the classroom.

McKenzie, Egner, Knight, Perelman, Schneider, and Garvin (1970) reported a model designed to train "consulting teachers" to assist regular classroom teachers with the social and academic behaviors of handicapped children. Ten regular elementary classroom teachers were selected to become consulting teachers in training (CTIT). The training model was cooperatively developed by the University of Vermont and the Vermont State Department of Education. Two academic years and one summer were required to complete the training program which led to a Master of Education Degree. The design of the curriculum featured the following:
1. Principles of behavior modification.

2. Application of these principles to meet the needs of handicapped children in regular classrooms.

3. Precise daily measurement and monitoring of a child's progress to insure that contingencies, methods, and materials are effective.

4. Procedures for training parents and teachers in the principles and application of behavior modification techniques.

5. Research training to increase skills in devising and evaluating educational tactics.

6. Development of supplementary materials suited to the particular needs of handicapped learners.

7. Methods of advising elementary school teachers in the management and education of handicapped learners.

The CTIT program is highly individualized and encourages a wide variation in rates of achieving the program's objectives. During the initial year of the training program, the participating teachers were given one day per week released time to develop teaching procedures and materials for handicapped learners, and to tabulate and interpret data. During the second year of the program, the CTIT used part of the released time (one day per week) to act as consulting teachers in their fellow teacher's classrooms. Eight CTIT successfully completed the first year of the program and continued their training. Two teachers withdrew for personal reasons but continued to employ the methods studied during the first year in their classrooms.
Indications are that this initial training model was highly successful. CTIT are now being hired as full-time consulting teachers and adjunct faculty to the College of Education of the University of Vermont.

Willis, Hobbs, Kirkpatrick, and Manley (1975) reported on a training model for counselors at the University of Alabama. "Behavior Approaches to Counseling" was offered as a three semester hour, graduate level course. Eleven junior high and high school guidance and vocational counselors were enrolled in the course which met two hours a week for twenty-three weeks. The course was designed to produce counselors who could: (1) describe the basic principles of changing behavior in school settings, (2) identify and illustrate the appropriate use of applied research designs, and (3) design, conduct, and evaluate a behavior change project.

The training program relied heavily on Hall's Managing Behavior Series (1971) as basic texts, along with the instructional methodology of lectures, group reports, and application exercises.

The results of the studies conducted by the participants demonstrate conclusively that counselors in public settings can develop and implement practical intervention programs, and can gather reliable data concerning social and academic behavioral problems.

The Responsive Teaching Model as reported by Hall and Copeland (1972), Hall (1971), and Rieth and Hall (1974) was developed by the Human Development Center Staff at the University of Kansas. The major thrust of this model is to allow persons to systematically carry out behavioral changes in applied settings with minimal outside assistance.
The essential elements found within this model are as follows:

1. The precise observation and measurement of behavior, focusing on procedures for reliably measuring and recording behavior which can be used by teachers, principals, counselors, parents, and others while they carry out their other responsibilities.

2. The use of simple graphs for charting the behavior recorded.

3. The application of systematic antecedent and consequent procedures available in natural settings in order to bring about behavior changes.

4. The use of applied behavior analysis research designs which allow each person to experimentally analyze what he does and to scientifically verify his teaching procedures.

5. The bringing about of mutually reinforcing interactions among parents, teachers and other adults, both professional and non-professional, and the children with whom they work. Reith and Hall (1974, p. 4).

Essentially, this training model is conducted as a college or school district graduate credit course (three semester hours). However, the model has been adapted for use in an extended in-service workshop format involving total staffs and interested lay-people. The model, as it presently exists, is designed to train 90 to 100 persons at one time with emphasis placed on the primary concomitant goals referred to earlier in Chapter I.
To date, well over 1000 studies have been generated by the participants in a variety of settings, inner-city, suburban, rural school environments, and in homes and business establishments.

Although not unique, nor necessarily the only good approach for training persons in applied behavior analysis, it does demonstrate the following advantages:

1. It provides for individual reinforcement through professional growth and academic credit plans.

2. It provides for intrinsic reinforcement for the participants in the form of techniques and procedures which they can apply to their own settings.

3. Provides for a basic understanding of learning principles.

4. It provides for a new disposition to observe and measure behavior and then to scientifically verify the efficacy of their teaching procedures.

5. It has resulted in many studies which clearly demonstrate that these procedures can be carried out by teachers, principals, and counselors within the structure that now exists. Thus it adds to the technology of teaching procedures which increase teaching effectiveness.
Summary of Literature Related to
Training Models Emphasizing Behavior Change

In summary, the training models cited have demonstrated functionality as viable vehicles used to teach the techniques and procedures inherent in applied behavioral analysis to parents, teachers, and other adults, both professional and non-professional. Utilization of the training models seems to be primarily in the areas of graduate courses, in-service training, and intensive workshops. Whether or not one accepts or rejects the suggested formats reviewed in this section, it would seem that a program which provides the elements described here is a functional approach in regard to the type of program necessary to begin the training of teachers in applied behavior analysis.

However, Stachnik (1974) insists that "undergraduate teacher training programs must begin to include the technology of contingency management in their curriculum." Siedentop (1972b) maintains that in-service or workshop behavioral training is, at best, a patch-up or remedial undertaking, and the emphasis must change from in-service to pre-service training (p. 28). Willis, et al., (1975) states, "the growth and development of the individual counselors, as well as the profession, would be facilitated by a greater emphasis placed on careful study of effect, and the obvious point at which to begin such an emphasis is in university training programs" (p. 186).

It would appear, and has been amply demonstrated, that the time has come to introduce in-service and pre-service teachers to a scientific approach to teaching through applied behavior analysis. Hayden and Torkelson (1973) speak most succinctly:
The measure of the maturity of a profession is the extent to which it pinpoints or identifies its own problems and seeks solution to these difficulties through disciplined inquiry, systematic treatment, or technology, measurement, and evaluation of its performances and services. (p. 222)

Therefore, one of the major questions to which this study addressed itself was: Can pre-service student teachers be taught to use basic principles and techniques of applied behavior analysis in their student teaching assignments following training procedures inherent in the Responsive Teaching Model?

The Ohio State University Model

In a discussion paper prepared by The National Education Association: Commission on Teacher Education and Professional Standards (1966) entitled, "Who's in Charge Here?" the following statement appeared:

Student teaching is almost universally accepted as the most dynamic phase of teacher education, and currently more than 150,000 regular classroom teachers cooperate with nearly 1,200 colleges to provide student teaching experiences for more than 200,000 students. (p. 3)

Many serious questions are being leveled by various groups and individuals as to the effectiveness of the student teaching experience as it is now being practiced. Student teaching is still viewed by those responsible for the preparation of preservice teachers as a most valuable process for aiding the prospective teacher to become a student of teaching (Hilliard and Durrance, 1968). This experience provides the student teacher with opportunities to bridge the gap between theory and practice. Through the cooperative endeavors of the college and local school personnel, the process of bridging this gap should enable the
student teacher to acquire skill in the areas of diagnosis and analysis of the various and numerous components of the teaching-learning process. Support for the student teaching experiences can be obtained by reviewing studies which have compared students of teaching who have in their undergraduate programs experienced student teaching and those who have not. One such study was done by (Preil, 1968) in which both new elementary teachers and elementary teachers with four years of teaching experience were compared as to teaching effectiveness. The results of this study clearly indicated that the new teachers, as well as the four year teachers, who had completed the student teaching requirement as undergraduates, were significantly more effective than those new teachers and four year teachers who did not experience student teaching as undergraduates.

When student teachers are asked to evaluate their program of preparation they almost invariably applaud the internship in student teaching as the most valuable single experience in the entire program (Horton, 1966). However, the quality of the student teaching experience depends upon many forces and factors. Generally, heading the list of forces and factors are the college supervisors and the cooperating teachers. While the roles of the college supervisor and the cooperating teacher may seem obvious, a misunderstanding of these roles often causes friction and frustration. If friction and frustration does occur between these two professionals, the quality of the student teaching is greatly hindered.

The Ohio State University Model developed by Siedentop and others is primarily a competency-based intervention model utilizing the student
teaching experience in physical education. A series of studies have been conducted by Hughley (1973); Rife (1973); Boehm (1974); Darst (1974); Hamilton (1974); Dodds (1975); and Dessecker (1975) in an attempt to determine effective procedures for the development and/or change of selected target behavior in student teachers employing a variety of intervention techniques. However, the primary intervention technique used by most of the experimenters is known as the "package approach." The "package approach" involved a variety of intervention variables that were designed to collectively bring about the desired change in student teacher behavior. The "packages" included verbal and graphic feedback, positive reinforcement, cueing, modeling, and written instructions. The multiple baseline design was employed by all studies to demonstrate a cause and effect relationship between the "package approach" intervention technique and any significant changes in student teacher behavior.

The initial study of this model utilized the "package approach" which included instructions about each behavior category, cumulative graphic feedback on rates of behavior achieved, verbal feedback, cueing, reinforcement and goal setting. Hughley (1973) studied the power of directed information feedback as an experimental technique to alter teacher behavior of student teachers in physical education.

Using a multiple baseline design across behaviors, the data indicated that student teachers increased their positive feedback for skill attempts and positive reactions to student on-task behavior, and decreased negative feedback for skill attempts, managerial time, and monitoring. Hughley drew the following conclusions:
1. Directed information feedback is effective in producing teacher behavior changes in student teachers in physical education.

2. Negative behaviors do not automatically decrease as a result of an increase in the use of positive behaviors.

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

4. Beginning teachers in physical education are very likely to emit very low rates of feedback, either positive or negative.

5. That a packaged intervention can effectively change student behaviors, and consequently this method provides a demonstrably sound model for student teacher supervision.

Rife (1973) used modeling intervention and feedback to study its effect on targeted student teacher behaviors. The experimenter taught a class, with the student teacher in the observation role. The student teacher attempted to model the particular behavior which the experimenter modeled. Rife's data show that modeling, cueing, positive reinforcement, graphic and verbal feedback were effective in changing such teaching behaviors as negative feedback for skill attempts, positive feedback for skill attempts, and negative reactions to off-task behavior, and positive reactions to on-task behavior. From this study Rife concluded that an existing high level of appropriate behavior was maintained while these desirable changes in teaching behavior occurred.

Darst (1974), Hamilton (1974), and Boehm (1974) examined the effects of competency-based "package" interventions on student teacher and pupil behavior. Each study focused on the same target teacher and
pupil behaviors but were conducted separately at the elementary, junior high, and senior high respectively. Nine categories of desirable teacher behaviors were observed: (1) positive reactions to on task behavior; (2) positive reactions to on task behavior with specific information; (3) negative reactions to off task behavior; (4) general positive instructional feedback; (5) specific positive instructional feedback; (6) general corrective feedback; (7) specific corrective feedback; (8) pupil contacts using the pupil's first name; and (9) the direction of all feedback.

In each of these three studies a competency-based framework was added, and the student teachers progressed through the following competency-based modules: (1) planning; (2) interpersonal relations; (3) management; (4) instructional feedback; and (5) pupil assessment. Each module specified terminal objectives, and student teacher terminal levels of performance were established in accordance with baseline rates gathered in the previously mentioned nine categories of desirable teacher behaviors.

The collective results of these studies indicate that the competency-based package intervention exerted some observable control over the behavior of the student teachers, and significant changes were demonstrated in all categories of student teacher behaviors. However, Darst (1974) found that the performance levels of many of the targeted behaviors were not maintained once the criterion level had been met and the student moved into another competency-based module. Hamilton (1974) points out that long extended baseline periods become very aversive to the student teachers.
Dodds (1975) studied the effects of a competency-based peer assessment model on the verbal behaviors of our elementary student teachers in physical education. The student teachers were assigned in pairs, and were responsible for coding lessons (of their partner) and providing graphic and verbal feedback reinforcement. In addition, the student teachers were to indicate when modular goals were attained and when the next module was to begin. The package intervention was similar to the Darst (1974), Hamilton (1974), and Boehm (1974) studies. The experimenter functioned in much the same way as those in the above studies in regard to designing the module, goal-setting, cueing, reinforcement, and feedback during routine visits.

Results indicate that selected student teacher behaviors changed significantly in the desired direction related to management, interpersonal relations, instruction, and instructional feedback. However, as in the Darst (1974) study, the targeted teacher behaviors reverted back toward baseline levels once the module goals or objectives were met. This indicates that future research employing the "package approach" should include maintenance contingencies in the modular development.

Dessecker (1975) studied self-assessment techniques combined with "package intervention" as a training for student teachers in physical education. Target behaviors under study were similar to those found in Darst (1974), Hamilton (1974) and Boehm (1974). Each of the four student teachers audiotaped designated lessons through the study. The student teachers would code their tapes and forward them to the experimenter for the purpose of reliability tabulation. Seminars were
conducted twice each week and facilitated goalsetting, verbal and graphic feedback, cueing, and positive reinforcement. The results of this self-assessment model indicate significant changes in student teacher behavior in categories of skill and behavior feedback statements, use of student's first name, managerial time, and a variety of feedback statements.

Summary of the Literature

Related to the OSU Model

In summary, the Ohio State University "package approach" model can result in significant and desired changes in a variety of selected teacher behaviors in student teachers during the pre-service student teaching experience in physical education. Hughley's (1973) initial study utilizing directed informational feedback, verbal and graphic feedback, and reinforcement as the "package", as well as the more sophisticated "packages" found in the studies by Darst (1974), Hamilton (1974), Boehm (1974), Dodds (1975) and Dessecker (1975) indicate that "package" does demonstrate accountable control over the target behaviors under study. It also appears, however, that all the techniques found in the "packages" are not needed by all student teachers to achieve the goals and objectives set forth by the supervisor (experimenter) and the modules.

Data in two of the studies indicate that student teacher behaviors reverted to and below initial baseline rates following completion of one module and beginning the next module. Therefore, it appears that maintenance controls and/or procedures should be
incorporated as part of the "package" approach in further research.

Further, there appears to be a need for research dealing with the generalizability of acquired changes in selected target behaviors of student teachers in one teaching environment to another.

The data generated by this model coupled with the work of Cossairt, Hall, and Hopkins (1973), Cooper, Thomson, Baer (1970), Hall, Cristler, Cranston and Tucker (1970) demonstrates that basic instruction in applied behavior analysis techniques and procedures, plus "package interventions," has proved to be an effective model to modify targeted teacher behaviors.

GENERALIZATION OF BEHAVIOR

The extensive research literature dealing with applied behavior analysis leaves little doubt that the techniques and procedures used to effect behavioral changes are successful. A number of students cited earlier in this chapter clearly indicate that parents, teachers, administrators, nurses and others can successfully use behavior-modification procedures. However, the primary purpose of these studies was not to analyze the training procedures, but to show that people other than experienced behavior modifiers could use these techniques. No attempt was made to demonstrate that behavior changes were due to training procedures or that trainees acquired generalized skills. Horton (1975) states:

A major problem for consultants, supervisory, and training personnel is to manage the consultant and/or the training process such that teacher behavior changes may be initiated, maintained, and generalized across conditions,
across responses of the same class and over time. While the initiation and maintenance of changes in teacher's behavior has been demonstrated directly and indirectly within the confines of experimental conditions and time, the generalization of these behaviors across conditions, behavior class, or over time remains to be demonstrated. (p. 311)

The crucial need for generalization of specific target behavior change is widely accepted, but behavior changes do not automatically guarantee generalization of these changes into other environments. Thus, the need to program for generalization, rather than expect it, is a point requiring both emphasis and effective techniques (Stokes, Baer, and Jackson, 1974).

In a study by Parsonson, Baer, and Baer (1974), two aides in a kindergarten-style program for institutionalized mental retardates were trained, using observer feedback, to apply generalized correct social contingencies to ten defined classes of appropriate and inappropriate child behaviors. The main focus of the study was to determine the effects and durability of the training procedure (8 days for Aide A, 5 days for Aide B) upon the attending behavior of the two aides. This required the aides to attend to appropriate child behaviors and ignore inappropriate behaviors.

The results showed that the aides became more consistent, and more competent, at attending to appropriate child behaviors as a result of the training program. The data obtained from the post-training follow-up and postchecks revealed that the two aides maintained the levels achieved during training despite the withdrawal of observer feedback. The data suggest that this training procedure can be used to
teach relatively durable skills and acquire some degree of generalization of these acquired skills over time.

Horton (1975) studied a procedure to achieve generalized teacher behavior change across many teaching conditions using discrimination training procedures. Two teachers were selected and trained in the Experimental Period I of the study to differentiate between examples of "behavior-specific praise" statements and "general approval" statements restricted to the subject-matter area of reading. Training instruments were: (1) written definition of target behavior; (2) video-taped discrimination sequence of instances and non-instances of target behavior; and (3) audiotape from which the subjects were to record and graph the number of instances of target behavior heard. A criterion level of 100 per cent was established for both the videotape and audiotape training segments. Following the training sessions, the teachers were asked to increase their rate of "behavior-specific praise" to one statement per minute. The investigator selected this target performance on the basis of previous work with teachers in which higher targets of performance had been rejected as too high a response cost for the procedures employed.

Preceding the Experimental Period II phase of the study, the two teachers were again put through the training sequence. However, this sequence differed from the initial sequence in that the subject areas reading, language arts, and mathematics were included in the videotaped samples, and the audiotape segment was dropped from the training procedure.
The results of this study showed no generalization of the teacher behavior of "behavior-specified praise" beyond the subject matter areas identified in Experimental Periods I and II in which the target behavior was trained and supported by the experimental procedures. The data show significant increases of instances of the target behavior in reading, language arts, and mathematics. However, no evidence of generalization of these increases was demonstrated in the subject matter areas of science, health, and social studies.

Gladston and Shermans (1975) study, referred to earlier in this chapter, evaluated whether a set of training procedures consisting of videotaped modeling, rehearsal, and corrective feedback would teach seven high school trainees to use behavior modifications techniques to teach a retarded child. It also attempted to ascertain whether these high school trainees, trained to teach one child a certain response, could apply the same techniques to teach a different child a different response without further training.

Initially, before any training procedures, each high school trainee was assigned two children designated as Child A and Child B. The target responses to be taught were "bring ball," "sit down," and "come here." The baseline data indicated that the trainees were unable to teach any of the targeted responses (at the 80% criterion level R = 0-22%) to their assigned children before training in behavior modification skills.

Following the training procedures, each trainee was instructed to teach only Child A the response of "bring ball." During these fifteen minute training sessions each trainee received reinforcement
and corrective feedback as to his or her use of the technique at intervals of five minutes. This feedback was maintained for the duration of the training sessions with Child A. Training sessions for Child A were terminated when the child followed 80 per cent of the instructions ("bring ball") or when the progress of the child appeared to be unusually slow.

When the training sessions with Child A were discontinued the trainees resumed sessions with Child B and were instructed to teach the responses of "sit down" and "come here" on an alternating trial schedule. No other instructions were given. During this phase of the study no corrective feedback or reinforcement was provided for the trainees.

Results of this study show that four of the seven trainees successfully met the 80 per cent performance criterion with Child A and six of the seven trainees met the criterion level with Child B. In addition, the results indicate the establishment of a repertoire of behavior modification techniques sufficiently general to allow the trainees to teach another retarded child (Child B) to follow different instructions without further training. The fact that the three trainees who failed to meet the criterion levels with Child A were able to meet the criterion levels with Child B seems to support the claim for generalization in this study.

Summary of the Literature Related to Generalization

The literature indicates little agreement as to reliable measures of generalized performance by trainees as a result of training. Only a few studies have attempted to analyze training procedures,
Buel (1970), Thomas (1972), Cooper, et. al. (1970), and Herbert and Baer (1972), while others, Panyon, Boozer, and Morris (1970), and Katz, Johnson, and Gelfand (1972) have studied the maintenance of acquired behavioral skills. Literature seems to express a need for additional research to determine how generalized the behavioral repertoires of teachers or trainees become following specified training procedures. With this additional empirical evidence, those interested in training preservice teachers could construct and refine training procedures to maximize generalizations of a wide variety of behavioral skills believed necessary to be an effective teacher.

Neither the Responsive Teaching Model or the Ohio State Model speak directly to the question of generalization. The Responsive Teaching Model seems to imply that generalization of sorts occurs, in that many of the techniques and procedures learned on campus, in workshops, or in-service training sessions are applied in the trainee's own classroom as academic requirements. Presently the literature is silent as to follow-up studies involving the participants of the Responsive Teaching Model.

The Ohio State Model has made no attempt to address the question of generalization of targeted student teacher behaviors, across settings, or over time. In fact, some evidence is found in the data to question the durability of behavior changes within the experimental environment (Darst, 1973 and Dodds, 1975).
METHOD AND PROCEDURE

The research problems examined in this study were: (1) Can the college supervisor train preservice teachers in the use of basic principles and techniques of applied behavior analysis during the student teaching experience? (2) Can the preservice teachers use appropriate observational techniques to collect reliable data? (3) Can the preservice teacher determine a systematic plan of intervention which results in a desirable change in the target behavior under study? (4) Can the preservice teachers effectively use the ABA, ABAB, and multiple baseline designs to analyze functional relationships? (5) Can the college supervisor, through the use of competency-based "packaged" intervention modules, cause preservice teacher behaviors to change in the experimental environment? (6) If demonstrable changes in preservice teacher behaviors are effected in the experimental environment, will these changes generalize into other teaching environments?

A multiple baseline design was used to test these research problems utilizing across subjects and across settings analysis (Hall, 1971; Williams and Anandam, 1973; Baer, et al., 1968; and Cooper, 1974).
SUBJECTS AND SETTINGs

The subjects were sixteen students at Baldwin-Wallace College enrolled in their student teaching experience during the winter quarter of the 1976-77 academic school year. The subjects ranged in age from 21 to 24 years old. The sixteen subjects were randomly selected into experimental and control groups prior to the start of the student teaching experience.

The eight experimental group subjects taught in the following city school districts: Subject E-1 taught at Charles Mooney Junior High School in Cleveland; Subjects E-2 and E-7 taught in Parma School district; Subjects E-4, E-5, and E-6 taught in Berea School district; Subject E-3 taught in Olmsted Falls School district; and Subject E-8 taught in Brooklyn School district.

Subjects E-1 and E-8 were females seeking Vocational Home Economics (Homemaking and Consumer Education) certification. Both Subject E-1 and Subject E-8 had engaged in limited field-based experiences and had no prior teaching experience or exposure to applied behavior analysis. Subject E-2 and Subject E-3 were males seeking Special K-12 certification in Health and Physical Education. Both subjects had limited teaching experience, as part of a methods course in physical education at Baldwin-Wallace College and had limited exposure to applied behavior analysis through an introductory course. Subjects E-4, E-5, E-6, and E-7 were males seeking secondary certification in Health and Physical Education (7-12). Subject E-4 and Subject E-7 had previous teaching experiences in the service program at
Baldwin-Wallace College and no prior exposure to applied behavior analysis. Subject E-5 had limited field-based experiences and exposure to applied behavior analysis, but no prior teaching experiences. Subject E-6 had an elementary knowledge of applied behavior analysis and one year of part-time teaching physical education in a local Catholic elementary school.

The eight control group subjects taught in the following city school districts: Subject C-1 taught in Bay Village School district; Subject C-2 and C-3 taught in Parma School district; Subjects C-4 and C-8 taught in North Olmsted School district; Subject C-5 taught in Berea School district; Subject C-6 taught in Strongsville School district; and Subject C-7 taught in Olmsted Falls School district.

Subjects C-1, C-3, and C-6 were males, ranging in age from 21 to 24 years old. All were seeking secondary certification in Health and Physical Education (7-12). All three subjects had engaged in limited field-based experiences and had limited teaching experiences as part of a methods course at Baldwin-Wallace College. Subject C-1 and C-3 had no prior exposure to applied behavior analysis. Subject C-6 had limited exposure to applied behavior analysis through an introductory course. Subjects C-4 and C-8 were 21 year old females seeking Vocational Home Economics (Homemaking and Consumer Education) certification. Both Subjects C-4 and C-8 had engaged in limited field-based experiences and had exposure to applied behavior analysis through an introductory course. Neither had prior teaching experiences. Subject C-5 was a twenty-two year old female seeking Special K-12 certification in Physical Education. This subject had limited teaching and field-based experiences.
as part of a methods course at Baldwin-Wallace College, as well as an introductory exposure to applied behavior analysis. Subjects C-2 and C-7 were both twenty-two year old females. Subject C-2 was seeking certification in English (7-12) and Subject C-7 in Biological Sciences (7-12). Both subjects had limited field-based experiences, but neither had prior teaching experiences or exposure to applied behavior analysis.

The following demographic information describes the settings utilized in this study. All settings (schools) were within a twenty mile radius of Baldwin-Wallace College and geographically located in the Cleveland metropolitan area.

Bay Village High School is located in the suburb of Bay Village on the far west side of the Cleveland metropolitan area. The student body of 1589 is predominantly white and come from middle to upper socio-economic class families. The high school houses grades nine, ten, eleven, and twelve and the students daily attend nine class periods of 43 minutes in length.

Midpark High School is one of two high schools located in the Berea City School district consisting of three suburbs (Middleburg Heights, Brookpark, and Berea) on the southwest side of the Cleveland metropolitan area. The predominantly white student population of 2126 come from upper middle to lower upper socio-economic families.

Berea High School is one of two high schools located in the Berea School district consisting of three suburbs (Middleburg Heights, Brookpark, and Berea) on the southwest side of the Cleveland metropolitan area. The student population of 1997, of which two and one-half per cent are black, come from lower middle to upper middle socio-economic
families. The students attend eight class periods daily of 54 minutes in length.

Roehm Junior High School is one of the three junior high schools in the Berea City School district, located on the southwest side of the Cleveland metropolitan area. The student population of 1198, four percent black, ninety-six percent white, come from middle class socio-economic families in the city of Berea. Class periods are 45 minutes in length. The grade levels housed in this school are seventh, eighth, and ninth. The students leaving this school matriculate to Berea High School.

Brooklyn High School is located in the suburb of Brooklyn on the southwest side of the Cleveland metropolitan area. The high school complex houses grades 7-12 and has a one-hundred percent white upper middle class student population of 1073. The class periods are 55 minutes in length.

Charles Mooney Junior High School is located on the far west side of the Cleveland City School district and has predominantly a white student enrollment. Twelve hundred and twenty-three students from lower middle to middle socio-economic class families attend the school which houses grades seventh, eighth, and ninth. The class periods are 43 minutes. Students leaving this school will attend James Ford Rhodes High School.

North Olmsted Junior and Senior High Schools are located in North Olmsted, a suburb on the far southwestern side of the Cleveland metropolitan area. The predominantly white student bodies of 1857 at the junior high and 2003 students at the senior high come from middle
class socio-economic families. The junior high houses grades seven, eight and nine and has ten periods ranging from 42-60 minutes. The senior high has an eighteen period modular schedule ranging from 36-54 minutes in length.

Olmsted Falls High School is located in the small southwestern suburb of Olmsted Falls. This school houses grade levels ninth, tenth, eleventh, and twelfth. The student population of 1050 is predominantly white and comes from socio-economic families ranging from lower middle to upper middle class. The class periods are 55 minutes in length at the high school level and 20 minute periods at the elementary level.

Valley Forge High School is one of three high schools located in the city of Parma directly south of the city of Cleveland. The grade levels housed in this school are tenth, eleventh, and twelfth. The class periods are 55 minutes in length and are attended by a one-hundred per cent white student population of 2300. The socio-economic level is predominantly middle to upper middle class, with a few lower upper class families. The elementary schools, Pleasantview, Arlington, and Colonel John Glenn, all had class periods of 40 minutes in length.

Strongsville Senior High School is located in the rapidly growing suburb of Strongsville on the southern edge of Cuyahoga County in the Cleveland metropolitan area. The high school houses grades ten, eleven, and twelve and is attended by 1265 predominantly white students from lower middle to upper upper socio-economic class families. The class periods are 53 minutes in length.
OBSERVATIONS AND BEHAVIORS

The preservice teacher behaviors were observed by the observational techniques of event, duration, and Placheck recordings (Hall, 1974 and Siedentop, 1976). Event recording consists of tallying every pre-defined discrete behavior emitted by the preservice teacher. Duration recording is an observational technique resulting in total cumulated time spent in a pre-defined behavior (e.g., instructional time). Placheck recording (planned activity check) refers to a periodic recording of the behavior of all members of a group or class. The researcher (the college supervisor) coded the preservice teacher behaviors under study on the Record of Student Time Allotment in Class, Behavioral Interactions and Skill Feedback Statements observation sheet constructed for this study. See Figure 3. This observational sheet allows for the recording of a time analysis of the total minutes and seconds spent in management, instructional, and activity behaviors by the preservice teacher. Percentage of time spent in each of the above categories can also be reported. Sixteen Placheck recordings, one every three minutes are utilized through the use of this observational sheet. The recording of discrete events, dealing with skill feedback statements, behavioral interactions and first name usage are reported, in both numbers and rates per minute. This observational sheet was utilized during the weekly supervisory visits and yielded baseline rates before and after the "package" interventions.

During each weekly supervisory visit the researcher needed to decide whether a specified behavior had occurred. This decision was
RECORD OF STUDENT TIME ALLOTMENT IN CLASS, BEHAVIORAL INTERACTIONS AND SKILL FEEDBACK STATEMENTS

OBSERVER ____________________________ DATE __________ SCHOOL ____________________________ GRADE __________ ENVIRONMENT: __________

TIME STARTED ________ TIME FINISHED ________ TOTAL MINUTES OBSERVED ________ EXPERIMENTAL: __________

NUMBER OF STUDENTS IN CLASS ________ ACTIVITY: __________ STUDENT TEACHER: __________ GENERALIZATION: __________

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

TOTAL MANAGEMENT TIME ________

% MANAGEMENT TIME ________

TOTAL INSTRUCTIONAL TIME ________

% INSTRUCTIONAL TIME ________

TOTAL ACTIVITY TIME ________

% ACTIVITY TIME ________

TOTAL SKILL FEEDBACK STATEMENT

POSITIVE CORRECTIVE NEGATIVE

GENERAL SPECIFIC GENERAL SPECIFIC GENERAL SPECIFIC

RATE P/M ________

TOTAL: ________ ________ ________ ________ ________ ________ ________

BEHAVIORAL INTERACTIONS

TOTAL: ________

RATE P/M ________
based on the pre-determined definitions of the preservice teacher behaviors under study.

Observer agreement (reliability) checks were made during baseline conditions and after the "package" interventions had been applied. This was done to insure that demonstrable changes in preservice teacher behaviors were due to the "package" interventions and not due to a change in the researcher's (college supervisor) recording of the behaviors. The total number of observer agreement checks for each subject was three: one on the last session of baseline condition; one on the first session after the "package" intervention was applied; and one on the final session while under intervention.

The observer agreement checks were made by one graduate student trained by the researcher (college supervisor) prior to the gathering of data for this study. The training procedures for the graduate student were as follows: (1) the graduate student was provided copies of previous research works dealing with applied behavior analysis; (2) was given a copy of Developing Teaching Skills in Physical Education (Siedentop, 1976); (3) was given a copy of all modules to be used as part of the "package" intervention in this study; and (4) was given a copy of the observational coding sheet. After reviewing the above materials, the graduate student met with the researcher (college supervisor) for further clarification of any questions regarding assigned materials. Following this meeting the training procedures continued as follows: (1) the graduate student listened to audio-tapes constructed by the researcher (college supervisor). These tapes consisted of examples of teacher management, instructional skill feedback statement,
behavioral interaction behaviors and first name usage. He was instructed to time or record each behavior being emitted; (2) the graduate student was then instructed that each of the tapes had been pre-coded by this researcher and contained a specified number of each behavior found on the observation coding sheet. The graduate student was instructed when 80 per cent agreement in all categories was reached, the final step in the training procedure would commence; and (3) the graduate student accompanied this researcher to the preservice teacher's school and recorded the behaviors under study. During this part of the training procedure, discussion between the researcher and the graduate student was permitted to further aid in the development of recording skill and understanding regarding the pre-defined behaviors.

The training procedures were concluded when both the researcher and the graduate student felt that a reasonably high degree of observer agreement (eighty or above) was being maintained while observing various preservice teachers in environments used in this study.

Following conclusion of the training procedures, the graduate student accompanied the researcher to the preservice teacher's school at designated times during baseline conditions and after "package" intervention. The researcher and graduate student were positioned in such a manner within the classroom gymnasium, or laboratory, to insure that neither would be influenced by the other's behavior. A pre-recorded cassette tape was used to cue simultaneously the researcher and the graduate student the appropriate times to observe and record the behaviors under study. Each observer was equipped with a stop-watch, coding sheet and adjustable length ear plug.
Format for the complete observation technique for both the researcher and the graduate student was as follows: See Figure 4.

**TIME ANALYSIS**

<table>
<thead>
<tr>
<th>TIME</th>
<th>BEHAVIORAL INTERACTION</th>
<th>REST</th>
<th>SKILL FEEDBACK STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(min.)</td>
<td>3 min.</td>
<td>1 min.</td>
<td>3 min.</td>
</tr>
</tbody>
</table>

---

---

PLACHECK 1

PLACHECK 2

PLACHECK 3

PLACHECK 4

PLACHECK 5

PLACHECK 6

---

... Repeat for a total of six 3-minute observations in each category.

**FIGURE 4. FORMAT OF OBSERVATION TECHNIQUE**

Percentage of observer agreement was determined following each observational session involving Time Analysis, Behavioral Interactions, Skill Feedback Statements, First Name Usage and all such categories found within the above.
Preservice teacher behaviors observed and recorded in this study are defined as follows:

**Positive Verbal Behavior (General):**
This refers to any general positive verbal interaction made by the preservice teacher that is complimentary in nature. It is further defined to include only those teacher responses that deal with pupil behavior. Telling a class that they "all did very well in class today," or "Johnny, you behaved much better today" would be examples.

**Positive Verbal Behavior (Specific):**
This refers to any positive interactions made by the preservice teacher complimenting pupils for good behavior. It includes all responses that have specific information contained with the statement. Examples would be "Thank you for bringing the records and record player to me," or "I like the way squad one is ready to begin class."

**Negative Verbal Behavior (General):**
This refers to any general negative verbal interactions made by the preservice teacher in regard to pupil behavior. Examples would be "Class, be quiet!" or "Pete, you are a dummy!"

**Negative Verbal Behavior (Specific):**
This refers to any specific negative verbal interaction made by the preservice teacher in regard to pupil
behavior. Examples would be "This class was bad today because you would not stay in your seats and be quiet," or "George, this is the last time I am going to tell you to get your pencil and paper out and start on the homework assignment."

Positive Skill Feedback Statements (General):
This refers to any positive verbal statements made by the preservice teacher that is complimentary in nature regarding pupil's skill attempt. Examples would include "Good try," "Great effort," "Super job," or "Fine answer."

Positive Skill Feedback Statement (Specific):
This includes any positive verbal statement by the preservice teacher, which conveys specific information regarding the skill attempt. Examples include "Mary did a fine job of keeping her neck tucked on that forward roll," or "Squad one shows the best body positioning for the dig shot."

Negative Skill Feedback Statement (General):
This includes any negative verbal statement by the preservice teacher which is general in nature. Examples would include "Class, what a lousy attempt," or "Ann, that was terrible."

Negative Skill Feedback Statement (Specific):
This includes any negative verbal statement by the preservice teacher which conveys exactly what was wrong with the pupil's skill attempt. Examples would be "Your
knees were straight," "Your hands were too wide," or
"You did not keep your eye on the ball."

Corrective Skill Feedback Statements:
This includes any corrective verbal statements by the
preservice teacher which contains precise information
regarding improvement of the skill. Examples would be
"Jane, keep your eyes fixed on the front edge of the rim
when attempting a free throw," or "Sam, you must keep
the wrist locked on the tennis forehand shot."

First Name Use:
Every time the preservice teacher referred to a pupil by
his/her first name, a tally was made. Calling role and
reading names from a score sheet were not included. The
coding of this behavior occurred during the behavioral
interactions intervals.

Per Cent of Management Time:
This includes the total per cent of time students spend
in class organization and changing activities including
calisthenics and warm-up exercises. It is time when no
instruction is given, no demonstrations are made, no
practice is done, no watching of performance is done;
theoretically it is time devoid of opportunities for
students to learn (Siedentop, 1976).

Per Cent of Instruction Time:
This includes the total percentage of time students
spend in class watching teacher and student
demonstrations, listening to lectures, answering questions, watching films, and responding to over-head projections. Generally, the teacher is "center stage."

**Per Cent of Activity Time:**

This includes the total percentage of time allotted the student to engage in the practicing of skills, completing assigned group or individual activities, tutoring classmates, and completing activities of the pupil's choice. Generally, the teacher is "off-center stage."

**Placheck (Planned Activity Check):**

This refers to a periodic recording of the behavior of all members of a group or class (Hall, 1974). At pre-programmed three minute intervals during the observational sessions, the observer scanned the class to determine the number of students engaged in appropriate behaviors. Examples of appropriate behaviors are: effort, participation, productivity, and appropriate behaviors for the activity being engaged in at the time of recording.

**EXPERIMENTAL CONDITIONS**

The essence of this study was: (1) to test the effectiveness of "package" intervention techniques on selected preservice teacher behaviors; (2) to see if behavioral changes resulting from the "package" intervention techniques would generalize to other environments similar to the experimental environment; (3) to test the validity of the
observation coding system designed for this study by comparison with the Flanders Interaction Analysis System (Amidon and Flanders, 1967); and (4) to see if preservice teachers following training sessions in applied behavior analysis principles and techniques can implement appropriate strategies as evidenced by conducting individual mini-studies.

Following the first regularly scheduled seminar meeting for all preservice teachers, special individual meetings were held with the eight subjects of both the experimental and control groups. At the experimental group meeting, the eight subjects were given a copy of the School Policies and Procedures Module (See Appendix B). The subjects were then informed: (1) at the end of the first full week of student teaching, a criterion referenced assessment test would be administered over the material found in this module; (2) if the passing criterion of nine out of ten correct answers was not achieved, this would necessitate a re-take of the assessment test and achievement of the required criterion level must be completed prior to the third full week of student teaching; (3) they would be observed by methods different than those presently employed by the Division of Education at Baldwin-Wallace College; and (4) the information provided by this method of observation would be shared with them individually periodically throughout their student teaching experience.

The researcher then met with the eight subjects of the control group and informed them of the following: (1) they would be asked to complete certain exercises in addition to the regular student teaching requirements; and (2) that this researcher and a trained graduate student would be making periodic observation visits to their classrooms.
These visits would occur throughout the student teaching experience and would be in addition to the regularly assigned college supervisor's observation visits.

Following the first full week of student teaching, a meeting of both the experimental and control groups was scheduled. Each of the sixteen subjects were asked to respond to the "Attitudes Toward Behavior Modification Questionnaire." (See Appendix C). Following the completion of this questionnaire, the assessment test for the "School Policies and Procedures" module was administered to all subjects in the experimental and control groups.

Prior to the establishment of baseline rates of behavior for the experimental groups, one twenty minute observation session using the Flanders Interaction Analysis System was scheduled for each of the eight experimental and control subjects. During this phase of the study, unusual and uncontrollable extraneous variables appeared which greatly hampered the collection of this data. Severe weather conditions, school closings, and energy crisis in the Cleveland metropolitan area forced this researcher to alter the original observation schedule and collect the remaining data via audio-tape recordings of subject's lessons.

These extraneous variables ultimately had a devastating effect on this study. The cut-backs in energy allocations forced many school districts into split-session operations, the relocation of entire student bodies and teaching staffs, and various other kinds of emergency operations to cope with these unusual circumstances. The researcher had no alternative but to declare a fifty per cent mortality rate in both the experimental and control group.
The declaration of subject mortality necessitated the re-assignment of subjects numerically, which was done to facilitate the presentation of data in Chapter IV. The eight remaining subjects, four in the experimental group and four in the control group were re-assigned in the following manner. See Figure 5.

**NUMERICAL RE-ASSIGNMENT OF SUBJECTS**

<table>
<thead>
<tr>
<th>EXPERIMENTAL</th>
<th>ORIGINAL #</th>
<th>CONTROL</th>
<th>ORIGINAL #</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE-ASSIGNED #</td>
<td>RE-ASSIGNED #</td>
<td>ORIGIN</td>
<td>RE-ASSIGNED #</td>
</tr>
<tr>
<td>E-1</td>
<td>E-3</td>
<td>C-1</td>
<td>C-3</td>
</tr>
<tr>
<td>E-2</td>
<td>E-2</td>
<td>C-2</td>
<td>C-5</td>
</tr>
<tr>
<td>E-3</td>
<td>E-5</td>
<td>C-3</td>
<td>C-6</td>
</tr>
<tr>
<td>E-4</td>
<td>E-8</td>
<td>C-4</td>
<td>C-4</td>
</tr>
</tbody>
</table>

**FIGURE 5.**

In addition to the re-assignment of subjects, an adjustment in the already in progress training sessions lasting one and one-half hours every Monday and Wednesday at 4:00 p.m. for a five week period was abandoned for the following reasons: (1) Subjects E-2 and E-3 were assigned to school districts (Parma and Berea) which were forced into split-sessions in order to keep the schools open. Both Subjects E-2 and E-3 taught afternoon sessions from 12:00 to 6:00 p.m.; and (2) Subjects E-1 and E-4 remained on somewhat of a normal schedule of 8:00 to 3:30 p.m. However, Subject E-1's elementary experience was
different as a result of three elementary schools coming together in one school equipped with alternate fuel sources.

The training sessions were rescheduled in the following manner: (1) all subjects met with the researcher one evening a week for two hours for four weeks; (2) individual sessions were scheduled one day a week for one hour for four weeks (whenever schedules permitted, the subjects met in pairs); and (3) after baseline conditions had been established for each of the subjects and the "packaged" intervention had been instituted, additional mini-training sessions were conducted in the subject's assigned school.

The training sessions utilizing the "Responsive Teaching Model" format precluded the individual mini-studies conducted by the preservice teachers in their classroom environmental settings. Each subject in the experimental group was provided a copy of Managing Behavior I, Behavior Modification: The Measurement of Behavior, 1974, and Managing Behavior II, Behavior Modification: Basic Principles, 1975 by R. Vance Hall. The subjects were informed of the availability of Managing Behavior III, Behavior Modification: Applications in School and Home, 1974 and that future mini-studies would be reported in accordance with the format found in this publication.

The training sessions emphasized the following:

1. the acquisition of knowledge and skill enabling the pre-service teachers to define, observe, and record behaviors in an educational setting. Special emphasis was placed on event, duration, and latency recording and the use of ABA, ABAB, and multiple baseline designs (Hall, 1974).
2. an understanding of basic principles and techniques of applied behavior analysis which will enable the preservice teacher to knowledgeably and systematically devise intervention techniques for selected target behaviors. Special emphasis was placed on the use of social reinforcement, privileges or activities (no-cost reinforcers), behavior and management games, extinction and punishment procedures (Hall, 1975).

3. on-going contact with the college supervisor and other preservice teachers which provided feedback and information concerning other mini-studies being conducted. Special emphasis was placed on learning effective procedures and the problems encountered in implementing behavioral studies.

4. the importance of reliability checks by an independent observer (the college supervisor and/or a trained graduate student) to determine the inter-observer agreements on behaviors under study. Special emphasis was placed on reaching the 80 per cent level or above on all observational recording procedures used during the mini-studies.

Following the training sessions and upon recognition of target behaviors to come under study each subject conducted individual studies employing applied behavior analysis procedures and techniques. The format for each study included the following:

1. definition of target behavior(s) and determination of appropriate design.
2. acquisition of baseline data and appropriate reliability checks.

3. suggested intervention technique(s).

4. continual recording of target behavior following intervention.

5. when appropriate, demonstrate and analyze functional relationships.

6. report findings in both written and graphic form. All mini-studies used the reporting format used by Hall (1974) Part III which includes the following:
   a. Author
   b. Title
   c. Source
   d. Population and Setting
   e. Behavior Measured
   f. Experimental Procedures and Results
   g. Discussion

This phase of the study utilized the ABA, ABAB, and Multiple baseline designs commonly used in behavioral research. However, according to Hall (1974), Williams and Anandam (1973), and Cooper (1974), the multiple baseline design is considered more appropriate for behavioral research in classroom environments than other designs used in applied behavior analysis. Support for this statement is found in the following statement:

On some occasions, the reversal design can present problems for teachers. For example, many school
behaviors do not reverse in the second baseline condition; other responses such as aggressive behavior, may be undesirable for reversal and some teachers may object to any reversal conditions. When these problems are evident, the multiple baseline design can be employed since the logic of this design does not call for a reversal condition. (Cooper, 1974) (Baer, et al., 1968) also advocates the use of multiple baseline designs when a behavior appears irreversible, or when reversing a certain behavior is undesirable.

Therefore, the subjects of this study were encouraged to use the multiple baseline design when conducting their mini-studies but were not restricted to its use on the premise that certain individual pupil behaviors targeted for study would utilize more appropriately a different design.

Following the necessary adjustments resulting from the unusual weather and energy conditions, the baseline rates of behavior for the experimental and generalization environments were established for Subject E-1 after four observations, three in the experimental and one in the generalization. Figure 6 shows the observation of baseline rates of behavior and the order and schedule of interventions for the remaining subjects.
During baseline conditions no feedback was provided to any of the experimental subjects. They were not shown any charts, percentages, rates per minute or other information regarding this study. They were simply instructed to continue to teach, utilizing the methods and procedures with which they were most familiar and felt most comfortable. The subjects were further instructed that more precise and explicit information would be given them after the researcher had more time to view their teaching methods and procedures.

In accordance to the order and schedule of interventions, each subject was shown a record of his/her baseline rates of behavior and
averages for each of the fifteen categories under study. This information was presented on the "Weekly Profile of Behavior Rates." (See Appendix D). The subjects were told the researcher would continue to observe once a week and that goals for each category would be established for the remainder of the student teaching experience.

**Intervention**

The subjects were given the "package" intervention materials, which consisted of four modules including: (1) Lesson Planning; (2) Interpersonal Relationships; (3) Instructional Feedback; (4) Classroom Management (See Appendix E); and (5) a copy of Developing Teaching Skills in Physical Education by Siedentop (1976). Each module included a rationale, goals, terminal behavioral objectives, definitions, learning activities and resources, and assessment channels. The subjects were asked to complete the suggested readings in the modules prior to the goal-setting session with the researcher.

The subjects then met with the researcher to discuss goal setting for each of the fifteen categories under study. The goals for each category were established in accordance with each individual subject's baseline average. The terminal goals agreed upon by the researcher and subject during this session were to be attained and/or maintained within the remaining weeks of the student teaching experience. Due to the lack of concrete evidence as to the specific rates of behavior that good teachers emit, a realistic rate of behavior was agreed upon for each category that could be reached and/or maintained before the termination of the student teaching experience. Goal setting in this
study was done on an individual basis, and the subjects were told that no comparisons between subjects would be made.

Several other techniques in addition to the "package" intervention and the goal-setting session were incorporated by the researcher to aid in the modification of preservice teacher's rates of behavior. They were:

**Immediacy of Reinforcement and Profile Feedback**

Immediately following each observation after the "package" intervention was applied, the researcher and the subjects would calculate the rates of behavior for each of the categories under study. These rates of behavior were then placed on the "Weekly Profile of Behavior Rates" in the presence of the subjects. The subject's terminal goals were already on the profile, a quick comparison could be drawn and immediate reinforcement provided if goals were attained, or maintained, or rates of behavior changes in desired directions were in evidence. In addition, the researcher made every effort to compliment the subjects on their progress toward established goals.

**Cueing and Modeling**

Subjects were cued as to more appropriate techniques and procedures to be used in specific instances. At times, the researcher modeled these more appropriate techniques or procedures.
Generalization

During the observations of baseline conditions in the experimental environments, the research designated one other class being taught by the subject as the generalization environment. The generalization environments for Subjects E-1 and E-2 were in the high school, Subject E-3 another class within the same junior high school, and Subject E-4 in a junior high class. These environments would serve to indicate whether or not behavior changes which take place in the experimental environments would generalize into a similar environment.

Generality of behavior can be claimed if:

...it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors.

(Baer, et al., 1968, p. 97)

Prior to the "package" intervention of each of the experimental subjects, the researcher conducted one observation in the designated generalization setting. The rates of behaviors were recorded on the "Profile of Behavior Rates" for each subject. Following the "package" intervention procedures for each subject, two more observations were made in these generalization settings by a trained graduate student. The purpose was to ascertain whether or not any behavioral changes cited in the experimental environment would generalize into this environment in the absence of the researcher.

Finally, one additional twenty-minute observation session was conducted using the Flanders Interaction Analysis System, for each of the experimental subjects. This observation was by either the researcher, trained graduate student, or both. The data from the initial observation
session using the Flanders Interaction Analysis System were then com-
pared to the second observation session to determine if any behavioral
changes effected in the experimental environment would also appear when
application of this observation system was made.

Control

The control group subjects were observed by the researcher once
at the beginning and once near the end of the student teaching experi-
ence, using the observation coding system designed for this study. These
rates of behaviors were then placed on the "Profile of Behavior Rates"
for each of the control group subjects. During the final week of the
student teaching experience, another twenty-minute observation session
using the Flanders Interaction Analysis System was made by the researcher,
trained graduate student, or both.

Comparisons were made to determine the degree of agreement
between the two different observational systems, which would then pro-
vide evidence of validity of the experimental observation scale.

PILOTS AND FIELD TESTING

The present study first began Winter Quarter of the 1975-76
academic year at Baldwin-Wallace College. It was during a critical
point of data collection that a teacher strike occurred in the Berea City
School district. Four of the six subjects were assigned to schools
affected by this strike. Due to the many uncontrollable variables
resulting from the strike, the researcher decided to abort the study
and reschedule for Spring Quarter of the same year.
Four subjects were selected and assigned to surrounding school districts. The study was three weeks in progress when the Columbia Local School district (where two of the four subjects were assigned) was faced with a strike by the certified personnel. This strike was several weeks in duration. A court injunction was issued which eventually ordered teachers back to their classrooms.

Meanwhile, the two subjects assigned to this school district were reassigned to other school districts in order to comply with state standards for certification. Again, the study was aborted.

Thus, during this period of unusual circumstances the coding sheet, package intervention modules, reliability observation techniques and procedures were tested, revised, refined, and re-tested.

Major changes resulted in the coding sheet. They were:

1. Total "time analysis" can now be computed as opposed to only management time on the original sheet;
2. The "skill-feedback statements" section were more clearly defined and divided categorically; and
3. The present format provides immediate feedback for the subject much more rapidly than the original sheet.

Reliability observation techniques and procedures were also revised. The major changes resulting from the "false starts" were the selection and training of the persons to be utilized as reliability observers. Originally, undergraduate students (sophomores) were to be selected and trained. However, many conflicts arose due to the availability of student's time for training sessions and other academic commitments. In the present study, a graduate student was assigned to the researcher to be used as the reliability observer. This student had
prior training in the Flanders Interaction Analysis System and received training in the model utilized in this study.

The "package" intervention modules, School Policies and Procedures, and Lesson Planning were field-tested with encouraging results. Seven subjects in the winter Quarter 1975-76, were given the module. Six subjects attained the required criterion level on the first attempt, and the other subject met the criterion on the second attempt. In the Spring Quarter 1975-76, all four subjects met the established criterion on the first attempt. Several minor revisions were made and field-tested prior to this study. In the Fall Quarter 1976-77, seven preservice teachers were given the revised module and asked to complete the required work. These seven, along with fourteen other preservice teachers, were given the assessment test. The seven preservice teachers who received the module met the established criterion, while the fourteen preservice teachers who did not receive the module failed to achieve the criterion level. Thirteen scored below seven correct, and one scored seven correct.

Similar results were obtained from field-testing the "Lesson Planning" module, and minor revisions were done prior to use in the present study.

The researcher feels the information, results, adjustments, and corrections gleaned from these pilots and field-testings were valuable sources of reference for the present study.
ANALYSIS AND DESIGN

The multiple baseline design (Cooper, 1974; Hall, 1971; Hall, et al., 1970; Baer, Wolf, and Risley, 1968) was employed in this study. The data were recorded as: (1) discrete events and converted to rates per minute; (2) percentage of class time spent in management, instruction, and activity behaviors; and (3) percentage of Placheck recordings for student appropriate behavior and appropriate learning behavior. All behaviors under study were recorded on "Record of Student Time Allotment in Class, Behavioral Interactions and Skill Feedback Statements" scale and plotted on the "Profile of Behavior for Subject," enabling clear directionality to be observed.

Selection of the multiple baseline design for use in this study for the purpose of data analysis was primarily done based on the following statement by Cooper (1974).

The multiple baseline design may be applied in three ways:

1. two or more different but similar behaviors of a given individual or group.

2. one behavior of a given individual or group that occurs in at least two different environmental conditions.

3. same behavior of two or more different individuals or groups. (Cooper, 1974, p. 122)

In addition, the multiple baseline design can show functional relationships without having to reverse important gains in target behaviors. Repeated modifications of the same behaviors in different people, or same behaviors in different settings, can show functional
relationships. For example, Subject E-1 was intervened on after three observations, Subject E-2 after four observations, E-3 after five observations, and E-4 after six observations. If changes occur in the subjects following the application of the "package" intervention while subjects still under baseline conditions remain unchanged, then the assumption that the "package" intervention caused the change is strengthened. Similar results obtained by further successive interventions on the remaining subjects will further support the claim for functional relationships. Figure 6 shows an example of the multiple baseline design for one hypothetical behavior observed in the experimental and generalization environment in all four subjects.

During baseline conditions the researcher made no attempts to alter any of the fifteen (15) behaviors, and the subjects received no feedback until the time the "package" intervention was applied.

The "package" intervention consisted of the subjects reading the modules in Appendix E. Throughout the readings specific information was provided to enable the subjects to achieve their established goals. The modules, graphic feedback, cueing, modeling, and reinforcement techniques were considered the "package" intervention. Subject E-1 received the "package" after three observations in the experimental environment and one observation in the generalization environment. In order to prevent contamination of baseline data Subjects E-2 and E-3 were given the "package" after four observations in the experimental and one observation in the generalization environment. The reason for this procedure was due to the fact that Subjects E-2 and E-3 lived on the same floor in the fraternity section. This procedure prevented the
possibility of one subject under intervention discussing these procedures with a subject still in baseline conditions. Subject E-4 received the "package" after five observations in the experimental environment and one observation in the generalization environment.

Following intervention on each subject, the researcher continued to observe in the experimental environment, but not in the generalization environment. A graduate student was instructed to make two observations in the designated generalization environments following the "package" intervention. Thus, the possibility of the researcher becoming a discriminative stimulus for emitting the target behaviors was reduced.

Pilot recording and observations sessions for the purpose of obtaining eighty per cent or higher inter-observer reliability agreement and/or accuracy were conducted at the end of Fall Quarter 1976-77, and during the first two weeks of this study. Reliability was determined by dividing the observer agreements by the sum of the agreements and disagreements and multiplying by 100. An agreement was scored each time both observers had the same behavior occurring during the same intervals.

A cassette tape recorder was used to cue the researcher and the graduate student when to observe and record the behaviors under study.

During baseline conditions one reliability check was conducted for all subjects. Following the "package" intervention two more reliability checks were conducted; one on the first observation following intervention, and one near the end of the student teaching experience. Reliability was then computed and analyzed by comparing the agreements and disagreements between the observers regarding total duration time in minutes and seconds for each category of time analysis, category
frequency for skill feedback statements and behavioral interactions, and total number of Placheck recordings.

For the purpose of further analysis, the total minutes and seconds of duration recording for time analysis were converted to percentages, as were Placheck recordings. Frequencies or event recordings for each category of skill feedback and behavioral interaction were converted to rates per minute. The amount of increase or decrease regarding rate per minute and percentage were then calculated into baseline rates and intervention rates.

The factors of significance and generality, in addition to the previously stated factors of causality and reliability are also of prime importance in behavioral studies. Significance in behavioral studies refers to a comparison between the accomplished behavior change and the level necessary for social usefulness (Risley, 1969). Social usefulness is most likely determined by those individuals most directly affected by resultant behavior changes. Support for this can be found in the following quotation:

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. (Baer, et al., 1968, p. 96)

In this study changes in individual preservice teacher behaviors are judged to be significant by cooperating teachers, college supervisor, and the individual preservice teacher. The opinion of the preservice teacher regarding significance of resulting behavior changes may
ultimately be more important than those of the cooperating teacher and college supervisor.

A behavioral change according to Baer, et al. (1968) is said to have generality:

... if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors. (Baer, et al., 1968, p. 97)

Behavior scientists usually conduct intensive investigations and/or studies utilizing a small number of subjects. The major emphasis of these investigations and/or studies are to determine what procedures or techniques can produce significant changes in behavior within a small number of subjects. Once these procedures and techniques have been determined, they can be generalized to other similar or like environments and other subjects.

In summary:

An applied behavior analysis will make obvious the importance of the behavior change, its quantitative characteristics, the experimental manipulations which analyze with clarity what was responsible for the change, the technological exact description of all procedures in making sufficient change for value, and the generality of that change. (Baer, et al., 1968, p. 97)

The Attitude Toward Behavior Modification scale (See Appendix C) pretest was administered by the researcher to the control group and the experimental group during the first full week of the student teaching experience. On the last day of the student teaching experience the researcher administered the Attitude Toward Behavior Modification scale post-test to the control group and the experimental group. A two-tailed "T" test with six degrees of freedom was used to compare results of these pretests and post-tests.
The data from the two-tailed "T" test were analyzed to determine whether there was a significant difference between the Attitude Toward Behavior Modification scale pretest score of the control group and the Attitude Toward Behavior Modification scale post-test score of the control group and between the Attitude Toward Behavior Modification scale pretest score of the experimental group and the Attitude Toward Behavior Modification scale post-test score of the experimental group. The purpose of the researcher in doing this was to determine whether significant changes occurred in the experimental group as a result of the training sessions, "package" interventions, and other techniques used by the researcher to modify preservice teacher behaviors.

The researcher obtained two observation sessions utilizing the Flanders Interaction Analysis System. (See Appendix F). The pre-observation occurred during the first two full weeks of the student teaching experience and the post-observation occurred during the last full week of the student teaching experience. A two-tailed "T" test with six degrees of freedom was used to compare results of these pre-observations and post-observations.

The data from the two-tailed "T" test were analyzed to determine whether there was a significant difference between the Flanders Interaction Analysis System pre-observation data and the Flanders Interaction Analysis System post-observation data for the control group and between the Flanders Interaction Analysis System pre-observation data and the Flanders Interaction Analysis System post-observation data for the experimental group. The purpose of the researcher in doing this was to determine whether significant changes occurred in the experimental group
as a result of the training sessions, "package" interventions, and other techniques used by the researcher to modify preservice teacher behaviors.
CHAPTER IV

ANALYSIS AND DISCUSSION OF THE DATA

Data collected in this study were for teacher behavior and pupil behavior. Eleven teacher behaviors were defined, and event recording was used for collecting these data. Teacher behavior events were recorded for three-minute time intervals and a one-minute rest period followed each interval. The time intervals began three-minutes and twenty seconds into the class and continued for the duration of the class. These recordings were then coded and converted to rates per minute.

Three teacher behaviors were defined, and duration recording was used for collecting these data. The teacher behaviors recorded were accumulated time spent in management, instruction, and activity. These recordings were totaled in minutes and seconds and converted to percentages. Resulting behavior rates and percentages were plotted during baseline and intervention. These data were analyzed by considering the behavior profile of each student, the multiple baseline for each category across subjects, rate of increase or decrease after intervention, and percentage of increase or decrease after intervention.

One category of student behavior was defined. The technique of Placheck recording was utilized in collecting data for student appropriate behavior and appropriate learning behavior. These student
behaviors were recorded every three minutes for the duration of the class. A twenty-second interval immediately following each three-minute interval was designated as the observation time. These twenty-second interval tallies were totaled and percentage of student appropriate and appropriate learning behavior were calculated. These percentages were plotted during baseline and intervention, and analyzed by considering percentage of increase or decrease after intervention. Further, analysis was made by utilizing the multiple baseline to aid in the determination as to whether the "package" intervention was responsible for observable changes in behavior.

RELIABILITY

SUBJECT RELIABILITY

In order to demonstrate the reliability of the observations, an independent observer recorded teacher behaviors for the duration of the class, on three separate occasions. One reliability check was made during baseline conditions, and two after the "package" intervention was applied. Subject reliability was calculated using five different methods. The first method was the percentage of agreement for the total number of events recorded per session. The percentage of agreement was calculated by dividing the data of the observer who had the lower number of instances by that of the observer who had the higher number of instances. (Siedentop, 1976)

Table 1 reports the percentage of agreement for the total number of events recorded during each of the three reliability observation sessions.
### TABLE 1

**RELIABILITY FOR THE TOTAL NUMBER OF EVENTS OBSERVED FOR EACH SUBJECT**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>RELIABILITY SESSIONS</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>E-1</td>
<td>100</td>
<td>76</td>
</tr>
<tr>
<td>E-2</td>
<td>82</td>
<td>74</td>
</tr>
<tr>
<td>E-3</td>
<td>50</td>
<td>91</td>
</tr>
<tr>
<td>E-4</td>
<td>100</td>
<td>93</td>
</tr>
<tr>
<td>MEAN</td>
<td>86</td>
<td>83</td>
</tr>
</tbody>
</table>

The second method of reliability was the percentage of agreement between the independent observers tallying the eleven categories of teacher behaviors during these reliability sessions. The observer with the lower combined figure was divided by the observer with the higher combined figure for each category.

Table 2 reveals the percentage of agreement for category reliability.
TABLE 2
RELIABILITY FOR THE ELEVEN CATEGORIES OF TEACHER BEHAVIORS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>TEACHER BEHAVIOR CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>E-1</td>
<td>78</td>
</tr>
<tr>
<td>E-2</td>
<td>94</td>
</tr>
<tr>
<td>E-3</td>
<td>100</td>
</tr>
<tr>
<td>E-4</td>
<td>100</td>
</tr>
</tbody>
</table>

MEAN 93 81 92 75 86 84 79 58 93 75 94

The third method of reliability was the percentage of agreement for the total number of seconds spent in management, instruction, and activity time. The total number of minutes and seconds recorded by each observer was summed and converted to seconds. The smaller total number of seconds was divided by the larger total number of seconds and multiplied by 100 to determine the per cent of observer agreement. (Siedentop, 1976)

Table 3 reveals the percentage of agreement for management time for each subject.
<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>RELIABILITY SESSIONS</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>E-1</td>
<td>100</td>
<td>63</td>
</tr>
<tr>
<td>E-2</td>
<td>90</td>
<td>74</td>
</tr>
<tr>
<td>E-3</td>
<td>97</td>
<td>98</td>
</tr>
<tr>
<td>E-4</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>MEAN</td>
<td>96</td>
<td>84</td>
</tr>
</tbody>
</table>

Table 4 reveals the percentage of agreement for instruction time for each subject.
<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>RELIABILITY SESSIONS</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>E-1</td>
<td>90</td>
<td>86</td>
</tr>
<tr>
<td>E-2</td>
<td>83</td>
<td>75</td>
</tr>
<tr>
<td>E-3</td>
<td>89</td>
<td>95</td>
</tr>
<tr>
<td>E-4</td>
<td>96</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5 reveals the percentage of agreement for activity time for each subject.
TABLE 5
RELIABILITY FOR THE TOTAL SECONDS OF ACTIVITY TIME

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>RELIABILITY SESSION</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>E-1</td>
<td>97</td>
<td>94</td>
</tr>
<tr>
<td>E-2</td>
<td>92</td>
<td>99</td>
</tr>
<tr>
<td>E-3</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>E-4</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>MEAN</td>
<td>97</td>
<td>98</td>
</tr>
</tbody>
</table>

The fourth and final method of reliability was the percentage of agreement between the independent observers and Placheck recordings of student appropriate behavior and appropriate learning behavior. The percentage of agreement was calculated using the following formula (Hall, 1974, p. 20):

\[
\frac{\text{Agreements}}{\text{Agreements - Disagreements}} \times 100 = \% \text{ of Agreements}
\]

Table 6 reveals the percentage of agreement for each subject.
<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>RELIABILITY SESSIONS</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>E-1</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>E-2</td>
<td>94</td>
<td>98</td>
</tr>
<tr>
<td>E-3</td>
<td>99</td>
<td>98</td>
</tr>
<tr>
<td>E-4</td>
<td>98</td>
<td>99</td>
</tr>
<tr>
<td>MEAN</td>
<td>97</td>
<td>98</td>
</tr>
</tbody>
</table>
DISCUSSION OF RELIABILITY

SUBJECT RELIABILITY

The first method of subject reliability was the percentage of agreement for the total number of events observed for each subject. In eight of the twelve reliability sessions the established percentage of eighty per cent was achieved. The lowest mean agreement for all subjects for the three sessions was seventy-seven per cent, and the mean of means was eighty-eight per cent.

The second method of subject reliability was the per cent of agreement for the eleven categories of teacher behaviors. This method of reliability reveals: (1) the accuracy to which independent observers can categorize the various specific teacher behaviors; and (2) which of the categories were the most reliable as a result of this event recording technique. These reliability data reveal the task of recording and categorizing specific teacher behaviors was somewhat more difficult than the first method of reliability. Eighty per cent of agreement was achieved in seven categories, while four categories show mean percentages of agreement less than eighty per cent.

The third method of reliability was the per cent of agreement for the total seconds spent in management, instruction, and activity time. The method of reliability refers to the accumulated minutes and seconds each independent observer recorded for each subject's behavior regarding these three categories.

Management time reliability recordings for all subjects ranged from means of eighty-four per cent to ninety-six per cent for all
sessions. The mean of means was ninety-one per cent. However, observation session two reveals a somewhat lower percentage for subject E-1 and E-2 than the eighty per cent level. This low percentage of agreement for these two sessions was attributed to a definitional problem encountered regarding the use of a record player as an instructional aid.

Instruction time reliability recordings for all subjects ranged from a mean of eighty-one per cent to ninety per cent for all sessions. The mean of means was eighty-seven per cent. The reason for the low percentage of agreement during the third session for subject E-4 which reduced the mean percentage for session three for all subjects could not be determined.

Activity time reliability recordings for all subjects were well over the predetermined eighty per cent level. They ranged from means of ninety-seven per cent to ninety-nine per cent for all sessions and the mean of means was ninety-eight per cent.

The fourth and final method of reliability was the per cent of agreement for Placheck recordings of student appropriate behavior and appropriate learning behavior. These Placheck recordings reveal a mean range for all subjects of ninety-seven to ninety-nine per cent agreement for all sessions, and the mean of means was ninety-eight per cent. These data indicate the independent observers had very little difficulty distinguishing between appropriate and inappropriate behaviors.
BEHAVIOR PROFILE OF THE SUBJECTS

The following profiles of rates and percentages of behaviors for each of the preservice teachers used in this study serve to illustrate utilization of class time, rates of specific teacher behaviors, and appropriate student behaviors. The plotting of these behavior rates and percentages of behavior indicate the differences between baseline and intervention conditions.

Following are the profiles for the four subjects:
FIGURE 7
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-1
FIGURE 7
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-1
FIGURE 7
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-1
Table 7 shows: (1) the increase and decrease of subject's behaviors in appropriate directions for fourteen of the fifteen categories; (2) ten of the fifteen terminal goals being attained; (3) eight of the terminal goals being maintained for one or more observation sessions; (4) mean rates and percentages for baseline and intervention; and (5) minimum rates and percentages following intervention.
FIGURE 8

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-2
FIGURE 8

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-2
FIGURE 8
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-2
Table 8 shows: (1) the increase and decrease of subject's behaviors in appropriate directions for thirteen of the fifteen categories; (2) nine of the fifteen terminal goals being attained; (3) six of the terminal goals being maintained for one or more observational sessions; (4) mean rates and percentages for baseline and intervention; and (5) minimum rates and percentages following intervention.
FIGURE 9
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT B-3
FIGURE 9
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-3
FIGURE 9
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-3
### TABLE 9
PROFILE OF TERMINAL GOALS AND MAINTENANCE RATES FOR SUBJECT E-3

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>BASELINE/INTERVENTION</th>
<th>GOAL RATES</th>
<th>MINIMUM RATES</th>
<th>SESSION GOAL ATTAINED</th>
<th># OF SESSIONS GOAL ATTAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td>% MANAGEMENT</td>
<td>33.3</td>
<td>19.5</td>
<td>15</td>
<td>11.8</td>
<td>3</td>
</tr>
<tr>
<td>% INSTRUCTION</td>
<td>14.2</td>
<td>13.7</td>
<td>10</td>
<td>8.0</td>
<td>2</td>
</tr>
<tr>
<td>% ACTIVITY</td>
<td>51.7</td>
<td>64.7</td>
<td>75</td>
<td>44.1</td>
<td>3</td>
</tr>
<tr>
<td>FIRST NAME</td>
<td>.15</td>
<td>.44</td>
<td>1.8</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>+G-B-I</td>
<td>.06</td>
<td>.18</td>
<td>.6</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>+S-B-I</td>
<td>.00</td>
<td>.07</td>
<td>.6</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td>-G-B-I</td>
<td>-.16</td>
<td>-.04</td>
<td>-.1</td>
<td>-.0</td>
<td>1</td>
</tr>
<tr>
<td>-S-B-I</td>
<td>-.18</td>
<td>-.04</td>
<td>-.1</td>
<td>-.0</td>
<td>1</td>
</tr>
<tr>
<td>+G-SFB</td>
<td>.09</td>
<td>1.1</td>
<td>.6</td>
<td>.88</td>
<td>1</td>
</tr>
<tr>
<td>+S-SFB</td>
<td>.0</td>
<td>.29</td>
<td>.6</td>
<td>.0</td>
<td>2</td>
</tr>
<tr>
<td>CG-SFB</td>
<td>.15</td>
<td>.0</td>
<td>.6</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td>CS-SFB</td>
<td>.02</td>
<td>.66</td>
<td>.6</td>
<td>.55</td>
<td>2</td>
</tr>
<tr>
<td>-G-SFB</td>
<td>-.13</td>
<td>-.00</td>
<td>-.1</td>
<td>-.0</td>
<td>1</td>
</tr>
<tr>
<td>-S-SFB</td>
<td>-.02</td>
<td>-.04</td>
<td>-.1</td>
<td>-.0</td>
<td>1</td>
</tr>
<tr>
<td>% PLACHECK</td>
<td>82.0</td>
<td>93.5</td>
<td>90</td>
<td>90.3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 9 shows: (1) the increase and decrease of subject's behaviors in appropriate directions for thirteen of the fifteen categories; (2) eleven of the fifteen terminal goals being attained; (3) seven of the terminal goals being maintained for one or more observational sessions; (4) mean rates and percentages for baseline and intervention; and (5) minimum rates and percentages following intervention.
FIGURE 10
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-4
FIGURE 10

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-4
FIGURE 10

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT E-4
Table 10 shows: (1) the increase and decrease of subject’s behaviors in appropriate directions for twelve of the fifteen categories; (2) eight of the terminal goals being attained; (3) seven of the terminal goals being maintained for one or more observation sessions; (4) mean rates and percentages for baseline and intervention; and (5) minimum rates and percentages following intervention.
RATE AND PERCENTAGE BY CATEGORY

The mean baseline rate, the mean intervention rate, the rate of increase or decrease and the percentage of increase or decrease were calculated by category for the four experimental subjects. The multiple baseline design was used to plot each category for the purpose of subject comparison and determination of the effects of the "package" intervention techniques.

The figures and tables will be followed by a discussion regarding rates and percentages of change by category. The following are the figures and tables of each category under study.
FIGURE 11

MULTIPLE BASELINE OF THE PERCENTAGE OF MANAGEMENT TIME
TABLE 11
RATE AND PERCENTAGE CHANGE OF THE PERCENTAGE OF MANAGEMENT TIME FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN PER CENT</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>25.1</td>
<td>13.2</td>
<td>11.9</td>
</tr>
<tr>
<td>E-2</td>
<td>32.8</td>
<td>14.8</td>
<td>18.0</td>
</tr>
<tr>
<td>E-3</td>
<td>33.3</td>
<td>19.5</td>
<td>13.8</td>
</tr>
<tr>
<td>E-4</td>
<td>4.1</td>
<td>4.2</td>
<td>- .1</td>
</tr>
</tbody>
</table>

A significant reduction in the per cent of management time occurred in three of the four subjects and the multiple baseline design shows that the intervention techniques were responsible for this change. Three subjects lowered their percentages immediately following intervention and one subject remained relatively unchanged.

Similar changes were observed in the generalization environments of all subjects.
MULTIPLE BASELINE OF THE PERCENTAGE OF INSTRUCTIONAL TIME
### TABLE 12
RATE AND PERCENTAGE CHANGE OF THE PERCENTAGE OF INSTRUCTION TIME FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN PER CENT</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>19</td>
<td>14.9</td>
<td>4.1</td>
</tr>
<tr>
<td>E-2</td>
<td>12.7</td>
<td>15.5</td>
<td>-2.8</td>
</tr>
<tr>
<td>E-3</td>
<td>14.2</td>
<td>13.7</td>
<td>.5</td>
</tr>
<tr>
<td>E-4</td>
<td>39.3</td>
<td>1.2</td>
<td>38.1</td>
</tr>
</tbody>
</table>

The multiple baseline design shows a reduction of instruction time in three of the four subjects. A significant change occurred in only one subject; therefore, the data show no significant changes in percentage means can be attributed to the intervention techniques.

Similar changes were observed in the generalization environments of all subjects.
MULTIPLE BASELINE OF THE PERCENTAGE OF ACTIVITY TIME

FIGURE 13
<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN PER CENT</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>54.6</td>
<td>70.2</td>
<td>15.6</td>
</tr>
<tr>
<td>E-2</td>
<td>49.9</td>
<td>68.8</td>
<td>18.9</td>
</tr>
<tr>
<td>E-3</td>
<td>51.7</td>
<td>64.7</td>
<td>13.0</td>
</tr>
<tr>
<td>E-4</td>
<td>50.7</td>
<td>93.3</td>
<td>42.6</td>
</tr>
</tbody>
</table>

There was an increase in percentage means for activity time in all four subjects. The multiple baseline design shows that three of the four subjects increased the percentage of activity time immediately following intervention, and the intervention techniques caused these changes.

These changes were also observable in the generalization environments of all subjects.
MULTIPLE BASELINE OF THE RATE PER MINUTE OF FIRST NAME USE
TABLE 14
RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE
OF FIRST NAME USE FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>BASELINE</th>
<th>INTERVENTION</th>
<th>CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>.05</td>
<td>.89</td>
<td>.84</td>
<td>1680</td>
</tr>
<tr>
<td>E-2</td>
<td>.24</td>
<td>.44</td>
<td>.20</td>
<td>83.3</td>
</tr>
<tr>
<td>E-3</td>
<td>.15</td>
<td>.44</td>
<td>.29</td>
<td>193.3</td>
</tr>
<tr>
<td>E-4</td>
<td>.27</td>
<td>.48</td>
<td>.21</td>
<td>77.7</td>
</tr>
</tbody>
</table>

There was a positive mean change in the four subjects. These changes are significant and the multiple baseline design shows the intervention techniques caused this change.

Similar changes were not observed in the generalization environments of the subjects.
FIGURE 15
MULTIPLE BASELINE OF THE RATE PER MINUTE OF POSITIVE GENERAL BEHAVIORAL INTERACTIONS
The multiple baseline design shows that a significant positive mean change occurred in two subjects, one subject remained relatively unchanged, and the fourth subject showed a negative change. The multiple baseline provides no evidence that the intervention techniques influenced these changes.

The generalization environment observations reveal little change or no change in this category.
MULTIPLE BASELINE OF THE RATE PER MINUTE OF POSITIVE SPECIFIC BEHAVIORAL INTERACTION
TABLE 16

RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF
POSITIVE SPECIFIC BEHAVIORAL INTERACTIONS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.00</td>
<td>.20</td>
<td>.20</td>
</tr>
<tr>
<td>E-2</td>
<td>.02</td>
<td>.14</td>
<td>.12 600</td>
</tr>
<tr>
<td>E-3</td>
<td>.00</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td>E-4</td>
<td>.06</td>
<td>.00</td>
<td>.06 - 100</td>
</tr>
</tbody>
</table>

There were positive changes in three of the four subjects. The
data and multiple baseline design reveal insufficient evidence regarding
the intervention techniques as the catalyst for these changes.

The generalization environment observations indicate little or
no change in this category.
MULTIPLE BASELINE OF THE RATE PER MINUTE OF
NEGATIVE GENERAL BEHAVIORAL INTERACTIONS
TABLE 17

RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF NEGATIVE GENERAL BEHAVIORAL INTERACTIONS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>.10</td>
<td>.08</td>
<td>-.02</td>
</tr>
<tr>
<td>E-2</td>
<td>.16</td>
<td>.03</td>
<td>-.13</td>
</tr>
<tr>
<td>E-3</td>
<td>.16</td>
<td>.04</td>
<td>-.12</td>
</tr>
<tr>
<td>E-4</td>
<td>.11</td>
<td>.00</td>
<td>-.11</td>
</tr>
</tbody>
</table>

The multiple baseline design shows a significant negative mean change in all subjects and the intervention techniques were responsible for these changes.

Similar changes were observed in the generalization environments of all subjects.
FIGURE 18
MULTIPLE BASELINE OF THE RATE PER MINUTE OF NEGATIVE SPECIFIC BEHAVIORAL INTERACTIONS
TABLE 18

RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF NEGATIVE SPECIFIC BEHAVIORAL INTERACTIONS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.06</td>
<td>.04</td>
<td>-.02</td>
</tr>
<tr>
<td>E-2</td>
<td>.15</td>
<td>.11</td>
<td>-.04</td>
</tr>
<tr>
<td>E-3</td>
<td>.18</td>
<td>.04</td>
<td>-.12</td>
</tr>
<tr>
<td>E-4</td>
<td>.02</td>
<td>.00</td>
<td>-.02</td>
</tr>
</tbody>
</table>

The multiple baseline design shows a significant mean change in all subjects and the intervention techniques caused these changes.

The generalization environment observation reveals two subject's rates remained unchanged, one subject increased and one subject decreased their rates.
FIGURE 19

MULTIPLE BASELINE OF THE RATE PER MINUTE OF
POSITIVE GENERAL SKILL FEEDBACK STATEMENTS
TABLE 19

RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF POSITIVE GENERAL SKILL FEEDBACK STATEMENTS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.34</td>
<td>.89</td>
<td>.55</td>
</tr>
<tr>
<td>E-2</td>
<td>.49</td>
<td>.69</td>
<td>.20</td>
</tr>
<tr>
<td>E-3</td>
<td>.09</td>
<td>1.10</td>
<td>1.01</td>
</tr>
<tr>
<td>E-4</td>
<td>.14</td>
<td>.29</td>
<td>.15</td>
</tr>
</tbody>
</table>

Significant mean changes occurred in this category in all subjects. The multiple baseline shows the intervention techniques caused these changes. All subjects except one increased their rates immediately following intervention.

The generalization environment observations show a variety of changes. One subject remained relatively stable, one subject increased rate, and two subjects were somewhat unstable.
FIGURE 20

MULTIPLE BASELINE OF THE RATE PER MINUTE OF POSITIVE SPECIFIC SKILL FEEDBACK STATEMENTS
TABLE 20

RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF
POSITIVE SPECIFIC SKILL FEEDBACK STATEMENTS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.00</td>
<td>.16</td>
<td>.16</td>
</tr>
<tr>
<td>E-2</td>
<td>.05</td>
<td>.27</td>
<td>.22 440</td>
</tr>
<tr>
<td>E-3</td>
<td>.00</td>
<td>.29</td>
<td>.29</td>
</tr>
<tr>
<td>E-4</td>
<td>.02</td>
<td>.21</td>
<td>.19 950</td>
</tr>
</tbody>
</table>

There was a positive mean change in all subjects, but the data show no significant change that can be attributed to the intervention techniques.

The generalization environment observations reveal only one subject with a significant rate change.
FIGURE 21
MULTIPLE BASELINE OF THE RATE PER MINUTE OF GENERAL CORRECTIVE SKILL FEEDBACK STATEMENTS
Table 21

Rate and Percentage Change of the Rate Per Minute of General Corrective Skill Feedback Statements for Four Subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Mean Rate/Min.</th>
<th>Mean Change</th>
<th>Per Cent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Intervention</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>0.11</td>
<td>0.04</td>
<td>-0.07</td>
</tr>
<tr>
<td>E-2</td>
<td>0.05</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>E-3</td>
<td>0.15</td>
<td>0.00</td>
<td>-0.15</td>
</tr>
<tr>
<td>E-4</td>
<td>0.03</td>
<td>0.00</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

There was no significant positive change in this category. The multiple baseline design and per cent of change indicate negative changes.

Three of the four subject's rates in the generalization environment were stable, while one subject's rates increased significantly.
FIGURE 22

MULTIPLE BASELINE OF THE RATE PER MINUTE OF SPECIFIC CORRECTIVE SKILL FEEDBACK STATEMENTS
<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/ MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.05</td>
<td>.98</td>
<td>.93</td>
</tr>
<tr>
<td>E-2</td>
<td>.24</td>
<td>.53</td>
<td>.29</td>
</tr>
<tr>
<td>E-3</td>
<td>.02</td>
<td>.66</td>
<td>.64</td>
</tr>
<tr>
<td>E-4</td>
<td>.16</td>
<td>.37</td>
<td>.21</td>
</tr>
</tbody>
</table>

There was a significant change in this category in all subjects. The multiple baseline shows the intervention techniques caused these changes. All subjects increased their rates immediately following intervention. Three subjects made substantial increases.

Similar changes were observable in the generalization environments of the subjects.
MULTIPLE BASELINE OF THE RATE PER MINUTE OF NEGATIVE GENERAL SKILL FEEDBACK STATEMENTS
TABLE 23
RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF NEGATIVE GENERAL SKILL FEEDBACK STATEMENTS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.05</td>
<td>.00</td>
<td>-.05</td>
</tr>
<tr>
<td>E-2</td>
<td>.04</td>
<td>.03</td>
<td>-.01</td>
</tr>
<tr>
<td>E-3</td>
<td>.13</td>
<td>.00</td>
<td>-.13</td>
</tr>
<tr>
<td>E-4</td>
<td>.08</td>
<td>.00</td>
<td>-.08</td>
</tr>
</tbody>
</table>

Negative mean changes occurred in all subjects. The multiple baseline design shows the intervention techniques caused these changes. Three of the four subjects decreased their rates to zero.

Observations in the generalization environments reveal three subject rates remained stable and one subject's rate decreased significantly.
MULTIPLE BASELINE OF THE RATE PER MINUTE OF NEGATIVE SPECIFIC SKILL FEEDBACK STATEMENTS

FIGURE 24
TABLE 24
RATE AND PERCENTAGE CHANGE OF THE RATE PER MINUTE OF NEGATIVE SPECIFIC SKILL FEEDBACK STATEMENTS FOR FOUR SUBJECTS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN RATE/MIN.</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>.11</td>
<td>.00</td>
<td>-.11</td>
</tr>
<tr>
<td>E-2</td>
<td>.14</td>
<td>.11</td>
<td>-.03</td>
</tr>
<tr>
<td>E-3</td>
<td>.02</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>E-4</td>
<td>.03</td>
<td>.00</td>
<td>-.03</td>
</tr>
</tbody>
</table>

This category shows a variety of changes and no significance can be attributed to the intervention techniques.

The generalization environments in this category remained stable.

Little or no change was observed.
MULTIPLE BASELINE OF THE PERCENTAGE OF STUDENT APPROPRIATE BEHAVIOR AND APPROPRIATE LEARNING BEHAVIOR
TABLE 25
RATE AND PERCENTAGE CHANGE OF THE PERCENT OF
STUDENT APPROPRIATE BEHAVIOR AND APPROPRIATE LEARNING BEHAVIOR

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEAN PER CENT</th>
<th>MEAN CHANGE</th>
<th>PER CENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASELINE</td>
<td>INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>E-1</td>
<td>93.7</td>
<td>95.9</td>
<td>2.2</td>
</tr>
<tr>
<td>E-2</td>
<td>90.8</td>
<td>94.1</td>
<td>3.3</td>
</tr>
<tr>
<td>E-3</td>
<td>82.0</td>
<td>93.5</td>
<td>11.5</td>
</tr>
<tr>
<td>E-4</td>
<td>79.7</td>
<td>94.0</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Positive changes occurred in all subjects but the multiple baseline design is not strong enough to show the intervention techniques were responsible for these changes.

The generalization environment observations for all subjects show increases in percentage rates.
DISCUSSION OF BEHAVIOR PROFILES AND THE RATE AND 
PERCENTAGE OF CHANGE BY CATEGORY

The rate and per cent of significant change in preservice teacher 
behaviors were experienced in the following categories and were caused 
by the intervention techniques.

1. Management Time
2. Activity Time
3. First Name Use
4. Negative Specific Behavioral Interactions
5. Negative General Behavioral Interactions
6. Positive General Skill Feedback Statements
7. Corrective Specific Skill Feedback Statements
8. Negative General Skill Feedback Statements

Changes in the desired or appropriate directions for the remain­
ing categories were mixed, ranging from little or no change to signifi­
cant change in individual preservice teacher behaviors.

In the category of instruction time the preservice teachers were 
encouraged to lower their percentage of time but were faced with the 
presentations of new activities (e.g., square dancing, gymnastics, and 
new foods or sewing units) on various occasions which resulted in 
additional instruction time, which in turn affected their terminal goals. 
Little change resulted.

The categories of positive general and specific behavioral 
interactions show a small desired or appropriate change in three of the 
four subjects. The researcher felt the structure of the coding format 
possibly did not reveal the accurate change in these two categories.
Very little change was experienced in the category of negative specific behavioral interactions, mainly because the four subjects were at low rates during the initial baseline.

In the category of specific skill feedback statements, changes were experienced but the rate of increase was lower. The researcher felt the structure of the coding format possibly did not reveal the accurate changes in this category.

The general corrective skill feedback statement category shows intervention rates remain near or below the initial baseline rates.

The fact that the category of corrective specific skill feedback was very popular with all subjects could be responsible for the lower rate of change in this category. Most corrective feedback was specific in nature, and general statements (e.g., try it again, not quite, and one more time) were used sparingly following intervention.

The initial baseline rates of all subjects were relatively low in negative general and specific skill feedback categories. Following intervention these rates remained at or below baseline.

In the category of appropriate behavior and appropriate learning behavior the initial baseline rates were all fairly high. All subjects increased their percentages during intervention with Subjects E-3 and E-4 making the most notable increases.

The categories which experienced significant change in the desired or appropriate directions as a result of the intervention techniques in the experimental environment were also observable in several categories of the generalization environment. The most notable changes were in the following categories:
1. Management Time
2. Instruction Time (not experienced in the experimental environment)
3. Activity Time
4. Negative General Behavioral Interactions
5. Positive General Skill Feedback Statements
6. Corrective Specific Skill Feedback
7. Appropriate Behavior and Appropriate Learning Behavior

The generalization environment provides observable changes which seem to indicate that certain behavioral changes were internalized as a result of the intervention techniques used in the experimental environment.

BEHAVIOR PROFILES OF THE CONTROL SUBJECTS

The following are the profiles of rates and percentages of behaviors for each of the preservice teachers in the control group for this study. The same coding format was used in a pre-observation and a post-observation. The same behaviors observed and recorded in the experimental group were also observed and recorded in the control group.

Following are the profiles for the four control subjects' pre- and post- observations.
FIGURE 26
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-1
FIGURE 26

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-1
FIGURE 26
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-1
FIGURE 27

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-2
FIGURE 27
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-2
FIGURE 27
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-2
FIGURE 28

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-3
FIGURE 28

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-3
FIGURE 28

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-3
FIGURE 29

PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-4
FIGURE 29
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-4
FIGURE 29
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECT C-4
DISCUSSION OF BEHAVIOR PROFILES OF THE CONTROL SUBJECTS

The behavior profiles of the control subjects which were based on pre- and post-observation sessions show the following: (1) The percentage of management, instruction, and activity time indicate little or no change in most subjects with the exception of subject C-3, who reduced management time by twenty-three per cent; (2) The rates of first name use remained fairly stable. The behavioral interactions categories show little or no observable changes in desired or appropriate directions during the student teaching experience; (3) Subject C-3 showed a noticeable increase in positive general skill feedback statements, while little or no change was observed in the other three subjects; (4) The categories of specific feedback and corrective feedback statements provide little evidence of changes occurring during the student teaching experience; (5) Few changes were evidenced in the negative skill feedback categories; and (6) The percentages of appropriate behavior and appropriate learning behavior show three of the four subjects increased in the desired or appropriate direction.

The data from the pre- and post-observation sessions reveal, for the most part, that significant changes in rates and percentages of the control subjects did not occur during the student teaching experience. Small individual changes did occur in several of the categories, but the changes did not resemble those found in the experimental group.
MINI-STUDIES CONDUCTED BY THE PRESERVICE TEACHERS

The following mini-studies were conducted by the experimental subjects in their assigned schools during the student teaching experience. Following the training sessions in applied behavior analysis, each subject was asked to identify a situation and apply the basic principles and techniques of the training model. They were instructed to use the format presented in Behavior Modification Part III by R. Vance Hall for their final presentation of the mini-studies.

The following mini-studies were presented to the researcher during the final week of the student teaching experience.
AUTHOR: E-1

TITLE: REDUCTION OF DRESSING TIME IN PHYSICAL EDUCATION

SOURCE: EDU 411 BALDWIN-WALLACE COLLEGE

SUBJECTS AND SETTING:

The subjects selected for this study were all 9th and 10th grade students enrolled in a required physical education class in a suburban high school. The school is relatively modern and represents a wide range of socioeconomic levels. The physical education class also has this range. The class procedure was set up so that no limitations were placed on the students in terms of
the time it took them to change into their physical education uniforms and move to the gymnasium.

BEHAVIOR MEASURED:

The behavior measured in this study was reflected in the time it took for all members of the class to be dressed and in the gymnasium after the tardy bell, signaling the beginning of class, rang. The only members of the class not included in this study were the members of the various athletic teams, who were, by departmental policy, excused from participation. The data gathered reflects the latency time from the cue (tardy bell ringing) to the completion of required task (all members of the class in the gymnasium).

EXPERIMENTAL PROCEDURES:

Six sessions of baseline were taken without the subjects' knowledge. The mean time during baseline was 6:42 with a high of 8:04 and a low of 3:46. After six days of baseline the class was informed what was occurring and that their average time had been 6:42. At the same time they were instructed that at the next and every following class for the remainder of the unit that they met or were lower than the criterion time they would be permitted to play games (basketball) during the entire period. The class was well into a basketball unit and games were very popular as opposed
to any drill work. The criterion level during intervention was
set at 3:30. During intervention the mean time was 3:28, with a
high of 3:40 and a low of 3:21. The criterion level was met two
of three days during intervention. There was no reversal during
the study because of the termination of the basketball unit.

DISCUSSION:

It must be pointed out from the beginning that the
baseline average of 6:42 was not considered necessarily a bad
time. The intent was not to make a bad time good, but to determine
if the latency time could possibly be lowered. Obviously the
results of the study show that this is possible if a strong enough
motivator is used. The fact that the mean latency time was nearly
cut in half during intervention would indicate that the possibility
of playing games for the entire period was a highly effective
motivational tool. This decrease in dressing time allowed more
time for the group to be involved in activity, the major goal of
any single physical education class.
NUMBER OF TARDY STUDENTS

DAY

1 2 3 4 5 6 7 8 9

1 2 3 4 5 6 7

AUTHOR: E-2
TITLE: REDUCTION OF TARDINESS IN SENIOR HIGH SCHOOL CLASS
SOURCE: EDU 411 BALDWIN-WALLACE COLLEGE

POPULATION AND SETTING:

Twenty-two tenth and eleventh grade girls who attend a suburban high school of approximately 2,700 students. The girls are in an all girls weightlifting and general fitness class who meet for fifty minutes, five days per week. Out of the entire class, about five or six of the girls are late each day, not the same girls each day, but some of the girls are habitually late.
BEHAVIOR DEFINED:

Tardiness was defined as not being in the weight room and present for attendance at 10 minutes after 10:00 each morning. Attendance is taken by verbally calling out the girl's name on roster cards.

EXPERIMENTAL PROCEDURES AND RESULTS:

Baseline: Before any manipulation, baseline data was recorded for 3 days and the number of people tardy each day was recorded. On the 3rd day, the class was called together at the end of class and the following "option" or "deal" was proposed to the class: "Everyone who is in class on time and not tardy could choose any activity they desired for the last 10 minutes of class." (The choice of activities were: Jumping rope, Running, Stretching, or Playing with a Medicine Ball.) It was hoped that this method would cut down the high rate of tardiness. This method of reinforcement seemed to have an effect on the rate of tardiness on the 4th, 5th, 6th, and 7th days as the data suggests.

DISCUSSION:

This study showed that the procedure of giving students a choice of activity for the last 10 minutes of class if they were on time for class was effective in reducing tardiness. This study could have been strengthened if the data would have been recorded over a longer period of time.
AUTHOR: E-3

TITLE: REDUCTION IN AMOUNT OF HORSEPLAY FROM 3 BOYS

SOURCE: EDU 406 BALDWIN-WALLACE COLLEGE

SUBJECTS AND POPULATION:

The setting takes place at Roehm Junior High in a gymnastic II class. The class is coed and is composed of eighth and ninth
graders. From February 16 to February 25, the class is actively involved in tumbling skills, and the class size is 38 pupils. Starting on February 28, I split my class with a woman physical education teacher in order to work with the boys on the parallel bars and the side horse. I gave her all the girls I had and she sent all her boys to my class. The class size is now reduced to 20 male pupils. The subjects involved are John, Scott, and Wayne.

BEHAVIOR MEASURED:

Using an event recording observational procedure, I will attempt to count how many times class is disrupted by John, Wayne, and Scott horsing around. Horseplay is defined as a discrete event such as pushing each other, interfering with other people doing their gymnastic skills and climbing the peg board.

EXPERIMENTAL PROCEDURE AND RESULTS:

The number of disturbances caused by John, Wayne, and Scott were recorded without their knowledge and while the rest of the class continued to be actively engaged in gymnastic skills. The number of disturbances were recorded on a piece of paper, which the teacher kept on him during the class period. First of all since the class was extremely large there is bound to be some pupils who horse around or disrupt class. But, these students who are in my study were the ones who disrupted class the most.
On February 16, the first day of which I took my data, John and Wayne disrupted class four times and Scott disrupted class three times. The next day John disrupted class once along with Wayne and both sat down the remainder of the period. This was the punishment technique which proved to be effective as the study went on. Almost one month later on March 11, Wayne and Scott didn’t disrupt class once during the entire period. Scott, on the other hand, only started horseplay when John was around. Once John was removed from the environment where Scott was, Scott didn’t start any horseplay. As a reward for a decrease in the amount of horseplay, the entire class was given five minutes of free time, just before they are dismissed.

DISCUSSION:

The conclusion that can be drawn from this study illustrates that junior high students do not wish to sit down and watch their peers participate in physical education activities. Students had offered to do extra push ups, sit ups, or anything else, but they didn’t want to sit down the rest of the period. Another conclusion which comes to mind is maybe John, Scott, and Wayne didn’t like tumbling. Once the class began to work on apparatus equipment, such as the side horse and parallel bars, the horseplay was reduced tremendously.
DISCUSSION OF MINI-STUDIES CONDUCTED BY THE PRESERVICE TEACHERS

Three of the four experimental subjects were successful in completing a mini-study using the basic principles and techniques of applied behavior analysis emphasized during the training sessions. The mini-studies provide evidence of the following: (1) appropriate observation and measurement techniques were used by each of the three subjects; (2) proper graphing and plotting of the target behaviors clearly show baseline and intervention data; (3) the intervention techniques were consistent with the "Premack Principle;" (4) continued observation of the target behavior was made to determine the effect of the intervention techniques; and (5) two of the subjects chose not to employ a reversal design to determine causality. The subjects indicated the reduction in the inappropriate behavior was most rewarding and they were not interested in scientifically verifying the intervention variable. The third subject was unable to continue beyond the AB design because of the termination of the activity.

The fourth subject did not provide the researcher with a mini-study for reasons which were considered unclear. The researcher chose not to pursue the issue.
RESULTS OF THE ATTITUDE TOWARD BEHAVIOR MODIFICATION SCALE

The results of the Attitude Toward Behavior Modification scale which was administered to the experimental and control groups at the beginning of the student teaching experience and again at the end of the student teaching experience are found on Table 26.

TABLE 26
RESULTS OF THE ATTITUDE TOWARD BEHAVIOR MODIFICATION SCALE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>GROUP</th>
<th>TEST PRE</th>
<th>TEST POST</th>
<th>&quot;t&quot; VALUE</th>
<th>.05 1/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL +</td>
<td>13.50</td>
<td>12.75</td>
<td>-0.38</td>
<td>-</td>
</tr>
<tr>
<td>CONTROL -</td>
<td>13.50</td>
<td>17.00</td>
<td>-2.18</td>
<td>-</td>
</tr>
<tr>
<td>EXPERIMENTAL +</td>
<td>10.00</td>
<td>18.25</td>
<td>2.13</td>
<td>-</td>
</tr>
<tr>
<td>EXPERIMENTAL -</td>
<td>17.50</td>
<td>15.75</td>
<td>-1.30</td>
<td>-</td>
</tr>
</tbody>
</table>

DISCUSSION OF THE RESULTS OF THE ATTITUDE TOWARD BEHAVIOR MODIFICATION SCALE

The analysis of the Attitude Toward Behavior Modification scale pre-test and post-test using a two-tailed "t" test at the .05 level of significance (2.45 t-value required) reveals the following:

1. There were no significant differences in negative attitudes between the experimental and control groups at the beginning of the student teaching experience;
2. There were no significant differences in the positive attitudes between the experimental and control groups at the beginning of the student teaching experience;

3. There were no significant differences in the negative attitudes between the experimental and control groups at the end of the student teaching experience; and

4. There were no significant differences in the positive attitudes between the experimental and control groups at the end of the student teaching experience.

Although no significant differences at the .05 level were experienced, some attitudinal changes were in evidence. The subjects in the experimental group became more positive and less negative in their attitudes while the subjects in the control group became less positive and more negative in their attitudes.

RESULTS OF THE FLANDERS INTERACTION ANALYSIS SYSTEM PRE-AND POST-OBSERVATIONS

The results of the Flanders Interaction Analysis System pre-observation and the post-observation between group comparisons are found on Tables 27 and 28. The pre-observation was conducted during the early weeks of the student teaching experience for each of the subjects in the experimental and control group. The post-observation occurred during the last week and one-half of the student teaching experience. A summary sheet of the Flanders Interaction Analysis System categories and a pre- and post-observation matrix for each subject in the experimental and control groups appears in Appendix F.
### TABLE 27

**FLANDERS INTERACTION ANALYSIS SYSTEM**

**PRE-OBSERVATION RESULTS BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PRE-OBSERVATION CONTROL/EXPERIMENTAL</th>
<th>t-VALUE</th>
<th>.05 % l/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ACCEPTS FEELINGS</td>
<td>.00/.00</td>
<td>.0</td>
<td>-</td>
</tr>
<tr>
<td>2. PRAISES OR ENCOURAGES</td>
<td>6.25/10.75</td>
<td>0.95</td>
<td>-</td>
</tr>
<tr>
<td>3. ACCEPTS OR USES IDEAS</td>
<td>.00/.50</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>4. ASKS QUESTIONS</td>
<td>30.50/16.25</td>
<td>-0.97</td>
<td>-</td>
</tr>
<tr>
<td>5. LECTURES</td>
<td>65.50/39.00</td>
<td>-1.17</td>
<td>-</td>
</tr>
<tr>
<td>6. GIVING DIRECTIONS</td>
<td>54.50/48.75</td>
<td>-0.31</td>
<td>-</td>
</tr>
<tr>
<td>7. CRITICIZING OR JUSTIFYING AUTHORITY</td>
<td>9.25/9.25</td>
<td>.0</td>
<td>-</td>
</tr>
<tr>
<td>8. STUDENT-TALK -RESPONSE</td>
<td>22.50/10.50</td>
<td>-1.00</td>
<td>-</td>
</tr>
<tr>
<td>9. STUDENT-TALK -INITIATION</td>
<td>1.25/2.25</td>
<td>0.83</td>
<td>-</td>
</tr>
<tr>
<td>10. SILENCE OR CONFUSION</td>
<td>126.25/214.25</td>
<td>2.98</td>
<td>8</td>
</tr>
</tbody>
</table>
**TABLE 28**

**FLANDERS INTERACTION ANALYSIS SYSTEM**

**POST-OBSERVATION RESULTS BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>POST-OBSERVATION CONTROL/EXPERIMENTAL</th>
<th>t-VALUE</th>
<th>.05</th>
<th>l/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ACCEPTS FEELINGS</td>
<td>.05 / .0</td>
<td>-1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. PRAISES OR ENCOURAGES</td>
<td>9.25 / 35.75</td>
<td>3.84</td>
<td>.05</td>
<td>.9</td>
</tr>
<tr>
<td>3. ACCEPTS OR USES IDEAS</td>
<td>.50 / 5.00</td>
<td>1.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ASKS QUESTIONS</td>
<td>7.25 / 18.75</td>
<td>1.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. LECTURES</td>
<td>46.00 / 60.50</td>
<td>1.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. GIVING DIRECTIONS</td>
<td>102.00 / 41.75</td>
<td>-1.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. CRITICIZING OR JUSTIFYING AUTHORITY</td>
<td>8.50 / 3.50</td>
<td>-1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. STUDENT-TALK RESPONSE</td>
<td>3.00 / 16.25</td>
<td>1.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. STUDENT-TALK INITIATION</td>
<td>18.00 / 5.25</td>
<td>-1.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. SILENCE OR CONFUSION</td>
<td>185.75 / 216.50</td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION OF THE FLANDERS INTERACTION ANALYSIS SYSTEM
PRE- AND POST-OBSERVATIONS

The analysis of the Flanders Interaction Analysis System pre-observation and the post-observation using a two-tailed "t" test at the .05 level of significance (2.45 t-value required) reveals the following:

1. There were no significant differences between the experimental and control group in nine of the ten categories observed during the pre-observations. A significant difference was in evidence in category ten, "Silence or Confusion."

2. There were no significant differences between the experimental and control groups in nine of the ten categories observed during the post-observations. A significant difference was in evidence in category two, "Praises or Encourages."

Although failing to reach the .05 level of significance, six categories show strong differences on the post-observation. These categories were the following:

1. Accepts or Uses Ideas of Students
2. Asks Questions
3. Lecturing
4. Giving Directions
5. Criticizing or Justifying Authority
6. Student Talk - Response
These data not only reveal the significant increase in the number and length of praise and encouraging statements being used by the experimental group, but additional increases or decreases were also experienced. The experimental group seemed to move away from the direct teaching style utilizing categories five, six, and seven and began assuming an indirect teaching posture by emitting teacher behaviors associated with categories three, four, and eight, and decreasing category six and seven behaviors.

However, the same results were not experienced in the control group. Seven of the ten categories remained fairly stable, while category four, eight, and nine showed an increase or decrease.

These data seem to indicate that those preservice teacher behaviors which were observed and modified using the coding format and intervention techniques developed for this study can also be observed using the Flanders Interaction Analysis System coding format.

RESULTS OF THE SCHOOL POLICIES AND PROCEDURES MODULE

Each subject in the experimental group was given a copy of the School Policies and Procedures Module during the initial meeting with the researcher one day preceding the start of the student teaching experience. They were instructed to read the module, complete the suggested learning activities, and prepare for a written assessment regarding this material. The criterion score of ninety per cent or above was required in order to complete this module.
The subjects in the control group did not receive a copy of this module, and, to their researcher's knowledge, were totally unaware of its existence.

During the first full week of the student teaching experience, a meeting for both the experimental and control groups was called and the assessment channel was administered to both groups. Table 29 shows the results of this assessment channel.

TABLE 29

SCHOOL POLICIES AND PROCEDURES MODULE

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>TERMINAL GOAL PERCENTAGE</th>
<th>PERCENTAGE SCORE</th>
<th>SESSION ATTAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>90</td>
<td>100</td>
<td>1st</td>
</tr>
<tr>
<td>E-2</td>
<td>90</td>
<td>100</td>
<td>1st</td>
</tr>
<tr>
<td>E-3</td>
<td>90</td>
<td>100</td>
<td>1st</td>
</tr>
<tr>
<td>E-4</td>
<td>90</td>
<td>90</td>
<td>1st</td>
</tr>
<tr>
<td>C-1</td>
<td>90</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>C-2</td>
<td>90</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>C-3</td>
<td>90</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>C-4</td>
<td>90</td>
<td>70</td>
<td>-</td>
</tr>
</tbody>
</table>
All subjects in the experimental group achieved the ninety per cent terminal goal during the first session. All subjects in the control group failed to reach the terminal goal and displayed a certain amount of anxiety while responding to the assessment channel.

All assessment sheets were returned to the cooperating teachers of each group by the researcher for scoring. For the most part the cooperating teachers were impressed with the present procedure and felt it should be continued and required of all preservice teachers. Following the scoring session with the cooperating teachers, the scored assessment channel was shown to the building principal for further analysis of the preservice teachers' responses. Again, the responses by the principals were in line with those of the cooperating teachers. The preservice teachers in the experimental group expressed a strong positive attitude toward the use of the module and felt it should be a future requirement of all preservice teachers at the college. Most subjects felt the knowledge gained through the use of the module enhances their effectiveness as a preservice teacher in the assigned school.

Further evidence as to the effectiveness of this module is supported by the following: The assessment channel was administered to the original eight experimental and eight control subjects before the researcher was forced to declare subject mortality as a result of the previous condition. All subjects in the original experimental group achieved the terminal goal of ninety per cent during the first
session. All subjects in the original control group failed to reach the terminal goal during the first session.

RESULTS OF THE LESSON PLANNING MODULE

The Lesson Planning Module was part of the total "package" intervention technique used in this study. During the baselines, the researcher made no attempt to view the subjects' lesson plans. The subjects were instructed to plan for their classes utilizing the methods or styles most comfortable to them and their cooperating teachers.

Following the "package" intervention technique, subjects were instructed to read the Lesson Planning Module and formulate an "Academic Plan" and present their plan to the researcher one week prior to the next observation. The researcher then consulted with the cooperating teacher to determine if the plan had met the suggested terminal goals of the module. Once the agreed upon terminal goals for the "Academic Plan" were achieved, subjects were instructed to repeat the procedure in reference to the "Functional Plan."

The results of the Lesson Planning Module appear on Table 30.
TABLE 30

LESSON PLANNING MODULE

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>ACADEMIC PLAN</th>
<th>SESSION ATTAINED</th>
<th>FUNCTIONAL PLAN</th>
<th>SESSION ATTAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>YES</td>
<td>1</td>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>E-2</td>
<td>YES</td>
<td>2</td>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>E-3</td>
<td>YES</td>
<td>2</td>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>E-4</td>
<td>YES</td>
<td>1</td>
<td>NO</td>
<td>-</td>
</tr>
<tr>
<td>C-1</td>
<td>NO</td>
<td>-</td>
<td>NO</td>
<td>-</td>
</tr>
<tr>
<td>C-2</td>
<td>NO</td>
<td>-</td>
<td>NO</td>
<td>-</td>
</tr>
<tr>
<td>C-3</td>
<td>NO</td>
<td>-</td>
<td>YES</td>
<td>2</td>
</tr>
<tr>
<td>C-4</td>
<td>NO</td>
<td>-</td>
<td>NO</td>
<td>-</td>
</tr>
</tbody>
</table>

DISCUSSION OF THE LESSON PLANNING MODULE RESULTS

All subjects in the experimental group were successful in meeting the terminal goals of this module concerning the "Academic Plan." Three of the subjects were successful in meeting the terminal goals concerning the "Functional Plan." Subject E-4 was unsuccessful on the first attempt regarding the "Functional Plan" and the student teaching experience concluded before another attempt could be made. Time factors limited the number of post-checks conducted to determine maintenance behaviors in reference to this module. Post-checks were made regarding
Subject E-1, and it was determined by the researcher and cooperating teacher that the behavior was maintained for both types of plans.

During the pre- and post-observation sessions with the control subjects, the researcher requested to view their lesson plans. The researcher then consulted with the cooperating teacher to determine appropriateness of these plans as judged against the sample plans provided in the Lesson Planning Module. In most instances the researcher and cooperating teachers were in agreement that the lesson plans would not meet the terminal goal requirements established in the module. There was, however, one exception regarding Subject C-3 in reference to the "Functional Plan."
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The major thrust of this study was to ascertain whether or not a more relevant and functional training model for preservice teachers in applied behavior analysis can be developed. Such a preservice training model was developed. An observation coding system which examined the rates of interaction behaviors and classroom time allotment percentages by preservice teachers was constructed. These behaviors were analyzed as to the differences between rates and percentages during baseline and following the "package" intervention techniques.

A variety of training models are in existence. However, most of these models are conducted at the inservice or graduate levels. The behavioral studies conducted by Hughley (1973), Rife (1973), and Huber (1973) show that preservice teacher behaviors can be changed by a variety of intervention techniques. The studies by Boehm (1974), Darst (1974), Hamilton (1974), and Dodds (1975) show that competency-based package intervention techniques have proven successful in changing physical education student teacher behaviors.
This study provided specific research input into the training models in applied behavior analysis at the preservice level, as well as to the behaviorally focused research efforts in teacher education.

This study examined the following questions: (1) can pre-service teachers, as the result of training sessions in applied behavior analysis, utilize these skills during the student teaching experience?; (2) can preservice teacher rates of verbal interaction behaviors and classroom time allotment percentages be changed in desirable or appropriate directions?; and (3) if desired or appropriate changes occur in the experimental environment, will these changes generalize into other teaching environments?

The subjects for this study were all seniors at Baldwin-Wallace College, Berea, Ohio. The five male and one female physical education majors and the two female home economics majors were further divided into an experimental and control group of four subjects each. All subjects were placed in school districts located in the Cleveland metropolitan area.

The original training schedule consisted of bi-weekly sessions of one and one-half hours in length for a five week period. However, this schedule was revised as the result of the energy crisis. The training sessions emphasized the techniques and procedures found in the "Responsive Teaching Model" (Hall and Copeland, 1972).

The observation coding system developed for this study included fifteen different categories of teacher behaviors. Event recording was used for the categories of time analysis, and Placheck recording was
used for the category of appropriate student behaviors. The researcher used this system in his weekly visits to the assigned school of each experimental subject. The researcher also conducted a pre- and post-observation of the four subjects in the control group using this observation coding system.

A total of three reliability checks were conducted in the experimental environments of all subjects. One reliability check was made during baseline, one on the first observation following intervention, and one toward the end of the student teaching experience. These reliability checks were made to insure that the behaviors which were changing were those of the preservice teacher and not of the researcher. The four methods of computing reliability show the mean of the means for rates and percentages to be above the predetermined eighty per cent level established for this study.

In order to determine if significant changes in teacher behaviors in desired or appropriate directions did occur, the rates and percentages during baseline, and following intervention, were compared by means of the multiple baseline design.

Additional data was obtained by administering the Attitude Toward Behavior Modification scale at the beginning of the student teaching experience and again at the end.

The Flanders Interaction Analysis System observation system was used during the pre-observation and post-observation session in both the experimental and control group.
These data were then analyzed by means of a two-tailed "t" test to determine if significant differences existed between the groups.

CONCLUSIONS

Within the limitations of this study, conclusions were drawn as a result of:

1. analyzing the multiple baselines
2. plotting three observations in the generalization environments of the experimental group
3. plotting the pre- and post-observations of the control subjects
4. analyzing the pre- and post-preservice teacher responses to the Attitude Toward Behavior Modification scale
5. analyzing pre- and post-observations of both groups using the Flanders Interaction Analysis System coding format
6. assessment of the terminal goals and maintenance behaviors.

The conclusions drawn are:

1. The multiple baseline analysis shows the rate and per cent of change was significant in the percentage of management and activity time, the rate of first name use, negative general and specific behavioral interactions, positive general, corrective specific, and negative general skill feedback statements. It is further concluded that the intervention techniques caused these significant changes.
2. Significant changes in experimental subjects' behaviors in desired or appropriate directions in the experimental environment were also observable in the generalization environment following intervention. The fact that the researcher did not return to the generalization environment following intervention eliminates the possibility of a discriminative control effect. Thus, the observable changes were internalizing and indicated durability cross environments.

3. There were no significant changes between the pre-observation and the post-observation rates and percentages of behaviors in the control group. A variety of minor changes were observed within individual categories and individual subjects.

4. In their mini-studies, three of the four experimental subjects applied the principles, techniques, and observational skills derived from the training procedures found in the Responsive Teaching Model. There was a consensus of opinion among the subjects that the training sessions were valuable and relevant. Several cooperating teachers were impressed with the way in which the subjects had conducted their studies and the results.

5. The results of the Attitude Toward Behavior Modification scale reveal no significant differences between the attitudes of the experimental and control group at the beginning or the conclusion of the student teaching
In general, it can be concluded that the "package" intervention along with graphic feedback, goal setting, cueing and modeling techniques used in the study were effective in changing specific rates and percentages of preservice teacher behaviors. In addition, the training sessions equipped preservice teachers with knowledges and skills in applied behavior analysis, which then were applied in three of the four student teaching assignments.

RECOMMENDATIONS

Based on the results of this study, the researcher recommends future research efforts be directed in the following areas:

1. Multiple baseline analysis of the generalization of preservice teacher behaviors cross environment.
2. Utilization of the applied behavior analysis training model earlier in the preservice teacher education program.
3. Alterations of the observation coding format.

Future research efforts are needed to demonstrate the degree to which specific preservice teacher behaviors will generalize from one teaching environment to another. Methods and procedures should be developed for multiple baseline comparisons of the experimental and generalization environments. These efforts are needed in order to broaden the claim of generalizability of specific preservice teacher behaviors.

The applied behavior analysis training model appears to be a viable, functional, and relevant training technique for senior level
preservice teachers. Further investigations are needed to aid in the determination of (1) What level in the teacher education program prior to student teaching is most appropriate for training in applied behavior analysis techniques? (2) Can the knowledges and skills developed as a result of the training model be systematically applied? (3) Will positive transfer of these knowledges and skills be observable and measurable during the student teaching experience?

Carefully planned revisions in the coding format would provide a more indepth analysis of specific teacher behaviors than was attempted in this study. Research questions for future investigation could be:

1. What types of instructional behaviors are observed during the instruction time episodes?
2. What kinds of teachers behaviors are observed during the activity time episodes?
3. Are skill feedback statements directed toward individuals or the group?
4. When preservice teacher behaviors change in desired and appropriate directions, do pupil performance levels increase?

Finally, continuous research efforts should be mounted for the purpose of identifying teacher behaviors considered critical for effective teaching and the establishment of positive learning environments.
APPENDIX A

DEFINITIONS
DEFINITIONS

Academic Lesson Plan - A detailed guide prepared by the preservice teacher which includes the following: general objective or purpose of the lesson, instructional objective(s), materials required, introductions or motivation, procedures, evaluation and critique of lesson.

Activity Time - Refers to the cumulative amount of time and over-all percentage of class time in which students are given opportunity to actually become involved in appropriate learning activities and skill development.

Applied Behavior Analysis - The use of operant psychology principles and techniques in applied settings. Sometimes referred to as behavior modification and reinforcement learning theory.

Appropriate Student Behavior - Any student behavior other than skill attempts that is considered to be contributing to the educational goals and learning environment of a specific situation.

Appropriate Student Learning Behavior - Any student behavior regarding skill attempts that is considered to be contributing to the educational goals and learning environment of a specific situation.

Ascending Baseline - A situation during baseline when the operant level of a behavior is increasing (Hall, 1974).
Attitude Toward Behavior Modification Scale - The scale contains twenty statements concerning behavior modification. Both positive and negative statements are included.

Baseline - The level at which behavior is occurring before attempts are made to modify it (Hall, 1974).

Behavior - An observable response of the human organism. Things people do, such as walking, running, cooking, and talking.

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

Behavioral Interactions - All verbal teacher reactions to pupil behavior other than skill attempts. These include both positive and negative interactions containing either vague or explicit information.

Behavioral Objective - A statement which communicates the intention of the teacher as to what the learner will do to demonstrate his achievement. The objective states a terminal performance, the conditions under which the performance will occur, the criterion for successful completion of the performance, and excludes skills or behaviors that are not to be developed.

College Supervisor - An employee of the college who has been assigned the supervisory role during the student teaching experience.
Competency-based "Packaged" Intervention - A technique of applying an independent variable which contains many different variables. The investigator is concerned with all the variables and not any one variable individually.

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

Corrective Skill Feedback - Refers to teacher's verbal reactions to errors in student performance that has information included to aid the student in correcting the errors. These include vague general reactions and precise or explicit specific reactions.

Descending Baseline - A situation during baseline when the operant level of a behavior is decreasing.

Desirable Changes in Target Behaviors - In the applied behavioral analysis model any change in a target behavior which is considered more appropriate by those responsible for the subject or by the subject himself is deemed a desirable change.

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

Event Recording - Making a tally of discrete events of a certain class, a frequency of events as they occur (Hall, 1971).
First Name Use - Refers to all behavioral interactions initiated by the preservice teacher using the student's first name.

Flanders Interaction Analysis System - A ten verbal category observational system describing teacher behavior, student behavior, and silence or confusion. The plotting of a matrix allows for the number of tallies in each category, as well as percentage of class time spent in each category.

Functional Lesson Plan - An abbreviated form of lesson planning sometimes referred to as "block planning" or "Stop planning" (e.g., S = Subject, T = Topic, O = Objective, P = Procedure). This plan is presented in brief notations, which serve to jog the memory if one loses his/her train of thought or procedure.

General Praise Statements - All vague spoken teacher praise in regard to student behavior. Examples could be good, alright, and good job.

Generalization - Whether or not behavior changes obtained in the experimental environment will prove durable and observable in another similar or like environment.

Inappropriate Student Behavior - Any student behavior, other than skill attempts that is considered to be distracting from the learning environment of a specific situation.

Inappropriate Student Learning Behavior - Any student behavior regarding skill attempts that is considered to be detracting from the learning environment of a specific situation.
Instruction Time - Refers to the cumulative amount of time and over-all percentage of class time in which students are given information relative to instruction or class matters. Examples of communicating this information include lectures, demonstrations, printed handouts, task-cards, loop films, and still pictures.

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

Latency - The amount of time between a given cue by the teacher until the student begins an assigned task (Hall, 1974).

Maintenance - Refers to the maintaining a previously met terminal goal percentage or rate per minute for a number of observation sessions following "package" intervention.

Management Time - Refers to the cumulative amount of time and over-all percentage of class time students spend in class organization and changing activities. It is time when no instruction is given; no watching of performance; or no opportunity to engage in skill development is provided. Examples would include: getting out and setting up of equipment, taking class, warm-up exercises, and putting equipment away following class or laboratory.

Mini-studies - Individual studies conducted by the preservice teachers in their classroom environmental settings utilizing the principles and techniques of applied behavior analysis acquired in the training sessions.
**Multielement Design** - Also termed "alternating conditions design." Employs the repeated measurement of a behavior under alternating conditions of the independent variables (Ramp and Semb, 1975).

**Multiple Baseline** - A graph showing levels of behavior in cross subjects, or cross behaviors, or cross environments.

**Preservice teacher** - A third quarter senior who has completed all general, major and professional education requirements preceding the student teaching requirement for state certification.

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

**Reliability** - The per cent of agreement of independent observers on what they have observed in the same subject during the same observation session.

**Skill Feedback Statements** - All verbal teacher reactions to an appropriate skill attempt by a student. These reactions could be positive or negative or corrective in nature. Further, each category is divided into general vague statements and specific statements with precise and explicit information included.
Student Teaching Experience - A professional education course required of all preservice teachers seeking certification in the state of Ohio. The preservice teachers are assigned to a cooperating school in the area and spend five full days a week for a period of ten weeks.

Target Behavior - The behavior toward which interventions are directed.

Terminal Goals - The goals established by the preservice teacher in consultation with the researcher following baseline conditions. These goals are to be attained and maintained for the remainder of the student teaching experience.

Training Sessions - Refers to the training sessions conducted by the researcher for the preservice teachers, utilizing the applied behavior analysis principles and techniques.
APPENDIX B

SCHOOL POLICIES AND PROCEDURES MODULE
SCHOOL POLICIES AND PROCEDURES MODULE

RATIONALE:
Throughout your preservice training program at Baldwin-Wallace College many of your instructors have emphasized the importance of communicating to your students those classroom procedures and guidelines necessary for creating a more positive learning environment within your classroom. No less important are those procedures and guidelines which govern the teachers within the total organizational structure of the school district and individual school buildings. Without a doubt a contributing factor to the anxieties of the student teaching experience is due to the student teacher's lack of knowledge regarding the procedures and guidelines he/she is to follow when confronted by various situations. Thus, "The School Policies and Procedures Module."

This Module is designed to aid you, the student teacher, in the acquisition of knowledge concerning those policies and procedures under which you will operate during your tenure as a student teacher. It is assumed that this knowledge and awareness will enhance your student teaching experience and aid in your total development as a more effective and productive teacher. What if a student arrives ten minutes late to class without a proper admit slip? What are your responsibilities during a fire drill? What if an emergency arises and you are unable to report to your student teaching assignment?
Answers relative to your behavior in these and a multitude of other situations is most important to the normal operations in the school in which you are student teaching. Your knowledge and awareness of the TBO's will enable you to pass the criterion level required by the written examination and, more importantly, to respond in a reasonably prudent manner when confronted with certain situations requiring adherence to school policies and procedures.

GOAL:

To enable the student teacher to become aware of and carry out those policies and procedures which are necessary for the normal organizational operation of the school to which they have been assigned.

TERMINAL BEHAVIORAL OBJECTIVES:

1. The student teacher will demonstrate an awareness of school policies and procedures as demonstrated by carrying out such appropriate procedures during his/her student teaching assignment and by achieving a criterion level of 9/10 on a written examination regarding the following policies:
   a. Teacher attendance
   b. Teacher tardiness
   c. Teacher time-schedule
   d. Teacher dress regulation
e. Fire drills

f. Student fighting

g. Guidance office - reviewing pupil permanent records

h. School Nurse - procedure to follow in case of student illness and/or injury

i. Acquisition of audio-visual aids

j. Student absences and tardy slips

k. Discipline procedures, detention hall, demerits, corporal punishment

l. Grading system

m. Parent conferences

n. Smoking: Pupils - Teachers

LEARNING ACTIVITIES AND RESOURCES:

1. Set up an appointment with the building principal to discuss your duties and responsibilities as a student teacher.

2. Inquire as to whether or not a printed "Policies Book" exists within the school district and if so, can a copy for inspection be acquired?

3. Set up an appointment with a guidance counselor to discuss aspects of student personnel services offered by this department.

4. Discuss with your cooperating teacher the grading procedures and philosophy of the school district.
5. Discuss with your cooperating teacher the procedures and policies regarding student absence, tardiness, failure to bring necessary equipment to class, outside of class requirements and other relevant policies governing fire drills, bomb threats, student walk-outs, etc.

6. Discuss with the appropriate person the procedures exercised in obtaining audio-visual materials (projectors, films, maps, models, etc.).

ASSESSMENT:

1. At the end of the first full week of the student teaching experience a short written examination will be administered covering specific areas related to the school policies and procedures reiterated earlier. Criterion level for this examination is 90%. Determination of the 90% criterion level score will be done in consultation with cooperating teacher and building principal or his designated agent. The criterion level must be reached prior to the second full week of student teaching.

2. Periodically during the student teaching experience maintenance checks will be made regarding this behavior by the supervisor in consultation with the cooperating teacher. The purpose of which is to monitor the degree
to which the student teacher is following established procedures and policies.

SCHOOL POLICIES AND PROCEDURE MODULE

-Assessment Channel-

1. Describe the procedure you are to follow when unable to report to school due to illness or emergency.

2. Describe the procedures you are to follow when requesting to view student records in the guidance office.

3. Does the school district in which you are assigned for student teaching endorse corporal punishment? What is the procedure? What are your limitations as a student teacher?

4. If a student reports to class ten minutes late, what procedure should you follow as the teacher of that class?

5. What is the school policy relating to teacher dress and appearance? Does the policy differ for student teachers?

6. Describe the procedure you are to follow when a fire drill begins.

7. Describe the procedure you are to follow in case of illness or injury to one of the students in your class.
8. If a discipline problem erupts in your class that you feel you cannot manage, what are the policies and procedures to be followed?

9. List the starting time and ending time for teachers in your building. Do they differ for you as a student teacher?

10. Are you required to attend staff meetings, departmental meetings, teacher association meetings, and in-service meetings? Are you required to take part in extra curricular student activities?

*Passing Criterion - 9 out of 10 correct responses.

*Passing criterion must be met by the third week of student teaching.
APPENDIX C

ATTITUDES TOWARD BEHAVIOR MODIFICATION SCALE
Attitudes Toward Behavior Modification

Please do not put your name or any other identifying information on this questionnaire. YOUR RESPONSES ARE TO BE KEPT ANONYMOUS.

We are interested in your feelings about the following statements concerning Behavior Modification. Read each statement carefully and decide how you feel about it. PLEASE respond to each item whether or not you have had direct experience with Behavior Modification.

If you strongly agree with the statement, encircle SA to the right of the statement.
If you agree, encircle A to the right of the statement.
If you are undecided or uncertain, encircle ? to the right of the statement.
If you disagree, encircle D to the right of the statement.
If you strongly disagree, encircle SD to the right of the statement.

1. The benefits of Behavior Modification have been exaggerated.
2. Behavior Modification has unlimited possibilities.
3. I wish my education was accomplished under Behavior Modification methods.
4. Behavior Modification is unable to meet the demands of a complex social order.

5. The extra time involved in dispensing rewards is worth the improvement seen as a result of using Behavior Modification.


7. Behavior Modification helps a child to learn how to cope with his environment.

8. More money should be spent on Behavior Modification Programs.

9. Behavior Modification makes a child stop working when rewards are not available.


11. Behavior Modification will advance education to a higher level.

12. More people would support (favor) Behavior Modification if they knew more about it.
13. Behavior Modification enables us to make the best possible use of our lives.

14. All teachers should be prohibited from using Behavior Modification in the classrooms.

15. Behavior Modification is just another name for tyranny.

16. The added expense involved in purchasing rewards is not worth the eventual gain from a program of Behavior Modification.

17. Behavior Modification improves overall classroom conditions.


20. Behavior Modification helps to produce desired behavior.
APPENDIX D

WEEKLY PROFILE OF BEHAVIOR RATES
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECTS
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECTS
PROFILE OF OBSERVATIONS AND BEHAVIOR RATES FOR SUBJECTS
LESSON PLANNING

RATIONALE:

Effective teaching always requires careful planning well in advance of the lesson to be taught. However, careful planning is a waste of time unless it results in more effective teaching and learning. Planning should never be viewed as an end in itself but rather as one of many related means to achieving more effective instruction. This is as true for the veteran teacher as it is for the preservice teacher.

Plans vary as to type and purpose. Some plans are long-range, blocking out major topics or areas for extended periods of time (e.g., semester, year, and grading periods). Generally, plans are made for each lesson or activity and usually include thinking about the specific purposes, the procedures, the time limitations, the materials which will be needed and that must be readily available, and finally, some means for determining whether the desired ends were achieved. Although the value of any instructional system can be judged only by the goals to which the system is directed and the degree to which those goals are met, it is imperative that a warm, accepting, positive educational environment be established along with effective planning and other critical related components of instruction.

Unfortunately, most teachers do not enjoy writing a lesson plan because it takes considerable time and effort to produce a functional one. However, professionally minded teachers, whether
experienced or inexperienced, do not question the need to formulate lesson plans, but often are confused as to the "how," "why," and "what" of planning.

Therefore, this module is aimed at aiding the preservice teacher in developing lesson plans as an integral part of the total planning process which can optimize the amount of learning that is achieved in the classrooms, shops, gymnasiums, play fields, and laboratories of our public and private schools.

GOAL:

To enable the preservice teacher to plan for lessons or activities which include explicit instructional objectives and criteria for students by utilizing the "Academic Lesson Plan" and the "Functional Lesson Plan."

TERMINAL GOALS AND MAINTENANCE:

1. The preservice teacher will hand in copies of lesson plans one week in advance, i.e., on the day he/she is to be observed, which will meet the criterion level established by the college supervisor and cooperating teacher.

2. The preservice teacher will include explicit instructional objectives as part of the lesson plans which satisfy the criteria established by Mager, Kibler, et al., or Siedentop.
3. The preservice teacher will demonstrate competence in formulating the "Academic Lesson Plan" and the "Functional Lesson Plan" which will meet the criterion level established by the college supervisor and cooperating teacher.

DEFINITIONS:

**Instructional Objective** - a statement that tells the learner the task to be learned, the condition under which the task will be performed, and the criterion or standard by which completion of the task will be judged. Instructional objectives are often referred to as behavioral objectives or performance objectives. The task should be stated in terms that are observable (Siedentop, 1976, p. 168).

Examples include:

1. The student is to be able to complete a 100-item multiple-choice examination on the subject of outdoor science. The lower limit of acceptable performance will be 85 items answered correctly within an examination period of 60 minutes.

2. While standing in water 4 feet deep, the student will submerge and correctly count the number of fingers his partner extends.

3. Following instruction on one-digit addition through sums of 18, each learner will be able to complete in less than four minutes, and with 90% accuracy, a quiz containing 80 problems.
4. At 5 minutes after the hour the student will be in his/her assigned kitchen and ready for class.

5. At the end of the lesson on the sense of touch, each learner, without the aid of reference, will be able to locate correctly all taste areas of the tongue on a dittoed drawing.

"Academic Lesson Plan" - a detailed guide prepared by the preservice teacher which includes the following: general objective or purpose of the lesson, instructional objective(s), materials required, introduction or motivation, procedures, evaluation, and critique. Generally, the academic lesson plan provides a detailed approach to related components for the establishment of learning activities within a given class period (see suggested lesson plan).

"Functional Lesson Plan" - an abbreviated form of lesson planning sometimes referred to as "block planning" or Stop planning" (e.g., S = Subject, T = topic, O = objective, and P = procedure). This plan is presented in brief notations, which serve to jog the memory if one loses his train of thought or procedure. It should be noted that one should be able to refer to this plan for the next procedure or concept without interrupting the tempo of the presentation (see suggested lesson plan).

LEARNING ACTIVITIES AND RESOURCES:

1. Review "Writing Behavioral Objectives" (TL TASK I) slide-tape presentation in the Learning Resource Center by John R. Heter.
2. Read the "Suggested Lesson Plan Format" for both the "Academic" and "Functional" Lesson Plans (attached to this module).

3. Read Preparing Instructional Objectives by Robert Mager; Behavioral Objectives and Instruction by Robert J. Kibler, et al., p. 44-75; Development of Teaching Skills in Physical Education by Daryl Siedentop, p. 163-215; "Development of Lesson Plans" by James Currens; and "Lesson Plans" by Ronald Wise.

4. Discuss and study your cooperating teacher's style of planning in regard to direction, school policy, departmental requirements, and others.

ASSESSMENT:

1. Each preservice teacher will demonstrate his/her ability to construct an "Academic Lesson Plan" by the end of the second full week of student teaching. The college supervisor in consultation with the cooperating teacher, will establish the appropriate criterion level to be attained. It is suggested that six of the seven suggested areas on the format must be appropriately covered.

2. Within one week following the attainment of the established criterion level for the "Academic Lesson Plan," the preservice teacher will demonstrate his/her
ability to construct a "Functional Lesson Plan" including all the areas found on the format for this style of lesson planning.

3. Periodically, the college supervisor and/or the cooperating teacher will ask the preservice teacher to demonstrate maintenance behavior in regard to assessment number 1 (above). These post checks will occur at any time throughout the student teaching experience with one day's notice.
SUGGESTED FORMAT FOR THE ACADEMIC LESSON PLAN

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Lesson #</td>
</tr>
</tbody>
</table>

**General**
- Usually states why you are doing the lesson.
- Statement is generally broad in scope, but still bears a close relationship to the instructional objectives for the lesson.

**Instructional Objective(s)**
- The formulation of instructional objectives or outcomes is a difficult and rigorous task not to be taken lightly or hurried. The question should be asked, what do I want my students to be able to do following the presentation of this lesson? The purposes, outcomes, or objectives for a lesson are best stated when they describe some observable change in behavior, ability, skill, attitude, understanding, or appreciation by the student to be taught. These objectives provide the preservice teacher with explicit performance criteria by which to assess student learning.

**Materials and Equipment**
- A list of necessary instructional aids, instructional devices, chemicals, specimens, apparatus, and etc. can be most beneficial to
the preservice teacher. Much time will be wasted, and possibly the entire class will be lost, if the teacher has to interrupt a demonstration and seek out additional material and equipment. Also, a better selection of material and equipment will be made if this area is considered in the planning stages rather than making last minute decisions on the basis of what is most readily available.

As the title of this division suggests, something should be planned here that will kindle the interests of the students. One good method is to relate the activity or topic to be considered to the immediate environment of the students. There ought to be something with which they are familiar that is related to the activity or topic. A good teacher will find the relationship and exploit it. The approach should be planned in such a manner that the students will know what they are expected to get out of the lesson. The more attractive (and genuine) the prospect, the more attentive and interested will be the students. It is well that instructional outcomes be made clear
The motivation of the students will be appropriate to the principles of learning which in effect means, "Take the students at their present stage of growth and stimulate them in the desired direction of further growth."

This division of the plan clearly states how you are going to present and develop your material. An itemized list of procedural notes should be presented in outline form, and serve to jog the preservice teacher's memory while teaching the class. E.g., (1) How much time will be spent in this activity? (2) How much time is needed for clean-up? This division is sometimes referred to as the teaching plan.

Some means of evaluation should be utilized at the end of each lesson. Such a technique will help determine whether students accomplished the instructional objectives stated earlier in the lesson plan. Examples are the use of a worksheet, activity sheet, name situations, performance requirements, check lists, and others requiring demonstration or application of skills, knowledges and feelings developed in the lesson.
Critique of Lesson

This item is to be completed as soon as possible after presentation of the lesson.

At the end of the lesson plan the teacher might indicate the degree of successfulness of the plan. Indicate what parts were particularly effective and what parts need improvement.

Include suggestions for improving the lesson plan the next time it is taught.
SUGGESTED FORMAT FOR THE FUNCTIONAL LESSON PLAN

(BLOCK OR STOP PLANNING)

Preservice teacher_________________ Unit_________________

Date____________________ Lesson #_________________

S = (Subject) a very broad statement as to the subject area
being covered in this lesson, e.g., tennis,
swimming, math, reading, and others.

T = (Topic) a statement in regard to a specific topic
within the broad subject, e.g., tennis
forehand, breast stroke in swimming, addition
in mathematics, and so on.

O = (Objective) a statement of instructional objectives to
be achieved as a result of the material
presented in this lesson. (Refer to Academic
Lesson Plan Format.)

P = (Procedures) an itemized list of procedural notes should
be presented in outline form and serve to
jog the preservice teacher's memory while
teaching. (Refer to Academic Lesson Plan
Format.)
It is to be noted that the preservice teacher should continue to provide for the evaluation and critique of each lesson, although detailed provisions for this assessment are not required in this segment of the module. The college supervisor and/or cooperating teacher may request information regarding these assessment channels.
CLASSROOM MANAGEMENT MODULE

RATIONALE:

To many, the term "classroom management" has an unpleasant sound. "Managing" often has the connotation of manipulation in some secretive or devious way. The word "management" may also provoke images of totalitarianism and dictatorship. The use of corporal punishment is still a heated topic in many of our schools today, and many feel the use of this procedure actually is a major deterrent of future behavior problems.

Fortunately, effective classroom management skills do not require this sort of punitive control. However, it is unrealistic to assume that all students enter the classrooms, gymnasiums, shops, and other organized activities eager to learn, to be attentive to instructions and demonstrations, to organize and change activities quickly, and generally behave in such a manner that is considered to be contributing to the educational environment.

A common assumption found in educational literature is that discipline is inherent in good teaching. This assumption implies, if one teaches well, there will be no discipline problems. This implication of such a relationship between teaching and discipline is at best most simplistic. While teachers should continuously strive to more appropriately coordinate their program offerings and teaching styles, they can also be taught to more effectively deal with the unexpected serious classroom disruptions which might arise. However,
in order to increase good classroom management skills, the preservice teacher may be obliged to behave occasionally in a manner that is somewhat "unnatural."

The acquisition of classroom management skills will enable the preservice teacher to obtain maximum efficiency in the use of class time, development of self-management skills in students, establish and maintain appropriate student behavior, and effectively deal with the day to day disruptions encountered in their classrooms.

Therefore, this module will provide you, the preservice teacher, with the skills necessary to manage your classes more effectively and positively.

GOALS:

To enable the preservice teacher through Time Analysis, Placheck Recording, and Application of Applied Behavior Analysis principles and techniques procedures to:

1. Decrease the cumulative amount of time students spend in class organization and changing activities.

2. Decrease the cumulative amount of time students spend in watching demonstrations, lectures, loop films, and other instructional devices.

3. Increase the cumulative amount of time students spend in practicing skill attempts, games, problem solving activities, and other appropriate classroom activities.
4. Increase and maintain adequate rates of appropriate student behavior.

5. Cope with and remediate any serious classroom disruptions.

TERMINAL GOALS AND MAINTENANCE:

Terminal goals for each of the following categories will be determined by baseline observations and in consultation with your college supervisor.

1. The preservice teacher shall attain and maintain the established terminal goal of a specific cumulative amount of time and over-all percentage of class time spent in management activity.

2. The preservice teacher shall attain and maintain the established terminal goal of a specific cumulative amount of time and over-all percentage of class time spent in instructional time.

3. The preservice teacher shall attain and maintain the established terminal goal of a specific cumulative amount of time and over-all percentage of time spent in activity time.

4. The preservice teacher shall attain and maintain the established terminal goal of a specific percentage of appropriate student behavior during class time.

5. The preservice teacher will, through the use of Applied Behavioral Analysis principles and techniques, show evidences of behavioral changes in a targeted situation.
DEFINITIONS:

1. Appropriate Behavior - Any pupil behavior that is considered to be contributing to the educational goals and learning environment of a specific situation. Examples would include:
   a. Moving from one activity to another quickly upon direction.
   b. Maintaining eye contact with the teacher during demonstrations when giving instructions and audio or video presentations.
   c. Appropriate use of activity time that is compatible with the educational goals of the specific situation.

2. Inappropriate Behavior - Any pupil behavior that is considered to be detracting from the educational goals and learning environment of a specific situation. Examples would include:
   a. Failure to follow instructions.
   b. Unattentiveness during demonstrations, audio-video presentations and disrespect for equipment and facilities.
   c. Inappropriate use of activity time.

3. Activity Time - Refers to the cumulative amount of time and over-all percentage of class time in which students are given opportunity to actually become involved in
appropriate learning activities. Examples would include:

a. Mixing recipes for baking in a foods laboratory.
b. Actual participation in a game situation.
c. Practicing gymnastic skills.
d. Sewing a skirt, slacks, or blouse.

4. Instruction Time - Refers to the cumulative amount of time and over-all percentage of class time in which students are given information relative to instruction or class matters. Examples of communicating this information would include:

a. lectures
b. demonstrations
c. printed handouts
d. task-cards
e. loop-films and still pictures

5. Management Time - Refers to the cumulative amount of time and over-all percentage of class time students spend in class organization and changing activities. It is time when no instruction is given, no practice is done and no watching of performance is done. Theoretically it is the time devoid of opportunities for students to learn. Examples would include:

a. getting out and setting up materials and equipment.
b. taking of class attendance.
c. putting equipment away following class or laboratory.
d. changing from one teaching station to another.
LEARNING ACTIVITIES AND RESOURCES:

1. Listen to audio-tape "Development of Classroom Management Skills" in the Learning Resource Center (Tape 406-5-A).

2. Read Development of Teaching Skills in Physical Education by Daryl Siedentop, pages 55-112.

3. Read "Modification of Student and Student Teacher Responses During Management Time" by Siedentop, Rife, Boehm, in the Learning Resource Center.

4. Read "O.S.U. Teacher Behavior Rating Scale" by Daryl Siedentop in the Learning Resource Center.

5. Re-read, if needed, Managing Behavior: Part II Basic Principles by R. Vance Hall.

ASSESSMENT:

1. Weekly observation sessions by the college supervisor.

2. Periodic observation by a trained graduate student.
INTERPERSONAL RELATIONSHIPS MODULE

RATIONALE:

The interpersonal relationships between a teacher and a student or group of students are extremely important to the process of learning. These relationships are of major concern in creating learning atmosphere in which students spend most of their school time. An atmosphere that is conducive to learning will help insure more student learning. Since students tend to engage in experiences and activities that are both pleasing and rewarding, and avoid those that are not, you as a teacher should strive to make the atmosphere pleasant and positive as possible. Many times preservice teachers take this aspect of teaching for granted and make a false assumption that students will be motivated and interested in bettering their personal skills, knowledges, and attitudes as they relate to education. This is evidenced many times in teachers who become annoyed and lash out at students who do not demonstrate high interest levels in some skill development activities, knowledge acquisition exercises or attitude development processes. These things do not just happen, we help plan for them.

Interpersonal relationships with other faculty, administrators, and staff are also vitally important. Conversations and contacts with them are very helpful in providing additional information about the students with whom you will be working. This additional information should be of value to you when planning for and teaching your assigned classes.
This module will show you ways to help an environmental atmosphere that should enable you to have personal contact with a large percentage of your class, focusing on positive interactions in order to develop high student interest and also appropriate student behavior. Interaction with other teachers, administrators, and staff will also be stressed to aid you in strengthening your involvement as a preservice teacher.

GOAL:

1. To enable the preservice teacher to develop the skills of positive interactions to enhance his or her personal relations with students in order to establish an environment conducive to learning.

2. To enable the preservice teacher to develop the skills of positive interactions to enhance his or her personal relations with other teachers, administrators, and staff, which will strengthen the involvement of the preservice teacher during the student teaching experience.

TERMINAL GOALS AND MAINTENANCE:

Terminal goals for each of the following categories will be determined by baseline observation rates and in consultation with your college supervisor.
1. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute for positive general and specific behavioral interactions.

2. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute of negative general and specific behavioral interactions.

3. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute of first name contacts with students.

4. The preservice teacher will be able to identify the last names and subject or grade taught of certified teachers and administrators in the school at a criterion level established by the college supervisor.

DEFINITIONS:

1. Behavior — Refers to things people do; examples are: jumping, talking, driving a car, baking a cake.

2. Interactions — All verbal teacher-pupil communications. These communications can be either positive or negative.

3. Positive interactions — All positive verbal teacher reactions to pupil behavior other than skill attempts. Examples would include:
a. Thank you for coming into class quietly.
b. Kitchen three is ready.
c. Super job Annie.

4. Negative interactions — All negative verbal teacher reactions to pupil behavior other than skill attempts. Examples would include:
   a. John, you are always the last person in the room.
   b. Be quiet, Peter.
   c. This class was "bad news" today.

5. General verbal interactions — All vague or unprecise spoken teacher reactions to pupil behavior. These reactions could be positive or negative. Examples of positive general statements:
   a. Excellent, Sally.
   b. John's team is doing a fine job.
   c. Kitchen three looks good.

Examples of negative general statements:
   a. Mary, your area looks bad.
   b. That is wrong, Sue.
   c. You people were not with it today.

6. Specific verbal interactions — All precise or explicit spoken teacher reactions to pupil behavior. These reactions could be positive or negative. Examples of positive specific statements:
a. Group three is paying attention to me.
b. The class entered the room quietly today.
c. Sam was the first to begin the assignment.

Examples of negative specific statements:
a. Row three will line-up for lunch last as a result of talking.
b. You girls never remember to turn off the ovens.
c. Stop talking to your buddy, Jim.

7. Student Contacts -- All verbal communication between preservice teacher and pupils. Examples:
a. Calling on a pupil to answer a question.
b. Calling on a pupil to demonstrate a skill.
c. Providing a pupil some behavioral feedback.

LEARNING ACTIVITIES AND RESOURCES:

1. Listen to audio-tape "Principles and Techniques of Interpersonal Relationships" in the Learning Resource Center (Tape 406-3-A).


3. Observe one video-tape of selected preservice teacher presentations in Education 291 (Strategies class) and one of an in-service teacher. You will observe and record the number of positive and negative behavior interactions.
4. Tape one of your own classes and record your positive and negative interactions with your students.

ASSESSMENT:

1. Preservice teacher shall achieve a criterion level of 80 per cent observer accuracy in both positive and negative interactions while observing the selected video-tape presentation by the Education 291 (Strategies) class.

2. Weekly observation sessions by the college supervisor.
   Also periodic observation by a trained graduate student.
RATIONALE:

There is evidence which suggests that positive instructional or information feedback will often serve as positive reinforcement for students. Hall (1975, p. 25) states: "Providing information on the correctness or incorrectness of a response as quickly as possible facilitates learning." Axelrod (1977) states: "In the case of reinforcement, immediate feedback is more helpful than delayed feedback." It has already been stated that the more quickly reinforcement follows a target behavior, the more effective it will be. Since preservice teachers are concerned with, and interested in, motivating pupils to continue to refine certain skills presented in class, then preservice teachers have an obligation to provide students with positive or information feedback in regard to these skill attempts. Positive instructional feedback is, therefore, a crucial teaching skill that must be developed and maintained. When students are attempting predetermined skills, the preservice teacher must provide them with some positive verbal instructional feedback. This skill is sometimes difficult for preservice teachers to focus on, but it is important to "zero in" on students' skill attempts and provide the needed positive instructional feedback if it means forcing yourself to do so.
There are occasions when preservice teachers recognize a need for some type of negative instructional or informational feedback, especially in the form of corrective feedback. This too, is very important to the learning process. Inappropriate skill attempts by students should and must be corrected by the preservice teacher. However, it is equally important for the preservice teacher to arrive at some sort of balance between positive and negative instructional feedback. Boehm (1974, p. 164) states:

"It is not good for a student teacher to focus only on the aspects of a skill attempt that needs to be corrected because it is also important to provide feedback relative to the aspects of a pupil's skill attempts that are already correct."

GOAL:

To aid the preservice teacher in the development of instructional skills which lead to the emission of a high rate of instructional feedback that contains specific information regarding skill attempts and is directed toward specific pupils in the class.

TERMINAL GOALS AND MAINTENANCE:

Terminal goals for each of the following categories will be determined by baseline observations and in consultation with your college supervisor.

1. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute for positive general and specific skill feedback statements.
2. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute for negative general and specific skill feedback statements.

3. The preservice teacher shall attain and maintain the established terminal goals of a specific rate per minute for corrective general and specific skill feedback statements.

DEFINITIONS:

1. Feedback -- This refers to preservice teachers providing information on the correctness or incorrectness of a response as quickly as possible to facilitate learning. This information can be positive, negative, and/or corrective feedback.

2. Positive Skill Feedback -- Refers to preservice teachers' verbal reactions to students' skill attempts that have been done well. These reactions can be either general or specific in nature. Examples of positive general skill feedback statements include:
   a. "John, that was good."
   b. "Sally, that looks great."
   c. "Excellent try, George."
Examples of positive specific skill feedback with precise or explicit information include:

a. "Mary, the hem in your skirt really looks super."

b. "Jim, your follow through was really good."

c. "Sandy, that was a good pass to Randy."

3. Negative Skill Feedback — Refers to preservice teachers' verbal reactions to errors in student performance. These reactions can be either general or specific in nature. Negative general skill feedback statements fail to provide the student with precise or explicit information indicating why or what was done incorrectly. Examples of negative general skill feedback include:

a. "That was a poor attempt, Mary."

b. "Susan, that zipper is wrong."

c. "That wasn't a good shot."

Examples of negative specific skill feedback statements provide the students with precise or explicit information as to why the attempt was inappropriate:

a. "Bob, that was wrong because you did not hold your arms out for balance."

b. "Elmer, that is incorrect because you failed to toss the ball high enough."

c. "Mary, that is a poor putt because you did not bend at the waist and drive off of your front foot."
4. Corrective Skill Feedback — Refers to preservice teachers' reactions to errors in student performance that has precise or explicit information included to aid in correcting the errors preceded by a positive evaluative statement. Examples of corrective skill feedback include:
   a. "Mary, your stride into the ball was good, but if you whip the bat a bit faster it will be better."
   b. "Al, your knees were bent properly, now keep your arms straight on the next attempt."
   c. "Alice, most of the material is tight to the pattern, however if you use a few more pins in this area, you won't lose the line when cutting out the total pattern."

LEARNING ACTIVITIES AND RESOURCES:

1. Listen to audio-tape "Development of Instructional Feedback Skills" in the Learning Resource Center (Tape 406-4-A).

2. Read Development of Teaching Skills in Physical Education by Daryl Siedentop, pages 217-236.

3. Observe your cooperating teacher count and record the number of positive, negative, and corrective instructional feedback statements.

4. Tape one of your own classes, count and record the number of positive, negative, and corrective instructional feedback statements.
ASSESSMENT:

1. Weekly observation sessions by the college supervisor.
2. Periodic observation by a trained graduate student.
APPENDIX F

FLANDERS SUMMARY OF CATEGORIES FOR

INTERACTION ANALYSIS AND PRESERVICE TEACHER

PRE/POST-OBSERVATION TALLY SHEETS
## SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. * ACCEPTS FEELING*</td>
<td>accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included.</td>
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<tr>
<td>2. * PRAISES OR ENCOURAGES*</td>
<td>praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying &quot;um hum?&quot; or &quot;go on&quot; are included.</td>
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<tr>
<td>3. * ACCEPTS OR USES IDEAS OF STUDENTS*</td>
<td>clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5.</td>
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<tr>
<td>4. * ASKS QUESTIONS*</td>
<td>asking a question about content or procedure with the intent that a student answer.</td>
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<tr>
<td>5. * LECTURING*</td>
<td>giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions.</td>
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<tr>
<td>6. * GIVING DIRECTIONS*</td>
<td>directions, commands, or orders with which a student is expected to comply.</td>
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<tr>
<td>7. * CRITICIZING OR JUSTIFYING AUTHORITY*</td>
<td>statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why teacher is doing what he is doing; extreme self-reference.</td>
</tr>
<tr>
<td>8. * STUDENT TALK - RESPONSE*</td>
<td>talk by students in response to teacher. Teacher initiates the contact or solicits student statement.</td>
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<tr>
<td>9. * STUDENT TALK - INITIATION*</td>
<td>talk by students, which they initiate. If &quot;calling on&quot; student is only done to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.</td>
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<td>10. * SILENCE OR CONFUSION*</td>
<td>pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.</td>
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PRE AND POST OBSERVATIONS FOR SUBJECT E-1

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PRE AND POST OBSERVATIONS FOR SUBJECT E-2

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**PRE AND POST OBSERVATIONS FOR SUBJECT E-4**

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**Pre and Post Observations for Subject C-1**

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**Pre and Post Observations for Subject C-2**

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FLANDERS INTERACTION ANALYSIS SYSTEM MATRIX

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PRE AND POST OBSERVATIONS FOR SUBJECT C-3

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