THE EFFECTS OF AN OBSERVATIONAL TRAINING PROGRAM ON FEEDBACK BEHAVIORS OF PRESERVICE PHYSICAL EDUCATORS IN A CLINICAL ADAPTED PHYSICAL EDUCATION SETTING

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CHAPTER I

INTRODUCTION

Much of the attentional focus of teaching research in physical education over the past fifteen years has been directed toward investigation of the relationship between teacher feedback and student motor skill acquisition. During the 1980's, many researchers investigated selected types of teacher feedback, among other teacher behaviors, in a variety of physical education settings with different student populations (McKenzie, 1981; Paese, 1984).

Teacher verbal interactions (feedback) with students have been considered the single most important variable (excluding practice) in skill improvement (Gentile, 1972; Lysakowski and Walberg, 1981; Schmidt, 1982; Phillips and Carlisle, 1983). Indeed, Yerg and Twardy (1982) stated "Practice without feedback is not only not helpful, but may even be detrimental to achievement" (p. 68).

It is logical then, that teacher educators have demonstrated a desire to develop systematic observational paradigms which preservice and in-service physical educators could utilize to evaluate and modify their own feedback behavior (Darst, Mancini and Zakrajsek, 1983; Imwold, 1984; Metzler, 1986). Emphasis in pedagogical research over the

past decade has been in the development of observation systems and instrumentation to facilitate the teacher training process in physical education (Siedentop, 1972; Kielty, 1974; Rochester, Mancini and Morris, 1977; Pease, 1984).

A paucity of research appears to exist which investigates behavioral description of teachers' use of feedback in adapted physical education settings. It is open to question, therefore, whether the rate and the methodological and substantive nature of feedback behavior observed in regular physical education instructional settings is similar to clinical adapted settings. This question served, in part, as the impetus for this study.

Empirical evidence does exist supporting the supposition that teaching behavior of the novice and experienced teacher alike can be targeted, changed or maintained as a result of systematic intervention strategies on the part of supervisors and cooperating teachers (Hutsler, 1977; Cramer, 1977; Gangstead, 1983). Specific intervention strategies have been shown to be effective in modifying teacher augmented feedback behavior as well. If data from an observation instrument is used as part of the treatment phase, the instrument becomes the independent variable. Evidence from studies where subjects received feedback information garnered from systematic observational instrumentation during the treatment phase of the

investigation indicated that a change in teaching behavior did occur (Siedentop, 1972; Kielty, 1974; Arena, 1979; Imwold, 1984). Cheffers (1977) noted "The exciting aspects of the use of observer tools as independent variables is centered in the potential for change" (p. 25).

The use of observation systems specifically designed to examine a wide variety of teacher and student behaviors has profoundly affected research on teaching and teacher training. No longer is the teaching process a nebulous, unexplainable interaction between teacher and student. The teaching process can be planned, systematically observed and readily assessed. "The most visible impact of research on teacher training in physical education has been on the development and use of systematic observation instruments" (Placek and Locke, 1986, p. 25). By providing a framework within which the actual teaching experience can be analyzed and critiqued and specific behaviors can be isolated, the systematic observation instrument "... provides the preservice and inservice teacher with tools which help identify, observe, classify and quantify specific learner behavior" (Cheffers, 1977, p. 18).

Purpose of the Study

The purpose of this study was to describe the rate and quality of augmented feedback exhibited by preservice physical education majors during instructional phases of

adapted physical education laboratory experiences. It was also the purpose of this study to determine the effects of a systematic observational training program on the augmented feedback behavior exhibited by the same population.

Delimitations

The study was delimited to:

1. A sample of four undergraduate physical education majors of junior/senior level status.

2. Levels and categories of augmented teacher feedback behavior observed through utilization of the Fishman Augmented Feedback Observation Instrument (FAFOI) (Fishman, 1974).

Limitations

The results of the study may have been affected by the following limitations:

1. Although the data observation and coding process were replicable, no data sets were identical between observations. No two videotapes were the same due to the unique interaction of teachers and students and the context of the instructional activities during each instructional episode.

2. All subjects selected for this study were members of the Adapted Physical Education class, P.E. 4793, Oklahoma State University during the spring semester, 1988.

3. A small number of subjects was sampled.

4. Behavioral variability between and among the exceptional students whom the subjects were instructing may have been attributable to physical and mental handicapping conditions, age and developmental level.

5. The exceptional children were selected by the investigator based on age and psychomotor development.

Assumptions

The following assumptions were made:

1. Subjects had limited teaching experience in working with students in an adapted physical education setting.

2. Subjects had limited knowledge of the methodological concerns or substantive nature of augmented feedback prior to participation in the study.

Hypotheses

The following hypotheses were examined utilizing criteria discussed in the design section of this chapter.

1. There would be no observable change in the rate of augmented feedback behavior emitted by preservice physical education majors as a result of experience with a systematic observational training program.

2. There would be no observable change in the method utilized by subjects to deliver augmented feedback to students as a result of experience with a systematic observational training program.

3. There would be no observable change in the substantive focus or intent of the augmented feedback observed as a result of experience with a systematic observational training program.

Definitions

For the purposes of this study, the following definitions were divided into two categories: conceptual and functional. Conceptual definitions included those terms defined by authorities. The functional definitions consisted of those terms which held special meaning for this study.

Conceptual Definitions

Augmented Feedback. A teaching behavior dependent upon the motor response of one or more students and intended to provide information related to the acquisition or performance of a motor skill (Fishman and Anderson, 1971).

Methodological Dimension of Augmented Feedback. A dimension designed to identify the "time", "direction" and "form" of augmented feedback (Fishman, 1974).

Substantive Dimension of Augmented Feedback. A dimension designed to identify the "intent", "general referent", and "specific referent" of augmented feedback (Fishman, 1974).

Cumulative Frequency Recording. Simple tally marks added together to show how many times a given interaction or target behavior occurs (Borg and Gall, 1983).

Event Recording. A frequency count of the interactions or behaviors as they occur (Darst, Mancini and Zakrajsek, 1983).

Motor Skill. Muscular movement of the body required for the successful execution of a desired act (Singer, 1980).

Systematic Observation. A descriptive technique which allows a trained observer following stated guidelines and procedures to observe, record and analyze specific interactions or behaviors (Darst, Mancini and Zakrajsek, 1983).

Functional Definitions

Adapted Physical Education Laboratory Class. An on-campus laboratory practicum in which an intact class of preservice undergraduate physical education majors works directly with multiply handicapped children.

Laboratory Teaching Episodes. Two 50-minute teaching sessions per week, thirteen weeks per semester.

Preservice Physical Education Majors. Undergraduate physical education majors who had no formal teaching experience in the public or private school sector.

Systematic Observation Training Program. Specific to this study, a series of three training sessions designed to introduce the subjects to the structure of teacher feedback and its relationship to motor learning, a method of systematic observation and interpretation of their own feedback behaviors, and the conditional environment affecting teacher/learner outcomes.

Research Design

A variation of the multiple-baseline design across individuals (Kazdin, 1982) was utilized to note treatment effects among subjects. Baseline data (minimum of three data points) were gathered regarding the frequency and nature of feedback behavior exhibited by the subjects during teaching. Four multiple baselines were utilized. The treatments, three systematic observation training phases, were applied to one subject at a time. The time of treatment application was staggered throughout the course of study. During the treatment intervention for Subject A, baseline data was continued for all other subjects. If baseline behavior was reasonably stable, the treatment was extended subsequently to Subject B and at estimated scheduled intervals. If baseline behaviors were reasonably stable, treatment was extended to Subject C at estimated scheduled intervals. Subject D did not receive treatment during the study.

Treatment effect was demonstrated when a notable change was observed in a subject's performance at the point or soon after introduction of the treatment. A recurrence of this behavioral change trend across experimental subjects regardless of standardized treatment initiation time was purported to lend credence to the link between treatment and the behavior change noted.

Statistical Analysis

Graphical and descriptive analyses were conducted on the data. Due to the intensive, repeated measures component of the study's design, changes in the dependent variable were evidenced visually and did not warrant statistical analysis (Kazdin, 1982; McBride, 1984). Frequencies and percentages of observed behaviors were the summary statistics of choice and are presented to complement the visual representation of the data.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to offer a review of the literature which appears relevant to the present study. The review consists of three major sections. The first section discusses research on the relationship between augmented feedback and how it relates to motor skill acquisition and effective teaching. Augmented feedback research in relation to teacher training and modification of teaching in clinical-field based settings are the focus of the second section of this chapter. Systematic observation instrumentation and its implications for teacher training are also discussed in this section. The third section reviews augmented feedback research conducted in adapted physical education.

Augmented Feedback and Its Relation to Motor Skill Acquisition and Effective Teaching

The importance of feedback is well substantiated in the literature. A broad spectrum of research supports the proposition that feedback is essential to motor performance, and that during skill acquisition, improvement in

performance is dependent upon teacher feedback (Fishman, 1974). This specific teacher behavior has been identified as one of the most, if not the most, powerful determinants affecting the rate and amount of motor learning, and student performance in motor skill acquisition (Bilodeau and Bilodeau, 1961; Imwold, 1984). Fishman (1974) stated, "Studies of feedback show it to be the strongest, most important variable controlling performance and learning" (p. 23). Feedback information may serve as a source of instruction, motivation, or reinforcement, and may be reflected in information inherent within the motor task itself (intrinsic feedback), or information provided by an external source (augmented feedback) (Fishman, 1974; Tobey, 1974).

Feedback is a requisite condition to improving motor performance, and can be an important variable accounting for the differences in motor performance the teacher can produce within the student (Pieron, 1979). Gentile (1972) emphasized the importance and necessity of feedback when teaching learners to recognize the correctness of their motor responses both in terms of the movement itself, and the subsequent results of the movement.

Tobey (1974) observed that augmented feedback is a frequently used and crucial teaching variable, highly influential in the teaching of movement skills. Within the teaching population sampled, teachers who made no conscious

effort to vary feedback continued to visably affect their students' movement patterns.

> It would seem that for so crucial a teaching variable as augmented feedback, a conscious effort could be made by teachers to give the most efficient kind of feedback for a particular class, situation and skill (p. 113).

Prompt, accurate, unambiguous performance feedback which is specific and directly linked to student achievement of motor skills is an extremely potent teaching behavior that can be directly attributed to teacher success in motor skill instruction (Kounin, 1977; Placek and Locke, 1986). In examining the processes of teaching, Rink (1985) stated that providing appropriate feedback is one of the most significant functions of teacher behavior, and that "... feedback is an absolutely essential ingredient for learning" (p. 241). The precision of feedback statements greatly affects the rate of improved motor performance, yet teacher use of feedback is not extensive (Fishman, 1974). Feedback statements tend to remain general, lacking description of prescriptive information, usually correcting or nagging students, and may often number as few as 30-45 statements during a 30 minute class (Placek and Locke, 1986).

Teacher behavior in the form of supportive, timely and specific feedback and praise enables teachers to be more effective and promote higher performance among students (Metzler, 1986). However, Rink (1985) noted it is perhaps

the single teaching behavior that continues to most tax the teacher's knowledge and observational skill.

Augmented Feedback Research in Relation to Teacher Training and Modification of Teaching in a Clinical Field-Based Setting

Systematic Observation of Teaching Behavior

Paese (1982) observed that prior to the early 1970's, data on specific physical education teacher behaviors and their effect on student performance was sparse or nonexistent. The education of preservice teachers and inservice teachers was based on successful teaching hints that worked for experienced instructors, or management/ teaching techniques that kept students quiet or orderly during physical education class.

Early attempts to describe these teaching-learning processes relied predominately on general checklists, rating scales, anecdotal write-ups or simple visual observations. These methods often lacked reliability and objectivity, and resulted in very general, global descriptions of teaching which gave teachers limited information about specific or effective techniques of instruction (Darst, Mancini and Zakrajsek, 1983).

Procedures for systematically describing, classifying and recording physical education teacher and student behaviors were subsequently developed to enable one or more observers to gather valid and reliable measures of these behaviors within different settings, or within the same setting under different conditions (Fishman, 1974). Event recording (events recorded as frequencies or tally marks), duration recording (recording amounts of time), and time sampling (observations at different time intervals) enabled observers to code objectively the variable of choice.

> Systematic observation allows a trained person following stated guidelines and procedures to observe, record, and analyze interactions with the assurance that others viewing the same sequence of events would agree with his recorded data (Darst, Mancini and Zakrajsek, 1983, P. 6).

Early researchers found descriptive, analytic studies in physical education settings very difficult to conduct because the majority of observation systems were designed to measure verbal communication within the classroom. Few instruments were designed to code behaviors of teachers or students involved in movement or activity (Tobey, 1974). Serious attention to the development of systematic observation instruments for use in physical education settings began in earnest in the early 1970's (Flanders, 1965; Anderson, 1971; Siedentop, 1972; Fishman, 1974) and "... has probably contributed more information about teaching and possible solutions to teacher-preparation

problems than any other one development" (Darst, Mancini and Zakrajsek, 1983, p. 6).

The unique contribution of systematic behavioral analysis has not gone unnoticed by teacher-preparation programs. By isolating a set of behaviors which could be targeted for improvement, systematic observation instruments provided direct information to preservice teachers and student teachers in the field. The information garnered helped assess improvement in student teachers, and informed inservice teachers as to actual occurrences within the gymnasium (Paese, 1982). Siedentop (1981) observed that the importance of the systematic observation instrument was well substantiated. Data acquired through the use of these instruments indicated that preservice physical education teachers could indeed acquire new behaviors and change their patterns of instruction.

Metzler (1986) advocated early and repeated use of systematic analysis by preservice teachers. He purported that students should actively view their own teaching behaviors while understanding the theoretical and practical basis which support effective teaching techniques.

> Systematic analysis, used to provide teachers with data on the efficacy of instructional strategies in the gym, can be the critical link between preservice skills and the continued use of those skills in the induction years and beyond (p. 32).

Observing and measuring selected teaching skills with descriptive, systematic observation techniques enabled

preservice teachers to focus on the observable processes of teaching within an objective frame of reference. Cheffers (1977) strongly espoused the need for scientific study of the teaching act. He proposed detailed systematic recording of the teaching behaviors in question.

Feedback Behavior Observation

Acknowledging the strong relationship between augmented feedback and motor skill learning, Fishman (1974) developed a systematic observation instrument which analyzed feedback statements based on a procedure for classifying discrete items of augmented feedback observed from video-taped physical education classes. Operationally defining feedback as:

> a teaching behavior dependent upon the verbal or motor response of one or more students and intended to provide information related to the acquisition or performance of a motor skill (p. 62).

Fishman developed a final recording instrument. This coding instrument contained a hierarchical arrangement of classes and sub-classes of augmented feedback. The two major "classes" reflected the manner in which feedback could be delivered (methodological) and the nature or focus of such feedback (substantive). The methodological class or dimension was broken down into subclasses or categories of time, direction and form. The substantive dimension was categorized in terms of teacher intent, general referent

and specific referent of augmented feedback. Within these main categories, twenty-one sub-categories were identified. (See Figure 1.)

Experts in the field of motor learning and descriptive research confirmed the content validity of this instrument (Fishman, 1974). Objectivity of the instrument was determined by analyzing the agreement between two or more independent observers recording behaviors from video-taped lessons. Reliability of the instrument was determined by the extent observers recorded the same behavior consistently over time. A mean of 92 percent self-agreement was achieved by four recorders analyzing sixty units of feedback. A "unit" of feedback was defined as:

> a discrete teaching act identified by a behavior in one sub-category of each category in the methodological dimension, and a behavior in one sub-category of each category, with the exception of the Specific Referent, in the substantive dimension (p. 106).

Cole (1979) modified Fishman's Augmented Feedback Observation Instrument (FAFOI) (1974) and systematically observed the teacher augmented feedback exhibited by three teachers to thirty-three golfing students in three separate university classes. Randomly selecting five observation sessions between the third and eighth week of the semester, Cole videotaped one male and two female teachers during classes which were taught using normal teaching procedures. The lessons were analyzed utilizing frequency tabulation of

1. FORM
   a. auditory-feedback provided orally
   b. auditory tactile-feedback provided orally and with manual assistance
   c. auditory visual-feedback provided orally and by teacher demonstration
   d. visual-feedback provided visually only
   e. tactile-feedback provided with manual assistance only
2. DIRECTION
   a. single student-feedback directed to only one student
   b. group-feedback directed to more than one, but less than all students
   c. all-feedback directed to entire class
3. TIME
   a. concurrent-feedback provided during the performance of the skill
   b. terminal-feedback provided after the performance of the skill
4. INTENT
   a. evaluative-provides an appraisal of the performance
   b. descriptive-provided an account of th performance
   c. comparative-provides an anology related to the performance
   d. explicative-provides an interpretation or explanation of the performance
   e. prescriptive-provides instructions for the subsequent performance of the skill
   f. affective-provides a attitudinal or motivational set toward the performance. Can be positive or negative.
5. GENERAL REFERENT
   a. whole-feedback provided about the multiple components in the performance of the skill
   b. part-feedback provided about one component other than the outcome of the performance of the skill
   c. outcome-feedback provided about the result of the performance of the skill
6. SPECIFIC REFERENT
   a. rate-feedback provided about the time or duration of the movement involved in the performance
   b. force-feedback provided about the strength or power expended in the performance
   c. space-feedback provided about the direction, level or magnitude of the movement involved in the performance

Source: Fishman, 1974.

Figure 1. Fishman's Augmented Feedback Scale -- Category Definitions

the video-taped Cole-DAS data. Results of the analysis showed that teacher feedback was predominately auditory, was delivered after the motor skill was performed, was corrective in nature and generally referred to the whole movement with specific reference to space.

Describing and analyzing feedback units in natural sport settings, Arena (1979) examined teaching cue relevancy during feedback behavior. The Feedback Cycle Descriptive System (FCDS) was developed from behavioral categories selected from both the Flanders Interaction Analysis System (FIAS) (Flanders, 1965), and Tobey's (1974) modification of the FAFOI (Fishman, 1974).

Randomly selecting thirty swimming and tennis teachers from both urban and rural settings, Arena (1979) coded teacher feedback utilizing event recording. In the sixty classes observed, teachers gave 2,182 instances of augmented feedback at a rate of approximately one statement per minute. Affective feedback directed toward individual students was the most prevalant form of feedback offered with knowledge of results referent a high percentage of follow-up feedback. Nearly half of the initial feedback statements were not cue relevant. Only one-third of the initial augmented feedback was succeeded by additional follow-up feedback behavior, and only three-quarters of these follow-up statements reflected cue relevant statements. The FCDS was subsequently used as an

intervention with three student teachers. Upon completion of the intervention these preservice teachers showed a significant increase in the rate of augmented feedback, with cue relevant feedback statements increasing for both initial feedback and follow-up feedback statements.

Arena (1979) concluded that teacher feedback related highly with the type of teaching cues given during instruction about one-half the time. It was also noted that teachers usually did not give students feedback about uncorrected errors in motor performance. Arena also concluded that student teachers could be taught to give more cue relevant and error correction feedback, and that the type of augmented feedback utilized by teachers could be changed or modified.

Using a modified form of the FAFOI (Fishman, 1974), Tobey (1974) described and analyzed the occurrences of augmented feedback in eighty-one physical education classes. Video-taping both elementary and secondary physical education classes in three northeastern states, Tobey compared frequencies and percentages of occurrences of teacher augmented feedback in an attempt to find relationships between categories and sub-categories of feedback, biographical and environmental data.

Frequency tabulations indicated that augmented feedback occurred on an average of 54 times per class for each of the eighty-one physical education classes (Tobey, 1974).

Occurrences within classes ranged from a low of one occurrence to a high of 297 statements. Nearly 95% of the feedback delivered was auditory in nature. Seventy-seven percent of the feedback was directed toward a single student. The whole movement rather than a specific referent was referred to by the teachers in 93% of the total feedback statements. The emphasis on time of delivery of feedback was found to be split equally between concurrent (49%) and terminal (49%) statements. Percentage breakdowns of the total number of substantive feedback statements were as follows: evaluative (53%), prescriptive (40%), positive (42%) and negative feedback (56%). Ninety-three percent of the feedback exhibited referred to no aspect of movement. Of the 7% directed toward some aspect of the movement, 59% was directed to the whole movement and 34% referred to part of the movement. Feedback was observed to occur more frequently in smaller classes and offered more readily at the elementary school level. Experienced teachers tended to give more feedback statements, and these statements occurred more frequently in dual sports and games instruction rather than in the instruction of team sport activities.

Tobey (1974) noted that some feedback statements tended to occur in combinations with each other more often than other sub-categories. Delayed feedback statements were often combined with positive, affective statements.

Feedback was often directed toward the whole class but lacked a specific referent. Concurrent feedback given with a specific referent toward space appeared together proportionally more often than other sub-categories. Prescriptive feedback was often negative, with an emphasis on auditory visual and auditory-tactile feedback. Tobey also noted that feedback usage was influenced by practical limitations within the physical education class rather than by any proposed theoretical explanation, i.e., the context of the lesson, level of the student, and experiential demography of the teacher.

Focusing on instruction in a outdooor environment, Cashel and Gangstead (1987) investigated the use of augmented feedback by two experienced kayak instructors. One male and one female instructor were videotaped while team teaching seven students during a three-day pre-whitewater experience. The FAFOI (Fishman, 1974) was used to note frequencies of feedback exhibited by the two instructors as they taught six different instructional units. Results of the analysis showed both instructors utilized predominately auditory feedback (83%), and directed their statements toward individual students (99..5%) after the skill had been attempted (77%). Statements were positive in nature with equal emphasis placed on evaluative, prescriptive and affective feedback. Attention was equally divided between referents to whole and parts of movement.

Such proportionate rates of feedback found within the methodological and substantive dimensions of teacher feedback may have been due to the experience of the instructors and/or the small number of students involved. Each instructor delivered approximately five feedback statements per minute. Cashel and Gangstead (1987) concluded that the use of systematic observation and analysis facilitated the notation of trends across teaching episodes and instructors, and was therefore found effective in describing teacher feedback behaviors.

In an investigation of a chacteristic of teacher behavior defined as "feedback diversity", Harrington (1974) divided four physical education teachers into two groups. Each group observed five teachers instructing three consecutive classes ranging in grades six through nine. Utilizing the Feedback Diversity Classification System (FDCS) (Harrington, 1974) teacher feedback was categorized in the following areas: (1) purpose (intent), (2) process (content) and (3) mode (form). Harrington noted that teachers most frequently perceived and categorized student performance as a process of refinement or patterning movement (content). The teacher's observed intent in providing feedback was prescriptive in nature and most often verbal in form.

Imwold (1984) chose feedback behavior as the focal point of a study involving physical education majors

enrolled in a teaching methodology course. The investigation examined the use of videotaped microteaching lessons as a means of affecting feedback behaviors of preservice physical education teachers. Imwold specifically investigated; 1) the level of feedback behavior the subjects would give during an initial teaching experience, and 2) what changes in feedback behavior would occur in the second teaching session after the subjects received information concerning their feedback behavior during the previous teaching experience. Imwold randomly assigned the twenty-eight physical education majors who comprised his teaching methodology class into experimental and control groups. Mosston's Practice Style (Mosston, 1981) was selected as the teaching method to be used by each subject. After the subjects received general information about the practice style through lecture, videotaped examples and Mosston's text, each selected a motor skill and designed two five-minute lessons to be videotaped and live-coded. Following the first teaching session, each subject received immediate debriefing information from the investigator regarding the observation and was allowed to view his/her teaching performance from the videotaped lesson with comments. Following the second teaching session, the subjects received specific debriefings from the investigator using a different instrument which primarily focused on feedback behavior. Such information reflected the number of

times the subject gave private feedback to students, the number of feedback contacts with a student, and the length of each feedback contact.

Imwold (1984) indicated that analysis revealed the number of feedback contacts did increase from the first teaching session to the second teaching session, and that the average number of repeat contacts and the average length of the feedback contacts increased across both sessions. The results of this investigation led Imwold to conclude that feedback behaviors of preservice physical education majors involved in videotaped microteaching sessions would indeed change as a result of instructional practice and guided observation of their own teaching behaviors.

Graham, Soares, and Harrington (1983) selected two process variables, teacher feedback behavior and student time utilization, to analyze differences in the teaching performances of eleven "more effective" and "less effective teachers". Five female and three male elementary specialists volunteered to teach an "ETU" (experimental teaching unit) lesson to an entire class of fourth and/or fifth grade students. The teachers were classified into "more" and "less" effective based on mean scores on pretest scores of teaching product variables. An "experimental teaching unit" was defined as a brief series of ten lessons on a topic of interest to students within that grade level. All teachers used the same content, novel motor skill,

performance objectives, unit goals, pretest and posttest questions and instructional materials.

The teachers were videotaped and their lessons analyzed by three trained observers utilizing a duration recording system (Siedentop, 1976) which analyzed the teachers' use of time within the lesson. Results of the study indicated that more effective teachers involved their students in activity more often than less effective teachers. Feedback data were gathered using the Intent portion of the Harrington's (1974) FDCS. Although no significant differences in the amount or type of feedback delivered by effective and less effective teachers were found in this investigation, results indicated that the more effective teachers provided slightly less feedback than the less effective teachers. The predominant type of feedback used by teachers in this study was affective feedback, i.e., feedback which was supportive or negative in tone. The affective feedback was essentially unrelated to motor perfomance.

In an effort to compare most and least effective teachers on a selected group of behaviors in a natural physical education setting, Phillips and Carlisle (1983) obtained teacher behavior data from 18 experienced elementary and secondary physical education teachers. Using a personally preferred style of teaching, each teacher taught a 10-minute lesson covering five specific skills in a beginning volleyball unit. Children in grades five through

eight (N=44) received instruction from the teachers chosen as subjects for the study. The Physical Education Teaching Assessment Instrument (PETAI) (Phillips and Carlisle, 1983) was used because it was specifically developed to measure alterable behaviors which were observable in physical education classes. The PETAI contains behavioral categories which analyze student needs, provide data for teacher behaviors, teacher management time, student allocated skill learning time, and student achievement. The second grouping of teacher behavior subcategories of the PETAI covered various aspects of positive and negative performance related feedback.

Data for the teacher behaviors were obtained from videotaped recordings and recorded as percentage of total time designated for each class session. Each class was videotaped two times during the sixth, seventh, eighth or ninth day of the unit. Comparisons were made between the most and least effective teacher groups for each of the teacher and student behaviors. Teacher effectiveness was calculated by means of mean achievement gain on student achievement scores on the five-item volleyball skills test. The two groups of teachers were categorized as most effective and least effective based on the improvement of their students on this skills test after the 10 lessons were completed.

Results of the study revealed distinct differences between the two teaching groups with significant differences favoring the most effective teacher group who gave positive performance feedback. The effective teachers also gave more negative performance related feedback than the less effective teacher. The teachers ability to give performance feedback did make a difference and contributed to the student's motor achievement.

Augmented Feedback Research and Adapted Physical Education

A paucity of research exists investigating the type, form and amount of augmented feedback teaching behavior in adapted physical education. The empirical research which has been conducted has been primarily product-oriented research analyzing the effect of various forms of reinforcement (often in the form of bells, tokens, treats, etc.) on the motor skill performance of special populations. Very little research has been conducted on augmented feedback and teacher behavior as it relates to motor performance of special populations.

Utilizing the methodological and substantive categories of the Modified Augmented Feedback System (MAFS), Sipp (1983) investigated whether adapted physical education specialists provided specialized feedback messages to trainable mentally retarded learners in a physical education

setting. Ten specialists and ten generalists in physical education, matched on gender and teacher experience, presented a twenty-five minute standing long-jump microlesson to three randomly assigned TMR learners. Two trained observers coded twenty videotaped lessons. No significant difference between the teaching behaviors of the two groups of teachers was revealed. Augmented feedback was given regularly by both groups. Analysis of the data revealed such feedback was most frequently evaluative and generally positive in nature. It most frequently focused on spatial aspects of performance and was outcome related. Most feedback statements appeared to be motivationally oriented in intent and directed towards a single student. On a comparative basis, however, the generalist physical education teacher provided a greater percentage of auditory-visual and auditory-tactile feedback than the specialists, but a multivariate F-test failed to indicate a significant difference.

Summary

Researchers have identified teacher feedback as one of the most powerful determinants affecting the rate and amount of motor learning and student performance in motor skill acquisition (Bilodeau and Bilodeau, 1961; Gentile, 1972; Tobey, 1974; Pieron, 1979; Imwold, 1984; Placek and Locke, 1986). While investigators view timely, supportive and

specific feedback as an extremely potent teaching behavior (Kounin, 1977; Placek and Locke, 1986), it remains relatively unused by teachers (Rink, 1985).

In their efforts to isolate specific teaching behaviors early researchers found descriptive studies in physical education settings difficult to conduct due to the lack of systematic observation systems designed for activity settings (Tobey, 1974). Serious attention to instruments designed specifically for use in physical education settings began in the late 1960's and early 1970's (Flanders, 1965; Anderson, 1971: Siedentop, 1972; Fishman, 1974).

These instruments did effectively lend themselves to the investigations of feedback behaviors among physical education teachers, particularly to those investigations focusing on "augmented feedback" behaviors which were dependent upon the verbal or motor response of the students. Results of several feedback studies indicated verbal feedback was used predominately (Harrington, 1974; Tobey, 1974; Arena, 1979; Cole, 1979; Sipp, 1983; and Cashel and Gangstead, 1987). Teacher feedback statements were most often directed toward a single student (Tobey, 1974; Arena, 1979; Pieron, 1979; Sipp, 1983; and Cashel and Gangstead, 1987). Feedback generally tended to be evaluative and prescriptive in intent (Harrington, 1974; Tobey, 1974; Cole, 1979; Sipp, 1983; and Cashel and Gangstead, 1987) with attention focused on the

whole movement (Tobey, 1974; Cole, 1979). Feedback tended to be affective in nature (Arena, 1979; Graham, Soares and Harrington, 1983; Sipp, 1983) and delivered after the motor skill had already been performed (Cole, 1979; Sipp, 1983; and Cashel and Gangstead, 1987).

A few studies conducted indicated that teacher feedback rates could be increased through intervention (Arena, 1979; Cole, 1979; Imwold, 1984). These studies tended to support the supposition that teacher behavior can be changed or modified through use of systematic observation.

Very little research has been done on teacher behavior and augmented feedback as it relates to motor aquisition or motor performance of special populations.

CHAPTER III

PROCEDURES

The procedures utilized in this study are described in this chapter. The chapter is categorized into two sections: preliminary and operational procedures. Preliminary procedures consist of discussion regarding the selection of subjects and instrumentation. Operational procedures include application of the instrument and data collection.

Preliminary Procedures

Subject Selection

After permission to conduct this study was granted by the Oklahoma State University Institutional Review Board, four subjects were randomly selected from the Adapted Physical Education Class, P.E. 4793 during spring semester, 1988.

The subjects were undergraduate physical education majors in the School of Health, Physical Education and Leisure Science, Oklahoma State University. This sample represented subjects with no formal teaching experience. The subjects received no academic credit for participation in the study. Subjects' participation in the study did not

influence the grading procudure utilized in their final grade calculation.

Subjects were selected randomly from the laboratory class assigned to teach the physically and mentally handicapped children from the Stillwater Exceptional Child Center, Stillwater, Oklahoma. Random selection without replacement was accomplished by assigning each student in the class a number. Each number was placed on a card, and the cards were randomly drawn. Selected subjects were then randomly assigned to treatment initiation times utilizing the same card method. Informed consent was obtained from the subjects prior to study initiation. (See Appendix B.) The exceptional children selected for the subjects' instructional sessions were divided into groups of two to three individuals. No profoundly handicapped children were selected. The context of the lessons required motor skill development with some proficiency in basic motor tasks. While the children selected were not actual subjects of the investigation, they did appear occasionally on the videotaped lessons. Permission for the children to participate and to be filmed was obtained from all parents. (See Appendix C.)

Instrumentation

Data analysis was conducted utilizing event recording (Siedentop, 1976). This systematic observation process

provided an observational framework by which the investigator recorded discrete teaching behaviors (augmented feedback) exhibited by the subjects within a specified time in each training episode. It also provided a format for cumulative frequency recording of feedback behavior across teaching episodes and facilitated data comparison between subjects.

A total of 48 teaching episodes (4 subjects taught 12 episodes each) were analyzed by the investigator. (See Appendix D for specific lesson topic covered by each subject.) The investigator was not aware which subjects had undergone treatment, or at which point in time during the study the treatment was administered individually to each experimental subject.

The Fishman Augmented Feedback Observation Instrument (FAFOI) (Fishman, 1974) was used to classify, code and subsequently describe feedback behavior exhibited by the subjects. Each feedback behavior observed by the investigator during videotape analysis was coded under appropriate sub-categories of each dimension designated of interest to this study and used to describe the feedback behavior. These dimensions were methodological and substantive in nature: Form, Direction, Time, Intent, General Referent and Specific Referent. Functional definitions of these dimensions via subcategory definitions are indicated in Figure 2. Figure 3 illustrates the actual

recording format utilized during observation of the teaching episodes. Simple tally marks under each dimension for each feedback statement observed was the recording method of choice.

Objectivity and reliability of the FAFOI have been established. A mean of 90% complete agreement was noted between two indepndent observers by Fishman (1974) during objectivity analysis. The reliability of the FAFOI was determined by analyzing the extent to which observers recorded the same behavior consistently over time. A mean of 92% self-agreement overall was reported achieved by four observers independently recording 60 units of feedback.

In the present study, a check for interobserver agreement (IOA) was made randomly during the 1st, 3rd, 4th and 6th week of videotaped instruction during the analysis phase of the investigation. A trained independent observer randomly chose a 20-minute lesson from one of the four subjects recorded within the times specified, and recorded observations utilizing the FAFOI instrumentation. The investigator then calculated the percentage of IOA agreement by comparing the frequencies observed in actual observation with that of the independent observer. Percentage of IOA agreement was determined by dividing the agreements by the sum of agreements and disagreements and then multiplying by 100 (Rink, 1985). A minimum of 85%

1. FORM
   a. auditory-feedback provided orally
   b. auditory tactile-feedback provided orally and with manual assistance
   c. auditory visual-feedback provided orally and by teacher demonstration
   d. visual-feedback provided visually only
   e. tactile-feedback provided with manual assistance only
2. DIRECTION
   a. single student-feedback directed to only one student
   b. group-feedback directed to more than one, but less than all students
   c. all-feedback directed to entire class
3. TIME
   a. concurrent-feedback provided during the performance of the skill
   b. terminal-feedback provided after the performance of the skill
4. INTENT
   a. evaluative-provides an appraisal of the performance
   b. descriptive-provided an account of th performance
   c. comparative-provides an anology related to the performance
   d. explicative-provides an interpretation or explanation of the performance
   e. prescriptive-provides instructions for the subsequent performance of the skill
   f. affective-provides a attitudinal or motivational set toward the performance. Can be positive or negative.
5. GENERAL REFERENT
   a. whole-feedback provided about the multiple components in the performance of the skill
   b. part-feedback provided about one component other than the outcome of the performance of the skill
   c. outcome-feedback provided about the result of the performance of the skill
6. SPECIFIC REFERENT
   a. rate-feedback provided about the time or duration of the movement involved in the performance
   b. force-feedback provided about the strength or power expended in the performance
   c. space-feedback provided about the direction, level or magnitude of the movement involved in the performance

Source: Fishman, 1974.

Figure 2. Fishman's Augmented Feedback Scale -- Category Definitions

FORM
- Auditory
- Aud-Tactile
- Aud-Visual

DIRECTION
- 1 Student
- Group
- All

TIME
- Concurrent
- Terminal

INTENT
- Eval
- Des
- Compar
- Explic
- Prescr
- Affect +
  -

GENERAL REFERENT
- Whole
- Part
- Outcome

SPECIFIC REFERENT
- Rate
- Force
- Space

Figure 3. Recording Sheet

agreement was demonstrated for each subject observed prior to further analysis being conducted by the investigator.

Operational Procedures

Data Collection

All four subjects (three experimental and one control) were videotaped individually, working with their respective students in twelve separate teaching episodes. These episodes occurred as part of the regularly scheduled laboratory sessions conducted as part of the Oklahoma State University Adapted Physical Education course, P.E. 4793. Regular Laboratory sessions met twice weekly and were fifty minutes in duration. Within each lesson, the subjects were instructed to address at least two basic locomotor skills, a basic manipulative skill, and a perceptual motor task. No other curricular guidelines were imposed. The students were free to choose the skills they wished to emphasize. There were no requirements on teaching areas (inside or outside) and they were free to move between teaching areas. (See Appendix D.)

Teaching behaviors of individual subjects were sampled during each teaching episode by videotaping twenty minutes of each laboratory session. Two cameras were recording concurrently two of the four subjects during the first half of each session and two subjects during the second one/half

of each session. Subjects' recording time were alternated each session to control for possible order effects across episodes.

Treatment

Treatment consisted of three progressive treatment phases. (See Figure 4.) All four subjects taught three lessons, which established a baseline of behavior noted by the investigator, and described the current level of augmented feedback behavior exhibited by each subject. After such behavior was observed to be stabilized for each subject, treatment in the form of Phase 1 was applied to Subject A while the baselines continued for the other subjects. A subsequent lesson was taught by Subject A followed by immediate treatment in the form of Phase 2. The second lesson during treatment was taught by Subject A followed by treatment in the form of Phase 3. A third lesson was subsequently taught by Subject A. When feedback behavior appeared to stabilize for Subject A, the treatment was then extended to Subject B. When Subject B completed all treatment phases, treatment was then extended to Subject C. This process resulted in a staggered treatment schedule and continued until all of the experimental subjects received the treatment. Treatment was administered by an independent trained pedagogist. The investigator was aware of the specific treatment schedule only after completion of data collection.

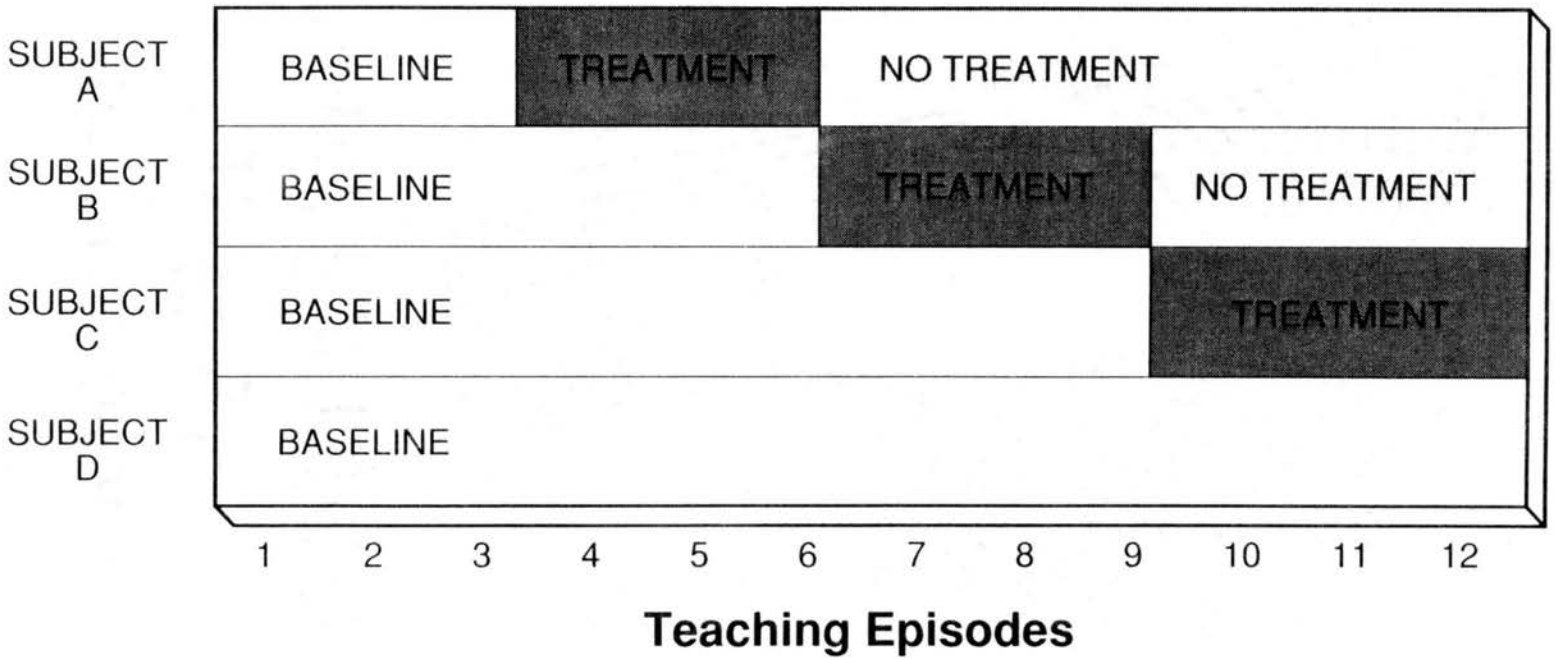

Figure 4. Progressive Treatment Phases

Treatment Phase 1. Individually, the experimental subject observed a 20-minute videotape of him/herself teaching their students in the Adapted Physical Education Lab setting. Simple observation of general teaching behaviors was recorded in anecdotal form by the subject. The general format of the anecdotal write-up was in the form of brief notes or specific observations of interest to the subject. After the tape was viewed, the subject was interviewed by the treatment instructor utilizing an individualized interview protocol in the form of questions pertaining to behaviors viewed. Following viewing and interview, the treatment instructor provided the subject with general information regarding augmented feedback in brief lecture form. (See Appendix A.)

Treatment Phase 2. Individually, the experimental subject observed him/herself teaching a second 20-minute videotaped lesson. The segment viewed was the most recent lesson taught. Explanation of the methodological component of the FAFOI (Fishman, 1974) and instruction on recording feedback behaviors observed within the categories of Form, Direction, Time and General/Specific Referents was completed. After instruction, the subject systematically observed a ten-minute segment of his/her lesson and recorded behaviors within those categories. The treatment instructor then reviewed with the subject his/her observations. This procedure insured accuracy of recording. (See Appendix A.)

Treatment Phase 3. Individually, the experimental subject observed him/herself teaching a third and final 20-minute videotaped lesson. The segment viewed was the most recent lesson taught. The subject received final instruction from the treatment instructor on the substantive component of the FAFOI (Fishman, 1974). After instruction, the subject observed a ten-minute segment of his/her lesson and recorded behaviors within this category. The treatment instructor then reviewed the subject's observations to insure accuracy of recording. (See Appendix A.)

CHAPTER IV

ANALYSIS OF DATA

In the preceeding chapter, the procedures for data collection and methods of data analyses were described. This chapter has been organized to facilitate discussion of the statistical data relative to the previously stated hypotheses. The following sections are included in this chapter: (a) analysis of the data according to the hypotheses; (b) analysis of the data by subject; and (c) discussion.

Three hypotheses were evaluated in this investigation. Decisions to accept or reject stated hypotheses were based upon basic multiple-baseline, treatment across subjects rationale (Kazdin, 1982). That is, when the behavior exhibited during the initial observations of each subject stabilized, treatment was introduced to one subject while the baseline continued for the other subjects. If changes were noted in the behavior of the subject receiving the treatment while the same behavioral patterns of the other subjects remained constant and continued throughout baseline, the effect of the treatment would be demonstrated. The decision to accept or reject the specified hypotheses was then based upon whether demonstrated treatment effect

continued across subjects. Further evidence for a notable treatment effect would be established if subjects' behavior returned to baseline patterns as a result of cessation of treatment.

Analysis of the Data According to the Hypotheses

Hypothesis 1

It was hypothesized that there would be no observable change in the rate of augmented feedback behavior emitted by preservice physical education majors as a result of experience with a systematic observational training program. Mean feedback rates per minute for each phase of the investigation across subjects are reported in Table I.

TABLE I

MEAN FEEDBACK RATES PER MINUTE BY PHASE

Subject	Baseline	Treatment	No Treatment
A	2.2	4.2	3.8
B	2.1	3.0	3.3
C	2.8	3.3	
D	2.6		
	$\bar{X}$ 2.45	$\bar{X}$ 3.43	$\bar{X}$ 3.58

Graphical representation of episodic rates per minute for each episode are presented in Figure 5. Analyses of the baseline data revealed that the mean rate of feedback emitted by the subjects was 2.45 statements per minute, approximately one statement every 24 seconds. During the treatment phase of this investigation, rates of feedback increased to an mean of 3.43 statements per minute, approximately one statement every 17 seconds. An examination of episodic feedback rates during baseline treatment, and treatment cessation phases revealed changes in the rates of feedback behavior emitted by subjects (Table II). Therefore, the first hypothesis was rejected, and it was concluded that there was observable treatment effect regarding rate of augmented feedback emitted by subjects.

Hypothesis 2

It was hypothesized that there would be no observable change in the method utilized by subjects to deliver augmented feedback to students as a result of experience with a systematic observational training program. Mean percentages were calculated to determine emphasis demonstrated by subjects within each subcategory of interest.

Mean percentages of feedback emitted by each subject in each phase reported in Table III for comparative purposes. Examination of these mean percentages revealed various

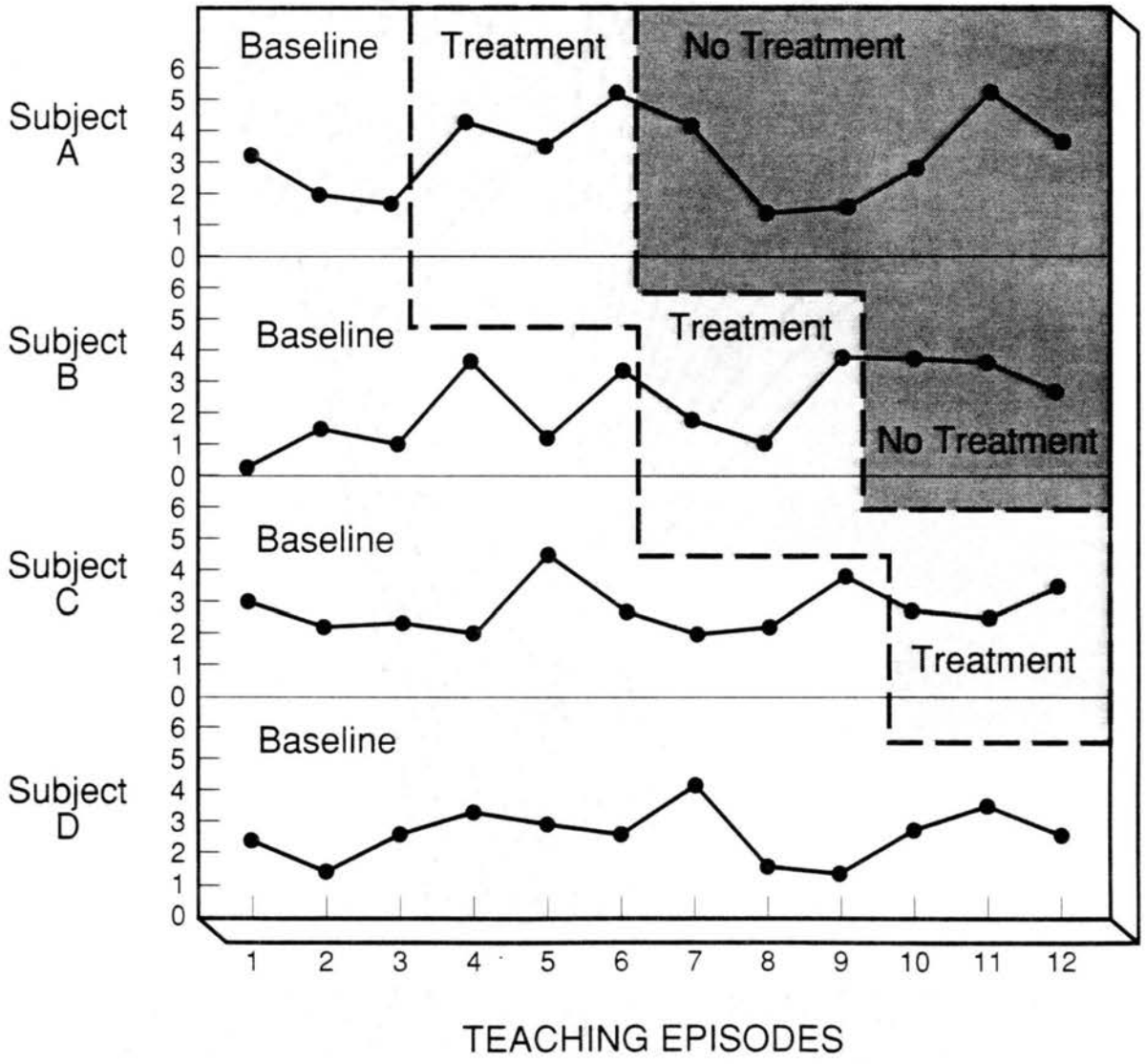

Figure 5. Episodic Feedback Rates Per Minute by Subject

specific changes in the methodology of the subjects' feedback delivery during the treatment phase of this investigation. Therefore the second hypothesis was rejected. Specific aspects of these changes are discussed in the subject-by-subject analysis later in this chapter.

TABLE II

EPISODIC FEEDBACK RATES PER MINUTE

Observation	Subject A	Subject B	Subject C	Subject D
1	3.2	.7	3.0	2.5
2	1.9	1.7	2.2	1.7
3	1.6	1.2	2.3	2.9
4	4.2	3.8	2.2	3.2
5	3.5	2.1	4.6	3.0
6	5.1	3.3	2.6	2.8
7	4.2	2.9	2.0	4.1
8	2.4	2.3	2.1	1.8
9	2.8	3.8	4.0	1.7
10	3.6	3.8	2.9	2.7
11	5.4	3.5	2.6	3.1
12	4.0	2.6	3.6	2.6

TABLE III

QUALITATIVE ANALYSIS ACROSS SUBJECTS WITHIN THE METHODOLOGICAL DIMENSION OF THE FAFOI

	Baseline					Treatment				No Treatment		
	A[1]%	B%	C%	D%	$\bar{X}$%	A%	B%	C%	$\bar{X}$%	A%	B%	$\bar{X}$%
FORM												
Auditory	91	70	73	71	76	63	72	46	60	67	41	54
Aud-Tactile	0	7	17	16	11	5	6	45	19	14	47	30
Aud-Visual	9	23	9	13	14	32	22	9	21	19	12	15
DIRECTION												
Student	88	95	99	99	95	92	95	100	96	100	100	100
Group	0	0	0	1	0	1	0	0	0	0	0	0
All	11	5	0	0	4	7	5	0	4	0	0	0
TIME												
Concurrent	43	24	26	35	32	36	20	45	34	22	50	36
Terminal	57	76	74	65	68	64	80	55	66	78	50	64

[1] = denotes subject

Hypothesis 3

It was hypothesized that there would be no observable change in the substantive focus of augmented feedback exhibited by subjects as a result of experience with a systematic observational training program.

Mean percentages across subjects in each phase are presented in Table IV. Examination of these mean percentages revealed changes in the substantive focus of the subjects' feedback during the treatment phase of this investigation. Therefore, the third hypothesis was rejected.

Analysis of Data by Subject

The effect of treatment on rate and type of augmented feedback observed within the six major categories of the Fishman's Augmented Feedback Observation Instrument (FAFOI) (Fishman, 1974), during treatment and posttreatment phases of the study will be discussed for each subject individually.

Subject A

During baseline observations, Subject A emitted 2.2 feedback statements per minute approximately one statement every 27 seconds. During the treatment phase, the rate of feedback statements increased to 4.2 per minute,

TABLE IV

QUALITATIVE ANALYSIS ACROSS SUBJECTS WITHIN THE SUBSTANTIVE DIMENSION OF THE FAFOI

	Baseline					Treatment				No Treatment		
	A[1]%	B%	C%	D%	$\bar{X}$%	A%	B%	C%	$\bar{X}$%	A%	B%	$\bar{X}$%
INTENT												
Evaluative	0	3	0	3	2	2	0	1	1	5	3	4
Descriptive	10	8	5	5	7	4	8	1	4	11	3	7
Comparative	0	0	0	0	0	0	0	0	0	0	0	0
Explicative	0	0	0	1	0	0	0	0	0	0	0	0
Prescriptive	18	17	16	32	21	24	24	11	20	22	35	29
Affective	70	72	78	61	70	70	67	87	75	62	58	60
GENERAL REFERENT												
Whole	85	86	81	78	83	77	83	90	83	83	88	86
Part	2	7	6	17	8	12	15	10	12	13	8	11
Outcome	12	6	13	5	9	11	2	0	4	5	3	4
SPECIFIC REFERENT												
Rate	1	0	0	6	2	2	0	0	0	1	0	0
Force	1	1	1	9	3	4	2	0	2	2	1	1
Space	0	13	2	13	7	8	8	3	6	6	16	11

[1] = denotes subject

approximately one statement every 14 seconds (Figure 5). Posttreatment mean rates dropped to 3.8 statements per minute, approximately one statement every 16 seconds.

Within the methodological categories of Form, Direction and Time during baseline observations, Subject A was definitely auditory (91%), relying heavily on verbal statements without tactile (0%) or visual stimuli (9%), (Table V). Subject A directed the feedback statements primarily to one student (88%) rather than all three (11%). Subject A showed slight preference in offering feedback at the end of motor performance (57%) rather than during skill performance (43%). During treatment, Subject A shifted away from heavy reliance on auditory statements (63%) with a definite increase in usage of visual stimuli (32%) and began delivering feedback in a tactile mode (11%).

Within the Substantive components of Intent, General and Specific Referent, Subject A continued to show a change between baseline observations and intervention phases (Table VI). Feedback statements were heavily concentrated in the affective category during baseline and treatment phases (70%). Before intervention, Subject A relied little on evaluative feedback (.3%), but focused more on it during treatment (2%). Similarily, descriptive feedback dropped from 10% (baseline) to 4% during treatment while increasing in prescriptive feedback from 18% to 21%. This reflected a definite shift from simple description of the motor skill

TABLE V

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE METHODOLOGICAL DIMENSION OF THE FAFOI; SUBJECT A

	SUBJECT A		
	Baseline	Treatment	No Treatment
FORM			
Auditory	91	63	67
Aud-Tactile	0	5	14
Aud-Visual	9	32	19
DIRECTION			
1 Student	88	92	100
Group	0	1	0
All	11	7	0
TIME			
Concurrent	43	36	22
Terminal	57	64	78

TABLE VI

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE SUBSTANTIVE DIMENSION OF THE FAFOI; SUBJECT A

	SUBJECT A		
	Baseline	Treatment	No Treatment
INTENT			
Evaluative	0	2	5
Descriptive	10	4	11
Comparative	0	0	0
Explicitive	0	0	0
Prescriptive	18	24	22
Affective	70	70	62
GENERAL REFERENT			
Whole	85	77	83
Part	2	12	13
Outcome	12	11	5
SPECIFIC REFERENT			
Rate	1	2	1
Force	1	4	2
Space	0	8	6

performed to a more prescriptive, instructional intent. When giving feedback within the general and specific referents, the subject addressed the whole motor skill (85%) emphasizing the outcome (12%) while rarely breaking the skill into parts (2%). During treatment, feedback directed toward the whole skill diminished (77%) while attention to breaking the skill into parts increased correspondingly to (12%). Feedback on results or outcome of the motor performance remained essentially the same (12% and 11%). Feedback concerning the rate, force, and space utilized during motor performance increased slightly during treatment. Baseline statements reflected only 2% within the specific referent. During treatment, statements increased to 14% with emphasis on the use of space.

Posttreatment observations on Subject A revealed that auditory feedback behaviors remained essentially the same. There appeared to be more emphasis using tactile methodologies for delivering feedback and less reliance on the auditory-visual statements. Attention was predominantly focused on one student at a time and feedback usually occurred after the motor skill was performed. Reliance on affective feedback lessened slightly but the frequency of descriptive feedback behavior rose while the number of prescriptive statements dropped. Evaluative feedback increased. Attention to the whole and part skill analysis remained consistent but outcome statements dropped by one

half. Statements concerning rate, force and space remained consistent.

Subject B

During baseline observations, Subject B exhibited 2.1 feedback statements per minute, approximately one statement every 29 seconds (Figure 5). During the intervention phase, feedback statements increased to 3 statements per minute, approximately one statement every 20 seconds. Overall feedback rate increased during intervention. Posttreatment feedback behavior showed a slight decrease in rate, 3.8 statements per minute, approximately one statement every 18 seconds.

Within the methodological categories of Form, Direction and Time during baseline observations, Subject B displayed a preference for auditory feedback (70%) (Table VII). Usage of verbal feedback accompanied by visual cues (23%) was fairly strong, however little attention was paid to the tactile component of auditory feedback (6%). Feedback was directed almost exclusively to one child (95%), rarely to both children (5%) simultaneously. Terminal feedback given after the motor performance was finished (76%) significantly outnumbered concurrent feedback rates (24%). These subcategories remained virtually unchanged during intervention except for a small decrease in concurrent

feedback (20%) and a small increase in terminal feedback rates.

TABLE VII

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE METHODOLOGICAL DIMENSION OF THE FAFOI; SUBJECT B

	SUBJECT B		
	Baseline	Treatment	No Treatment
FORM			
Auditory	70	72	41
Aud-Tactile	7	6	47
Aud-Visual	23	22	12
DIRECTION			
1 Student	95	95	100
Group	0	0	0
All	5	5	0
TIME			
Concurrent	24	20	50
Terminal	76	80	50

Within the substantive components of Intent, General and Specific Referent, Subject B remained fairly stable during baseline observations and intervention (Table VIII). However, baseline affective feedback (72%) lessened somewhat during intervention (67%) while prescriptive feedback moved from 17% to 24%. Subject B began to rely less on affective statements and focused more on instructional feedback. Descriptive statements remained the same (8%) while evaluative statements dropped from 3% to only .6% during treatment. Baseline references to the whole motor skill (86%) fell slightly during intervention (83%) while attention to parts of the skill doubled from 7% to 15%. Outcome statements also fell from 6% to only 2% indicating that Subject B tended to break the skills down during the treatment phases of instruction, relying less on general statements describing results of the motor performance. References to rate and force remained constant, while statements about the use of space during motor performance dropped from 13% to 8% during treatment.

Posttreatment levels of feedback for Subject B reflected definite patterns of change within the majority of the subcategories of augmented feedback. Auditory-tactile feedback increased significantly. Baseline observation and intervention rates of 6% to 7% rose to 47% during posttreatment. Subject B addressed the children auditorily and visually half as often. These levels showed a trend

TABLE VIII

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE SUBSTANTIVE DIMENSION OF THE FAFOI; SUBJECT B

	SUBJECT B		
	Baseline	Treatment	No Treatment
INTENT			
Evaluative	3	0	3
Descriptive	8	8	3
Comparative	0	0	0
Explicitive	0	0	0
Prescriptive	17	24	35
Affective	72	67	58
GENERAL REFERENT			
Whole	86	83	88
Part	7	15	8
Outcome	6	2	3
SPECIFIC REFERENT			
Rate	0	0	0
Force	1	2	1
Space	13	8	16

toward more balanced feedback rates within the form category. While still directing feedback statements to a single student, Subject B began giving concurrent feedback statements (50%) as often as terminal statements (50%).

Substantive components reflected changes primarily within affective feedback statements. These statements continued to drop from baseline and intervention rates (58%) while prescriptive, instructional feedback continued to increase (35%). Descriptive feedback rates fell slightly and attention to the whole motor pattern increased. Less emphasis was placed on breaking a motor skill into parts and outcome feedback increased slightly. Feedback statements referring to the use of space increased.

Subject C

During baseline observations, Subject C gave 2.8 feedback statements per minute, approximately one statement every 20 seconds (Figure 5). During the intervention phase, the feedback statements increased to 3.3 statements per minute or approximately one statement every 18 seconds.

Within the methodological categories of Form, Direction and Time, during baseline observations, Subject C gave primarily auditory feedback (73%) while relying somewhat on tactile feedback (17%) and visual stimulation (9%) (Table IX). The statements were directed almost exclusively toward one student at a time (99%) and occurred predominantly at

the end of motor performance (74%). During intervention, a balance occurred between verbal and verbal-tactile feedback. Auditory focus shifted (46%) to an auditory-tactile approach (45%) with little emphasis changing within the visual feedback category (9%).

TABLE IX

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE METHODOLOGICAL DIMENSION OF THE FAFOI; SUBJECT C

	SUBJECT C	
	Baseline	Treatment
FORM		
Auditory	73	46
Aud-Tactile	17	45
Aud-Visual	9	9
DIRECTION		
1 Student	99	100
Group	0	0
All	0	0
TIME		
Concurrent	26	45
Terminal	74	55

Within the Substantive components of Intent, General and Specific Referent, Subject C preferred affective feedback (78%), and offerred prescriptive feedback (16%) more often than simple descriptive statements (5%) (Table X). Rates of feedback with other Intent subcategories were negligible. Reference to the whole movement (81%) was predominant, with simple outcome feedback statements (13%) twice as frequent as statements which instructionally broke the motor skill into components (6%). Few references were made to space (2%), rate (.2%), and force (.2%). During intervention, affective feedback rose (87%) while prescriptive or instructional feedback dropped (11%). Slightly more attention was paid to evaluative and descriptive feedback while focus on the whole movement (90%) and separate components of skill performance (10%) increased slightly. Outcome feedback disappeared and reference to use of space increased very little (3%).

Subject D

This subject received no interventional treatment. All observations were recorded as baseline data. During baseline observations, Subject D gave 2.6 statements per minute, approximately one statement every 23 seconds (Figure 5).

TABLE X

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE SUBSTANTIVE DIMENSION OF THE FAFOI; SUBJECT C

	SUBJECT C	
	Baseline	Treatment
INTENT		
Evaluative	0	1
Descriptive	5	1
Comparative	0	0
Explicitive	0	0
Prescriptive	16	11
Affective	78	87
GENERAL REFERENT		
Whole	81	90
Part	6	10
Outcome	13	0
SPECIFIC REFERENT		
Rate	0	0
Force	0	0
Space	2	3

Within the methodological categories of Form, Direction and Time, Subject D relied primarily on auditory feedback (71%) favoring auditory-visual feedback (13%) nearly as often as auditory-tactile feedback (16%) (Table XI). This subject directed terminal feedback (65%) primarily at one student (99%), giving concurrent feedback approximately one out of every three statements (35%).

Within the substantive categories of Intent, General and Specific Referents, Subject D preferred affective feedback statements (61%) but showed a strong tendency to give instructional feedback statements that were prescriptive in nature (32%) (Table XII). Simple descriptive statements (5%) outnumbered evaluative statements (3%). Feedback was generally directed toward the entire motor performance (78%) but attention was also focused on skill breakdown (17%) and outcome (5%). Reference to space (13%), force (9%) and rate (6%) were fairly balanced.

Discussion

Baseline analysis of the four preservice physical education teacher feedback rates before treatment revealed that the subjects delivered an average of 2.5 feedback statements per minute across 12 twenty-minute teaching sessions. This mean frequency rate increased to 3.4 statements per minute during treatment phases for experimental subjects. After treatment cessation, treatment

TABLE XI

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE METHODOLOGICAL DIMENSION OF THE FAFOI; SUBJECT D

	SUBJECT D Baseline
FORM	
Auditory	71
Aud-Tactile	16
Aud-Visual	13
DIRECTION	
1 Student	99
Group	0
All	1
TIME	
Concurrent	35
Terminal	65

TABLE XII

MEAN PERCENTAGES OF FEEDBACK STATEMENTS WITHIN THE SUBSTANTIVE DIMENSION OF THE FAFOI; SUBJECT D

	SUBJECT D Baseline
INTENT	
Evaluative	3
Descriptive	5
Comparative	0
Explicitive	0
Prescriptive	32
Affective	61
GENERAL REFERENT	
Whole	78
Part	17
Outcome	5
SPECIFIC REFERENT	
Rate	6
Force	9
Space	13

effect continued and feedback statements continued to increase slightly to a mean of 3.6 statements per minute. These results support previous research which noted teacher feedback rate increases as a result of systematic intervention (Arena, 1979; Cole, 1979; Imwold, 1984).

Prior to the treatment phase of this investigation, augmented feedback statements given by the four subjects were primarily auditory in nature, relying little on concurrent tactile or visual stimulation. This finding was consistent with findings of previous research conducted by Harrington (1974), Tobey (1974), Arena (1979), Cole (1979), and Cashel and Gangstead (1987). The extension of a form to include tactile and visual modes of feedback delivery during treatment is consistent with results of a study conducted by Sipp (1983) in which he found auditory-visual feedback (26%) and auditory-tactile feedback (8%) to be prevalent. During the treatment phase of this investigation, auditory statements decreased slightly while audio-visual and audio-tactile feedback statements increased. However, during the treatment cessation phase of the present study, auditory-tactile feedback rates continued to rise substantially. This may have been due in part to the subjects' increased comfort levels and growing familiarity with the multi-handicapped students and the specific need to relate kinesthetic cues through touching each individual. During treatment cessation, auditory statements fell well below

pretreatment levels and auditory-visual statements fell to equal pretreatment levels. These relatively high frequencies of auditory, auditory-tactile and auditory visual statements concur with Tobey's (1974) investigation in which a preponderance of auditory feedback among teachers (95%) was noted. Tobey also noted that use of auditory-tactile feedback was preferred by teachers for smaller classes and more individualized instruction.

Feedback was directed almost exclusively toward a single student in the present study. The subjects' instructional focus was limited to two or three handicapped students, yet statements directed toward all students inclusively were virtually nonexistent. These findings were consistent with previous investigations (Tobey, 1974; Arena, 1979; Pieron, 1979; Sipp, 1983; and Cashel and Gangstead, 1987). The direction of teacher feedback remained consistent throughout baseline, treatment and posttreatment phases. This trend could have been attributed to the intensity of the instruction due to the various handicapping conditions and behavioral management concerns.

In past research, some investigators noted teacher feedback statements most frequently occurred after the motor skill was attempted by the learner (Cole, 1979; Sipp, 1983). However, Tobey (1979) and Cashel and Gangstead (1987) reported an equal distribution of concurrent and terminal feedback statements. During pretreatment phases of this

investigation all four subjects gave terminal feedback responses approximately two out of every three statements. Feedback delivered concurrently rose slightly but steadily from baseline averages through treatment and non-treatment phases across all subjects. Consequently, terminal feedback averages fell steadily but slightly through all three phases of the investigation. This shift in emphasis could have been due to subject experience with the students' handicapping conditions and heightened confidence with subject matter instruction.

The substantive focus of feedback statements issued by the four subjects reflected several changes during the course of this study. Within the category of intent, affective (positive) statements dominated the feedback behavior of the subjects throughout the investigation. These findings were consistent with the findings of Arena (1979), Graham, Soares and Harrington (1983), and Sipp (1983). This present study's intent emphasis did differ from Tobey (1974) and Phillips and Carlisle (1983) who noted more negative performance-related feedback exhibited during instruction.

During treatment phases, the number of affective statements increased slightly, then fell below pretreatment levels as the emphasis on prescriptive feedback statements continued to increase among experimental subjects. Prescriptive feedback statements followed by descriptive and

evaluative statements significantly outnumbered comparative and explicative statements. These results support previous findings noted by Harrington (1974), Tobey (1974), Cole (1979), Sipp (1983), and Cashel and Gangstead (1987). During the cessation of treatment phase, these subcategory levels continued to exceed pretreatment percentages. A relatively permanent learning effect or behavioral change was exhibited by the experimental subjects.

Within the general referent category, the subjects focused predominantly on the whole movement when giving feedback to their students. These findings are consistent with the investigations of Tobey (1974), Cole (1979), and Cashel and Gangstead (1987). However, Sipp (1983), in his investigation of specialist and generalist adapted physical education teachers, reported a significant frequency of outcome related feedback (67%), followed by feedback directed at a single component (part) of the motor skill (35%). This relatively high incidence of feedback directed toward part of the movement may be logically explained by the focused attention to remedial skill development within the context of the lesson. The adapted physical education teachers observed tended to direct feedback to the whole skill (24%) with much less frequency. Within this investigation, the emphasis upon the whole movement exhibited by all subjects changed little during pre-treatment and treatment phases. Whole movement reference

increased slightly for experimental subjects during cessation of treatment. Outcome related statements dropped during treatment, then remained essentially the same during the posttreatment phase. The absence of outcome related feedback could be due to the preservice teachers' very general background in fine and gross motor assessment procedures, and generalized knowledge of special population instructional methods. Experimental subjects' references to part of the movement during feedback response rose during treatment, and remained essentially at treatment level during posttreatment phases.

The subjects did not generally give feedback statements which focused on a specific referent. Overall frequency counts within this category were much smaller when compared to the previous categories. However, mean percentages within this category indicated that the subjects usually alluded to the subcategory of space, indicating to their students the direction, level of the movement or the placement of body segments. These findings are consistent with the investigations of Tobey (1974), Cole (1979), and Sipp (1983). Nearly one half of the feedback statements in Sipp's investigation were directed toward the use of space (56%) with attention to force and rate nearly equal (2-3%). Within the present study, statements directed towards space remained consistent through baseline and treatment sessions, then increased in number during posttreatment sessions.

Reference to rate and force continued to decrease from baseline through treatment and cessation phases. This may have resulted from the subjects' change in lesson structure as teaching progressed. The subjects became familiar with the special skills and needs of their multihandicapped students, and more attention was directed toward basic movement skills, creative movement, and modified gymnastics.

In summary, an examination of feedback behaviors emitted by preservice physical education teachers in this adapted physical education laboratory setting revealed the feedback statements to be predominantly auditory in form, directed toward a single student. The emphasis in auditory forms and single direction is consistent with most feedback studies. Most feedback statements delivered during this investigation occurred after the motor skill had been attempted or performed. This emphasis on terminal feedback was supported by previous research. However, some studies noted that time of delivery of feedback was often divided equally between concurrent and terminal responses. The subjects observed in this study used positive feedback, much of it motivational, far more than they did negative feedback. This contradicts previous findings which noted more negative performance-related feedback exhibited during instruction. Within the substantive dimension, prescriptive feedback statements significantly outnumbered the other subcategories. This finding is generally consistent with

most research, however, some investigators are noting a more equal emphasis placed upon evaluative, prescriptive and motivational responses. Most feedback statements in this investigation focused on the whole movement. While generally supported by feedback research, this finding contradicts results reported on teachers within the field of adapted physical education.

Differential use of feedback within the methodological and substantive dimensions are characteristics of good teachers. Research continues to indicate that some forms of feedback are definitely more effective than others. During skill acquisition, precise and specific performance-related feedback does affect motor skill improvement. Effective teachers offer feedback statements which relate directly to a specific aspect of the attempted skill. General feedback statements which tend to motivate without addressing specific motor skill instruction or error correction do not provide much impetus for skill analysis and subsequent learning on the part of the performer. Effective teachers are more positive in their approach, and tend to evaluate the skill and give prescriptive statements aimed at the learner's subsequent attempt at the task. The feedback is rarely delayed, but offered as soon as it is feasibly possible within the teaching environment. Effective teachers also break the skill into meaningful parts and

allude to space or force needed to accomplish the task (Siedentop, 1976; Rink, 1985).

Within this investigation the relatively short formal augmented feedback training sessions and self-analyzation sessions did effect positive changes within the subjects' feedback behaviors. The preservice teachers were consistently positive in their teaching approach. Subsequent to experiencing formal instruction and self analysis, the subjects continued to remain positive, and began to focus on a more diverse and less affective feedback. More attention was paid to the use of space and force needed to successfully complete a motor skill.

The results of this investigation indicate that a positive change can be induced in teacher feedback behavior as a direct result of formalized instruction and self-analysis. The implications for physical education teacher preparation programs wishing to produce effective and proficient teachers are profound. Delivery of prompt, unambiguous, and precise feedback statements is a teaching strength which can be developed and refined. More opportunity to focus on the rich diversity and power of precise teacher feedback should be emphasized during teacher training. These opportunities include emphasized instruction during methodology courses, and frequent systematic observation of personal teaching behaviors.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a summary of the study, the findings derived from the analysis of the data collected, conclusions, and recommendations for further study.

Summary

The review of literature relevant to augmented feedback identifies this teacher behavior as one of the most powerful determinants affecting the rate and amount of motor skill acquired during formalized instruction. The purpose of this study was to describe the amount and quality of augmented feedback exhibited by preservice physical education majors during instructional phases of adapted physical education laboratory experiences. It was also the purpose of this study to determine the effects of a systematic observational training program on the augmented feedback behavior exhibited by the same population.

Four preservice physical education majors of junior/senior level status who were currently enrolled in the Adapted Physical Education experiential laboratory class

served as subjects for this investigation. All four subjects (three experimental and one control) were individually videotaped teaching twenty-minute segments during twelve separate teaching episodes. A total of 48 teaching episodes (4 subjects x 12 episodes) were analyzed. Treatment consisted of three progressive intervention phases in which the experimental subjects individually received instruction on augmented feedback, then subsequently observed three separate 20-minute videotaped lessons of themselves teaching. During videotape viewing, the subjects systematically recorded their feedback behaviors within the methodological and substantive portion of Fishman's Augmented Feedback Observation Instrument (FAFOI) (Fishman, 1974).

A variation of the multiple-baseline design across individuals was utilized to note treatment effects among subjects. Four multiple baselines were recorded. Treatments were applied to one subject at a time, and time of application was staggered throughout the course of the investigation. Graphical and descriptive analyses were conducted on the data. Frequencies and percentages of observed behaviors were calculated to compare changes in behavior between and among subjects during various treatment conditions.

Findings

The data collected in this study were analyzed and yielded the following findings:

1. The rate of augmented feedback emitted by preservice physical education majors was increased as a result of the systematic observation training program.

2. Observable changes in the methodological focus of preservice physical education teachers as a result of a systematic observation training program were noted.

3. Changes in the substantive emphasis of preservice physical education teachers as a result of a systematic observation training program were also observed.

Conclusions

Prompt and precise augmented feedback statements delivered during motor skill instruction are hallmarks of strong and effective teaching. Based on the findings of this study, this investigator concluded that preservice physical education teachers can develop and enhance their abilities to deliver augmented feedback statements through more formal instruction and training sessions provided in teaching methodology courses. This investigator also concluded that these methodology courses should provide the preservice teachers the opportunity to actually view and analyze their own teaching behaviors. Visual acquisition of

personal teaching behaviors through systematic observation seemed to be an exceptionally strong instructional tool and motivator. It appeared in this investigation that the more familiar the preservice teachers became with their personal teaching behaviors, the more effective they became in changing them. The delivery of feedback became more effective. The diversity of their feedback statements broadened, and the numbers of times feedback was delivered increased. This supports the conclusion that this particular method of teaching should receive strong support within the teaching methodology curriculum.

Recommendations

Based on the results of this study, the following recommendations for further study are suggested:

1. The subjects' teaching behavior should be sampled during the instruction of a larger group of exceptional students. This would more nearly approximate a normal class setting. This study was restricted by the small number of exceptional children available to the preservice teachers.

2. A larger pool of subjects should be sampled.

3. Subjects in this investigation were allowed to develop their own curricular emphasis. Much latitude was allowed in range of activities and instructional areas. This study might be replicated utilizing a specific curricular format and standardized lesson plans. This would

allow augmented feedback behaviors to be analyzed independently, the lessons would be constant, activities would not affect the feedback so greatly.

4. A similar study could be conducted with more intense treatment phases. This investigation devoted a relatively small unit of time to the treatment phase. Each subject received about three hours total treatment, one half of that treatment was spent in discussion. The observable change in teaching behavior that resulted from only 1 1/2 hours of actual systematic analysis of teaching behavior speaks to the power of systematic analysis as an agent of behavioral change.

5. Other aspects of teaching relevant to the effectiveness of feedback should be observed and analyzed. These would include: a) the congruency of feedback emitted and teaching cues offered, b) positioning of teacher and emission rate of feedback, and c) relationship between task type and feedback.

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APPENDIX A

TREATMENT PHASES 1, 2, 3

TREATMENT PHASE 1

GENERAL INFORMATION ON AUGMENTED FEEDBACK GIVEN TO SUBJECTS IN LECTURE FORMAT

Researchers who are studying the classroom environment in order to determine what attributes reflect teacher effectiveness have identified teacher feedback as a powerful impetus to learning. Much evidence supports the proposition that feedback enhances learning, and coupled with a positive classroom environment, actually promotes higher achievement.

Teaching effectiveness is linked closely with the amount of feedback given, type of feedback and praise, and at what moment the feedback occurs within the lesson.

Feedback serves three functions: 1) informing, 2) reinforcing, and 3) motivation.

1) Feedback as a source of information leads to error correction. "Knowledge of results" looks at performance in terms of goal attainment. "Knowledge of performance" relates to the mechanics of execution and the feeling of correctness of movement.

2) Behavioral psychologists view feedback as a primary source of reinforcement. It can either be positive or

negative. A positive reward resulting from correct performance serves to enhance the behavior and make it recur. Punishment which results from incorrect response leads to a decrease of that behavior.

3) Feedback also serves as a motivator. It sparks interest in continuing a task. Without feedback, students soon lose interest.

There are two primary sources from which feedback flows. "Intrinsic" feedback occurs when the skill or activity itself provides information about the outcome. For example, making a basket in basketball, a bullseye, making the hole in golf. "Extrinsic" feedback is provided by an external source, the teacher, coach, or videotape.

Timing of the feedback is also very important. If feedback occurs <u>during</u> the performance, it is called "concurrent" feedback. If it occurs <u>after</u> a skill is performed, it is called "terminal" feedback. Some feedback behaviors occur right after the skill is performed and are called "immediate" feedback behaviors.

Knowledge of results and knowledge of performance are vital to learning. Therefore, feedback is necessary to occur during early stages of motor learning. For beginners, knowledge of results is the most beneficial feedback because the students get immediate knowledge of goal attainment.

Feedback needs to be precise. Give feedback at the students' level of understanding. Chunk the information so the little ones can process the information readily.

For beginners, knowledge of results through intrinsic feedback (resulting from the skill itself) gives the child immediate information. Intrinsic feedback is a natural consequence of performance.

Throughout the lessons, teachers should make sure extrinsic and intrinsic motivation continue to stimulate continued performance and improvement of skill development.

The student should experience feedback (verbal, extrinsic, written, videotaped, intrinsic, etc) as soon as possible after he attempts the motor skill. The sooner feedback is given, the more potential it has to be helpful to the learner.

(Rink, 1985)

TREATMENT PHASE 2

DEFINED CATAGORIES OF THE FISHMAN (1974)

AUGMENTED FEEDBACK OBSERVATION SYSTEM

1. FORM

   A. Auditory Augmented Feedback - Feedback provided ORALLY.

   B. Auditory-Tactile Feedback - Feedback provided ORALLY and BY TEACHER

   C. Auditory-Visual Feedback - Feedback provided ORALLY and by TEACHER DEMONSTRATION

2. DIRECTION

   A. Single Student - Feedback directed to only ONE student, although it may be seen or heard by other students in the class.

   B. Group of Students - Feedback directed to MORE THAN ONE student, although it may be seen or heard by all students in the class.

   C. All Students in the Class - Feedback directed to the ENTIRE class.

3. TIME

   A. Concurrent Feedback - Feedback provided DURING THE PERFORMANCE of the motor skill.

   B. Terminal Feedback - Feedback provided SOME TIME AFTER THE PERFORMANCE of the motor skill.

AUGMENTED FEEDBACK RECORDING SHEET:

FORM:

Auditory _____

Auditory-Tactile _____

Auditory-Visual _____

DIRECTION:

1 Student _____

Group _____

All _____

TIME:

Concurrent _____

Terminal _____

TREATMENT PHASE 3

DEFINED CATAGORIES OF THE FISHMAN (1974)

AUGMENTED FEEDBACK OBSERVATION SYSTEM

4. INTENT

A. Evaluative Feedback - Feedback intended to PROVIDE AN APPRAISAL of the performance of a motor skill.
Example: Well thrown ball! You rotated your shoulders well and the wrist snap was strong, really crisp. That jump had a lot of power, you really bent your knees!

B. Descriptive Feedback - Feedback intended to PROVIDE AN ACCOUNT of the performance of the motor skill.
Example: You rotated your shoulders and snapped your wrist. (You verbally repeat what they did without any evaluation.) See, you brought your arm back and pointed to the target. You balanced the balloon.

C. Comparative Feedback - Feedback intended to PROVIDE AN ANALOGY related to the performance of a motor skill. (An "analogy" is skill or movement task that shows a likeness or similarity to the skill you are teaching.)
Example: Spin like a top, David. Hitting the balloon is like hitting a big ball, only the balloon is slower. No, you hold the stick like you hold a baseball bat.

D. Explicative Feedback - Feedback intended to PROVIDE AN INTERPRETATION or EXPLANATION of the performance of a motor skill.
Example: You rotate your shoulders and snap your wrist so that your throw will have more power, and you can throw further! You want to bend your knees so that your balance will be better. Kick the ball in the center so that it will go straight.

E. Prescriptive Feedback - Feedback intended to PROVIDE INSTRUCTION for the subsequent performance of a motor skill.
Example: Next time you throw the bean bag, step forward on your right foot. Okay, now lets try to balance the balloon closer to our chests.

F. Affective Feedback - Feedback intended to PROVIDE AN ATTITUDINAL OR MOTIVATIONAL SET toward the performance of a motor skill.
Example: "Good try!" "Almost, throw it again!" "I'm proud of you, nice run!" "Okay!" "Oo-o-o-o, close, real close!" "Alright!" "You got it!" "Try again!"

5. GENERAL REFERENT

A. The Whole Movement - Feedback PROVIDED ABOUT THE MULTIPLE COMPONENTS in the performance of a motor skill. (You give the child information about the skill or movement as a whole, you don't break it down and give feedback on a part of the throw, a segment of the weight shift, keeping the balloon close.)

B. Part of the Movement - Feedback PROVIDED ABOUT ONE COMPONENT other than the outcome or goal of the performance of a motor skill. (When you break a skill down and give feedback about specifics within the movement, for example, the wrist snap in a throw, pointing at the target during the underhand toss, keeping your eye on the ball as part of the process of catching.)

C. Outcome or Goal of the Movement - Feedback PROVIDED ABOUT THE RESULT of the performance of a motor skill.
Example: Hey, you got three out of four on that throw! You knocked down all the pins! You threw that bean bag into both hoops! (This gets close to "descriptive feedback", but if the goal is to throw underhand into the hoops, and they make the hoops, then it's outcome or goal.)

6. SPECIFIC REFERENT

A. Rate - Feedback provided about the TIME OR DURATION of the movement involved in the performance of a motor skill.
Example: Bring the bat around quicker. Hold the balloon steady for a bit longer before hitting it. You've got to run faster!

B. Force - Feedback provided about the STRENGTH OR POWER EXPENDED in the performance of a motor skill.
Example: Kick the ball harder, really haul back and boot it! Grab the hoop tightly, don't let go. Jump harder, really kick with your legs.

C. Space - Feedback provided about the DIRECTION, LEVEL OR MAGNITUDE of the movement involved in the performance of a motor skill.
Example: When you throw underhand, bring your arm back much higher. Move out on the floor in a different direction. Your stance must be wider, your arms must be further apart! Move closer to the target or the hoop.

AUGMENTED FEEDBACK RECORDING SHEET

INTENT

A. Evaluative _____

B. Descriptive _____

C. Comparative _____

D. Explicative _____

E. Prescriptive _____

F. Affective _____

GENERAL REFERENT

A. The Whole Movement _____

B. Part of the Movement _____

C. Outcome or Goal of Movt _____

SPECIFIC REFERENT

A. Rate _____

B. Force _____

C. Space _____

APPENDIX B

SUBJECTS' INFORMED CONSENT

OKLAHOMA STATE UNIVERSITY TEACHER

BEHAVIOR STUDY SCHOOL OF HPELS

Individual's Consent for Participation

in a Research Project

The purpose of this study is to describe teacher behavior exhibited by physical education majors during instruction of special students in an Adapted Physical Education Laboratory setting. Subjects will be videotaped individually, working with two students in twelve separate teaching episodes. Regular laboratory sessions will meet twice weekly and will be fifty minutes in duration. During teatment phase, subjects will observe videotaped teaching sessions of themselves, and will be asked to comment on their observations. Benefits of participation in this study to the subjects may be, a) enhanced awareness of teaching methods and b) potential improvement of teaching skills.

The following statements constitute an agreement between the participant and the investigator.

1) I understand that by signing this consent form, I acknowledge that my participation in this study is voluntary. I also acknowledge that I have not waived any of my legal rights or released this institution from liability for negligence.

2) I understand that I may revoke my consent and withdraw from this study at any time without penalty or predjudice. My treatment by, and relations with, the academic faculty in the School of Health, Physical Education and Leisure Science, now and in the future, will not be affected in any way if I refuse to participate, or if I enter the program and withdraw later.

3) I understand that participation in this study will have no bearing on class evaluation procedures or grade received in P.E. 4793, Adapted Physical Education.

4) I understand that I will be assigned to one of four groups, a control group or one of three treatment groups. Treatment groups will not differ in type of intervention, but in time of the initiation of intervention.

5) I understand that, although no physical injury to myself or my students is likely to occur as a result of this study, it is understood that research procedures will be immediately terminated should injury occur. Emergency guidelines established by the School of HPLS will be followed. All participants in the study are responsible for their own medical expense and/or insurance coverage.

6) I understand that videotapes of my teaching performance and subsequent behavioral analysis will be kept confidential. Final publication or presentation of research findings will not identify me in any manner. At the completion of the analysis phase, all videotapes will be destroyed.

7) I understand that I will have the opportunity to discuss my individual results gathered during the study with the investigator at its conclusion. Appointments are encouraged if personal concerns arise regarding participation in the study. If I have further questions about my rights as a research subject, I may take them to the Office of University Research Services, Oklahoma State University, 001 LSE.

I have read this informed consent document. I understand its contents and I freely consent to participate in this study under the conditions described in this document. I understand that I will receive a copy of this signed consent.

Date	Signature of Research Subject
Date	Signature of Witness
Date	Signature of Principal Investigator

Principal Investigator:

Merrillyn D. Hartman
Lecturer, Oklahoma State University
School of HPLS
104 Colvin Center
624-5502 office
372-7819 home

APPENDIX C

PARENTS'/GUARDIANS' INFORMED CONSENT

PARENTS'/GUARDIANS' CONSENT FOR CHILD'S

PARTICIPATION IN A RESEARCH PROJECT

Dear Parents or Guardians,

Your child attends The Adapted Physical Education Laboratory at Oklahoma State University, School of Health, Physical Education and Leisure Science, as a part of his regular education experience. He is taught (under supervision) by a student taking a class in Adapted Physical Education Methods of Teaching.

In an effort to describe teacher behavior exhibited by physical education majors during instruction of special students in an Adapted Physical Education Laboratory setting, and in an effort to improve the skills of these physical education majors teaching your children, I wish to conduct a research study during this laboratory experience.

While your child IS NOT A SUBJECT OF THE ACTUAL RESEARCH, from time to time he/she may appear on the videotape used to film the teachers involved in the study.

These videotapes will not be released. They will not be viewed by anyone but this researcher and three of the four physical education majors involved in the study. When research and analysis is complete, all tapes will be destroyed. Extreme care will be taken to protect your child's anonymity and rights of privacy at all times. If at anytime your child might verbally or physically express discomfort by crying, withdrawing, or hiding, he/she will be allowed to withdraw from participation.

If you agree to permit your child to appear on videotape, please sign the following consent form. Thank you for your cooperation and continued support of our program for special students. If you have any further questions or concerns, please feel free to contact me.

Sincerely,

Merrillyn D. Hartman
Faculty, OSU, 103 Colvin
624-5502 or 624-5493

*** Please return to the Exceptional Child Clinic by Friday, Jan. 22, 1988. ***

We, _____, have read the preceding
(Parent/s or Guardian/s)

information and voluntarily agree that our

child, _____, may participate in this
(name of minor)

study entitled:

THE EFFECTS OF AN OBSERVATIONAL TRAINING PROGRAM ON FEEDBACK BEHAVIORS OF PRESERVICE PHYSICAL EDUCATORS IN A CLINICAL ADAPTED PHYSICAL EDUCATION SETTING

Date:_____

APPENDIX D

SUBJECTS' INSTRUCTIONAL LESSONS

SUBJECTS' INSTRUCTIONAL LESSONS

SUBJECT A: Students - 3 boys 10-12 years minimal physical involvement.

LESSONS:

1) Basic locomotor skills warmup, throwing, catching, passing a nurf football. Throwing to a moving target.

2) Scooter races

3) Basic locomotor skills warmup, jumping rope, balancing and batting balloons, balloons and body parts.

4) Review passing and dribbling basics. Shoooting small basketball into a hoop. Dribbling basketball between cones. Layups

5) Preparation for Special Olympics Track and Field games. Timed the 100 meter run.

6) Review throwing basics. Throw beanbag through hoops taped on wall.

7) Introduction racket games. Racketball racquet, use of front wall only.

8) Pitching beanbags into barrels, basic kicking skills.

9) Gymnastics, review of hopping on left and right foot, jumping off springboard. Introduction to basic trampoline skills, walk across, jumping in center, etc.

10) Gymnastics, basic locomotor skills on low beam. Review springboard, flips, backflips. Trampoline basics review and seat-knee jump.

11) Batting skills in prep for softball.

12) Pitching basics (underhand), review of batting skills.

SUBJECT B: 2 boys, 7-8 years

LESSONS:

1) Rolling balls to one another, scooters.

2) Throwing skills, bean bag toss at milkjugs, to one another.

3) Basic locomotor skill, running. Eye-hand coordination, balloon toss, knock the pins down.

4) Locomotor skills, use of hoops. Review of "bowling" at pins. Tossing bean bags into hoops. Introduction to catching.

5) Review of throwing, catching beanbags. Lesson on colors. Introduction to tossing underhand. Prep for Special Olympics, running long jump.

6) Basic locomotor skills, walking, running, jumping through hoops. Playing catch through hoops. Refinement of throwing, opposition, with overhand and underhand.

7) Gymnastics, bouncing on trampoline. Back to 4-gym, chestpass and dribbling.

8) Outdoors, rope pull, throwing beanbags into hoops, kicking skills. Kites

9) Striking skills, racketball racquet and fluff balls. Catching, tossing at jugs.

10) Gymnastics, log rolls, forward rolls, stretching on unevens. Back to 4-gym. Introduction to striking, striking balls hanging from string.

11) Gymnastics, balance beam, rope pull, basic trampoline skills (jumping, seat drop).

12) Basic locomotors skills, hopping, skipping, running. Small tag game. Throwing frisbees, into hoops, across net, rolling ball at pins.

SUBJECT C: Students - 2 boys, 6-8

LESSONS:

1) Basic throwing skills, learning body parts. Ball handling and balancing. Ball rolling.

2) Animal make-believe, balloons as lead-up to catching, hitting. Kicking balloon.

3) Throwing reviewed, ball through hoop.

4) Rolling ball at pins.

5) Use of opposition when throwing, step and throw at pins.

6) Striking skills, paper bat, ball tied to basketball net. Throwing, basketball at target. Eye-hand coordination, hitting free floating balloon.

7) Gymnastics, basic trampoline skills, take-off board.

8) Outdoors, kite flying.

9) Gymnastics room. Balance beam, basic locomotors, uneven bar hang.

10) Gymnastics, somersaults, back and front. Balance beam basics, trampoline.

11) Gymnastics, log rolling, locomotors on low beam, springboard and runway.

12) Gymnastics, review log rolls, somersaults, beam locomotor skills, springboard to forward rolls.

SUBJECT D: Boy and Girl 8-10 years

LESSONS:

1) Basic throwing skills, balancing beanbags, catching with two hands.

2) Itsy-bitsy spider, movement exploration with balloons.

3) Basic locomotors, sliding beanbags to hoops. Scooter play.

4) Review of throwing, opposition, knock down pins. Overhand throw stressed. Rolling ball at pins.

5) Bouncing, ball in hoop, dribbling around cones, weaving. Basic locomotors, running, skipping, sliding.

6) Review of throwing, beanbags into targets. Color discrimination task with hoops.

7) Jumping, jumping over a still rope. Fast walk, walking on black line.

8) Catching, ball in milk carton. Tossing and catching. Attention to timing, step and throw using opposition.

9) Outdoors, kites.

10) Gymnastics, log rolls, shoulder and forward rolls. Jumping onto mats, low beam locomotors.

11) Gymnastics, locomotors on low beam, basic stepping on and off fat mat and low beam.

12) Frisbee throwing; through hoop, using opposition, step into throw, wrist snap. Introduction to floor hockey, beanbag and hockey stick.

VITA

Merrillyn Deane Hartman

Candidate for the Degree of

Doctor of Education

Thesis: THE EFFECTS OF AN OBSERVATIONAL TRAINING PROGRAM ON FEEDBACK BEHAVIORS OF PRESERVICE PHYSICAL EDUCATORS IN A CLINICAL ADAPTED PHYSICAL EDUCATION SETTING

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Education: Atttended elementary, junior and high school in Raytown, Missouri; graduated from Raytown High School in 1963; received the Bachelor of Science degree from Central Missouri State College, Warrensburg, Missouri, in 1966 with a double major in English Composition and Literature and Health, Physical Education and Recreation; received the Master of Education degree in Health, Physical Education and Recreation from Central Missouri State University, Warrensburg, Missouri, in 1970; completed requirements for the Doctor of Education degree at Oklahoma State University in May, 1989.

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