INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

The effects of peer teaching on the development of verbal feedback behaviors by preservice physical education teachers

Farver, Linda Louise, D.A.

Middle Tennessee State University, 1991

U·M·I

300 N. Zeeb Rd.
Ann Arbor, MI 48106

THE EFFECTS OF PEER TEACHING ON THE DEVELOPMENT OF

VERBAL FEEDBACK BEHAVIORS BY PRESERVICE

PHYSICAL EDUCATION TEACHERS

Linda Louise Farver

A dissertation presented to the
Graduate Faculty of Middle Tennessee State University
in partial fulfillment of the requirements
for the degree Doctor of Arts

August 1991

THE EFFECTS OF PEER TEACHING ON THE DEVELOPMENT OF

VERBAL FEEDBACK BEHAVIORS BY PRESERVICE

PHYSICAL EDUCATION TEACHERS

APPROVED:

Graduate Committee:

Committee Chairman

Committee Member

Committee Member

Head of the Department of Health, Physical Education,
Recreation and Safety

Dean of the Graduate School

ABSTRACT

THE EFFECTS OF PEER TEACHING ON THE DEVELOPMENT OF

VERBAL FEEDBACK BEHAVIORS BY PRESERVICE

PHYSICAL EDUCATION TEACHERS

Linda Louise Farver

The purpose of this investigation was to analyze the
development of verbal feedback behaviors of five preservice
physical education teachers using a teach-reteach format in
presenting peer teaching lessons. The implementation of
these separate general and specific skill feedback behaviors
by the preservice teachers during their secondary student
teaching assignment was also examined.

To determine the incidence of verbal feedback behaviors
elicited by the preservice teachers, two peer teaching and
four student teaching lessons were videotaped and then coded
by the researcher. An observational coding system developed
by George Graham (1989) was selected for recording the
verbal feedback behaviors elicited by the preservice
teachers. Event recording techniques were utilized in
coding the six specific skill (individual/group positive,
negative, or neutral) and four general feedback behaviors
(individual/group positive or negative). The congruency of
the specific skill feedback statements relative to the
identifiable task foci was also recorded. The rate per
minute of each feedback behavior was calculated and ratios

Linda Louise Farver

of total feedback statements in separate categories were computed. Reliability was ascertained by calculating intraobserver agreement above 90% for all lessons and interobserver agreement above 85% for six lessons.

Descriptive analyses of the observational data collected were completed for the preservice teachers. Graphic displays of the data were utilized to determine patterns and trends in the verbal feedback behaviors as demonstrated by the preservice teachers in both the peer teaching and student teaching lessons.

The findings indicated that the utilization of the teach-reteach format categorically influenced the development of the preservice teachers' verbal feedback behaviors. Additionally, the preservice teachers demonstrated considerable improvement in the ratio of congruent to incongruent specific skill feedback from the first peer teaching lesson to the second lesson presentation; however, the congruency of these statements was cogently affected by the selection of the task foci during the student teaching lessons. Levels of verbal feedback behaviors comparable to the second peer teaching lesson were not consistently achieved by the preservice teachers during their student teaching lessons.

Acknowledgments

This dissertation is affectionately dedicated to my Mom, Ethel L. Farver and the memory of my Dad, Roby T. Farver for being the best teachers I ever had. The writer wishes to express her gratitude and sincere appreciation to those individuals who facilitated the completion of this research study. A special thank you is extended to many people for their unique contributions to my dissertation.

To Dr. Glen P. Reeder, my Advisor and Committee Chairman, for his encouragement and guidance in completing this research project. To Dr. Jack Arters, Higher Education Committee Member, for his assistance and personal interest in this study, and Dr. Jon MacBeth, Physical Education Committee Member, for his support in my doctoral studies.

To Dr. George Graham at Virginia Tech University, for his enthusiasm and advice during various phases of this investigation. To the preservice teachers who voluntarily served as subjects for this research project--their participation will always be remembered.

To my friends and colleagues, for believing in my ability to complete this dissertation, and assisting me both personally as well as professionally with this study.

And finally, to my Lord and Saviour Jesus Christ, who granted me the wisdom and determination to complete this dissertation. "I can do all things through Christ who strengthens me" (Philippians 4:13).

TABLE OF CONTENTS

v

LIST OF TABLES

vii

LIST OF FIGURES

ix

x

LIST OF APPENDICES

CHAPTER 1

Introduction

Teaching has been referred to as both an art and a science by educational researchers involved in analyzing classroom instruction. It has been labeled an instrumental or practical art as opposed to a fine art (Gage, 1984) and described as an applied science extracted from research in human learning and behavior (Hunter, 1984). Whether perceived as an art, a science, or a combination of both, good teaching entails the development of effective instructional behaviors which provide the basis for sound pedagogical experiences in a variety of educational settings.

Based on findings from research on teaching, particularly those developed at the Institute of Research on Teaching (IRT), Porter and Brophy (1988) have summarized what is involved in good teaching. They describe effective classroom teachers as semi-autonomous professionals who, among other things, clarify their instructional goals, convey to their students what is expected of them (and why), and monitor students' comprehension by providing periodic and appropriate feedback. Thus, it seems essential that meaningful educational experiences which facilitate the development of pedagogical skills representative of good teaching be included in teacher education programs. If

these and other strategies are incorporated into teacher education programs, educational researchers such as Porter and Brophy are optimistic about the prospects for enhancing the quality of teaching.

Research on teaching physical education has confirmed specific teaching strategies as being effective when used in proper combination in promoting student learning. Among those strategies identified by Siedentop, Mand, and Taggart (1986) are allocating a high percentage of time to skill practice, keeping students appropriately involved with a learning task, and maintaining a supportive learning environment in which high but realistic expectations are set for student growth. These and other teaching strategies consist of several discrete teaching skills or behaviors such as praising students for staying on-task and providing positive verbal feedback for appropriate skill performances. Research has documented that effective teachers combine these skills routinely in using specific strategies to enhance student learning (Graham, 1989).

These specific teaching skills have been identified through the development of systematic observation techniques from teacher effectiveness research in physical education completed over the past two decades (Siedentop, 1986). Pieron (1986) states that such objective data-collection instruments have been designed to systematically observe and record teacher behavior, student behavior, teacher-student interaction, and the contextual aspects of teaching physical

education. As a result, this research endeavor has produced valuable descriptive data which has led to a better understanding of the teaching act.

Siedentop (1983) believes that the development of teaching skills in preservice students is "amenable to systematic observation and capable of being broken down into a series of tasks that can be mastered." Such a systematic approach would identify the specific teaching skills to be developed, collect data to analyze these skills, and provide feedback for the preservice students to adjust their goals for further improvement.

Traditionally, physical education methods courses have been taught in such a way that preservice students learned much "about" teaching, but they did not learn "how to" teach. In recent years, many teacher preparation programs have redesigned methods courses so specific teaching skills could be systematically practiced, analyzed, and reinforced in a variety of physical education settings. This approach is supported by the National Council for the Accreditation of Teacher Education (NCATE) Physical Education Guidelines (1987) pedagogical component which emphasizes the "systematic study of teaching and learning theory with appropriate laboratory and clinical experiences." Thus, preservice physical education students should be exposed to learning experiences which prepare them to demonstrate both skill and knowledge related to planning, implementing, and evaluating the teaching-learning process.

Even though the Physical Education NCATE Guidelines require the inclusion of laboratory and clinical experiences, there is no standardization of the number of hours or types of experiences preservice students necessary for developing effective teaching skills. Such improvised experiences conducted within a methods course may include microteaching, peer teaching, and reflective teaching episodes. Siedentop (1983) supports the use of peer teaching for practicing teaching skills in simulated situations. Videotaping these episodes affords the preservice students the opportunity to analyze their instructional efforts. Systematic observation instruments can be utilized when viewing the videotapes, thereby providing additional feedback in developing effective teaching skills.

The value of peer teaching experiences seems obvious; however, many teacher educators in physical education have made only limited use of this teaching technique in their methods courses. Additionally, preservice students are usually not given the opportunity to repeat the teaching experience (Olson, 1982). In many cases, the fact that the teaching episode occurred and was videotaped for analysis and feedback is considered sufficient. The effectiveness of peer teaching in developing teaching skills within methods courses has been examined; however, the effects of providing repeated teaching opportunities using this technique needs further study.

Statement of the Problem

The purpose of this investigation was to analyze the development of verbal feedback behaviors of preservice physical education teachers by using a teach-reteach format for peer teaching lessons. Specifically, this study analyzed the effectiveness of presenting a second peer teaching lesson after the preservice teachers received data regarding the use of verbal feedback during the first lesson presentation. The implementation of these verbal feedback behaviors during the student teaching experience was also examined.

Research Questions

The intent of this study was to determine the incidence of verbal feedback behaviors as demonstrated by preservice physical education teachers throughout a series of videotaped teaching episodes presented during a secondary methods course and the secondary student teaching experience. The following research questions, originating from the problem cited above, were formed as a framework for collection and analysis of the data in this investigation.

1. What levels of verbal feedback behaviors will result from an initial peer teaching lesson?

2. What changes in verbal feedback behaviors will be demonstrated in a second peer teaching lesson as a result of data given to the preservice teachers following the first lesson?

3. Will transfer of these verbal feedback behaviors occur during the secondary student teaching experience; and if so, to what extent?

Significance of the Study

Since many state certification programs are now asking beginning teachers to exhibit instructional skills that have been verified by educational research as being effective in promoting student learning, then well-organized laboratory experiences should be designed so they can acquire these skills. By using peer teaching episodes, videotaping these sessions, and reteaching the lessons after analyzing the videotapes, it is anticipated that preservice physical education teachers can develop those instructional skills necessary for successful student teaching, thereby preparing them to secure teaching certification.

Research on classroom teaching has documented that effective teachers routinely provide timely and detailed feedback to students' responses on assignments (Porter and Brophy, 1988). The use of verbal feedback is likewise considered to be an integral instructional behavior of effective physical education teachers as they monitor their students' skill attempts (Siedentop, 1983). In addition to these findings, motor learning research has identified feedback as one of the most important variables affecting student performance and learning (Bilodeau and Bilodeau, 1961). Thus, verbal feedback behavior was chosen as the

focus of this study since it is a vital aspect of skill acquisition.

Another reason for analyzing the development of teaching behaviors of preservice physical education teachers is that the major thrust of research has been directed toward the student teaching practicum (Locke, 1984). While research in this area is essential, it is important to gather more data from laboratory experiences conducted within methods courses so teacher educators can better achieve intended outcomes. As a result, this may encourage teacher educators to design more practical experiences for developing effective teaching skills in their preservice students which will be utilized in their student teaching assignments.

<u>Assumptions of the Study</u>

It is assumed that specific teaching behaviors, such as verbal feedback, can be developed by preservice physical education teachers using explicit instructional strategies within a secondary methods course. It is further assumed that peer teaching is one strategy which allows preservice teachers to focus on discrete teaching skills without having to deal with the complexities of actual teaching settings in the schools.

Definition of Terms

For the purpose of this study, the following terms are defined:

Congruent feedback. A teacher's verbal response to student skill attempt (performance or results) that is consistent with the immediate task focus and cues (Rink, 1985).

Event recording. A systematic observation technique which measures the frequency of occurrence of a discrete event (van der Mars, 1989).

Feedback. A discrete teaching behavior comprised of information generated about a response that is used to modify the next response (Siedentop, 1983).

General negative feedback. A teacher's verbal response to inappropriate student performance so that disapproval is shown without any specific information being communicated about particular aspects of the performance (Siedentop, 1983).

General positive feedback. A teacher's verbal response to appropriate student performance so that approval is shown without any specific information being communicated about particular aspects of the performance (Siedentop, 1983).

Group feedback. A teacher's verbal response to student performance which is directed to a part of the students in a class (Rink, 1985).

Hunter lesson design. A basic instructional strategy composed of seven elements which are useful in interpreting

the effectiveness or ineffectiveness of direct teaching (Hunter, 1984).

Incongruent feedback. A teacher's verbal response to student skill attempt (performance or results) that may be important to the skill but is not specifically related to the task focus (Rink, 1985).

Peer teaching. Short teaching episodes focusing on a limited number of teaching skills with a small group of peers (Siedentop, 1983).

Preservice physical education teachers. Undergraduate students enrolled in the secondary methods course and student teaching.

Reliability. The degree to which the researcher or an independent observer using the same behavior definitions and coding procedures to observe a videotape of the same lesson agrees with the data produced in a previous coding of the same videotape; also described as observer agreement (van der Mars, 1989).

Specific skill negative feedback. A teacher's verbal response to inappropriate student skill attempt or behavior which conveys disapproval and precise, detailed information about certain aspects of the performance (Siedentop, 1983).

Specific skill neutral feedback. A teacher's verbal response to student skill attempt which conveys precise, detailed information which is neither positive nor negative (Graham, 1989).

Specific skill positive feedback. A teacher's verbal
response to appropriate student skill attempt which conveys
approval and precise, detailed information about certain
aspects of the performance (Siedentop, 1983).

Teach-reteach format. A methods technique whereby the
preservice student is given two opportunities to plan and
present a lesson, receiving feedback concerning the actual
teaching performance (Imwold, 1984).

Limitations of the Study

The following items were limitations to this study.

1. The findings of this study are limited to the
particular participants within the secondary methods course
and secondary student teaching experience of the teacher
education program under study. These findings are not
asserted to be generalizable to all physical education
secondary methods courses, secondary student teaching
experiences, or preservice physical education teachers.

2. The number of subjects for the study was limited
to those preservice physical education teachers enrolled in
the Secondary Methods and Materials course (EDUC 434) and
Supervised Student Teaching (EDUC 465 and 466) at Liberty
University, Lynchburg, Virginia, during the 1991 Spring
semester. (A pilot study was conducted during the 1990 Fall
semester.)

3. The observations of the study were limited to the
length of two videotaped ten-minute peer teaching episodes
presented during the secondary methods course (approximately

twenty minutes), and four videotaped skill instruction lessons taught during the secondary student teaching experience (approximately ninety minutes) for each subject.

4. The peer teaching lessons were videotaped in the gymnasium on the campus of Liberty University. The skill instruction lessons were videotaped in the school gymnasiums and playing fields where the subjects were assigned for their secondary student teaching.

5. The activities included in the peer teaching episodes in this study were limited to the equipment and facilities available in the Liberty University gymnasium. The skill instruction lessons were limited to the equipment and indoor/outdoor facilities available in the respective schools during the secondary student teaching experience.

6. The preservice physical education teachers were required to plan their peer teaching lessons using the Hunter lesson design.

CHAPTER 2

Review of Literature

The purpose of this study is to analyze the effectiveness of using peer teaching in developing verbal feedback behaviors of preservice physical education teachers. Research dealing with the development of appropriate instructional strategies for effective teaching has been undertaken by many educators over the past several decades in an effort to improve teaching performance. Studies in pursuit of the improvement of teaching have concentrated on both preservice and in-service teachers. Various research techniques have been utilized in analyzing specific teaching behaviors and in acquiring or modifying these behaviors.

Research studies on effective teaching in both classroom and gymnasium settings have yielded some interesting findings. The remainder of this chapter will identify and describe the research literature pertaining to the identification and development of effective teaching behaviors. This review of literature is divided into four sections. The first section consists of an overview of research on teacher effectiveness. The second section contains research findings on systematic observation techniques and feedback behaviors. The third section includes a review of peer teaching strategies and the fourth

section reviews research findings on various teaching models.

Overview of Research on Teacher Effectiveness

In recent years an emerging knowledge base has developed from the research findings on teacher effectiveness. This has resulted in an increased appreciation of the centrality of good teaching as it affects student learning. The knowledge base has distinguished effective teachers from ineffective teachers by verifying specific behaviors and competencies associated with effectual instruction. Medley (1979) has identified the effective teacher as one who: (a) creates an orderly and supportive learning environment; (b) spends more class time in task-related "academic" activities; (c) provides more precise and positive motivation; (d) uses effective methods of instruction; and (e) possesses a repertoire of instructional competencies.

The IRT at Michigan State University has operated on the premise that good teaching is fundamental to effective schooling. As noted in the previous chapter, Porter and Brophy (1988) have summarized what is involved in good teaching. They describe effective classroom teachers as those who:

1. are clear about their instructional goals;

2. are knowledgeable about their content and the strategies for teaching it;

3. communicate to their students what is expected of them--and why;

4. make expert use of existing instructional materials in order to devote more time to practices that enrich and clarify the content;

5. are knowledgeable about their students, adapting instruction to their needs and anticipating misconceptions in their existing knowledge;

6. teach students metacognitive strategies and give them opportunities to master them;

7. address higher--as well as lower--level cognitive objectives;

8. monitor students' understanding by offering regular appropriate feedback;

9. integrate their instruction with that in other subject areas;

10. accept responsibility for student outcomes;

11. are thoughtful and reflective about their practice (p. 75).

These descriptions of effective teaching have emerged from the process-product studies designed to collect quantitative data reflecting teacher and student behaviors. The specific process (teacher and student behaviors) and product (student achievement) variables investigated were drawn from Dunkin and Biddle's (1974) model for the study of classroom teaching. Research efforts prior to the 1970's had primarily examined the presage (teacher characteristics)

and context (environmental conditions) variables of their model; however, this did not resolve the issue of what was involved in good teaching. The discrete teaching behaviors and competencies verified by Medley (1979), Porter and Brophy (1988), and others (Berliner, 1984; Brophy & Good, 1986; Gage, 1984) were correlated with student achievement in the process-product studies conducted since that time.

In addition to analyzing the relationships between teacher behaviors, student behaviors, and student achievement, educational researchers have examined methods for improving teaching performance. Bloom (1980) compiled a list of alterable variables which he believed could be modified through in-service education or other teacher training programs. By providing teachers with feedback about their verbal instruction and directions, variety and frequency of reinforcement, and extent of student participation in learning, they are able to modify their teaching performance. Bloom (1980) reports that when these interactions of teachers with their students are altered there are meaningful improvements in student learning.

Gage (1984) also supports the concept that teaching behaviors can be modified by stating that "changing teaching practices cause desirable changes in student achievement, attitude, and conduct" (p. 91). This is based on evidence from experimental studies in which causal relationships between process and product variables have been established. Even though Gage believes that teaching practices can be

changed, he admits that this may not be possible for all teachers or for all practices. Gage also indicates that these findings are based on studies conducted with in-service teachers; therefore, similar changes in teaching practices may or may not occur in preservice education teachers.

A more positive approach is taken by Berliner (1984) who believes that the recently developed body of knowledge regarding teaching behaviors, especially decision-making skills, should be infused into preservice teacher education programs. While success with in-service teacher training has been documented, Berliner asserts that "children will continue to be shortchanged until teachers master these decision-making skills" (p. 94). For this reason, Berliner advocates the revision of teacher education programs to include more laboratory experiences, videotape analyses, and computer simulations in developing these skills in preservice teachers prior to their in-service teaching.

Berliner's (1984) position was actually proposed earlier by Medley (1979) who stressed the promotion of effective teaching behaviors at both the preservice and in-service teacher education levels. He maintained that the primary goals of these programs should include "the development of the competencies needed to create and maintain the learning environment, to engage pupils in learning-related activities, and to implement the kind of instruction that research indicates is provided by effective

teachers" (Medley, 1979, p. 25). Even at that time, Medley believed that there was an abundance of practical knowledge available about how to accomplish these things; however, teacher educators did not have a clear conviction that these things are what teachers should be doing (p. 26). It seems that teacher educators have been somewhat reluctant to use research findings in their training of prospective teachers.

There has been a similar reluctance by teacher educators in physical education to incorporate research findings from sport pedagogy into their teacher preparation programs (Siedentop, 1985). Most programs have been conducted using very traditional methods in training preservice physical education teachers. Only in recent years have teacher preparation programs responded to the research findings on teaching physical education by redesigning the methods courses and expanding the field experiences for preservice students. A review of the research regarding teacher effectiveness in physical education will attempt to demonstrate that these findings should be integrated into teacher education programs.

Studies of teacher-effectiveness research in physical education have been conducted using the same research paradigms as inquiries into classroom teaching. Using variables from Dunkin and Biddle's (1974) model of classroom teaching, process-product investigations allowed researchers to measure teacher effectiveness. After correlating the process variables (teacher and student behaviors) with

student achievement, they found that effective teachers keep their students actively involved in the content (Graham, 1989). Siedentop (1983) concurs that "the main ingredients of effective teaching are keeping students appropriately engaged in the subject matter a high percentage of the available time within a warm, nurturant climate" (p. 43).

Another important finding of these process-product studies is that, even though the role of the teacher is critical to successful physical education instruction, there is no one perfect teaching method or style (Siedentop, 1983). However, specific teaching strategies, that have little to do with method, have been identified as representing effective teaching. Siedentop, et al. (1986) indicate that any teaching method that is characterized by the following eight strategies can be highly effective.

1. Devote a large percentage of time to content.

2. Minimize management/wait/transition time in class routines.

3. Devote a high percentage of content time to practice.

4. Keep students on-task.

5. Assign tasks that are meaningful and matched to student abilities.

6. Keep the learning environment supportive and set high by realistic expectations.

7. Give lessons smoothness and momentum.

8. Hold students accountable for learning. (p. 375)

Each of these teaching strategies consists of several distinct teaching skills or behaviors such as: (1) using one signal to get students' attention; (2) giving instructions and demonstrations quickly and efficiently; (3) actively supervising students during practice sessions; (4) developing meaningful tasks that are both challenging and yield a great deal of success; and (5) providing timely, accurate feedback regarding students' skill attempts (Siedentop, et al., 1986). This does not represent an exhaustive list of discrete teaching skills that have been validated empirically against student achievement; however, it does characterize those instructional behaviors which are essential for effective teaching (Siedentop, 1985).

Based on a series of studies conducted at The Ohio State University (Boehm, 1974; Hughley, 1973; Rife, 1973) which examined the modification of teaching behaviors of student teachers, there is evidence to support the position that effective teaching skills can be developed by preservice teachers. These early investigations of behavior modification of preservice teachers were succeeded by several studies involving in-service teachers (Beamer, 1982; Birdwell, 1980; Whaley, 1980). Following a package intervention consisting of instructions and daily feedback, Birdwell (1980) decreased teachers' management time and student non-engaged time, while increasing teacher feedback. Thus, findings from these studies affirm the usefulness of

behavior modification in acquiring effective teaching skills for physical education instructional settings.

Siedentop (1985) supports this assertion regarding the acquisition of teaching skills by stating that "these skills can be acquired by ordinary young men and women in teacher education programs and, that when acquired to a level of reasonable competency, they tend to be used" (p. 52). He further contends that enough data are available about teaching effectively to justify a systematic effort by teacher educators to assist preservice students in obtaining such skills (Siedentop, 1986). This is supported by Gleissman's (1981) review of research on teacher training in which he suggests that there is ample evidence indicating that teaching skills can be acquired and teaching performance modified utilizing methods which provide for control and guidance of experience. Therefore, the development of effective teaching skills should follow a well organized plan that allows teacher trainees to acquire specific behaviors that are known to have a positive impact on student achievement.

Systematic Observation Techniques and Feedback Behaviors

A significant contribution to research on teaching has been the development and use of systematic observation instruments. The early observation systems were designed to analyze the quality and quantity of teacher-student interaction in classroom settings in order to better understand effective teaching (Underwood, 1988). The efforts

of Flanders in the 1960s was a milestone in the field which resulted in the Flanders Interaction Analysis System (FIAS) in 1970. The FIAS, a ten-category instrument, was designed to record and analyze the verbal behaviors of both the teacher and the students.

Although descriptive analyses of verbal behaviors represented a vital part of the teaching-learning process in the classroom, observations in the gymnasium would, by necessity, have to include the physical activity of the students. The fact that performance of physical activities is overt and measurable allows for more accurate judgments to be made by those observing "in the gym" (Metzler, 1986). Thus, numerous systematic observation systems have been developed since the early 1970s to produce an accurate record of the dynamic interactions of teachers and students in physical education.

Even though many of the observation instruments adapted Flanders' original categories (Dougherty, 1970; Goldberger, 1974; Rankin, 1975), the most widely used system in physical activity settings was designed in 1972 by Cheffers. The Cheffers Adaptation of Flanders Interaction Analysis System (CAFIAS) enabled behaviors to be categorized as verbal, non-verbal, or both. CAFIAS has been used for a variety of both descriptive and experimental studies primarily in examining its effects as a feedback instrument on observable teaching behaviors (van der Mars, 1984).

From the Beginning Teacher Evaluation Study (BTES) of the 1970s which David Berliner and his colleagues investigated the various aspects of instructional time in classroom settings, the complex variable of academic learning time (ALT) was devised (Underwood, 1988). ALT refers to that portion of engaged time when the student is involved in relevant instructional activities at an easy level of difficulty. Seeking to find a valid and reliable measure of student achievement in gymnasium settings, Siedentop and his associates modified the ALT Model (Fisher, Berliner, Filby, Marliave, Cahen, and Dishaw, 1981). This resulted in the concept of Academic Learning Time in Physical Education, ALT-PE (Siedentop, Birdwell, and Metzler, 1979), which examines relationships between teacher behaviors and the amount of time students spend engaged in specific movement tasks. The ALT-PE system was later revised by Siedentop, Tousignant, and Parker in 1982 and has been widely used by researchers in the United States and Canada (Underwood, 1988).

Many other instruments have been devised to gather objective information from the teaching-learning environment in physical education. Some of these include the following: the Observational System for Instructional Analysis (Olson, 1979); the OSU Teacher Behavior Rating Scale (Siedentop and Hughley, 1975); the Procedure for Recording Augmented Feedback (Fishman, 1974); the Observation Instrument for Content Development in Physical Education (Rink, 1979); and

the Multiple Observation of Student Teachers-Physical
Education System (Metzler, 1981).

These data-gathering techniques have provided a means
of analyzing teacher and student behavior for the past
fifteen years. Early in their development, Batchelder and
Cheffers (1976) stated that an observation instrument could
be used to (1) describe current classroom practices, (2)
modify teacher behavior, (3) provide a tool for the analysis
of teaching, (4) give feedback about one's own teaching, (5)
train student teachers, (6) discriminate between patterns of
teaching, (7) determine the relationships between various
classroom behaviors and student growth, and (8) help in
promoting future teaching patterns (Cheffers, 1977, p. 18).
Many of these suggested uses of observation systems have
assisted researchers in modifying behaviors of in-service
teachers and developing appropriate behaviors of preservice
teachers. Even though the observation systems examine
different teaching behaviors and use various data collection
methods, the basic approach remains, "that being to use
objective data to provide feedback on what teachers do in
order to improve their teaching competencies" (Gustafson,
1986, p. 146).

The descriptive-analytic research produced through the
use of systematic observation techniques has helped to
reveal some enduring problems in physical education classes.
In summarizing four studies of teacher behavior conducted
between 1977 and 1981, Siedentop (1983) notes the time

devoted to management tasks (15-20%), teacher talk (over 20%), waiting for instructions (nearly 28%), and engaged motor activity (about 25%). Verbal interactions between students and teachers occurred only 3-16% of the time, and over 80% of that total consisted of corrective feedback ("You need to bend your knees") and nagging ("Keep that line straight") (p. 57). Based on these findings, teachers wasted a great deal of time in passive observations and in management tasks such as taking roll and explaining rules, and they utilized very little time giving positive feedback to students (Placek & Locke, 1986).

Teacher augmented feedback, an important variable in the teaching-learning process, has been studied by those interested in improving teaching effectiveness. This variable is of particular importance to this investigation because of the various types of verbal feedback which will be analyzed during the study. Feedback given to students is comprised of information generated by their previous performance which is used to modify their next performance. Many types of feedback can be recorded during a physical education lesson in which systematic observation techniques are employed.

Motor learning research supports the proposition that feedback is an essential component of skill acquisition. Schmidt (1982) has suggested that there are four ways in which feedback could enhance learning. He believed that it acted (1) as guidance, (2) to form associations between

response parameters and resulting action, (3) as a reward or punishment, and (4) in a motivational role (Underwood, 1988, p. 21). Thus, various forms of feedback serve as a valuable tool for the teacher in physical activity settings.

In citing Anderson and Barrette's (1978) report on teacher behavior in twenty elementary and twenty secondary classes in the Videotape Data Bank Project, Underwood (1988) indicated that teachers spent 21.2% of their time in silent observation of students performing motor activities (p. 16). In a descriptive study of teacher behavior, Phillips and Carlisle (1983a) report that physical education teachers spent an average of 41.6% of their total class time in monitoring student activity. It seems reasonable that during a large portion of this time, teachers would be watching students in order to subsequently provide some kind of feedback about their performance. However, in referring to Pieron's (1983) review of studies on extrinsic feedback, Underwood (1988) reports that its occurrence was extremely diverse and ranged from less than 10% in some studies (Stewart, 1980) to approximately 25% in others (Anderson & Barrette, 1978) (p. 21). It appears that there is significant variation in teachers' verbal reactions to their students' skill performances.

Pieron and Goncalves (1987) conducted a study in which they analyzed the amount and type of verbal feedback provided by physical education teachers in both teaching and coaching settings. They found that the teachers had a

tendency to use evaluative (18.1-coaching vs. 12.8-teaching) and prescriptive (68.8 vs. 62.8) feedback more frequently in coaching than in teaching; whereas, descriptive (9.1 vs. 13.8) and interrogative (3.0 vs. 8.3) were more frequent in teaching than in coaching (p. 251). They concluded that the direct style of communication probably resulted in the high rate of prescriptive feedback by the coaches. In contrast, the teachers were inclined to induce more participant reflection by giving a larger amount of descriptive feedback. Since the same individuals were in control of the amount of feedback elicited in both settings, it is interesting that noticeable differences occurred in the types of feedback provided.

Several studies have been completed in which the use of verbal feedback was analyzed in comparing more effective with less effective physical education teachers. Yerg (1977, 1981a, 1981b) found no significant differences between either the amount or type of feedback provided by teachers identified as more effective and less effective. Graham, Soares, and Harrington (1983) reported similar results in a study of an experimental teaching unit (ETU) involving experienced elementary school physical education specialists. In describing their findings, the researchers noted that these results contrasted with those reported by Pieron (1981) in which he found more effective teachers provided more feedback to individual students than did less effective teachers (p. 12). In a review of research on

classroom teaching, Graham and Heimerer (1981) found evidence which suggested that successful teaching requires an orchestration of numerous teaching behaviors. The conflicting results of these studies may indicate that a single behavior is generally not significant enough to distinguish more effective teachers from those considered less effective.

Even though contrasting results have been reported in the analysis of verbal feedback, this does not refute its importance in the teaching-learning process. Graham, et al. (1983) state that "depending on the complexity of the skill presented, teacher feedback is not a process variable which lends itself to measurement in ETU research" (p. 13). Motor learning studies indicate that appropriate types of feedback should be furnished at specific times in skill acquisition (Gentile, 1972; Marteniuk, 1976). Given the abbreviated nature of an ETU, perhaps the variables examined in such studies should be those which affect all stages of student learning (Graham, et al., 1983).

Throughout teacher education programs in physical education there has been an emphasis on the importance of providing appropriate feedback following students' skill attempts. Current textbooks dealing with instructional methods (Harrison & Blakemore, 1989; Rink, 1985; Siedentop, 1983) stress the use of teacher verbal feedback during student practice trials. Rink (1985) reports that a great percentage of the feedback given by physical education

teachers is general (e.g., "Good job" or "Nice going"), indicating that they are using it as a monitoring and motivating tool rather than providing students with specific information on their performance (p. 243-4). Grippin and Peters (1984) indicate that "feedback must be specific enough that the student knows whether the response is correct or incorrect and, if incorrect, how to change it to make it correct" (Harrison & Blakemore, 1989, p. 163).

Rink (1985) contends that "the ability to give accurate and appropriate specific feedback depends on clear skill goals, knowledge of how skills are performed, and good observation and analysis skills" (p. 243). She suggests that when teachers recognize that they are providing primarily general feedback on student skill performance, they should train themselves to follow up the feedback by questioning "what" was good about the performance (Rink, 1985). In developing this specific teaching skill, Rink maintains that the feedback should be "precise enough to allow the learner to benefit from it but not so laden with details that it results in confusion" (p. 37).

Another aspect of feedback which Rink (1985) describes as important deals with the congruency of the feedback statements. She states that congruency refers to "the relationships between the content of the feedback, the focus of the task, and the cues that the teachers give for the task" (p. 246). Congruent feedback provides information on the performance or results of the skill attempt which is

directly related to the focus of the task the students have been given. Incongruent feedback provides information to the students that may be important in performing the skill, but is not specifically related to the task focus. Rink asserts that "when teachers give a high percentage of congruent feedback, their teaching becomes more narrow and focused" (p. 246). Thus, student effort during skill attempts can also become more precise and focused.

In discussing the importance of verbal feedback, Rink (1985) contends that the "shotgun" approach is typically used in providing verbal feedback following skill attempts (p. 246). This approach involves asking the students to focus on a specific task or aspect of a skill and then giving feedback on everything the teacher knows or observes which is related to that skill. Rink (1985) maintains that physical education instruction would be more effective if teachers "narrowed the number of cues they give students related to a movement task and tried to keep their feedback related to those cues" (p. 246).

In his textbook, Developing Teaching Skills in Physical Education, Siedentop also stresses that feedback should be directed to the specific target of instruction. He states that "to be most effective, feedback must be related to the instructional intent that is in operation at the moment the feedback is given" (p. 200). For example, if a teacher is focusing on having students keep their elbows close to the body during the golf backswing, it is counterproductive to

provide feedback about the action of the hips during the downswing and follow through. Therefore, teachers should meticulously select only a limited number of verbal cues and the feedback provided should reinforce the cues given.

Given the concern regarding the provision of appropriate teacher responses for skill attempts, this should be given specific attention in teacher preparation programs. Perhaps verbal feedback is a unique teaching skill in which preservice physical education teachers should develop a high level of competency so they will consistently deliver it in their teaching.

Peer Teaching Strategies

The use of behavior analysis techniques in teacher preparation programs in physical education was initiated by Siedentop and his associates at The Ohio State University (OSU) in the early 1970s. This approach in teacher education is derived from the principles of operant psychology (Siedentop, 1972). The use of behavior analysis strategies in education emphasizes the specification and objective measurement of behavior, validation of these strategies through experimentation, and a major focus on the environmental determinants of behavior (Siedentop, 1972, p. 26). As Siedentop (1972) points out, a behavior analysis model for teacher training in physical education does not entail a completely new content; however, it does imply a "particular perspective from which to view content--and that perspective is on measurable, observable behavior" (p. 28).

This means that the processes by which content, such as teaching skills and instructional strategies, are delivered to the preservice physical education teachers must be changed to match the behavior analysis strategies.

In describing the sequence of pedagogical experiences included in the teacher preparation program at OSU, Taggart (1988) states that a behavior analysis approach "demands that student teachers understand the research base and relevance of the teaching skills they will be expected to demonstrate" (p. 75). He also indicates that this approach requires the inclusion of sufficient opportunities within the teacher preparation program to develop competency in the implementation of these teaching skills into a variety of instructional settings (Taggart, 1988). Based on these considerations, preservice teachers must be exposed to both laboratory and clinical experiences in teaching physical education prior to their student teaching.

Following the adoption of the behavior analysis model, teacher educators must allow their preservice students to initially practice specific teaching skills in a supportive environment. Such an environment is characterized by a low number of pupils and teaching functions which are familiar to the preservice teacher (Taggart, 1988). This provides learning experiences in which the specified skills can be practiced and acquired within a controlled setting. After proficiency of these skills has been demonstrated in a controlled setting, preservice teachers should be gradually

introduced to a setting that approximates the "real world" of teaching (Taggart, 1988). The concept of a "carefully planned sequence" of instructional settings is supported by Metzler (1984) who believes that such a sequence "features several logically ordered experiences designed to identify needs for improved instructional skills, and provides a systematic method to develop those skills" (p. 38). Some of the pedagogical experiences which can be conducted within a controlled setting include peer teaching, microteaching, and reflective teaching (Siedentop, 1983). These experiences reduce the number of teaching skills and complexity of instructional strategies which confront the preservice teacher (Metzler, 1984). Such a reduction reinforces instructional skill "development" rather than a "sink or swim" situation where the preservice teacher must deal with every aspect of teaching (Metzler, 1984).

One approach which has been used extensively in teacher education programs is peer teaching in which preservice teachers are evaluated both subjectively and objectively by their instructor (Arbogast & Kizer, 1988). The training protocol for such experiences has been suggested by several researchers (Metzler, 1984; Paese, 1986; and Siedentop, 1983). By using class members as students, these peer teaching episodes begin with a short, planned presentation of a skill or activity, and culminate in some class or small group discussion concerning the presentation (Arbogast & Kizer, 1988). Several of these peer teaching lessons of

varying length, involving less than 10-11 students, may be presented depending on the nature of the course and the number of preservice teachers enrolled (Metzler, 1984).

By using a systematic observation instrument during the peer teaching lessons, the course instructor can collect objective data relative to specific teaching skills being emphasized (Siedentop, 1983). Providing feedback regarding the preservice students' performance is a necessary first step in developing the teaching skills of prospective physical educators (Arbogast & Kizer, 1988; Metzler, 1984; Siedentop, 1983). Some of the skills which can be developed during peer teaching episodes are utilization of instructional time, clarity of presentations, accuracy of demonstrations, rate of success in assigned tasks, and verbal feedback (Metzler, 1984).

Even though there has been widespread use of peer teaching, there are teacher educators who do not support its use, or the use of other controlled settings, in the preparation of physical education teachers. As Locke (1984) points out in his review of research on teacher education, "there is a natural proclivity for many teacher educators to devalue laboratory studies because the setting is judged neither ecologically valid nor complex enough to truly test ability to perform a teaching skill" (p. 53). Locke refutes this position by indicating that there is no evidence to suggest that controlled settings lead to "less securely acquired" teaching skills than field settings. He further

contends that the simulated environments developed for research purposes are sufficiently multifaceted to allow for the acquisition of many teaching skills (p. 53). Several studies have been reported in which the peer teaching technique was found to have merit in the preparation of physical education teachers (Graham, 1973; Jordan, 1971; Taylor, 1977). Graham (1973) examined the effects of a peer teaching laboratory on the performance of teacher trainees in an actual teaching situation. The teacher trainees who practiced teaching with their peers utilized the selected behavior of individual feedback more frequently than the control group which did not experience the peer teaching sessions (Graham, 1973).

Taylor (1977) investigated the use of peer teaching in the acquisition of teaching skills related to the kind and amount of teacher trainee decision making. By utilizing different teaching strategies in three peer teaching lessons, it was determined that the preservice trainees could, in general, distinguish between the types of decision problems which occurred during the lessons. In addition, Taylor concluded that peer teaching seemed to be a feasible tool to use in the acquisition of teaching skills. This evidence demonstrates that peer teaching can be used in both research and laboratory settings to influence the acquisition of specific teaching skills.

In reflecting on Locke's (1984) comments regarding the reluctance of some teacher educators to value the use of

peer teaching, perhaps more investigations need to be conducted which focus on the viability of this laboratory experience. One aspect related to the development of teaching skills which has only been utilized to a limited extent concerns the opportunity for preservice teachers to reteach their peer lessons. Olson (1982) reports that, regardless of the level, lesson, or teaching assignment, it is usually appropriate to have preservice teachers repeat the teaching experience. She bases her position on research findings from classic micro-teaching studies which contradict this "one shot" practice occurring in physical education teacher education (p. 82). Cooper and Allen (1971) and Schuck (1971) cite reports concurring that "even one or two teach-reteach cycles is simply not enough" (Olson, 1982, p. 82). In fact, it is recommended that three to four such cycles with a limited scope should be completed in order to improve teaching skills. Olson (1982) contends that

> no physical education teacher or coach would think for a moment of attempting to increase skill by giving a student a single trial followed by a discussion about the performance (videotaped or not), and then of dismissing the student until it is his/her turn to attempt a different skill (p. 82).

It is obvious from this statement that Olson believes preservice physical education teachers should be treated no differently than beginners in a skills course. They should be given multiple opportunities to practice specific

teaching skills using various laboratory experiences (Olson, 1982).

The teach-reteach format was included as one of the main components of a teacher training procedure developed at the Far West Laboratory for Educational Research and Development. Borg (1972) conducted a study in which he evaluated this procedure (Minicourse I) which was comprised of the following components: (a) two films describing, illustrating, and modeling nine teaching skills; (b) twenty minutes of micro-teaching followed by self-evaluation and then reteaching the initial lesson; and (c) repetition of (b) for each skill (Turner, 1975, p. 97). By videotaping the forty-eight teachers one week prior to the beginning of the course, shortly after training, and four months after the course was completed, Borg (1972) was able to evaluate the effectiveness of these components in modifying teaching behavior. Borg found that four of the skills showed positive results, three were not influenced by the training procedures, one showed negative results, and one skill could not be assessed (Turner, 1975, p. 98). As Turner (1975) points out

> the strengths of the Borg study lie in the development of an extremely clear and replicable training procedure, in sharply defining the teacher behaviors to be acquired, and in developing measures of these behaviors (p. 98).

One study in physical education reports positive results using the teach-reteach format. Imwold (1984) examined the use of micro-teaching as a means of affecting

verbal feedback behaviors of preservice physical education teachers. Using a training procedure similar to that of the Borg (1972) study, the preservice teachers planned and presented a five minute micro-teaching episode, received data regarding the amount of feedback provided, viewed their videotapes, and then retaught the lesson. The results indicate that generally the amount of verbal feedback increased from the first teaching episode to the second (Imwold, 1984, p. 74). By considering each verbal feedback response as a "contact," the preservice teachers made an average of four more contacts during the second episode and the average length of each contact increased during episode two (Imwold, 1984). Based on the findings of these studies, the teach-reteach format appears to be a valid approach to use in the acquisition of teaching skills.

<u>Teaching Models</u>

Another aspect relevant to the acquisition of teaching skills involves the teaching method or instructional strategy utilized during laboratory experiences. Various methods or styles, such as command style, direct instruction, reciprocal style, and guided discovery have been used in structuring the lessons taught by preservice teachers. No single teaching style or method is unconditionally better or worse than another; however, Mosston's Spectrum of Teaching Styles (1981) has been used in scientifically examining the teaching process (Goldberger & Gerney, 1986).

The Spectrum of Teaching Styles (Mosston, 1981)
consists of a continuum of eight teaching styles (A through
H) derived from a common decision-making model. The
decision making shifts along the Spectrum from Style A, in
which the teacher makes all decisions, to Style H, in which
the learner is the sole decision maker (Mosston, 1981).
Consequently, any teaching episode can be placed along the
Spectrum by determining "who" made which decisions "when"
during the presentation (Goldberger & Gerney, 1986).

Even though there are theoretical differences among
them, Styles A through E (Command, Practice, Reciprocal,
Self-Check, and Inclusion) correspond to Rosenshine's (1979)
description of direct instruction (Goldberger, 1984;
Goldberger & Gerney, 1986). According to Rosenshine, direct
instruction is characterized by a teacher-centered focus,
structured tasks, controlled learner practice, and teacher
feedback generated by constant monitoring. For Styles A
through E, the purpose of instruction is for the students to
replicate the specific skills or movements presented by the
teacher (Goldberger, 1984). In detailing this process,
Goldberger (1984) states that "the teacher strictly defines
the task, specifies what the learners are to do, indicates
the conditions under which it is to be done, and specifies
the criteria for correct task completion" (p. 19).

Several studies have been conducted in which one or
more of Mosston's (1981) teaching styles have provided the
instructional format for the lessons. Some of these

investigations have examined the effectiveness of Styles B, C, and E in the acquisition of psychomotor skills (Goldberger, Gerney, & Chamberlain, 1982; Goldberger, Gerney, Gerney, & Dort, 1982; Goldberger & Gerney, 1986); whereas others have utilized various styles in analyzing specific teaching behaviors (Imwold, 1984; Newman, 1988).

The concept of direct instruction has be incorporated into another teaching model designed by Madeline Hunter (1982). The Hunter lesson design was developed from the research on effective classroom instruction conducted at the University of California, Los Angeles, directed by Hunter. Since the early 1960's, educational researchers in the program have been examining the cause-effect relationships in classroom teaching. According to Hunter (1982), "they have been studying teaching decisions and their implementation: the essence of the process of teaching" (p. 3).

The Hunter lesson design is the result of decisions made in effective planning with regard to the content to be taught, student behaviors that make learning possible, and teaching behaviors that will increase learning (Hunter, 1982). The seven elements of the Hunter lesson design are:

 1. Anticipatory set. Gets the students focused on the lesson by developing a mental set for learning.

 2. Objective. Enables the students to know what will be learned and why it is relevant or useful to them.

3. Input. Provides the students with information about the knowledge, process, or skill they are to achieve.

4. Modeling. Furnishes the students with a visual demonstration of what is to be practiced.

5. Checking for understanding. Ascertains whether the students understand the task(s) they are supposed to do.

6. Guided/Monitored practice. Allows the students to practice their new knowledge or skill under direct teacher supervision and receive feedback about their progress.

7. Independent practice. Permits those students who have acquired the knowledge or skill to practice without direct supervision of the teacher (Hunter, 1982).

In discussing the efficacy of the model at a recent Mastery Teaching workshop, Hunter (1990) stressed that every lesson does not necessarily need to contain all seven elements. However, each element must be "thought" about by the teacher and its exclusion is a matter of professional decision making (Hunter, 1984). Hunter (1990) also points out that teachers may even repeat some of the elements, such as input or modeling within the same lesson if the students are having difficulty in learning the knowledge or skills as intended.

Given the teacher-centered presentation of content and focus on monitored practice with teacher feedback, the Hunter lesson design provides a format for acquiring specific teaching skills. Batesky (1987) supports the implementation of the Hunter model into physical education

instruction. He contends that using the basic elements of the lesson design will produce effective teaching which thereby promotes student learning (Batesky, 1987). These seven elements can be utilized in a variety of teaching settings, such as preservice laboratory experiences, to emphasize the importance of planning and development discrete teaching behaviors.

CHAPTER 3

Methods and Procedures

The purpose of this study was to analyze the development of verbal feedback behaviors of preservice physical education teachers using a teach-reteach format in presenting peer lessons. The descriptive research methods and procedures used to complete this investigation are explained in this chapter. The first section of this chapter includes a description of the preparation completed by the researcher prior to beginning this study. The subsequent sections discuss the selection of subjects and research settings, design of the study, observation instrument, reliability, training of coders for reliability, data collection procedures, pilot study, and finally, the data analysis.

Preparation for the Investigation

Prior to initiating the study, the researcher received training in the use of systematic observation techniques through various experiences. The first involvement in data collection procedures using an observation system occurred during a doctoral program teaching internship in the Sport Pedagogy I course at Longwood College in the spring of 1989. With the assistance of Dr. Bette Harris, the researcher gained proficiency in coding both live and videotaped peer teaching lessons by using interval and event recording

techniques. Both the Sport Pedagogy I students and the researcher were trained through the use of the Videotape Observation Systems in Physical Education Programs (NASPE, 1987). During this pedagogy course, the researcher also received instruction in the use of videotape recording equipment as the live peer teaching episodes were presented.

As part of a fieldwork project during the summer of 1989, the investigator participated in the Systematic Observation in Teaching Physical Education workshop conducted at Western Kentucky University. Throughout the week-long seminar, Dr. George Graham, Dr. Judy Rink, and Dr. Darryl Siedentop trained the participants in the use of various systematic coding instruments during both live and videotaped teaching and coaching situations. The researcher also learned how to describe discrete teaching behaviors for coding purposes and calculate observer agreement for checking the reliability of the data collected.

To gain additional competence in using event recording techniques, the researcher coded the verbal feedback behaviors elicited by a model teacher in a videotaped throwing lesson prepared by George Graham. Utilizing this videotape for training purposes, the researcher obtained an intraobserver agreement of 90% or above for those feedback categories which had a total frequency of eleven or more (Intraobserver agreement for total number of events = 95%).

The Hunter lesson design (see Chapter 2) was used in planning the peer teaching episodes based on the

researcher's familiarity with this teaching strategy.
During the Sport Pedagogy I course at Longwood
(Spring, 1989), the investigator reviewed the peer teaching
lesson plans which were prepared using Hunter's seven
elements. Additionally, the researcher participated in a
Madeline Hunter Mastery Teaching Workshop (August, 1990)
which focused on effective lesson planning and teaching
strategies for various instructional settings. This allowed
the investigator to develop a more thorough understanding of
how Hunter's lesson design should be used in planning and
implementing physical education lessons.

Selection of Subjects and Research Settings

The subjects selected for this investigation were
senior physical education majors in the teacher preparation
program of the Department of Physical Education and
Recreation at Liberty University, a Christian liberal arts
school, located in Lynchburg, Virginia. The five subjects,
including four males and one female, were preservice
physical education teachers enrolled in the Secondary
Methods and Materials course (EDUC 434) and Supervised
Student Teaching (EDUC 465 and 466) during the 1991 spring
semester.

During the first class session on January 16, 1991, the
researcher provided the subjects with an overview of the
investigation. The subjects were told that the data
gathered from this study would be used to improve the K-12
physical education teacher certification program. After

reading the General Procedures for Research Study (Appendix A), each subject signed an Informed Consent Form (Appendix B) prior to voluntarily participating in the study. The researcher, who was also the methods course instructor, advised the subjects that the results of the study would not in any way affect their grades in either the methods course or student teaching. At this time, the subjects were also given the Procedural Timetable for the Study (Appendix C) outlining the data collection schedule.

A secondary physical education methods course taught at Liberty University was chosen as the initial research environment. This selection was made because the course allows the preservice teachers to develop those teaching skills which facilitate effective physical education instruction. The class sessions involved both lecture and laboratory activities which emphasized the use of discrete teaching behaviors such as verbal feedback. Specific teaching skills were practiced using peer teaching and microteaching episodes in preparing the preservice teachers for the student teaching experience immediately following the completion of the methods course. The class sessions were scheduled from 8:00-9:50 a.m. each weekday from January 16 to February 22, 1991.

The selection of the secondary methods course as the primary research environment was also made because of the researcher's access to videotape recording equipment as well as logistical considerations regarding facilities and time.

Gaining entry into this primary setting was easily obtained since the researcher was also the course instructor for EDUC 434. In addition, permission to conduct the investigation was secured (Appendix D) from the Chairman of the Department of Physical Education and Recreation and the Dean of the School of Education at Liberty University.

The secondary student teaching experience was selected as the collateral research environment. This selection was made because it provided the preservice teachers with a clinical setting in which to implement the teaching skills acquired during the methods course. The student teaching assignments in four public high schools of central Virginia were made by the Coordinator of Student Teaching Placements at Liberty University. The researcher discussed the general purposes of the study with the principals and cooperating teachers of the assigned schools. These individuals granted permission for the researcher to videotape physical education lessons taught in their schools by the respective student teachers.

Design of the Study

In the interest of instructional equivalency, all five subjects were exposed to the same content and teaching strategies during the secondary methods course (EDUC 434) in the 1991 spring semester. Since this investigation involved the use of systematic observation techniques, the researcher utilized descriptive-analytic research procedures in collecting and analyzing the data.

Observation Instrument

The Feedback Coding Form (FCF) developed at Virginia Tech University (Graham, 1989) was used to systematically observe and record the verbal feedback behaviors displayed during the videotaped lesson episodes. The FCF is designed for event recording of both general and specific verbal feedback responses made by the teacher during the lesson. The FCF also provides for teacher verbal feedback related to the students' behavior to be recorded; however, this section of the instrument was not used. The length of each videotaped lesson was measured to facilitate the calculation of the rate per minute for each verbal feedback category.

For the purposes of this study, only the "Specific Skill Feedback" and "General Feedback" sections related to verbal teaching behaviors were used for the data collection and analysis. Event recording was used to count the number of times that a discrete feedback behavior occurred. Each time the subject emitted a defined behavior, the researcher marked a tally under the appropriate category on the coding sheet (Appendix E). The researcher decided whether a defined behavior had occurred based on the specific definitions of the selected verbal feedback behavior. In addition to categorizing each specific skill feedback statement, a decision as to whether it was congruent or incongruent was made and tallied in the appropriate column.

Reliability

The goal of any observation made of a teaching-learning environment is for the resulting data to be an accurate reflection of what actually happened during the lesson. In using systematic observation techniques, reliability refers to the consistency of the observer to produce the same data if the same observer using the same behavior definitions and coding procedures observes and records videotapes of the teaching episodes on two separate occasions at least one week apart (van der Mars, 1989). In research projects involving systematic observation, percent of observer agreement is used as an indicator of observer reliability.

To determine reliability of the data collected during the peer teaching episodes and the skill instruction lessons, intraobserver agreement was calculated. Intraobserver agreement is the degree to which one observer records the same data on two separate occasions, using the same coding rules and procedures while viewing the same events (van der Mars, 1989, p. 54). To calculate the intraobserver agreement for this study, the researcher coded the videotaped peer teaching episodes within two days of the presentations and then allowed approximately two weeks before coding the videotapes again. The skill instruction lessons were initially coded within one to four weeks of being videotaped. The second coding was completed after an additional two weeks had elapsed. The following formula was used to compute the intraobserver agreement:

$$\frac{\text{AGREEMENTS}}{\text{AGREEMENTS} + \text{DISAGREEMENTS}} \times 100 = \% \text{ of AGREEMENT}$$

An intraobserver agreement of 90% or higher is considered to be reliable for descriptive research purposes (Graham, 1989 and van der Mars, 1989). For those feedback categories which had a total frequency of 11 or more, an intraobserver agreement of at least 90% was calculated. In order to verify the reliability of the researcher during the study, one trained coder observed and coded twenty percent of the videotaped lessons. An interobserver of at least 80% (Siedentop, 1983) was calculated for those feedback categories having a total frequency of 11 or more.

Training of Coders for Reliability

The researcher trained two colleagues of the Physical Education and Recreation Department at Liberty University to check reliability during this study. One colleague had received prior training as a coder using event recording in the developmental stages of the Beginning Teacher Assistance Program (BTAP) at the University of Virginia. The other colleague had no previous training as a coder, but had been a physical educator for fifteen years. The researcher met with the two coders to discuss coding procedures and clarify definitions of the terms (Appendix F). Another meeting was held to discuss the results of practice videotapes and clarify questions. Subsequent sessions and phone conversations were conducted when additional questions arose. The observer agreement at the end of training

between the researcher and the coders reached 84% or above
for those feedback categories which had a total frequency of
eleven or more (Interobserver agreement for total number of
events = 92%).

The researcher coded all videotaped lesson episodes
during the secondary methods course and student teaching.
The trained coder, with BTAP experience, served as an
independent coder for the purpose of checking reliability on
20% (total = 6) of the lesson episodes. This independent
coder had no contact with the subjects in the investigation
except for coding their tapes. Since the other trained
coder (without BTAP experience) served as the course
instructor for the Physical Education Seminar for Student
Teachers (EDUC 435), he had weekly contact with the subjects
in the study. Due to this situation, the researcher decided
to use this coder for a three-way check of reliability.
Thus, this coder checked two of the six lesson episodes
coded by the independent coder and interobserver agreement
was calculated between each of the trained coders and the
researcher.

<div align="center">Data Collection Procedures</div>

During the first week of the 1991 spring semester
methods course, the five subjects received instruction
through lectures and demonstrations regarding a variety of
teaching strategies included in the course textbook,
Physical Education: Teaching and Curriculum Strategies for

<u>Grades 5-12</u> (Siedentop, Mand, & Taggart, 1986). Among these strategies, the following pedagogical skills were discussed: (1) keeping students on task; (2) avoiding verbal crutches; (3) voice projection and volume; and (4) positioning during the lesson. During these class sessions, the researcher presented brief lesson episodes in demonstrating these skills for the preservice teachers.

As the first week of the course progressed, the subjects also received instruction on effective planning using the Hunter lesson design (Hunter, 1982). The seven elements of the Hunter lesson design are: (1) anticipatory set; (2) lesson objective; (3) input; (4) modeling; (5) checking for understanding; (6) guided/monitored practice; and (7) independent practice. Every lesson does not necessarily require every element depending on the content being taught and the time available for instruction.

The researcher utilized the Hunter lesson design because of the emphasis placed on guided/monitored practice. Hunter (1990) stresses that the teacher should provide appropriate verbal feedback to the students as they are "learning the content." In the case of physical education, this means closely observing the students during their skill attempts in order to detect if any errors in skill execution are being made.

Following the first three class sessions, the subjects were given their first peer teaching assignment. Each subject prepared and presented a five-minute lesson using

the Hunter lesson plan format in which he/she attempted to exhibit the pedagogical skills previously discussed. The researcher assigned the specific motor skill which each subject taught in these lessons and reviewed each lesson plan to determine if it conformed to the Hunter lesson design. The six peer participants for these five-minute teaching episodes consisted of the subjects' classmates in the methods course and additional preservice physical education majors who volunteered to take part in the peer lessons.

Videotape recording equipment (Appendix G) was arranged in the gymnasium so as not to interfere with the presentation of the lessons and yet allow for accurate videotaping. Each subject was given the verbal signal "Go" by the researcher to begin the presentation of his/her lesson. At the "Go" signal, the video camera was being operated by a research assistant and the researcher started a stopwatch to monitor the length of the lesson. At the 4.5-minute mark of the five-minute time period, each subject was given the verbal signal "30 seconds" in order to complete the lesson presentation. The stopwatch and video camera were stopped when each lesson was concluded. This first peer teaching experience was completed for all subjects so they would be comfortable with the videotaping and signaling procedures used during the study.

The Students' Use Of Time Coding Form (Appendix H) was utilized to record the time spent in activity, instruction,

waiting, and management during these first peer teaching episodes as a means of introducing the subjects to systematic observation recording techniques. The data collected were shared with all subjects following the presentation of their lessons.

The peer participants also completed the Five-Minute Lesson Analysis Forms (Appendix I) at the conclusion of each lesson presentation and submitted these to each subject. Prior to teaching these initial peer lessons, the researcher reviewed the purpose of this form which focused on the teaching skills discussed and demonstrated in previous class sessions. After the five-minute lessons were videotaped, a discussion about the lesson presentations was conducted with all subjects during the next class session.

Following the videotaping of the five-minute peer teaching episodes, each subject viewed his/her lesson and completed an analysis form (Appendix J). This form focused on the use of verbal crutches and positioning during the lesson. These completed forms were submitted to the researcher prior to the second peer teaching lesson presentations.

During the next class session, the subjects received instruction on additional teaching strategies. Among these strategies, the following teaching skills were discussed by the researcher: (1) presenting good demonstrations; (2) using verbal teaching cues; and (3) providing verbal feedback. Within this same class session, the subjects were

given the next peer teaching assignment. Each subject prepared a ten-minute lesson using the Hunter lesson plan format. The investigator did not designate which skills were to be taught by the subjects. This was done to assist the subjects in being comfortable with the content making it easier for them to concentrate on the presentation of the lesson. Thus, the subjects were allowed to teach any activity they chose given the equipment and facilities of the Liberty University gymnasium. The researcher reviewed each lesson plan to determine if it complied with the Hunter model.

The videotaping and verbal signaling procedures used during the five-minute peer teaching episodes were followed for the ten-minute lessons with one exception. At the nine-minute mark of the ten-minute time period, each subject was given the verbal signal "one minute" in order to complete the lesson presentation. The stopwatch and video camera were then stopped when each lesson was concluded.

The peer participants completed the Ten-Minute Lesson Analysis Forms (Appendix K) following each presentation and submitted these to the peer teacher. The Students' Use Of Time Coding Form (Appendix H) was again employed to determine how the instructional time was used during each lesson presentation.

The FCF (Appendix E) was utilized for recording the verbal feedback behaviors during observations of the videotaped ten-minute peer teaching episodes. The

researcher observed (Appendix G) and recorded the verbal feedback statements according to the following categories.

Congruent feedback. A teacher verbal response to student skill attempt (performance or results) that is consistent with the immediate task focus and cues (Rink, 1985).

General negative feedback. A teacher verbal response to inappropriate student performance so that disapproval is shown without any specific information being communicated about particular aspects of the performance (Siedentop, 1983).

General positive feedback. A teacher verbal response to appropriate student performance so that approval is shown without any specific information being communicated about particular aspects of the performance (Siedentop, 1983).

Group feedback. A teacher verbal response to student performance which is directed to a part of the students in a class (Rink, 1985).

Incongruent feedback. A teacher verbal response to student skill attempt (performance or results) that may be important to the skill but is not specifically related to the task focus (Rink, 1985).

Specific skill negative feedback. A teacher verbal response to inappropriate student skill attempt which conveys disapproval and precise, detailed information about certain aspects of the performance (Siedentop, 1983).

Specific skill neutral feedback. A teacher verbal
response to student skill attempt which conveys precise
detailed information which is neither positive nor negative
(Graham, 1989).

Specific skill positive feedback. A teacher verbal
response to appropriate student skill attempt which conveys
approval and precise, detailed information (Siedentop,
1983).

The data collected from the videotapes were shared
simultaneously with all of the subjects following the
researcher's observations of the lesson presentations
(Appendix L). The researcher discussed with the subjects
the importance of providing the students with appropriate
verbal feedback in relation to the acquisition of skills or
movement tasks. The difference between general and
specific, group and individual, and congruent and
incongruent verbal feedback were also explained to the
preservice teachers. This session was facilitated by the
use of a videotape of a throwing lesson prepared by George
Graham using a model teacher in which specific congruent
feedback is emphasized.

Following this discussion, each subject viewed his/her
videotaped ten-minute lesson and completed an analysis form
(Appendix M). This form focused on skill demonstrations,
use of verbal teaching cues, and verbal feedback statements.
The completed forms were submitted during the next class
session and the researcher made suggestions concerning

adjustments which could be made in utilizing these teaching skills in reteaching these initial lessons.

These ten-minute peer teaching episodes were presented a second time and videotaped so the subjects would have another opportunity to elicit appropriate verbal feedback. The same videotaping and signaling procedures were followed during these lessons. The peer participants also completed another lesson analysis form (Appendix K) following each presentation and submitted these to the peer teacher. The Students Use Of Time Coding Form (Appendix H) was again employed to determine the use of instructional time. Thus, the teach-reteach cycle was completed for the ten-minute peer lesson episodes.

The FCF (Appendix E) was utilized for recording the verbal feedback behaviors during observations of these "repeated" lesson presentations. The data collected from these videotaped lessons were shared simultaneously with all of the subjects following the researcher's observations of the lesson episodes (Appendix L). A comparison of the data compiled from both of the ten-minute lesson presentations was also given to the subjects during this class session (Appendix N). Again, the importance of providing appropriate teacher verbal feedback regarding student skill attempts was discussed by the researcher.

Following the completion of the secondary methods course, the subjects began their student teaching experience on February 25, 1991 in their respective schools. During

this ten-week period, each preservice teacher was videotaped teaching four skill instruction lessons during his/her secondary student teaching experience using similar procedures (Appendix O) as those employed for the peer teaching episodes. The researcher concluded the videotaping of these skill instruction lessons on May 2, 1991.

The FCF (Appendix E) was utilized for recording the verbal feedback behaviors during observations of these videotaped lessons. Data collected from these lessons were shared on May 7, 1991 during interview sessions with each subject following the researcher's observations (Appendix P). At this time, the researcher spoke with each subject individually concerning his/her experiences during the study. The researcher also probed the subjects' rationale regarding the amount and type of verbal feedback elicited in the lesson episodes analyzed. These sessions were recorded on an audiocassette recorder (Appendix G) and a transcribed copy of his/her interview was given to each subject.

<u>Pilot Study</u>

A pilot study was conducted during the 1990 fall semester to verify that the observation instrument and data collection procedures would function as specified within the research settings. This preliminary investigation also allowed the researcher to demonstrate the ability to use the coding procedures accurately and reliably. A trial run of the data analysis was accomplished and appropriate changes

were made to facilitate the interpretation of results. Additionally, the investigator trained an assistant in videotape recording procedures.

Data Analysis

All data were analyzed and presented encompassing the identified research questions pertaining to the verbal feedback behaviors during the six videotaped teaching episodes. These research questions are as follows:

1. What levels of verbal feedback behaviors will result from an initial peer teaching lesson?

2. What changes in verbal feedback behaviors will be demonstrated in a second peer teaching lesson as a result of data given to the preservice teachers following the first lesson?

3. Will transfer of these verbal feedback behaviors occur during the secondary student teaching experience; and if so, to what extent?

After the peer teaching lessons and student teaching skill instruction lessons were coded, the tallies for each verbal feedback behavior category were totaled to determine the frequency of occurrence. Since the length of these six lesson episodes varied, the rate of each verbal feedback behavior was determined. The rate of each behavior was calculated by dividing the recorded total frequency by the length of the observation. The length of the observation is typically measured in minutes; therefore, the resulting

number will be the rate per minute (RPM) (van der Mars, 1989) for each feedback category.

Ratios of total feedback statements in separate categories were also used to indicate the relationships of selected verbal feedback behavior patterns. These ratios included: (1) specific skill feedback to general feedback; and (2) congruent to incongruent statements within each of the six specific skill feedback categories.

Data from the observational recordings of the six videotaped teaching episodes were graphically represented for each of the verbal feedback categories. Single subject analysis was utilized to determine patterns and trends in these verbal teaching behaviors as demonstrated by the preservice physical education teachers in both the secondary methods course and subsequent secondary student teaching experience.

CHAPTER 4

Analysis of Data

Introduction

The purpose of this study was to investigate the development of verbal feedback behaviors of preservice physical education teachers using a teach-reteach format for a ten-minute peer teaching lesson. Specifically, this study was designed to analyze the effectiveness of a second presentation of a peer teaching lesson after the preservice teachers received data regarding their use of verbal feedback during the first lesson presentation. Additionally, the implementation of these verbal feedback behaviors during the secondary student teaching experience was examined. The researcher analyzed ten different categories of specific skill and general verbal feedback behaviors. The specific skill feedback statements were also examined as to the congruence or incongruence of these statements to the intended task focus.

The findings in this study are based upon the data obtained using event recording techniques. The verbal feedback behaviors elicited by the five subjects were coded by the researcher during observations of their videotaped lessons. The six videotaped episodes for each subject included two ten-minute peer lessons (PT = peer teach and PR = peer reteach) presented in a secondary methods course and

four skill instruction lessons (ST1, ST2, ST3, and ST4 =
student teaching) taught during student teaching in a
secondary school setting. The frequency of occurrence for
the ten separate categories was converted into a rate-per-
minute for each of the verbal feedback behaviors. Ratios of
total feedback statements in separate categories were
computed to indicate the following relationships:
1) specific skill feedback to general feedback, and
2) congruent to incongruent statements within each of the
six specific skill feedback categories.

The first section of this chapter includes the results
of the observer reliability calculations. The subsequent
sections contain descriptive analyses of the data for each
of the five preservice teachers (BD, SF, JD, LS, and KM).
The individual subject analyses will be presented in
response to the research questions formulated for this
study. Visual inspection of graphic data depicting the
rates per minute and numerical ratios will facilitate the
data analysis.

<u>Observer Reliability</u>

Reliability in this study was calculated by using the
following methods: 1) intraobserver agreement by the
researcher for each of the lesson episodes (total = 30), and
2) interobserver agreement by an independent coder for
twenty percent (total = 6) of the lesson episodes. The
criterion levels of reliability were set at 90% for

intraobserver agreement and 85% for interobserver agreement
prior to the investigation.

Table 1

Intraobserver Agreement Percentage of Verbal
Feedback Behaviors By Subject

Lesson	BD	SF	JD	LS	KM	Mean
PT	95	96	98	95	98	96
PR	96	97	95	96	96	95
ST1	96	96	96	96	94	96
ST2	97	97	97	96	97	97
ST3	96	95	97	98	96	96
ST4	95	98	97	95	98	97
Mean	96	97	97	96	97	

Note: Percentages were calculated for those feedback
categories which hold a total frequency of 11 or
more.

Table 1 presents the results of the intraobserver
agreement percentages for all of the videotaped lessons.
The mean intraobserver agreement percentage was calculated
to be 97% for the thirty lessons. The interobserver
agreement percentages for the six lesson episodes are
displayed in Table 2. The mean interobserver agreement
percentage was calculated to be 95% for the lessons coded.

An additional reliability check was completed by a second
trained coder for two of the six lesson episodes coded by
the independent coder. The mean interobserver agreements
were 94% and 92% between this coder and the researcher and
the independent coder respectively. Achieving results above
the criterion levels for all intraobserver and interobserver
agreements verified that the data collection procedures
yielded accurate and reliable data for analysis.

Table 2

Reliability Agreement Percentages
of Independent Coder

Coded Episode (Subject/Lesson)	Interobserver Agreement %
LS/ST4	95
KM/ST2	93
SF/ST4	97
KM/PR	93
JD/ST1	95
BD/ST2	95
Mean	95

Note: Percentages were calculated for those feedback
categories which had a total frequency of 11 or more.

Subject BD

The observational data collected from Subject BD's peer teaching indicate that he provided more specific feedback in less time following the data analysis of the initial lesson presentation. For the ten-minute peer lessons, Subject BD chose to teach the forearm pass in volleyball. The initial lesson presentation was 13.0 minutes in length and the second was 10.5 minutes as shown in Figure 1. The rates of separate specific skill feedback categories for the PT lesson were less than 1.0 per minute; however, the total for all categories was 1.31 per minute (see Figure 2). Subject BD's rate of total specific skill feedback increased to 2.38 per minute for the PR lesson which reflects an increase of 82%. The highest rate of specific feedback elicited by Subject BD during the PT lesson was 0.92 per minute of individual neutral feedback; whereas during the PR lesson, it was 1.62 per minute for the individual positive category (see Figure 3a).

In contrast to the increase in specific skill feedback by Subject BD for the two peer lessons, the data reflect a decrease of 25% in total general feedback from 2.38 to 1.90 per minute (see Figure 2). Subject BD elicited more individual positive than any other type of general feedback in both peer lessons with 1.38 per minute during the PT lesson and 1.05 per minute during the PR lesson (see Figure 3c). As displayed in Table 3 (see page 68), the ratio of total specific skill to total general feedback for

Figure 1
Length of Lesson Episodes
for Subject BD
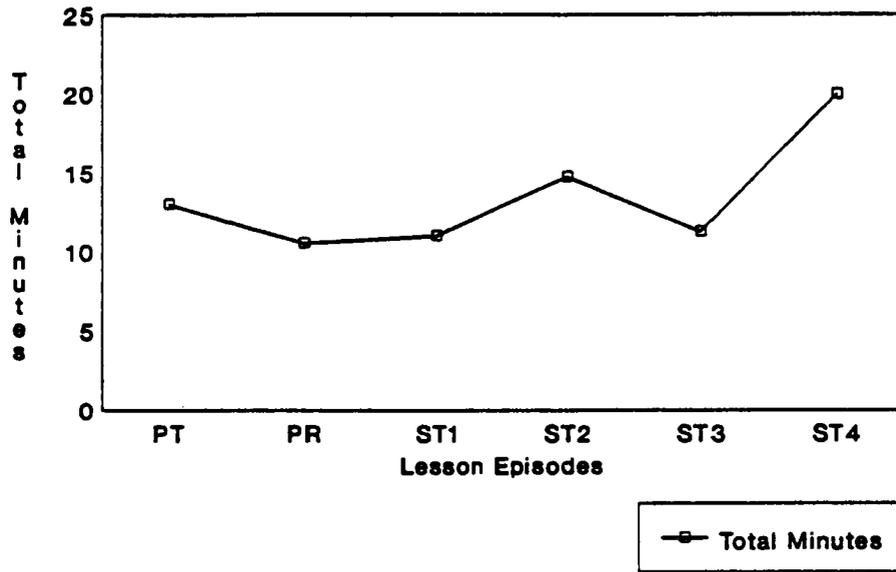
Figure 2
Total Specific Skill vs. Total General
Feedback for Subject BD
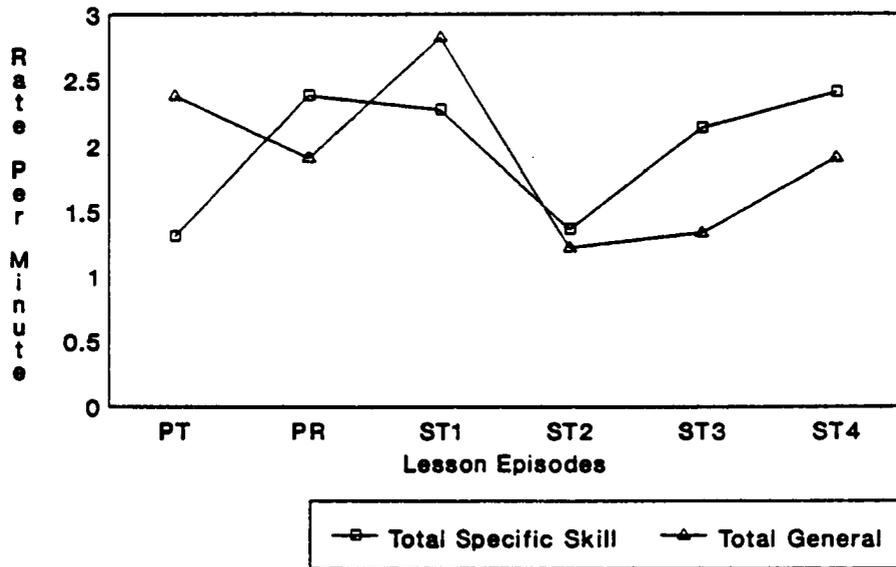
Figure 3a
Individual Specific Skill Feedback
for Subject BD
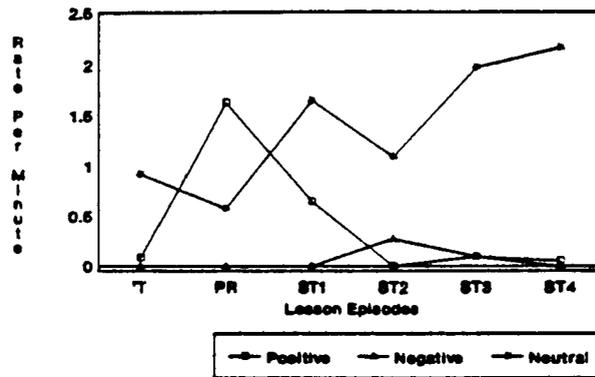
Figure 3b
Group Specific Skill Feedback
for Subject BD
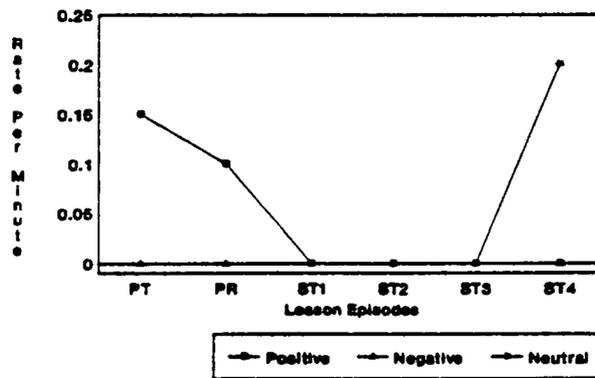
Figure 3c
General Feedback
for Subject BD
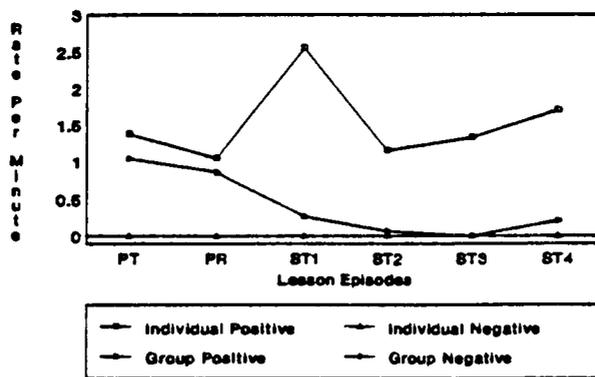
the initial lesson presentation was 1.0|1.8; however,

Subject BD provided more specific than general feedback when

he retaught the forearm pass lesson with a 1.3|1.0 ratio.

Table 3

Ratios of Total Specific Feedback to
Total General Feedback
(Subject BD)

Lesson Episode	Ratio
PT	1.0|1.8
PR	1.3|1.0
ST1	1.0|1.2
ST2	1.1|1.0
ST3	1.6|1.0
ST4	1.3|1.0

The descriptive data from his peer teaching show that

Subject BD gave the participants more congruent feedback

during the second lesson episode. Table 4 displays the

ratios of congruent to incongruent feedback in each of the

specific skill categories. The ratio of congruent to

incongruent specific skill feedback for all categories was

3.2|1.0 for the PR lesson as compared to 1.1|1.0 for the PT

lesson. The most substantial improvement made by Subject BD

in the congruency of his feedback statements was recorded in

the individual positive category. This ratio increased from 1.0|0.0 in the PT lesson to 7.5|1.0 in the PR lesson.

Table 4

Ratios of Congruent to Incongruent Feedback
for Peer Teaching Lessons
(Subject BD)

Specific Skill Feedback Type	PT	PR
Individual Positive	1.0|0.0	7.5|1.0
Group Positive	1.0|1.0	1.0|0.0
Individual Negative	---	---
Group Negative	---	---
Individual Neutral	1.0|1.4	1.0|1.0
Group Neutral	2.0|0.0	0.0|1.0
Total	1.1|1.0	3.2|1.0

Subject BD completed his secondary student teaching assignment in a rural high school that has an enrollment of 843 students in grades 9-12. During this five-week assignment, Subject BD taught a volleyball unit to his ninth- and tenth-grade classes and four of the lessons were videotaped for coding purposes. The skills taught by Subject BD during these lessons were setting (ST1 and ST2), overhand serve (ST3), and spiking (ST4). Lessons ST1, ST3, and ST4 were tenth-grade classes and lesson ST2 was a ninth-

grade class. The length of the volleyball lessons ranged from 11.0 minutes for ST1 to 20.0 minutes for ST4 (see Figure 1 on page 66). A volleyball game followed the skill instruction in all but ST4 which accounted for this lesson being longer.

Since this study examined whether or not the verbal feedback behaviors would be implemented during student teaching, the data analysis of Subject BD's videotaped lessons resulted in some interesting findings. First of all, Subject BD elicited higher rates of total specific feedback than total general feedback in all of the student teaching lessons except ST1 (see Figure 2 on page 66). In the ST1 lesson, the shortest of the four, the rate of total specific skill feedback was 2.27 per minute. The highest rate of total specific skill feedback was 2.40 per minute recorded in ST4 which consequently was the longest (20.0 minute) of Subject BD's student teaching lessons.

In examining the rates of separate specific skill categories, Subject BD provided more individual neutral feedback than any other type with the rates ranging from 1.29 per minute in ST2 to 2.15 per minute in ST4 (see Figure 3a on page 67). Another interesting finding was that Subject BD provided almost no group specific skill feedback. The only group-directed feedback he gave was neutral in the spiking lesson (ST4) which was a negligible 0.20 per minute (see Figure 3b on page 67). This finding is consistent with evidence from studies by Darst (1974) and Boehm (1974)

indicating that group-directed feedback is hardly ever used by physical education student teachers (Siedentop, 1983).

As was the case in his peer teaching, Subject BD provided only positive statements when giving general feedback during his student teaching lessons. The higher rates of positive feedback were recorded in the individual category. It is interesting to note that the highest and lowest rates of individual positive feedback were recorded during the two setting lessons. These were 1.15 per minute in the ST2 lesson and 2.55 per minute in the ST1 lesson (see Figure 3c on page 67). One possible explanation for this difference may be due to the fact that the ST2 lesson was Subject BD's only ninth-grade class and was taught during the last period of the school day.

In analyzing Subject BD's ratios of total specific skill to total general feedback in his student teaching lessons, the results are similar to those of his peer teaching episodes. These ratios are displayed in Table 3 (see page 68). The lowest ratios were recorded in the setting lessons (ST1 and ST2). The highest ratio was 1.6|1.0 for the overhand serving lesson (ST3). Even though these ratios were not substantially higher than those for the peer teaching, none was as low as the 1.0|1.8 calculated for the PT lesson.

The ratios of congruent to incongruent feedback for Subject BD's student teaching lessons are presented in Table 5. The total specific skill feedback statements

resulted in ratios ranging from 1.0¦1.0 in ST2 to 5.0¦1.0 in ST4. Of the six types of specific skill feedback, the only one in which ratios were calculated in all four lessons was the individual neutral category.

Table 5

Ratios of Congruent to Incongruent Feedback
for Student Teaching Lessons
(Subject BD)

Specific Skill Feedback Type	ST1	ST2	ST3	ST4
Individual Positive	1.3¦1.0	---	0.0¦1.0	1.0¦0.0
Group Positive	---	---	---	---
Individual Negative	---	1.0¦1.0	0.0¦1.0	---
Group Negative	---	---	---	---
Individual Neutral	1.0¦1.0	1.0¦1.1	1.8¦1.0	4.4¦1.0
Group Neutral	---	---	---	4.0¦0.0
Total	1.1¦1.0	1.0¦1.0	1.5¦1.0	5.0¦1.0

The two highest ratios of congruent to incongruent feedback computed were 4.4¦1.0 and 4.0¦0.0 in the individual neutral and group neutral categories respectively for the ST4 lesson. The manner in which this lesson was structured, as compared to the other three, probably accounts for these ratios. Subject BD designated a specific focus for each

spiking drill in the ST4 lesson, and 80% of the subsequent specific skill feedback that he elicited was congruent. Even though Rink (1985) and Siedentop (1983) have emphasized that effective teachers should provide high levels of specific feedback statements which are congruent with the task focus, there is no research evidence regarding what is considered to be an appropriate ratio of congruent to incongruent feedback. Thus, it is difficult to determine whether Subject BD was more effective in teaching the ST4 lesson than he was in the other student teaching lessons. However, these ratios (4.4|1.0 and 4.0|1.0) do seem to indicate that Subject BD's teaching was, as Rink asserts, more "narrow and focused" thereby having a positive impact upon student effort during the spiking drills.

In contrast to his peer teaching, Subject BD's ratios of congruent to incongruent feedback in the individual positive category were quite low. The highest ratio, 1.3|1.0 in ST1, was extremely low when compared with the 7.5|1.0 reported in the PR lesson. It is important to note that Subject BD received no data regarding the feedback he elicited in his student teaching lessons until all of the videotapes were coded; whereas, he did receive data from the PT lesson prior to teaching the PR lesson in which this very high ratio was reported. Even without receiving any data from the student teaching lessons, however, Subject BD did provide equal or greater amounts of congruent than

incongruent feedback in eight out of the ten categories in which frequencies were recorded.

Subject SF

Subject SF selected the throw-in skill in soccer to teach for his two peer lessons. His initial presentation was 11.75 minutes in length and the second was 10.5 minutes (see Figure 4). The descriptive data collected from Subject SF's peer teaching as shown in Figure 5 indicate that he increased his rate of total specific skill feedback from 1.70 in the PT lesson to 2.76 in the PR lesson which reflects a 62% improvement. At the same time, he decreased his rate per minute of total general feedback by 40% from 2.13 (PT) to 1.52 (PR) while shortening the length of the lesson presentation.

In analyzing the rates of separate specific skill feedback types, the most noticeable change in Subject SF's peer teaching occurred in the individual positive category (0.26/PT to 0.86/PR); however, the higher rate was still less than one verbal feedback statement per minute. Improvement was more evident in the individual neutral category. Figure 6a shows that Subject SF almost doubled the rate per minute from the PT lesson (.77) to the PR lesson (1.52). In both of his peer lessons Subject SF elicited very low rates of group specific skill feedback. The only measurable change was recorded in the group neutral category as displayed in Figure 6b.

The rates of individual positive general feedback remained about the same for the two peer lessons (see

Figure 4
Length of Lesson Episodes
for Subject SF
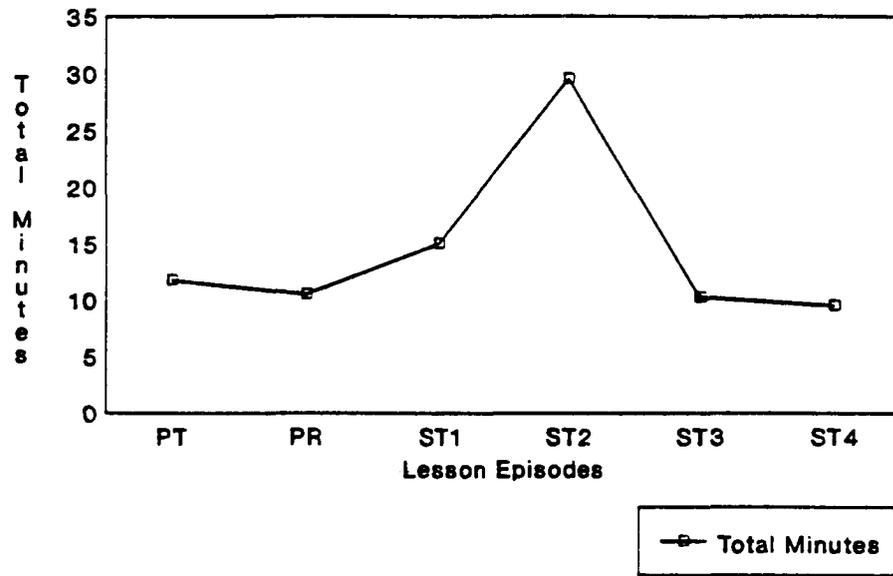
Figure 5
Total Specific Skill vs. Total General
Feedback for Subject SF
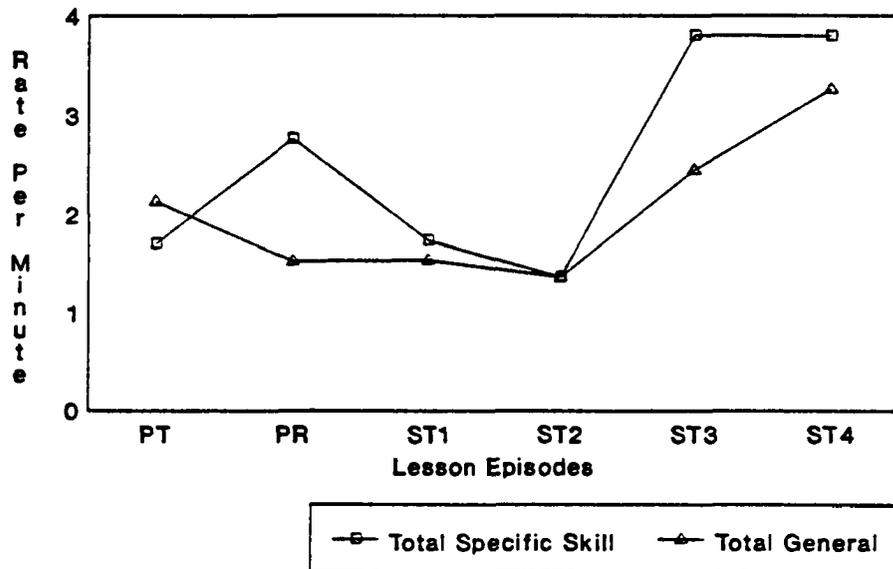
Figure 8a
Individual Specific Skill Feedback
for Subject SF
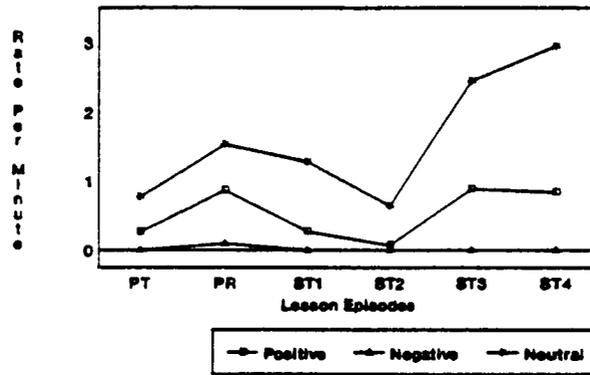
Figure 8b
Group Specific Skill Feedback
for Subject SF
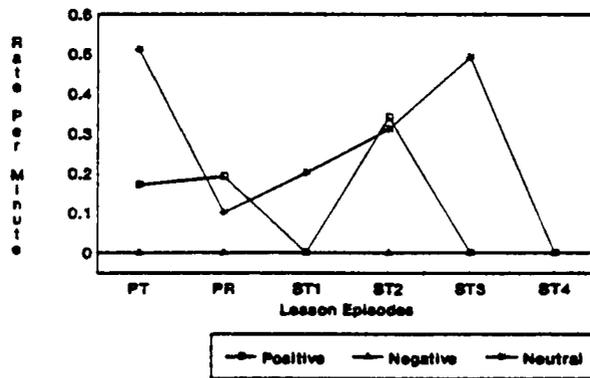
Figure 8c
General Feedback
for Subject SF
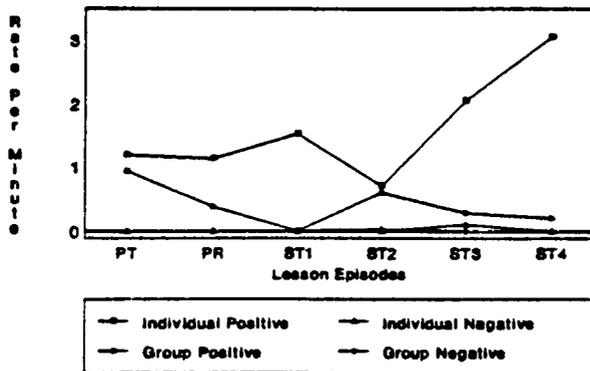
Figure 6c). There was a decrease in the amount of group positive feedback recorded in the PR lesson; however, both rates were less than 1.0 per minute. It is interesting to note that Subject SF did not elicit any negative general feedback in either peer lesson presentation.

In examining the ratios of total specific skill to total general feedback for Subject SF's peer teaching, there was a marked improvement. The data presented in Table 6 indicate that there was an increase from 1.0|1.3 in the PT lesson to 1.8|1.0 in the PR lesson. This higher ratio may be attributed to the class discussion which the researcher had prior to the subjects reteaching their peer lessons about the importance of providing specific information regarding participants' skill performances.

Table 6

Ratios of Total Specific Skill to
Total General Feedback
(Subject SF)

Lesson Episode	Ratio
PT	1.0|1.3
PR	1.8|1.0
ST1	1.2|1.0
ST2	1.0|1.0
ST3	1.6|1.0
ST4	1.2|1.0

Based on the data displayed in Table 7, Subject SF demonstrated a substantial improvement in the ratio of congruent to incongruent feedback statements during his peer teaching. He delivered four times more incongruent than congruent statements in the PT lesson; however, he elicited twice as many congruent than incongruent statements in the PR lesson. This reversal from 1.0|4.0 to 2.2|1.0 was the highest numerical change in a positive direction for any of the preservice teachers during the peer teaching phase of the study. As the chart indicates, this turnaround primarily occurred in the individual positive and individual neutral categories.

Table 7

Ratios of Congruent to Incongruent Feedback
for Peer Teaching Lessons
(Subject SF)

Specific Skill Feedback Type	PT	PR
Individual Positive	0.0|3.0	3.5|1.0
Group Positive	1.0|1.0	1.0|1.0
Individual Negative	---	1.0|0.0
Group Negative	---	---
Individual Neutral	1.0|8.0	1.7|1.0
Group Neutral	1.0|2.0	1.0|0.0
Total	1.0|4.0	2.2|1.0

An urban high school with an enrollment of 1110 in grades 9-12 served as the research setting for videotaping Subject SF's student teaching lessons. During this five-week assignment, Subject SF taught weight training and speedball units to his classes which were composed of both ninth- and tenth-grade students. Four of the videotaped speedball lessons were selected for data collection which included the following skills: dribbling and kick-ups (ST1), kick-ups and passing (ST2), and throw-in and heading (ST3 and ST4). The length of these lessons ranged from 9.5 minutes for ST4 to 29.5 minutes for ST2 (see Figure 4 on page 75).

In all of his student teaching lessons, Subject SF recorded equal or higher rates of total specific skill than total general feedback (see Figure 5 on page 75). The longest lesson (ST2) resulted in the lowest rates of total feedback for both the specific and general categories (1.36 per minute). Since the primary focus of the ST2 lesson was a 3-on-2 kick-up and passing drill, considerable time was spent by the students in attempting to execute these skills. Thus, the total amount of feedback provided by Subject SF was only 19% more than the shortest lesson (ST4) in which the highest rate of total general and second highest rate of total specific skill was recorded.

The highest rates of total specific skill feedback were reported for the throw-in and heading lessons (ST3 and ST4). These lessons were also the shortest, which may account for

Subject SF attaining a rate of nearly 4.0 per minute (see Figure 5 on page 75). Further examination of the data from his student teaching indicates that Subject SF elicited higher rates of total general feedback for these same two lessons. The rates were 2.44 per minute for ST3 and 3.26 per minute for ST4.

The data analysis of Subject SF's student teaching lessons reveal that he provided considerably more individual than group feedback (see Figure 6 on page 76). These results coincide with research findings on student teachers indicating that they provide very little group feedback (Siedentop, 1983). The low rates of group feedback also reflect the typical behavior of physical education teachers who give their students a task and then busily move from student to student in analyzing their skill attempts (Rink, 1985). As Rink indicates, "the majority of learners can profit from the same feedback" (p. 245); therefore, a more efficient use of time by the teacher means directing feedback statements to the entire class rather than individual students. Thus, Subject SF could have used the instructional time more efficiently by eliciting higher rates of group feedback during his student teaching lessons.

As displayed in Figure 6a (see page 76), the highest rates of specific skill feedback were recorded in the individual neutral category. Of the four lessons, the highest rates per minute 2.44 in ST3 and 2.95 in ST4, were recorded in the throw-in and heading lessons. Even though

these rates do reflect an increase over the PR lesson (1.52 per minute), this does not necessarily indicate that Subject SF demonstrated any improvement in his ability to elicit this type of specific skill feedback because ST3 and ST4 were the shortest lessons. These rates do suggest, however, that Subject SF did provide more individual neutral feedback to his ninth- and tenth-grade students than he did to his peers which is salient to the progressive development of his verbal teaching skills.

The highest rates of general feedback in the four student lessons were recorded in the individual positive category (see Figure 6c on page 76). These ranged from 0.71 per minute for the ST2 lesson (longest) to 3.05 per minute for the ST4 lesson (shortest). When contrasted with his peer teaching, the higher rates in the ST3 (2.05) and ST4 (3.05) lessons indicate that Subject SF provided more individual positive general feedback in an actual teaching setting as compared to a controlled instructional setting.

Subject SF's ratios of total specific skill to total general feedback for his student teaching lessons were not as low as the PT lesson; however, none was as high as the PR lesson. Table 6 (see page 77) shows that these ratios ranged from 1.0¦1.0 in the ST2 lesson to 1.6¦1.0 in the ST3 lesson. Without standard ratios of specific to general feedback available for comparison, it cannot be determined if these ratios are indicative of effective teaching. It can be suggested, however, that if Subject SF had provided more specific information regarding his students' skill

attempts, higher ratios would have resulted and his students would have better understood "why" their attempts were considered appropriate (Siedentop, 1983).

The ratios of congruent to incongruent feedback for Subject SF's student teaching lessons are displayed in Table 8. The lowest ratio of total specific skill feedback was 1.5|1.0 in one of the throw-in/heading lessons (ST3) and the highest was 7.7|1.0 in the dribbling/kick-up lesson (ST1). In comparison to his peer teaching (see Table 7 on page 78), Subject SF had substantially higher ratios in three of his student teaching lessons indicating that his teaching was definitely more "narrow and focused" in these lessons (Rink, 1985).

Table 8

Ratios of Congruent to Incongruent Feedback
for Student Teaching Lessons
(Subject SF)

Specific Skill Feedback Type	ST1	ST2	ST3	ST4
Individual Positive	4.0|0.0	2.0|0.0	1.3|1.0	3.0|1.0
Group Positive	---	9.0|1.0	---	---
Individual Negative	---	---	---	---
Group Negative	---	---	---	---
Individual Neutral	5.3|1.0	5.3|1.0	2.1|1.0	4.6|1.0
Group Neutral	3.0|0.0	2.0|1.0	1.5|1.0	---
Total	7.7|1.0	4.7|1.0	1.5|1.0	4.1|1.0

Of the separate specific skill feedback categories, the highest congruent to incongruent ratios were found in the individual neutral category for all but the kick-ups and passing lesson (ST2). These ratios ranged from 2.1|1.0 (ST3) to 5.3|1.0 (ST1 and ST2). In three of Subject SF's student teaching lessons, these ratios were considerably higher than in either of his peer teaching lessons. By eliciting more congruent feedback, Subject SF's teaching had a more precise focal point and in turn, a favorable impact on his students' effort during these lessons (Rink, 1985).

In the ST2 lesson, Subject SF had a very high ratio of congruent to incongruent feedback (9.0|1.0) in the group positive category. This lesson involved a 3-on-2 drill which provided an instructional setting more conducive for giving group rather than individual feedback. The data analysis of the ratios of congruent to incongruent feedback produced one additional finding. In all of his student teaching lessons, Subject SF elicited greater amounts of congruent feedback in each of ten specific skill feedback categories in which frequencies were recorded. This means that Subject SF consistently provided feedback directly related to the specific task or skill being practiced by his students.

Subject JD

For his ten-minute peer lessons, Subject JD taught the forehand tennis stroke. As shown in Figure 7, the initial lesson presentation was 13.75 minutes in length and the

second was completed in 11.75 minutes. The most notable finding from the descriptive data analysis of Subject JD's peer teaching was a 76% decrease in the rate of total general feedback for the PR lesson (see Figure 8). This reduction in rate per minute from 2.25 (PT) to 1.28 (PR) was the most substantial change in general feedback reported by any of the preservice teachers. This means that Subject JD more effectively provided specific feedback statements relevant to the peer participants' skill attempts during his second lesson presentation. With Subject JD eliciting more specific feedback in his PR lesson, the ratio of total specific skill to total general feedback increased from 1.0|1.1 to 2.2|1.0 (see Table 9).

Table 9

Ratios of Total Specific Skill to
Total General Feedback
(Subject JD)

Lesson Episode	Ratio
PT	1.0|1.1
PR	2.2|1.0
ST1	1.2|1.0
ST2	1.3|1.0
ST3	1.5|1.0
ST3	1.4|1.0

Figure 7
Length of Lesson Episodes
for Subject JD
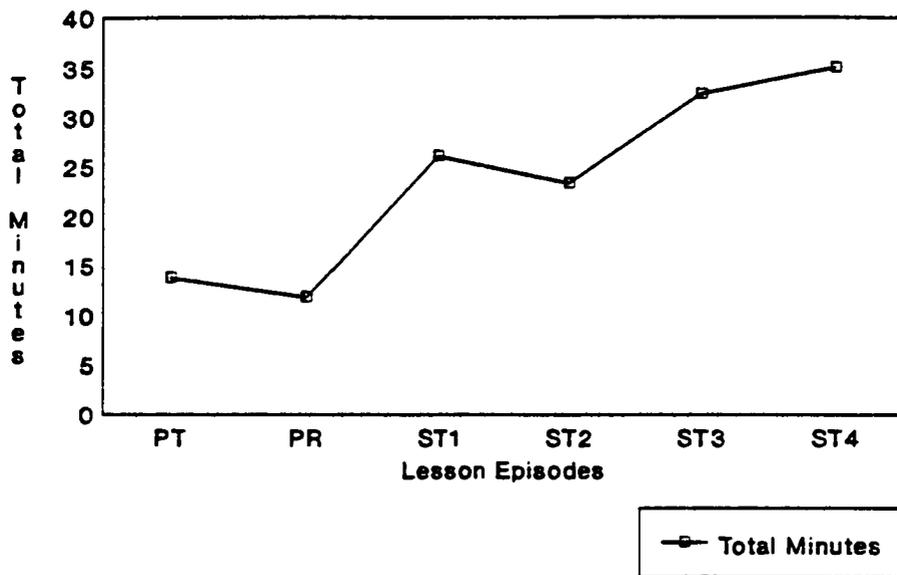
Figure 8
Total Specific Skill vs. Total General
Feedback for Subject JD
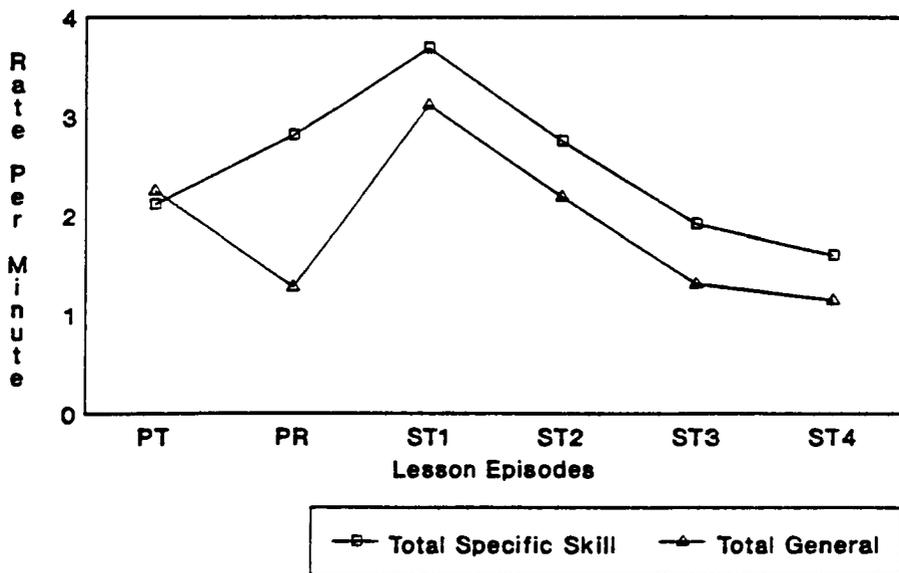
The rates of total specific skill feedback for both of Subject JD's peer lessons were over 2.0 per minute (see Figure 8). An increase of 33% to 2.81 per minute was calculated when he retaught the tennis forehand lesson. Among the six categories of specific skill feedback, the highest rates were recorded for individual neutral in both peer lessons. The greatest increase (61%) for a specific skill feedback type during the PR lesson also occurred in the individual neutral category.

Table 10 displays the ratios of congruent to incongruent specific skill feedback for Subject JD's peer teaching. The ratio for all categories was 2.2⎪1.0 for the PR lesson as compared to 1.0⎪1.1 for the PT lesson. Even though minimal change occurred regarding the congruency of total specific skill feedback statements, a complete reversal was recorded in one of the separate feedback categories. The increase in individual neutral from 1.0⎪2.3 (PT) to 2.0⎪1.0 (PR) was the only substantial improvement Subject JD made concerning the congruency of his verbal feedback statements for the peer lessons.

Table 10

Ratios of Congruent to Incongruent Feedback
for Peer Teaching Lessons
(Subject JD)

Specific Skill Feedback Type	PT	PR
Individual Positive	9.0⎪1.0	1.8⎪1.0
Group Positive	1.0⎪0.0	1.0⎪1.0
Individual Negative	---	0.0⎪1.0
Group Negative	---	---
Individual Neutral	1.0⎪2.3	2.0⎪1.0
Group Neutral	4.0⎪1.0	1.0⎪1.0
Total	1.6⎪1.0	1.8⎪1.0

Subject JD completed his secondary student teaching in a small municipal high school with an enrollment of 353 students in grades 9-12. During this five-week assignment, Subject JD taught a tumbling/gymnastics unit to his ninth- and tenth-grade students. Two tumbling lessons (ST1 and ST2) and two tumbling/gymnastics lesson (ST3 and ST4) were videotaped for coding purposes. Lessons ST1 and ST3 were taught to the same tenth-grade class and lessons ST2 and St4 involved Subject JD's ninth-grade class. The length of these lessons ranged from 23.25 minutes for ST2 to 35.0 minutes for ST4 (see Figure 7 on page 85).

The skills taught by Subject JD during the tumbling lessons included forward and backward rolls (ST1 and ST2)

and tripod stand (ST2). Basic gymnastic techniques on the balance beam, parallel bars, and vaulting horse were included in lessons ST3 and ST4 in addition to headstands, handstands, and cartwheels. The ST3 and ST4 lessons were designed so the students rotated among these six tumbling and gymnastic stations.

The data analysis of Subject JD's student teaching reveal that he elicited higher rates of total specific skill than total general feedback in all four lessons (see Figure 8 on page 85). The two highest rates per minute (2.75 and 3.69) were reported in the tumbling lessons, ST1 and ST2 respectively. These lessons were shorter than the tumbling/gymnastics lessons (ST3 and ST4) which may have accounted for the higher rates (see Figure 7 on page 85). Another factor which may have influenced the amount of verbal feedback elicited involves the amount of practice time allocated in each lesson. Because fewer skills were taught in the tumbling lessons, Subject JD spent less time giving instructions thereby allowing more time for these classes to practice. Thus, Subject JD was able to provide more verbal feedback in lessons ST1 and ST2 because students were given additional opportunities for skill attempts.

In examining the rates of separate specific skill feedback categories, Subject JD provided more individual neutral than any other type. The lowest rate-per-minute was 1.19 in the ST3 lesson and the highest was 3.15 in the ST1 lesson as shown in Figure 9a. The only other type of

individual specific skill feedback given was recorded in the positive category. These rates ranged from 0.06 per minute (ST4) to 0.69 per minute (ST3).

During his student teaching lessons, Subject JD gave very little group specific skill feedback. Figure 9b shows that the only group-directed feedback statements coded were neutral and varied from 0.03 per minute in ST3 to 0.22 per minute in ST2. Even though Subject JD had the students practicing on the tumbling mats and gymnastic equipment in small groups, he primarily communicated with individual students regarding their skill attempts rather than with an entire group. In doing so, the same feedback statements were repeatedly made concerning the execution of specific skills. This finding is consistent with research evidence confirming that student teachers are more inclined to give individual-directed rather than group-directed verbal feedback (Siedentop, 1983).

The variability of total general feedback rates for Subject JD's student teaching lessons were similar to those calculated for the total specific skill feedback rates (see Figure 8 on page 85). Higher rates per minute, 2.19 in ST2 and 3.12 in ST1, were recorded in the tumbling lessons. Although Subject JD elicited high rates of specific skill feedback in these same lessons, he also provided respectable amounts of general feedback. As discussed earlier, perhaps the inclusion of more practice time in the tumbling lessons affected the amount of general feedback Subject JD provided.

Figure 9a
Individual Specific Skill Feedback
for Subject JD

Rate Per Minute

3

2

1

0

PT   PR   ST1   ST2   ST3   ST4
Lesson Episodes

—●— Positive   —▲— Negative   —■— Neutral
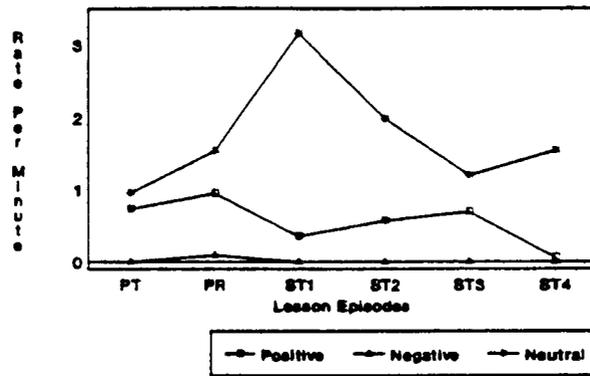
Figure 9b
Group Specific Skill Feedback
for Subject JD

Rate Per Minute

0.4

0.3

0.2

0.1

0

PT   PR   ST1   ST2   ST3   ST4
Lesson Episodes

—●— Positive   —▲— Negative   —■— Neutral
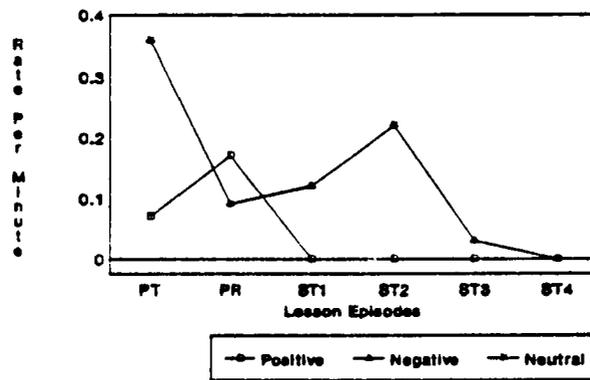
Figure 9c
General Feedback
for Subject JD

Rate Per Minute

3

2.5

2

1.5

1

0.5

0

PT   PR   ST1   ST2   ST3   ST4
Lesson Episodes

—●— Individual Positive   —▲— Individual Negative
—■— Group Positive   —◆— Group Negative
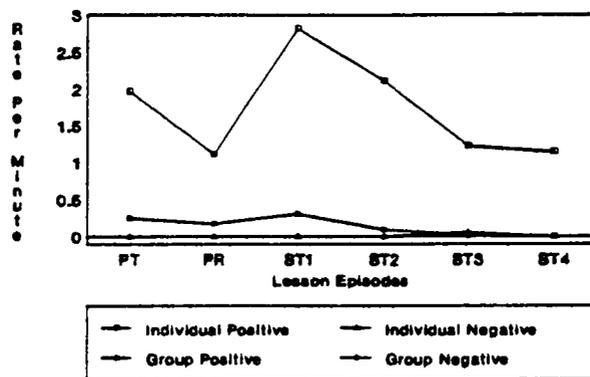
Subject JD recorded considerably higher rates of individual positive than any other type of general feedback in each of his student teaching lessons as shown in Figure 9c. These results coincide with the rates reported in Subject JD's peer lessons establishing a definite pattern of verbal feedback behavior in his teaching.

The ratios of total specific skill to total general feedback for Subject JD's student teaching are presented in Table 9 (see page 84). Interestingly, there is only a slight difference among all four lessons (1.2|1.0 in ST 1 to 1.5|1.0 in ST3). Siedentop (1983) recommends that 50 to 70 percent of teacher verbal feedback should contain specific information thereby enhancing student learning. In these four lessons, Subject JD achieved this minimum standard with an average of 58%; however, he could have facilitated his students' skill acquisition with a higher percentage of specific skill feedback.

Table 11 presents the ratios of congruent to incongruent specific skill feedback for Subject JD's student teaching lessons. The ratios of total specific skill feedback for both tumbling lessons (ST1 and ST2) were 1.7|1.0 and are nearly equivalent to those reported for his peer teaching (see Table 10 on page 87). Even though the ratios for the group positive and group neutral categories showed some variability within these two lessons, the overall ratio calculated for each lesson was the same.

Table 11

Ratios of Congruent to Incongruent Feedback
for Student Teaching Lessons
(Subject JD)

Specific Skill Feedback Type	ST1	ST2	ST3	ST4
Individual Positive	2.0¦1.0	2.3¦1.0	6.3¦1.0	1.0¦1.0
Group Positive	1.0¦1.0	---	---	---
Individual Negative	---	---	---	---
Group Negative	---	---	---	---
Individual Neutral	1.6¦1.0	1.4¦1.0	2.8¦1.0	1.1¦1.0
Group Neutral	2.0¦1.0	4.0¦1.0	1.0¦1.0	---
Total	1.7¦1.0	1.7¦1.0	3.7¦1.0	1.1¦1.0

The most interesting finding regarding the congruency of specific skill feedback pertains to the two tumbling/gymnastics lessons. The lowest ratio for total specific feedback was 1.1¦1.0 (ST4) and the highest was 3.7¦1.0 (ST3). Both lessons involved similar tumbling and gymnastic skills; however, lesson ST4 included an optional skill on the vaulting horse. For those students capable of performing advanced vaulting skills, Subject JD did not provide a detailed analysis of the skill. He did explain that any student who wanted to perform the handspring vault must seek his assistance for spotting prior to his/her

attempt. During the class session several male students asked Subject JD to help them with their handspring vaults. Subject JD provided these students with ample specific skill feedback; however, most of these statements were incongruent because a complete skill analysis had not preceded the attempted vaults. Thus, a substantially lower ratio of congruent to incongruent specific skill feedback was calculated for this lesson as compared to the ST3 lesson in which the handspring vault was not included.

The highest congruent to incongruent ratios among the different types of specific skill feedback were recorded in the individual positive (6.3|1.0 in ST3) and group neutral (4.0|1.0 in ST2) categories. These ratios were similar to those reported in the same categories for the PT lesson (see Table 10 on page 87). The ratios in the other categories were not notably higher than those recorded for Subject JD's peer teaching. As previously explained, research in sport pedagogy has not identified what is considered to be an appropriate ratio of congruent to incongruent feedback (Rink, 1985). Based on this lack of confirming evidence, it cannot be resolved if Subject JD was more or less effective in his student teaching than he was in his peer teaching. However, he did provide equal or greater amounts of congruent than incongruent feedback in eleven out of the twelve categories in which frequencies were recorded. This indicates that Subject JD repeatedly elicited verbal

feedback congruous to the tumbling and gymnastic skill attempts of his students.

Subject LS

Fielding ground balls in softball was the skill chosen by Subject LS to teach in her peer lessons. Figure 10 shows that the first lesson presentation was only 7.75 minutes in length, but the second lesson lasted 10.5 minutes. Subject LS was the only preservice teacher whose reteach lesson was longer than the initial lesson presentation.

As shown in Figure 11, Subject LS increased the rate of total specific skill feedback per minute from 1.81 in the PT lesson to 2.38 in the PR lesson. This change in the rate per minute reflects a 31% increase, the lowest of all the preservice teachers for the peer lessons. At the same time, she increased the rate of total general feedback by 2% from 1.03 per minute (PT) to 1.05 per minute (PR).

In examining the rates of separate specific skill feedback types, the only substantial improvement in Subject LS's peer teaching was reported for the individual positive category. Figure 12a shows that the rate per minute for the PR lesson was 1.05; whereas, no individual positive feedback was recorded in the PT lesson. This 1.05 per-minute rate was the highest recorded by Subject LS in any of the specific skill feedback categories during her peer teaching. Subject LS elicited very low rates of group specific skill feedback in both of her peer lessons. The only measurable

Figure 10
Length of Lesson Episodes
for Subject LS
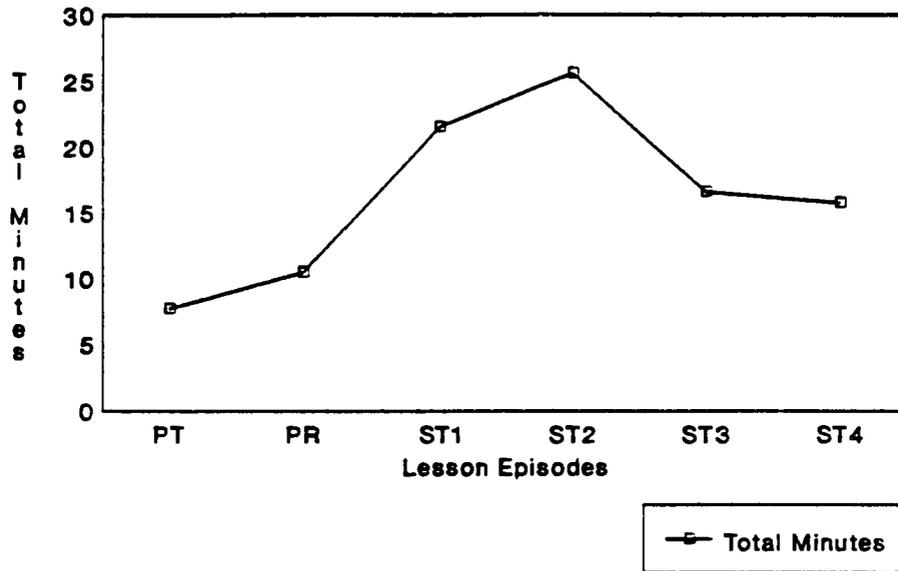
Figure 11
Total Specific Skill vs. Total General
Feedback for Subject LS
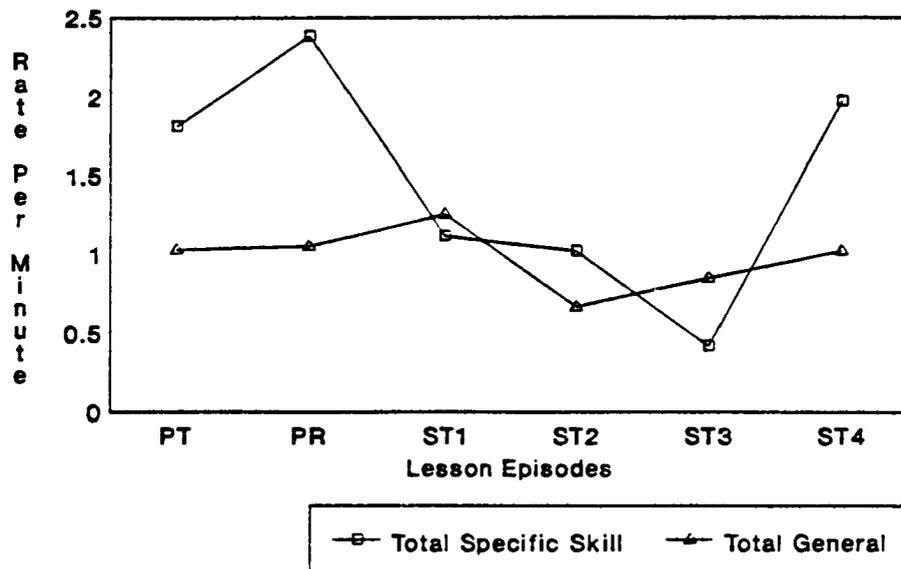
Figure 12a
Individual Specific Skill Feedback
for Subject LS

Lesson Episodes

Positive   Negative   Neutral
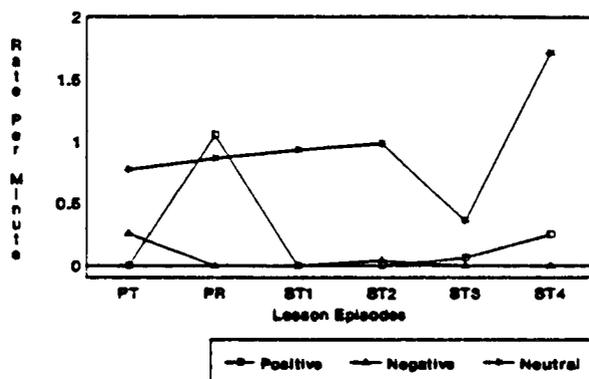
Figure 12b
Group Specific Skill Feedback
for Subject LS

Lesson Episodes

Positive   Negative   Neutral
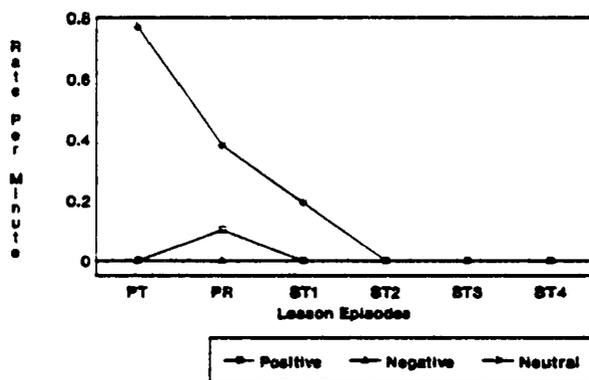
Figure 12c
General Feedback
for Subject LS

Lesson Episodes

Individual Positive   Individual Negative
Group Positive   Group Negative
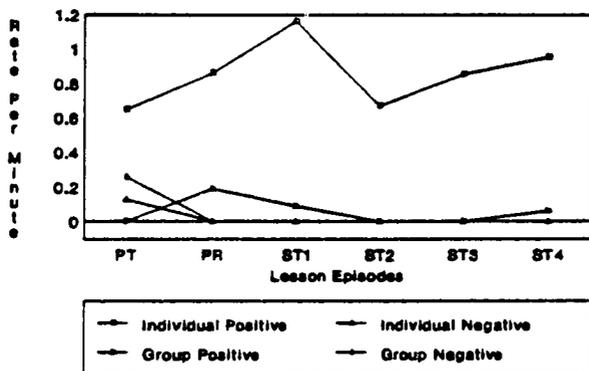
change was recorded in the group neutral category as displayed in Figure 12b.

A slight increase in the rate of individual positive general feedback was recorded for Subject LS' second lesson presentation (.65/PT to .86/PR); however, the higher rate was still less than 1.0 per minute (see Figure 12c). Even though Subject LS elicited very little individual or group negative general feedback in the PT lesson, no negative feedback of either type was provided during the PR lesson.

In analyzing Subject LS' ratios of total specific skill to total general feedback, some improvement was noted. The data presented in Table 12 show an increase from 1.8|1.0 in the PT lesson to 2.3|1.0 in the PR lesson. This higher ratio indicates that Subject LS provided slightly more than twice as much specific skill feedback than general feedback to the participants in using an additional 2.75 minutes reteaching her peer lesson on fielding ground balls.

Table 12

Ratios of Total Specific Skill to
Total General Feedback
(Subject LS)

Lesson Episode	Ratio
PT	1.8 ¦ 1.0
PR	2.3 ¦ 1.0
ST1	1.0 ¦ 1.1
ST2	1.5 ¦ 1.0
ST3	1.0 ¦ 2.0
ST4	1.9 ¦ 1.0

The data displayed in Table 13 illustrate a nearly complete reversal in the ratio of total congruent to incongruent feedback statements recorded during the PR lesson taught by Subject LS. This reversal from 1.0 ¦ 2.5 in the PT lesson to 2.1 ¦ 1.0 in the PR lesson means that Subject LS provided more feedback which was congruous to the task focus. As the data indicate, this improvement in feedback congruency was principally due to the higher ratios reported in the individual positive and group neutral categories.

Table 13

Ratios of Congruent to Incongruent Feedback
for Peer Teaching Lessons
(Subject LS)

Specific Skill Feedback Type	PT	PR
Individual Positive	---	2.7⎪1.0
Group Positive	---	1.0⎪0.0
Individual Negative	1.0⎪1.0	---
Group Negative	---	---
Individual Neutral	1.0⎪1.0	1.3⎪1.0
Group Neutral	0.0⎪6.0	3.0⎪1.0
Total	1.0⎪2.5	2.1⎪1.0

The secondary student teaching assignment for Subject LS was completed in the same high school in which Subject JD taught. During this five-week experience, Subject LS taught a softball unit to her ninth- and tenth-grade students. Two overhand throwing lessons (ST1 and ST2) and two batting lessons (ST3 and ST4) were videotaped for coding purposes. Lessons ST2 and ST4 were taught to the same ninth-grade class and Lessons ST1 and ST3 involved two different tenth-grade classes. The length of the softball lessons ranged from 15.75 minutes for ST4 to 25.5 minutes for ST2 (see Figure 10 on page 95). A softball game followed the skill

instruction in lessons ST3 and ST4, which explains why these lessons were shorter than lessons ST1 and ST2.

The data analysis of Subject LS' student teaching lessons produced some mixed results. As shown in Figure 11 (see page 95), the rates of total specific skill feedback were higher than total general feedback in only two of the four lessons (ST2 and ST4). In the ST2 lesson (overhand throwing), the longest of the four, the rate of total specific skill feedback was 1.02 per minute. However, in the ST4 lesson (batting), the shortest lesson, the rate was 1.97 per minute, which was also the highest total specific skill feedback rate recorded in all of Subject LS' student teaching lessons. In contrast to her peer teaching, these higher rates per minute of total specific skill feedback in lessons ST2 and ST4 were both lower than the 1.81 (PT) and 2.38 (PR) recorded by Subject LS.

In examining the rates of separate specific skill categories, Subject LS provided more individual neutral feedback than any other type. As shown in Figure 12a (see page 96), these rates ranged from 0.36 per minute in ST3 to 1.71 per minute in ST4. It is interesting that the highest and lowest of these individual neutral rates of specific skill feedback were recorded in the two batting lessons which were also similar in length (see Figure 10 on page 95).

As shown in Figure 12b on page 96, Subject LS elicited almost no group specific skill feedback during her student

teaching lessons. The only group-directed feedback she furnished was neutral in the ST1 lesson (overhand throwing) which was a negligible 0.19 per minute. This finding is consistent with research evidence indicating that student teachers rarely elicit group-directed feedback (Siedentop, 1983). It also coincides with the typical behavior of physical education teachers who provide primarily individual feedback as they monitor their students' skill attempts (Rink, 1985). Since most students can benefit from the same verbal feedback (Rink, 1985), Subject LS could have elicited more group feedback statements and thereby have utilized her instructional time more effectively.

In analyzing the rates of total general feedback for Subject LS, the highest rates were recorded in the ST1 (overhand throwing) and ST4 (batting) lessons. As displayed in Figure 11 (see page 95), the 1.26 rate per minute in ST1 was higher than the rate of total specific feedback (1.12 per minute) in the same lesson. The 1.02 rate per minute in ST4 was comparable to the rates per minute recorded in Subject LS' peer teaching lessons.

The highest rates within the separate general feedback categories were tallied as individual positive in Subject LS' four student teaching lessons (see Figure 12c on page 96). These ranged from 0.67 per minute in the ST2 lesson to 1.16 per minute in the ST1 lesson. When contrasted with her peer teaching, Subject LS elicited higher rates of individual positive general feedback in all

of her videotaped student teaching lessons. Thus, Subject LS elicited more individual positive general feedback in the actual teaching setting than she did in the controlled environment of peer teaching.

As shown in Figure 12c (see page 96), Subject LS provided only positive statements when giving general feedback to her students. This dearth of negative feedback corresponds to her PR lesson and suggests that Subject LS consistently maintained a positive learning environment for her students to practice their overhand throwing and batting skills.

In analyzing Subject LS' ratios of total specific to total general feedback during her student teaching, three of the four ratios were lower than those of her peer reteach lesson. As displayed in Table 12 (see page 98), three of the ratios (ST1, ST2, and ST3) were even less than the 1.8¦1.0 ratio calculated for the initial peer teaching lesson. Additionally, the ratios of 1.0¦1.1 in ST1 and 1.0¦2.0 in ST3 indicate that Subject LS elicited less specific skill feedback than general feedback in these student teaching lessons. Given Siedentop's (1983) recommendation of providing 50 to 70 percent specific verbal feedback in order to facilitate student learning, Subject LS did not achieve this minimum standard in lessons ST1 (47%) and ST3 (33%). Thus, Subject LS could have enhanced her students' skill acquisition in these two lessons by eliciting more specific information regarding their skill

attempts, thereby improving the ratios of total specific skill to total general feedback.

The ratios of congruent to incongruent feedback for Subject LS' student teaching lessons are displayed in Table 14. In examining the ratios of total specific skill feedback, the lowest was 1.0|1.0 in the ST2 lesson and the highest was 3.0|1.0 in the ST1 lesson. Since Subject LS taught the overhand throw in both of these lessons, the disparity in ratios may be attributed to the fact that ST1 involved tenth-grade students; whereas, the students in ST2 were ninth-graders. Another factor which may have influenced these ratios is related to how hard the overhand throws were executed by the ninth-grade students in ST2. Subject LS elicited several verbal statements to her students in the ST2 lesson indicating that they were throwing the ball too hard. This characteristic of the overhand throw was not included in her skill explanation which meant that these statements were coded as incongruent. Perhaps the lower grade level combined with numerous hard overhand throws resulted in the lower ratio (1.0|1.0) of congruent to incongruent feedback in the ST2 lesson.

Table 14

Ratios of Congruent to Incongruent Feedback
for Student Teaching Lessons
(Subject LS)

Specific Skill Feedback Type	ST1	ST2	ST3	ST4
Individual Positive	---	---	1.0┊0.0	3.0┊1.0
Group Positive	---	---	---	---
Individual Negative	---	0.0┊1.0	---	---
Group Negative	---	---	---	---
Individual Neutral	2.3┊1.0	1.1┊1.0	2.0┊1.0	1.0┊1.1
Group Neutral	4.0┊0.0	---	---	---
Total	3.0┊1.0	1.0┊1.0	2.5┊1.0	1.1┊1.0

Of the separate specific skill feedback categories, the highest congruent to incongruent ratio was calculated for the group neutral category in lesson ST1 involving the overhand throw. By not eliciting any incongruent feedback statements in this category during this lesson, Subject LS produced a ratio of 4.0┊0.0. It is interesting that Subject LS did not elicit any group neutral feedback in the other overhand throwing lesson (ST2) or the two batting lessons (ST3 and ST4).

The only specific skill category in which Subject LS recorded feedback in all four student teaching lessons was

the individual neutral. The data in Table 14 indicate that in just two of the four lessons (ST1 and ST3) were the ratios of congruent to incongruent feedback in this category higher than the peer reteach lesson (see Table 13 on page 100). Unlike the peer teaching experience, Subject LS received no data regarding her use of congruent feedback until all of the videotaped lessons were coded, which may account for these ratios of 2.3|1.0 (ST1) and 2.0|1.0 (ST3) not being substantially higher than the PR lesson (1.3|1.0). However, even without receiving any data from her student teaching lessons, Subject LS did elicit more congruent feedback in ST1 and ST3 resulting in her teaching being more focused in these lessons. Rink (1985) gives credence to the assumption that Subject LS' focalized teaching thereby had a more beneficial impact on her students' effort during these lessons.

The data analysis regarding the congruency of feedback statements produced one additional finding. In the four videotaped lessons, Subject LS elicited equal or greater amounts of congruent than incongruent feedback in six of the eight categories in which frequencies were recorded. Since sport pedagogy research has not generated an appropriate ratio of congruent to incongruent feedback (Rink, 1985), it cannot be determined to what degree Subject LS was effective in providing congruent feedback during her student teaching lessons. However, Subject LS was reasonably successful in

eliciting verbal feedback congruous to the overhand throwing
and batting skill attempts of her students.

Subject KM

Subject KM selected basketball free throw shooting to
teach for his ten-minute peer lessons. As shown in Figure
13, the initial lesson presentation was 10.75 minutes in
length and the second peer lesson was completed in 10.5
minutes. The most noteworthy finding from the descriptive
data analysis of Subject KM's peer teaching was a 97%
improvement in the rate of total specific skill feedback for
the PR lesson as displayed in Figure 14. This increase in
rate per minute from 1.40 in the PT lesson to 2.76 in the PR
lesson was the most substantial change in specific skill
feedback reported by any of the preservice teachers. Thus,
Subject KM was very effective in giving his peers precise
information regarding their free throw shooting attempts
during the second lesson presentation. Since Subject KM
elicited considerably more specific feedback when he
retaught his peer lesson, the ratio of total specific skill
feedback to total general feedback increased from 1.0|1.5
(PT) to 1.6|1.0 (PR) as shown in Table 15 (see page 109).

The rates of total general feedback for Subject KM's
peer teaching decreased by 20% from 2.05 per minute in the
PT lesson to 1.71 per minute in the PR lesson (see Figure
14). This decline was primarily the result of less
individual positive feedback being provided during the
second lesson presentation as shown in Figure 15c.

Figure 13
Length of Lesson Episodes
for Subject KM
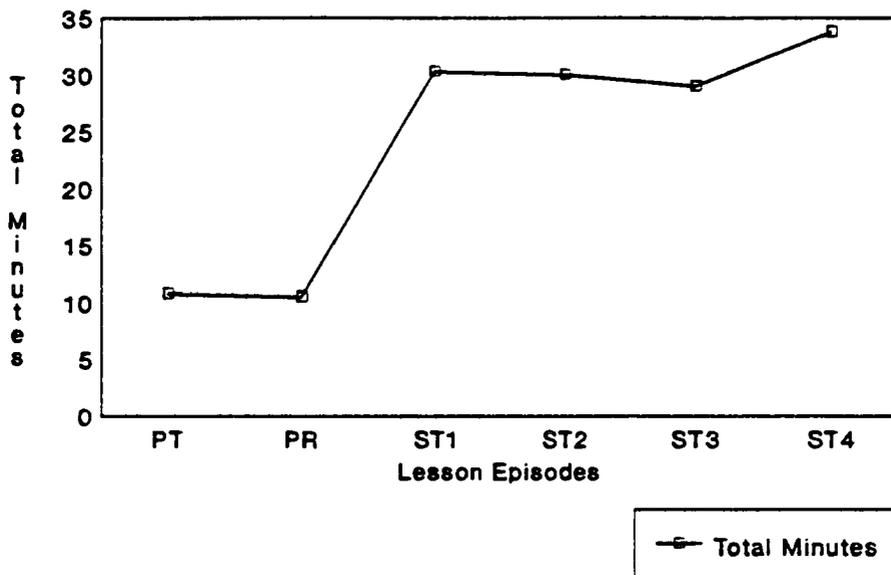
Figure 14
Total Specific Skill vs. Total General
Feedback for Subject KM
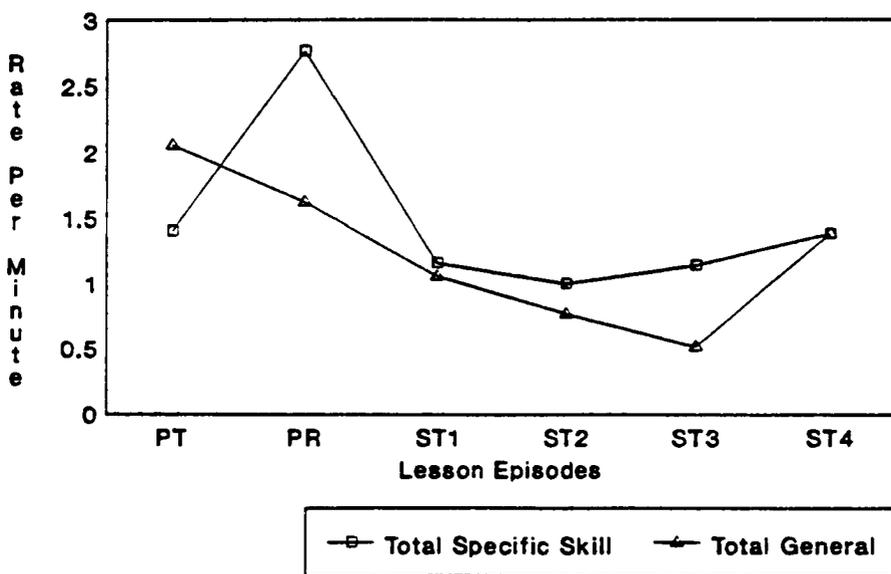
Figure 15a
Individual Specific Skill Feedback
for Subject KM
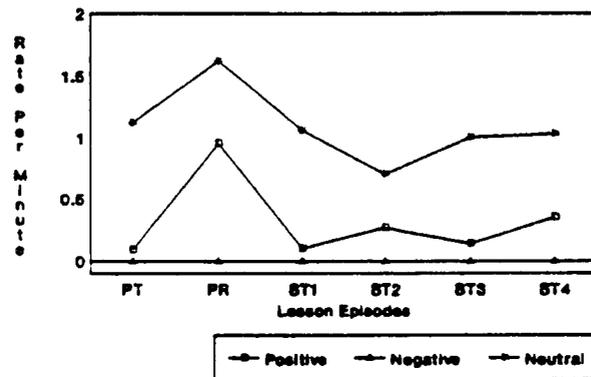
Figure 15b
Group Specific Skill Feedback
for Subject KM
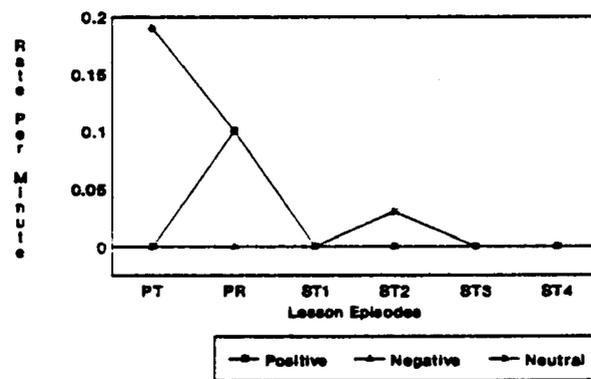
Figure 15c
General Feedback
for Subject KM
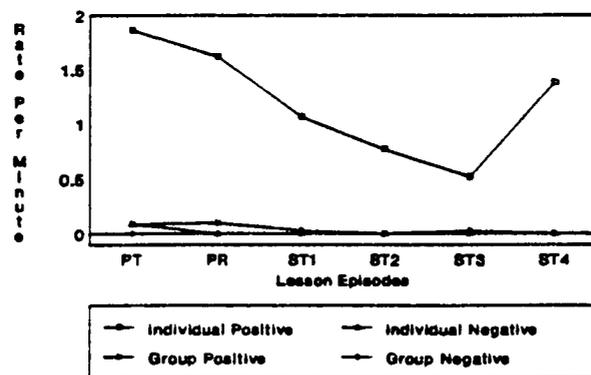
Table 15

Ratios of Total Specific Skill to
Total General Feedback
(Subject KM)

Lesson Episode	Ratio
PT	1.0 ¦ 1.5
PR	1.6 ¦ 1.0
ST1	1.1 ¦ 1.0
ST2	1.3 ¦ 1.0
ST3	2.1 ¦ 1.0
ST3	1.0 ¦ 1.0

In analyzing the rates of separate specific skill feedback types, the most salient change in Subject KM's peer teaching occurred in the individual positive category (see Figure 15a). However, the higher rate of 0.95 in the PR lesson was still less than one verbal feedback statement per minute. Another notable change was recorded in the individual neutral category. Figure 15a shows a substantial increase in the amount of individual neutral feedback elicited by Subject KM. In fact, the rise in both of these individual categories resulted in the considerable increase in total specific skill feedback for Subject KM's PR lesson.

As shown in Figure 15b, Subject KM elicited very low rates of group specific skill feedback in both free throw

shooting lessons. Minimal change was recorded in the positive and neutral categories and Subject KM did not provide any group negative feedback in either peer lesson.

Table 16 displays the ratios of congruent to incongruent feedback in the specific skill categories for Subject KM's peer lessons. This data reveal a reversal in the congruency of Subject KM's verbal feedback statements when he retaught the free throw shooting lesson. The ratio of congruent to incongruent feedback for all categories was 1.9¦1.0 for the PR lesson as compared to 1.0¦4.0 for the PT lesson. The most noticeable improvement made by Subject KM in the congruency of his feedback was in the individual positive category. In reteaching his peer lesson Subject KM had the participants focus on just three aspects of the basketball free throw in their shot attempts. This adjustment by Subject KM in his PR lesson narrowed the task focus and hence facilitated the provision of more congruent feedback statements.

Table 16

Ratios of Congruent to Incongruent Feedback
for Peer Teaching Lessons
(Subject KM)

Specific Skill Feedback Type	PT	PR
Individual Positive	0.0 ¦ 1.0	10.0 ¦ 0.0
Group Positive	---	1.0 ¦ 0.0
Individual Negative	---	---
Group Negative	---	---
Individual Neutral	1.0 ¦ 3.0	1.0 ¦ 1.4
Group Neutral	0.0 ¦ 2.0	1.0 ¦ 0.0
Total	1.0 ¦ 4.0	1.9 ¦ 1.0

A suburban high school with an enrollment of 941 in grades 9-12 served as the research setting for videotaping Subject KM's student teaching lessons. During this five-week assignment, Subject KM taught a softball unit to his tenth-grade students. The four videotaped lessons chosen for data collection included the following skills: throwing and catching (ST1 and ST2), fielding grounders and fly balls (ST3), and batting (ST4). As shown in Figure 13 (see page 107) the length of these lessons ranged from 29.0 minutes for ST3 to 33.75 minutes for ST4.

In the four student teaching lessons used for data analysis, Subject KM recorded equal or higher rates of total

specific skill feedback than total general feedback (see Figure 14 on page 107). Interestingly, the longest lesson (ST4) produced the highest rates of total feedback for both the specific and general categories (1.38 per minute) and are similar to the results found in Subject KM's peer reteach lesson.

The structure of the ST4 lesson on batting may account for these higher rates of feedback. Subject KM organized the practice time so the students rotated among four batting stations. As the class performed the drills, Subject KM quickly moved from station to station providing several feedback statements to the students as they completed their full swings. Another aspect of this lesson which may have influenced the amount of feedback elicited by Subject KM involved the use of the batting cage. Since the cage was usually reserved for use only by the baseball team, the students were visibly excited about the prospect of hitting balls thrown by the pitching machine. Thus, each group promptly rotated to the next station when given the whistle command by Subject KM. This conservation of practice time allowed the students more skill attempts at each station thereby providing Subject KM with additional opportunities to elicit verbal feedback.

The data analysis of Subject KM's student teaching lessons reveal that he provided substantially more individual than group feedback. The graphs in Figure 15 (see page 108) indicate that negligible amounts of group-

directed feedback were recorded in only one of the five group categories in each of the four lessons. As previously explained, these results concur with research evidence showing that student teachers elicit much less group feedback than individual (Siedentop, 1983). The low rates of group feedback also suggest that Subject KM's teaching was similar to that of many physical educators who give their students a task to perform and then spend most of their time providing feedback to individual students (Rink, 1985). Thus, Subject KM could have more efficiently utilized his instructional time by directing more feedback statements to either a group of students or the entire class as he analyzed their skill attempts.

As presented in Figure 15a (see Page 108), the highest rates of individual specific skill feedback were recorded in the neutral category. Of the four lessons, the highest rates per minute were 1.03 in ST4 and 1.06 in ST1. These rates were not as high as those reported for Subject KM's peer teaching; however, each of the student teaching lessons was nearly three times longer than either peer lesson (see Figure 13 on page 107). Further examination of the individual neutral feedback data reveal that the highest and lowest rates per minute were recorded in the two throwing and catching lessons (ST1 and ST2) which were also similar in length.

Figure 15c (see page 108) shows that Subject KM elicited higher rates of individual positive than any other

type of general feedback in each of his student teaching lessons with the highest rates being recorded in lessons ST1 (1.06 per minute) and ST4 (1.38 per minute). This finding coincides with the results of Subject KM's peer teaching; however, the rates for his student teaching lessons were not as high as those recorded in the PT and PR lessons.

The ratios of total specific skill to total general feedback for Subject KM's student teaching lessons are presented in Table 15 (see page 109). The lowest ratio was 1.0|1.0 in the batting lesson (ST4) and the highest ratio was 2.1|1.0 in the fielding lesson (ST3). Siedentop (1985) recommends that 50 to 70 percent of a physical education teacher's verbal feedback should be specific in order to facilitate skill acquisition. Subject KM's percentages of specific skill feedback ranged from 50-67% indicating that he achieved this standard; however, lessons ST1 (51%) and ST4 (50%) barely met the minimum. If Subject KM had provided more specific information about his students' skill attempts in his verbal feedback statements, he would have attained higher ratios of specific to general feedback.

Table 17 displays the ratios of congruent to incongruent specific skill feedback for Subject KM's student teaching lessons. The ratios of total specific feedback for the throwing and catching lessons (ST1 and ST2) are similar; however, both were lower than Subject KM's peer reteach lesson (1.9|1.0). Even though these ratios were not higher

than the PR lesson, neither was as low as Subject KM's

initial peer lesson (1.0┊4.0).

Table 17

Ratios of Congruent to Incongruent Feedback
for Student Teaching Lessons
(Subject KM)

Specific Skill Feedback Type	ST1	ST2	ST3	ST4
Individual Positive	3.0┊0.0	1.0┊1.7	4.0┊1.0	1.0┊1.4
Group Positive	---	---	---	---
Individual Negative	---	---	---	---
Group Negative	---	---	---	---
Individual Neutral	1.3┊1.0	1.6┊1.0	4.8┊1.0	1.1┊1.0
Group Neutral	---	1.0┊0.0	---	---
Total	1.5┊1.0	1.3┊1.0	5.6┊1.0	1.0┊1.0

The highest ratio of congruent to incongruent feedback
was calculated for the fielding lesson (ST3). This ratio of
5.6┊1.0 indicates that Subject KM provided substantially
more verbal feedback statements congruous to the fielding
drills involving both grounders and fly balls. Rink (1985)
asserts that a high percentage of congruent feedback results
in skill instruction being more "narrow and focused" and
having a positive influence on student participation. Based

on this assertion, Subject KM's teaching in the ST3 lesson was more precise thereby having a favorable impact upon his students' effort during the fielding drills.

Of the separate specific skill feedback types, the highest congruent to incongruent ratios were recorded in the individual neutral category for all but one of Subject KM's student teaching lessons (ST1). These ratios ranged from 1.1|1.0 (ST4) to 4.8|1.0 (ST3) and all were higher than either of Subject KM's peer lessons (see Table 15 on page 109). In the individual positive category, ratios of 3.0|0.0 and 4.0|1.0 were computed for the individual positive category in lessons ST1 and ST3 respectively. In all of his student teaching lessons, Subject KM was unable to produce a ratio as high as the 10.0|0.0 in the individual positive category for the PR lesson.

In the fielding lesson (ST3), Subject KM recorded the highest ratios in any of the separate skill feedback categories. These ratios were 4.0|0.0 in the individual positive category and 4.8|1.0 in the individual neutral category. During this lesson, many of Subject KM's feedback statements dealt with "crouching down" and "keeping the glove on the ground" as his students were fielding the grounders. This feedback was coded congruent since he had emphasized these points in explaining the proper fielding technique. Similarly, Subject KM recorded a high rate of congruent feedback as his students were catching fly balls by frequently reminding them to "get in front of the ball,"

one aspect of fielding which he stressed prior to doing this drill. Therefore, the ratios of congruent to incongruent feedback in these two individual categories were higher than the other specific skill feedback types.

The data analysis of the ratios of congruent to incongruent feedback in Subject KM's student teaching lessons yielded one additional finding. More congruent than incongruent feedback was provided by Subject KM in seven out of the nine specific skill categories in which frequencies were recorded. An examination of Table 17 reveals that in four of these seven categories the ratios were less than 2.0:1.0. This finding may suggest that Subject KM did not consistently elicit high rates of congruent feedback during these videotaped student teaching lessons. However, without valid data from other sport pedagogy studies establishing suitable ratios regarding the congruency of verbal feedback statements, the effectiveness of Subject KM in providing feedback to his students related to specific task foci in these lessons cannot be determined.

Summary

The preceding sections of this chapter included analyses of the observational data collected from the videotaped lessons for each preservice physical education teacher who participated in this study. Most of the descriptive results discussed in these sections were unique to the individual subjects' peer teaching and student teaching lessons. However, some of the findings were shared

by several or all of the subjects and are presented in this section.

<u>Peer Teaching Lessons</u>

All of the preservice teachers recorded an increase, ranging from 31 to 97 percent, in the rate-per-minute of total specific skill feedback from the PT lesson to the PR lesson. Additionally, all but one subject (LS) reported a reduction of 20 to 76 percent in the rate-per-minute of general feedback elicited during the PR lesson. There was also an improvement in the ratio of total specific skill to total general feedback from the PT lesson to the PR lesson reported by all of the preservice teachers. These changes in the descriptive data may be attributed to the class discussion which the researcher had prior to the subjects reteaching their peer lessons regarding the importance of giving detailed information to the participants about their skill attempts. Another factor which may have had an impact on these changes in a positive direction for the PR lessons was the data given to the preservice teachers regarding their use of verbal feedback during the initial peer lessons.

For three of the subjects (SF, JD, and KM), the highest rate-per-minute of any specific skill feedback category for the PR lesson was recorded in the individual neutral category. In fact, all of the preservice teachers elicited more individual than group feedback (both general and specific skill) in each of their peer lessons. The small

number of peer participants (six) may have influenced the preservice teachers to elicit higher rates of individual than group feedback.

An increase in the ratio of total congruent to incongruent specific skill feedback from the PT lesson to the PR lesson was reported for all of the preservice teachers. Among the specific skill feedback types, the highest ratio of congruent to incongruent feedback for the PR lesson was calculated in the individual positive category for three of the subjects (BD, SF, and KM). These improvements in the congruency of feedback statements in the PR lessons may be partially related to the fact that all but one of the preservice teachers (LS) elicited more incongruent than congruent feedback during their initial peer lessons. Another factor which may have affected these ratios involves the subjects' clarification of specific task foci in reteaching their peer lessons thereby resulting in more of their feedback statements being coded as congruent.

The results of the peer lessons concur with previous descriptive studies involving the use of this instructional technique in the development of appropriate teaching behaviors in preservice teachers (Graham, 1973; Imwold, 1984: Taylor, 1978). The substantial changes in the verbal feedback data recorded for the subjects' peer reteach lessons support Olson's (1982) contention that preservice teachers should be given additional instructional opportunities in acquiring specific teaching skills.

Student Teaching Lessons

Three of the preservice teachers (SF, JD, and KM) elicited higher rates of total specific skill than total general feedback in all of their student teaching lessons. Interestingly, in at least three of the lessons taught by four of the subjects (BD, JD, LS, and KM), the rate of total specific skill feedback was lower than the rate recorded in the PR lessons. These results indicate that even though more specific skill than general feedback was provided in 60 percent of the student teaching lessons, the rates at which the subjects elicited these informative statements were not higher than the PR lesson. However, most of these lessons were considerably longer than the PR lesson which may account for lower rates of specific skill feedback being recorded.

The five preservice teachers recorded higher rates per minute in the individual neutral category than any other type of specific skill feedback in each of the four videotaped lessons. Among the general feedback types, the highest rates were reported in the individual positive category by the five subjects in all of their lessons. These findings indicate that the preservice teachers elicited more feedback to individual students than to either groups of students or the entire class. As discussed in the previous sections, studies of physical education student teachers reveal that they seldom provide group-directed feedback statements (Siedentop, 1983).

For three subjects (SF, JD, and LS), none of the ratios of total specific skill to total general feedback was higher than those reported in the PR lesson. In fact, the other two subjects (BD and KM) recorded a higher ratio of total specific skill to total general feedback in only one of their student teaching lessons. Unlike the peer teaching experience, the preservice teachers received no data regarding the feedback they elicited during their student teaching lessons until all of the videotapes were coded. This may explain why the preservice teachers were unable to consistently achieve levels of verbal feedback behaviors in their student teaching lessons comparable to those reported in their PR lessons.

Only three of the preservice teachers (BD, JD, and KM) recorded a ratio of total congruent to incongruent feedback in just one of their student teaching lessons which was higher than the ratio calculated for the PR lesson. This finding seems to imply that the subjects were not very effective in providing feedback statements congruent to the specific task foci during their student teaching lessons. However, all five subjects elicited equal or greater amounts of congruent than incongruent feedback in 75 percent or more of the separate specific skill categories in which frequencies were recorded. This data reveal that the preservice teachers were reasonably successful regarding the congruency of their feedback statements elicited during these videotaped lessons. As discussed in the previous

sections, sport pedagogy research has not established what is considered to be an appropriate ratio of congruent to incongruent feedback (Rink, 1985), thereby limiting the analysis of the preservice teachers' effectiveness related to the congruency of their verbal feedback.

CHAPTER 5

Summary, Conclusions, and Recommendations

Summary

Purpose of the Study

The purpose of this study was to analyze the
development of verbal feedback behaviors of five preservice
physical education teachers using a teach-reteach format in
presenting peer teaching lessons. Specifically, this
investigation was designed to examine the effectiveness of a
second presentation of a ten-minute peer teaching lesson
after the subjects received data regarding their use of
verbal feedback during the initial lesson presentation. The
implementation of these verbal feedback behaviors by the
preservice teachers during their secondary student teaching
assignment was also analyzed.

Data Collection

In order to determine the incidence of verbal feedback
behaviors as elicited by the preservice physical education
teachers in two peer teaching and four student teaching
lessons, the teaching episodes were videotaped and then
coded by the researcher. The Feedback Coding Form (Graham,
1989) was the instrument selected for recording the verbal
feedback behaviors during observations of the videotaped
lessons. Based on explicit definitions, the researcher used
event recording techniques in deciding whether one of the

six specific skill or four general feedback behaviors had occurred. The congruency of each specific skill feedback statement was also determined and recorded on the coding form. Additionally, the length of each videotaped lesson was measured so the rate per minute of each verbal feedback behavior could be calculated.

The peer teaching lessons were presented by the preservice teachers during the secondary physical education methods course taught by the researcher during the first five weeks of the 1991 spring semester at Liberty University. Data collected from these videotaped peer lessons were shared simultaneously with all of the subjects following each of the two peer teaching presentations.

During the remaining ten weeks of the same semester, the student teaching lessons were videotaped by the researcher at each of the four public high schools in central Virginia where the subjects completed their student teaching assignments. The data collected from these lessons were shared during interview sessions with each preservice teacher following the researcher's observations of the videotapes.

The reliability of the data collected during this study was ascertained by calculating both intraobserver and interobserver agreements. The pre-determined criterion levels of agreement for checking reliability were achieved, thereby confirming the data were accurate and reliable for descriptive analysis.

<u>Data Analysis</u>

The rate per minute of each verbal feedback behavior was calculated by dividing the recorded total frequency on the coding form by the length of the lesson episode. Ratios of total feedback statements in separate categories were also computed to show the following relationships: (1) specific skill feedback to general feedback; and (2) congruent to incongruent statements within each of the six specific skill feedback categories.

<u>Research Questions</u>

Descriptive analyses of the observational data collected for the preservice teachers were completed based on the following research questions:

1. What levels of verbal feedback behaviors will result from an initial peer teaching lesson?

2. What changes in verbal feedback behaviors will be demonstrated in a second peer teaching lesson as a result of data given to the preservice teachers following the first lesson?

3. Will transfer of these verbal feedback behaviors occur during the secondary student teaching experience; and if so, to what extent?

<u>Interview Responses of Subjects' Data Analyses</u>

Following completion of the data collection for the student teaching lessons, the researcher conducted interview sessions with each preservice teacher. During these sessions, preliminary findings from the data analysis

were discussed with the subjects. Additionally, the preservice teachers shared some interesting observations regarding their verbal feedback behaviors and those insights are presented in this section.

<u>Subject BD.</u> As discussed in the previous chapter, Subject BD provided almost no group-directed feedback during his student teaching lessons. When asked why he elicited more individual than group feedback, Subject BD responded, "Well, I guess that would be my personality. I think I'm a lot better with individuals and with small groups than I am with big groups." This response may explain why he provided a negligible amount of group feedback in only one of the four videotaped lessons (ST4).

Subject BD did not provide substantially greater amounts of specific skill than general feedback during his student teaching lessons. In sharing his thoughts on this finding, Subject BD indicated that his students' "skill level is real low," so "Why spend the time? Why put forth the effort?" when "they don't care to improve it." Perhaps the unresponsive attitude of Subject BD's students was counterproductive in generating higher levels of specific skill feedback during his student teaching.

The data analysis of Subject BD's four lessons showed that his tenth grade class received twice as much general feedback as his ninth graders during the two setting lessons (ST1 and ST2). In discussing this difference in general feedback between the two lessons, Subject BD revealed that

sixth period, the ninth graders, was one of his favorite classes because "they were into it a little more than tenth graders." With this being the case, it would seem that Subject BD would have elicited more general feedback to his ninth grade class. However, the data indicate that his stated preference for this class did not have a positive impact upon the amount of general feedback elicited by Subject BD during the ST2 lesson.

<u>Subject SF.</u> In sharing with Subject SF that he elicited considerably more individual than group feedback in all of his student teaching lessons, he provided some thoughtful insights regarding this finding. Subject SF revealed that "The only time I could see giving any kind of group feedback would be group negative when I'd bring them together . . . to tell them they weren't doing what I asked." This disclosure suggests that Subject SF viewed the use of group feedback as being primarily relevant in those situations when his students required some type of correction. Even though this belief may have influenced his verbal feedback behaviors, Subject SF furnished another reason for not eliciting more group feedback during his lessons. He stated that giving individual feedback was more appropriate because "when you've got the kids spread out in groups . . . the only way they could hear me to switch a focus would be to bring them all back together." Perhaps this response was influenced by the fact that Subject SF taught his speedball lessons on a large outdoor playing

field, and his voice projection and volume may have been inadequate for the space being utilized.

During Subject SF's interview session, he shared some additional thoughts about verbal feedback behaviors. In contrast to his peer teaching experience, Subject SF stated that "the kids aren't that receptive to what you're saying out in the real world." This perception of high school physical education classes may explain why Subject SF's feedback rates were not substantially higher during his student teaching lessons. Another factor which may have influenced the levels of feedback Subject SF provided could be linked to this statement: "I know in some classes I couldn't get around to all of the kids." This indicates that the larger number of students in Subject SF's high school classes probably limited the amount of feedback he elicited during these lessons.

Subject JD. In the interview session with Subject JD, he revealed some thoughts about why it was a more formidable task eliciting feedback statements in his high school classes than his elementary classes. Subject JD indicated that the high school students were not as receptive to his verbal feedback because "you know, you tell them 'You did this right' and they just kind of nod their head" suggesting that successful skill attempts are really "no big deal" to them. Another factor which affected the amount of time available to Subject JD to provide feedback to his high school students relates to their behavior. Subject JD was

somewhat restricted by the discipline problems he had to resolve during his student teaching lessons. This prompted him to state that "The time spent with those guys . . . It's incredible the amount of time it takes" in handling the misbehavior of certain students in physical education classes. This partially explains why Subject JD recorded lower rates of feedback during two of his four lessons (ST2 and ST4).

As discussed in the previous chapter, Subject JD provided greater amounts of individual than group feedback during his student teaching lessons. When asked why he elicited very little group-directed feedback, Subject JD responded, "Probably because . . . they were at different stations and I was going around and watching one person do it." This response suggests that following an individual student's skill attempt, Subject JD was more inclined to give feedback to him/her rather than share his analysis of the performance with all of the students working at that tumbling/gymnastics station.

In three of Subject JD's student teaching lessons, the ratios of congruent to incongruent feedback were similar to those of his peer teaching lessons and may be attributable to the following statement:

> "I planned in the lesson to focus, but . . . as I got
> into the lessons, it's almost like I realized these
> high schoolers are not going to be that particular
> about the little, tiny aspects of each [skill] . . .
> like the forward roll is a very simple skill for them
> . . . they don't wanna take five minutes to focus on

planting their hands firmly and then tucking their head
. . . I didn't have a whole lot of time to spend."

This explanation reveals some of the frustration that
Subject JD experienced in providing more congruent feedback.
It also implies that he struggled with deciding the
appropriate task foci and the amount of time spent in
student practice during his student teaching lessons.

Subject LS. During her interview session, Subject LS
discussed why she elicited very little group-directed
feedback during her student teaching lessons. She asserted
that more attention was given to providing individual than
group feedback during the peer teaching lessons. Subject LS
affirms this by claiming, "We did a lot of that [referring
to individual feedback] in our peer teaching" and "Group, I
have never thought of group." These statements suggest that
Subject LS did not incorporate this feedback behavior into
her student teaching because group feedback was not
adequately emphasized during the secondary methods course.

The data analysis of her student teaching reveal that
Subject LS provided less congruent than incongruent feedback
in one of her overhand throwing lessons (ST2) than she did
in the other lesson (ST1). In discussing this finding she
indicated that "fifth period (ST2) did not need as much
help." However, when the researcher asked her to clarify
this statement, Subject LS responded, "And a lot of them
were throwing sidearm, and I knew I couldn't change a bad
habit . . . 'Cause I tried and tried [but] . . . they

wouldn't do it." Since Subject LS did not mention the sidearm throw in her skill explanation, many of her specific skill feedback statements in this ST2 throwing lesson were coded incongruent.

In both student teaching lessons involving her ninth grade class (ST2 and ST4), Subject LS recorded lower ratios of congruent to incongruent feedback than in the other two lessons. In discussing this finding with Subject LS, she indicated that she really liked that class and tended to "shift out of the teaching mode a little bit" with them. Subject LS revealed that "Granted, they know I'm the teacher, but I can be more relaxed . . . I can have fun with them and they're not going to get mad." Admittedly, when Subject LS is in a "more formal teaching mode," she provides more congruent than incongruent feedback relevant to her students skill attempts.

Subject KM. One of the noteworthy findings in Subject KM's student teaching lessons dealt with higher ratios of total specific skill to total general feedback being recorded in the ST2 and ST3 lessons than in the ST1 and ST4 lessons. In responding to questions about this data, Subject KM made two observations. The first one related to the size of his physical education classes. Lessons ST2 and ST3 involved Subject KM's fourth period class with an enrollment of 18 students; whereas, the ST1 and ST4 lessons were taught to his third period class of 30 students. Because his third period class had fewer students, Subject

KM indicated that "I might be able to focus on giving more [feedback]."

Subject KM's second observation involved the difficulty of providing accurate and detailed information in each feedback statement elicited. During his student teaching lessons, Subject KM would typically observe a student making another skill attempt after eliciting a specific feedback statement and then respond to this attempt by providing a general feedback statement. In explaining why he developed this pattern of feedback behavior, Subject KM stated that "We're just not used to . . . correcting and giving somebody that type of feedback. I don't remember my coaches saying, 'Way to snap your wrist.'" Subject KM's previous athletic experiences obviously had a definite impact on his ability to elicit feedback specifically related to his students' skill attempts. When asked why he couldn't augment his general feedback statements with some specific information, Subject KM replied, "Sometimes it's difficult to say those things and feel comfortable with it." This response implies that Subject KM was not at ease in providing high levels of specific feedback during his student teaching lessons.

Further discussion related to the difficulty of giving specific feedback prompted Subject KM to say, "You have to think about what you're going to say sometimes, too. You can't just blurt it out, you know. And the things that don't take much thinking are the 'good job's' and the 'that's it's.'" This response infers that Subject KM

believes that providing specific skill feedback statements requires more thought; whereas, eliciting general feedback demands less imagination. Subject KM adds, "And you can't just take a quick glance. You maybe have to see them do it [referring to a skill] two or three times." This suggests that Subject KM not only views the use of specific feedback as requiring more thinking but also more time in analyzing his students' skill attempts.

Conclusions

Within the stated limitations of this study and as a result of the data analysis, the following conclusions are derived:

1. Some of the verbal feedback behaviors (individual positive, individual neutral, and total specific skill categories) of the preservice teachers were substantially influenced by reteaching the ten-minute peer lesson.

2. The utilization of the teach-reteach format and observational data regarding the levels of feedback elicited in the ten-minute peer teaching lessons had a categorical influence on the development of the preservice teachers' verbal feedback behaviors.

3. The preservice teachers demonstrated considerable improvement in the ratio of congruent to incongruent specific skill feedback from the first peer teaching lesson to the second lesson presentation.

4. All of the preservice teachers achieved higher rates of individual neutral than any other type of specific

skill feedback in each of their student teaching lessons corroborating the results of the peer reteach lessons.

5. The implementation of the preservice teachers' verbal feedback behaviors into their secondary student teaching lessons was considerably variable.

6. Virtually all of the general feedback statements elicited by the preservice teachers in their student teaching lessons were positive thereby establishing a definite pattern of verbal behavior.

7. Levels of verbal feedback behaviors comparable to the peer reteach lesson were not achieved by the preservice teachers during their student teaching lessons and may have been influenced by distinct variables (e.g., grade level; period of the day) within each of the secondary school instructional settings.

8. The ratios of total specific skill to total general feedback attained during the student teaching lessons were consistently lower than the ratios achieved during the peer reteach lessons.

9. The absence of observational data regarding the feedback elicited by the preservice teachers during their student teaching lessons (after all of the videotapes were coded) had a substantial impact on both the levels of specific skill feedback behaviors achieved and the congruency of those verbal statements.

Recommendations

Based on the findings in this study, the following recommendations are made for further research:

1. Replicate this study with prospective preservice physical education teachers in order to corroborate the viability of using the teach-reteach format for peer teaching lessons in developing their verbal feedback behaviors.

2. An experimental study be completed to further examine the effects of the teach-reteach format on the development of preservice teachers' verbal feedback behaviors.

3. Future studies be conducted which would contribute to the establishment of appropriate ratios of congruent to incongruent specific skill feedback in secondary physical education instructional settings.

4. A subsequent study be completed in which the preservice teachers would receive data from the student teaching lessons after each was videotaped in order to reinforce the development of the verbal feedback behaviors.

5. Successive studies be conducted in which the transfer of verbal feedback behaviors by these preservice teachers are analyzed during their first and fourth years of teaching.

6. A similar study be conducted in which the content development of the videotaped lessons is analyzed thereby facilitating the identification of specific task foci.

Appendices

Appendix A

General Procedures for Research Study

GENERAL PROCEDURES FOR RESEARCH STUDY

The following description of general procedures will provide you with an overview of the research project being conducted by Linda Farver here at Liberty University.

1. The study will be conducted during the five-week physical education methods course (EDUC 434) and the ten-week student teaching experience of the 1991 spring semester.

2. Throughout the methods course and student teaching I will be compiling a series of videotapes of your physical education lessons from which data can be collected about specific teacher and student behaviors. The data collected from the videotapes will be shared with you at appropriate times during the semester.

3. You will be asked to wear a wireless microphone so your verbal responses can more effectively be recorded on the videotape during the lessons being taught. These videotapes will provide a permanent record of your teaching and you will be given copies at the conclusion of the semester.

4. After the series of videotapes has been completed, I will speak with you concerning your experiences during the study. These sessions will be recorded on an audiocassette tape, and you will receive a written transcript of this session.

5. You are assured that your identity will not be revealed in any publications, documents and/or presentations of the data gathered during this study. All data collected from the videotaped lessons will in no way affect your grade in either the methods course or your student teaching. A copy of the results of this study will be provided upon written request.

Any questions that you may have regarding the general procedures of the study will be answered. You may contact me at one of these numbers: office - 582-2330 or home - 239-7112 (may leave a message).

Appendix B

Informed Consent Form

INFORMED CONSENT FORM

This is to certify that I voluntarily agree to participate in the research study being conducted by Linda Farver at Liberty University during the 1991 spring semester. Further, I agree to engage in the videotaping of physical education lessons as described on the attached form. I give permission for the videotapes of my teaching to be analyzed by trained coders. I understand that the analysis of such data is for the purpose of improving the teacher preparation program here at Liberty.

I have read the above statement of informed consent and the attached form describing the general procedures. I understand the information as set forth and do consent to participate in this research study.

Signature: _____

Date: _____

Appendix C

Procedural Timetable for Study

PROCEDURAL TIMETABLE FOR STUDY

January 16	Discussed study with subjects and signed consent forms
January 24	Videotaped 5-minute peer lessons
January 25	Discussed data collected from observations of 5-minute lessons
January 30	Videotaped initial ten-minute peer lessons
February 1	Discussed data collected from observations of videotapes of initial presentations of 10-minute peer lessons
February 4	Videotaped second presentation of ten-minute peer lessons
February 5, 6	Discussed data collected from observations of videotapes of second presentation of 10-minute peer lessons
February 25 - May 3	Videotaped skill instruction lessons during student teaching
May 7	Individual discussion sessions with subjects regarding data collected from observations of videotaped student teaching lessons

Appendix D

Letters Requesting Permission to Conduct Study

December 17, 1990

Dr. Robert Gaunt, Dean
School of Education
Liberty University
Lynchburg, VA 24502

Dear Dr. Gaunt,

Enclosed please find a copy of the proposed research study
for my doctoral dissertation under the supervision of Dr.
Glen Reeder at Middle Tennessee State University. I have
discussed the proposed project with Dr. David Horton,
Chairman of the Physical Education Department and have his
full support.

This research project is designed to analyze the development
of verbal teaching behaviors in our preservice physical
education teachers. If the study succeeds in developing the
preservice teachers' verbal behaviors through peer teaching
episodes in the secondary methods course, it holds much
promise for future use within other teacher preparation
courses as we strive to improve our program.

Thank you for your careful consideration of this research
proposal. If you have any questions, please contact me. I
look forward to hearing from you soon.

Sincerely,

Linda Farver
Associate Professor

December 17, 1990

Dr. David Horton, Chairman
Dept. of Physical Education
Liberty University
Lynchburg, VA 24502

Dear Dr. Horton,

Enclosed please find a copy of the proposed research study for my doctoral dissertation under the supervision of Dr. Glen Reeder at Middle Tennessee State University. Having previously discussed the pilot study conducted this fall with you, I trust that I will have your full support for conducting the actual investigation next semester.

This research project is designed to analyze the development of verbal teaching behaviors in our preservice physical education teachers. If the study succeeds in developing the preservice teachers' verbal behaviors through peer teaching episodes in the secondary methods course, it holds much promise for future use within other teacher preparation courses as we strive to improve our program.

Thanks in advance for your full support of this research proposal. If you have any questions, please contact me.

Sincerely,

Linda Farver
Associate Professor

Appendix E

Feedback Coding Form

FEEDBACK CODING FORM

Teacher _____

Date _____ School _____ Grade _____

Topic of Lesson _____

			SPECIFIC FEEDBACK												GENERAL FEEDBACK					
			SKILL						BEHAVIOR											
TIME	Congr	Incon	Individual			Group			Individual			Group			Individual			Group		
			+	0	-	+	0	-	+	0	-	+	0	-	+	0	-	+	0	-
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				
25																				
26																				
27																				
28																				
29																				
30																				
Tot.																				

(1) code congruent or incongruent categories; (2) code specific or general categories

Appendix F

Coding Procedures for Feedback Coding Form

CODING PROCEDURES FOR FEEDBACK CODING FORM

The Feedback Coding Form (FCF) will be used to observe and record the verbal feedback behaviors displayed during the videotaped lessons. For the purposes of this study, only the "Specific Skill Feedback" and "General Feedback" sections related to verbal teaching behaviors will be used for actual data collection. Event recording will be used to count the number of times that a discrete feedback behavior occurs.

1. Each time the subject emits a predefined verbal teaching behavior, mark a tally under the appropriate category on the coding sheet.

2. In addition to categorizing each specific skill feedback statement, a decision as to whether it is congruent or incongruent will be made and tallied in the appropriate column.

3. Do not tally any comments related to student behavior other than for skill attempts. For instance, do not code "Hustle" or "I like the way you are working."

4. It may help to ask yourself these questions:

   a. Did the teacher's response show teacher approval for a skill attempt?

   b. Did the teacher's response tell the student that the skill attempt was not acceptable or needed improvement?

   c. What specifically was good or needed improvement? If you cannot answer this one, it was a general comment not a specific comment.

   d. Was the teacher's response consistent with the immediate task focus and cues? If so, it was congruent; if not, it was incongruent.

VERBAL FEEDBACK: DEFINITIONS AND EXAMPLES

1. GENERAL POSITIVE FEEDBACK. A teacher verbal response to appropriate student performance so that disapproval is shown without any specific information being communicated about particular aspects of the performance.

   Examples: "Good", "Nice going", "All right", "Good job", "Good throw", "Good swing", "Good hit", "Good landing"

2. GENERAL NEGATIVE FEEDBACK. A teacher verbal response to inappropriate student performance so that disapproval is shown without any specific information being communicated about particular aspects of the performance.

   Examples: "No", Wrong", "Not that way"

3. SPECIFIC SKILL POSITIVE FEEDBACK. A teacher verbal response to appropriate student skill attempt which conveys approval and precise, detailed information about certain aspects of the performance.

   Examples: "Great, you bent your knees"
   "Good, you really extended your legs"
   "Super, you snapped your wrist on the release"
   "You've got good form"

4. SPECIFIC SKILL NEGATIVE FEEDBACK. A teacher verbal response to inappropriate student skill attempt which conveys disapproval and precise, detailed information about certain aspects of the performance.

   Examples: "No! Bend your knees"
   "Terrible! You need to extend your legs"
   "No! You didn't snap your wrist"

5. <u>SPECIFIC SKILL NEUTRAL FEEDBACK</u>. A teacher verbal response to student skill attempt which conveys precise, detailed information which is neither positive nor negative.

   Examples: "That time you bent your knees"
              "You extended your legs"
              "That time you snapped your wrist"

6. <u>CONGRUENT FEEDBACK.</u> A teacher verbal response to student skill attempt (performance or results) that is consistent with the immediate task focus and cues.

   Examples: "That's it, use the inside of your foot each time"
              "Stay with the inside of your foot, Susan"

7. <u>INCONGRUENT FEEDBACK</u>. A teacher verbal response to student skill attempt (performance or results) that may be important to the skill but is not specifically related to the task focus.

   Examples: "Keep the ball closer to you, Susan"
              "Watch where you're going, John"
              "Get those feet around when you're changing direction"

Appendix G

Recording Equipment

RECORDING EQUIPMENT

The following videotape recording equipment was used to record the lesson episodes:

Camera   - Hitachi VHS Video Camera/Recorder, Model VM-3300A, F1.4 (8.7~70 mm) 8:1 power zoom lens

Microphone   - Realistic Wireless Video Microphone, Model No. 32-1226

Videotapes   - BASF, Kodak, and Scotch 1/2" VHS videocassettes

The following audiotape cassette recording equipment was used to record the interview sessions with subjects:

Recorder   - General Electric AM/FM/FM Stereo Cassette Recorder, Model 3-5623

Audiotapes   - KMC 60-minute cassettes

Appendix H

Student's Use of Time Coding Form

STUDENT'S USE OF TIME CODING FORM

Lesson Focus: _____ Teacher: _____

Coder: _____ Date: _____ School: _____

# of Students: _____ over 50% of Students: _____

<u>Time Analysis Codes</u>: Decision each 15 seconds is based on what 51% of the observed students are doing at the end of each 15 second segment.

M = <u>Management</u>: Time when <u>most</u> students (over 50%) are <u>not</u> receiving instruction or involved in lesson activity. (e.g., changing activities; getting out or putting away equipment; listening to behavior rules or reminder.)

A = <u>Activity</u>: Time when most students (over 50%) are involved in physical movement. (e.g. catching a ball; throwing at a target.)

I = <u>Instruction</u>: Time when most students (over 50%) are receiving information about how to move or perform a skill. (e.g. how to move using all the space; watching a demonstration; listening to instructions.)

W = <u>Waiting</u>: Time when most students (over 50%) are <u>not</u> involved in the other categories. (e.g. group activity but only one or two are participating; waiting for a turn; off task behavior; waiting for the teacher to give directions.)

```
0  15 30 45  1        2        3        4        5        6
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
7        8        9        10       11       12       13
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
14       15       16       17       18       19       20
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
```

<u>Time Analysis</u> = $\dfrac{\text{\# of intervals x 15}}{\text{Total lesson time (seconds)}}$ _____ = _____%

Total **M** time = _____%   Total **I** time = _____%

Total **A** time = _____%   Total **W** time = _____%

Appendix I

Five-Minute Lesson Analysis Form

FIVE-MINUTE LESSON ANALYSIS FORM

Teacher: _____

1. Were participants kept "ON TASK" during lesson?

2. Clarity of Instruction:

3. Voice projection and volume:

4. Use of verbal crutches:

5. Suggestions for Improvement:

.

Appendix J

Analysis of Videotape: Five-Minute Lesson

ANALYSIS OF VIDEOTAPE: FIVE-MINUTE LESSON

1. POSITIONING DURING LESSON:

    Did you keep your "back to the wall" during the lesson
    so you could view all the students? Did you move
    throughout the group of students to keep them "on-
    task?" Did you position yourself so you could observe
    different aspects of students' skill attempts?

2. USE OF VERBAL CRUTCHES:

    The most commonly used verbal crutches are: "okay",
    "um", and "all right."
    List the verbal crutches you used during this lesson
    and tally the number of times each was used.

3. COMMENT ON THE FOLLOWING:

    a. Voice projection and volume:

    b. Clarity of Instruction:

Appendix K

Ten-Minute Lesson Analysis Form

TEN-MINUTE LESSON ANALYSIS FORM

Teacher: _____

1. Skill/Movement Task Demonstrations:

2. Use of Verbal Teaching Cues:

3. Number of times you received Verbal Feedback:

4. Comments/Suggestions for Improvement:

Appendix L

Teacher Verbal Feedback Analysis Form

TEACHER VERBAL FEEDBACK ANALYSIS

TEACHER: _____   TIME = _____

LESSON: _____

TOTAL FEEDBACK STATEMENTS = _____

SPECIFIC SKILL = _____   GENERAL = _____

SPECIFIC SKILL FEEDBACK:

	FREQ	RPM	CONG	RPM	INCON	RPM	RATIO CON TO INCON
INDIVIDUAL POSITIVE							
GROUP POSITIVE							
INDIVIDUAL NEGATIVE							
GROUP NEGATIVE							
INDIVIDUAL NEUTRAL							
GROUP NEUTRAL							
TOTAL							

GENERAL FEEDBACK: RATIO OF SPECIFIC TO GENERAL:

	FREQ	RPM
INDIVIDUAL POSITIVE		
GROUP POSITIVE		
INDIVIDUAL NEGATIVE		
GROUP NEGATIVE		
TOTAL		

_____

Appendix M

Analysis of Videotape: Ten-Minute Lesson

ANALYSIS OF VIDEOTAPE: TEN-MINUTE LESSON

1.   SKILL DEMONSTRATIONS: (Modeling)

Did you perform the skill/movement task CORRECTLY and
COMPLETELY?   Why or why not?

Did you perform the skill/movement task more than once
during the lesson?

2.   USE OF VERBAL TEACHING CUES:

a.   Skill/movement task: _____

b.   List Teaching Cues stated during skill/movement
     practices:

3.   TEACHER VERBAL FEEDBACK:

List the Verbal Feedback statements/responses you made
during the "guided practice" portion of lesson.

Appendix N

Verbal Feedback Data for Peer Teaching

VERBAL FEEDBACK DATA FOR PEER TEACHING

TEACHER: _____

LESSON: _____

VERBAL FEEDBACK - RATE PER MINUTE

SPECIFIC SKILL FEEDBACK	**TEACH**	**RE-TEACH**
Individual Positive	_____	_____
Group Positive	_____	_____
Individual Negative	_____	_____
Group Negative	_____	_____
Individual Neutral	_____	_____
Group Neutral	_____	_____
TOTAL	_____	_____

GENERAL FEEDBACK		
Individual Positive	_____	_____
Group Positive	_____	_____
Individual Negative	_____	_____
Group Negative	_____	_____
TOTAL	_____	_____

VERBAL FEEDBACK DATA FOR PEER TEACHING

TEACHER: _____

LESSON: _____

RATIOS OF CONGRUENT TO INCONGRUENT FEEDBACK

SPECIFIC SKILL FEEDBACK TYPE	**TEACH**	**RE-TEACH**
Individual Positive	_____	_____
Group Positive	_____	_____
Individual Negative	_____	_____
Group Negative	_____	_____
Individual Neutral	_____	_____
Group Neutral	_____	_____
TOTAL	_____	_____

RATIOS OF SPECIFIC TO GENERAL

_____ _____

Appendix O

Procedures for Videotaping Student Teaching Lessons

PROCEDURES FOR VIDEOTAPING STUDENT TEACHING LESSONS

1. Over the next ten weeks, I will be videotaping five/six
    skill instruction lessons during your student teaching
    experience. These lessons should primarily focus on
    the students' acquisition of specific motor or sport
    skills rather than game play. Lesson presentations
    should not be rehearsed prior to videotaping.

2. In deciding upon the five/six to videotape, it would be
    best to select one/two lessons involving elementary
    instruction and four/five lessons involving high school
    instruction. Additional lessons can be videotaped;
    however, all videotaping must be completed by May 3.

3. During the lesson videotaping, you will be asked to
    wear a wireless microphone just as you did during the
    videotaping sessions in the methods course.

4. Please submit your teaching schedules to me as soon as
    possible so arrangements can be made to begin the
    lesson videotaping.

5. If you have any questions, please call me at one of
    these numbers: office - 582-2330 or home - 239-7112
    (may leave a message).

NOTE: Thanks again for your participation in this phase of
       the study.

                              Linda Farver, Researcher
                              Associate Professor
                              Liberty University

Appendix P

Verbal Feedback Data for Student Teaching

VERBAL FEEDBACK DATA FOR STUDENT TEACHING

TEACHER: _____

SCHOOL: _____

VERBAL FEEDBACK - RATE PER MINUTE

SPECIFIC SKILL FEEDBACK	ST1	ST2	ST3	ST4
Individual Positive	_____	_____	_____	_____
Group Positive	_____	_____	_____	_____
Individual Negative	_____	_____	_____	_____
Group Negative	_____	_____	_____	_____
Individual Neutral	_____	_____	_____	_____
Group Neutral	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____

GENERAL FEEDBACK				
Individual Positive	_____	_____	_____	_____
Group Positive	_____	_____	_____	_____
Individual Negative	_____	_____	_____	_____
Group Negative	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____

LESSON LENGTH (MINUTES)	_____	_____	_____	_____
SKILL(S) TAUGHT	_____	_____	_____	_____

VERBAL FEEDBACK DATA FOR STUDENT TEACHING

TEACHER: _____

SCHOOL: _____

RATIOS OF CONGRUENT TO INCONGRUENT FEEDBACK

SPECIFIC SKILL FEEDBACK STYLE	ST1	ST2	ST3	ST4
Individual Positive				
Group Positive				
Individual Negative				
Group Negative				
Individual Neutral				
Group Neutral				
TOTAL				

RATIOS OF SPECIFIC TO GENERAL FEEDBACK

ST1	ST2	ST3	ST4

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Bibliography

BIBLIOGRAPHY

Allen, D. W. & Ryan, K. (1969). Microteaching. Reading,
    MA: Addison-Wesley.

Arbogast, G. W. & Kizer, D. L. (1988). Evaluating
    instruction: An essential link in developing teaching
    skills. The Physical Educator, 45 (3), 129-131.

Batesky, J. (1987). Increasing teacher effectiveness using
    the Hunter lesson design. Journal of Physical Education,
    Recreation, and Dance, 58 (9), 89-93.

Beamer, D. (1982). The effects of an inservice education
    program on the academic learning time of selected
    students in physical education. Dissertation Abstracts
    International, 43, 2593-A. (University Microfilms No.
    DA8300208)

Berliner, D. C. (1984). Making the right changes in
    preservice teacher education. Phi Delta Kappan, 61 (2),
    94-96.

Berliner, D. C. (1984). The half-full glass: A review of
    research on teaching. In P. L. Hosford (ed.), Using what
    we know about teaching (51-77). Alexandria, VA: ASCD.

Bilodeau, E. A. & Bilodeau, I. M. (1961). Motor skill
    learning. Annual Review of Psychology, 12, 243-280.

Birdwell, D. M. (1980). The effects of modification on
    teacher behavior on the academic learning time of
    selected students in physical education. Dissertation

<u>Abstracts International</u>, <u>41</u>, 1472-A. (University

Microfilms No. 80-22239)

Bloom, B. S. (1980). The new direction in educational

research: alterable variables. <u>Phi Delta Kappan</u>, <u>61</u>

(6), 382-385.

Boehm, J. H. (1974). The effects of a competency-based

teaching program on junior high physical education

student teachers and their pupils. <u>Dissertation</u>

<u>Abstracts International</u>, <u>35</u>, 5085-A. (University

Microfilms No. 75-3013)

Brophy, J. & Good, T. L. (1986). Teacher behavior and

student achievement. In W. C. Wittrock (ed.), <u>Handbook</u>

<u>of research on teaching</u> (3rd ed.), 328-375. New York:

MacMillan.

Cheffers, J. (1977). Observing teaching systematically.

<u>Quest</u>, <u>28</u> Summer, 17-28.

Cheffers, J. (1980). Concepts for teacher education in the

80's and 90's. In V. Crafts (ed.), <u>NAPEHE Annual</u>

<u>Conference Proceedings</u>, 316-322. Champaign, Il: Human

Kinetics.

Cook, T. D. & Campbell, D. T. (1979). <u>Quasi-</u>

<u>experimentation: Design and analysis issues for field</u>

<u>settings</u>. Chicago: Rand McNally.

Currens, J. (1977). An applied behavior analysis training model for preservice teachers. Dissertation Abstracts International, 38, 2644-A. (University Microfilms No. 77-24165)

Dougherty, N. J. (1970). A comparison of command, task and individual program styles of teaching in the development of physical fitness and motor skills. Dissertation Abstracts International, 31, 5821-A. (University Microfilms No. 71-10813)

Dunkin, M. J. & Biddle, B. J. (1974). The study of teaching. Washington, DC: University Press of America.

Emmer, E. T. (1971). Transfer of instructional behavior and performance acquired in simulated teaching. Journal of Educational Research, 65 (4), 178-182.

Ewens, B. L. (1981). Effects of self-assessment and goal setting on verbal behavior of elementary physical education teachers. Dissertation Abstracts International, 42, 2559-A. (University Microfilms No. 81-27841)

Fisher, C. W., Berliner, D. C., Filby, N. N., Marliave, R., Cahen, L. S., & Dishaw, M. M. (1981). Teaching behaviors, academic learning time, and student achievement: An overview. The Journal of Classroom Interaction, 17 (1), 2-15.

Fishman, S. E. (1974). A procedure for recording augmented feedback in physical education classes. Dissertation

<u>Abstracts International</u>, <u>35</u>, 5986-A. (University Microfilms No. 75-6463)

Flanders, N. A. (1970). <u>Analyzing teaching behavior</u>. Reading, MA: Addison-Wesley.

Forseth, K.R. (1987). Undergraduate physical education majors' development of teaching behaviors across laboratory and filed practica. <u>Dissertation Abstracts International</u>, <u>49</u>, 237-A. (University Microfilms No. DA8804038)

Gage, N. L. (1984). What do we know about teaching effectiveness? <u>Phi Delta Kappan</u>, <u>66</u> (2), 94-96.

Gentile, A. M. (1972). A working model of skill acquisition with application to teaching. <u>Quest</u>, <u>17</u> (1), 3-23.

Gleissman, D. (1981). Learning how to teach: Process, effects and criteria. Washington, DC: National Institute of Education. (ERIC Document Reproduction Service No. ED 200 516)

Goldberger, M. J. (1974). Studying your teaching behavior. <u>Journal of Health, Physical Education, and Recreation</u>, <u>45</u> (3), 33-36.

Goldberger, M. (1984). Effective learning through a spectrum of teaching styles. <u>Journal of Physical Education, Recreation, and Dance</u>, <u>55</u> (8), 17-21.

Goldberger, M. & Gerney, P. (1986). The effects of direct teaching styles on motor skill acquisition of fifth grade children. Research Quarterly for Exercise and Sport, 57 (3), 215-219.

Goldberger, M. Gerney, P., & Chamberlain, J. (1982). The effects of three styles of teaching on the psychomotor performance and social skill development of fifth grade children. Research Quarterly for Exercise and Sport, 53, 116-124.

Goldberger, M., Gerney, P., & Dort, E. (1982). The effects of direct teaching styles on the psychomotor performance of high and low SES children of varying ability levels. Paper presented at the Annual Meeting of the American Alliance of Health, Physical Education, Recreation, and Dance, Houston, Texas.

Graham, G. & Heimerer, E. (1981). Research on Teacher Effectiveness. Quest, 33 (1), 14-25.

Graham, G. (1973). The effects of a micro-teaching laboratory on the ability of teacher trainees to teach a novel motor skill to fifth and sixth grade children. Dissertation Abstracts International, 34, 3118-A. (University Microfilms No. 73-28595)

Graham, G. (1989, June). Summary of findings on teacher effectiveness research. In G. Graham (Director), Systematic Observation in Teaching Physical Education. Workshop conducted at Western Kentucky University.

Graham, G., Soares, P., & Harrington, W. (1983). Experienced teachers' effectiveness with intact classes: An ETU study. Journal of Teaching in Physical Education, 2 (2), 3-14.

Gustafson, J. A. (1986). Observing two important teaching variables. The Physical Educator, 43 (3), 146-149.

Harrison, J. M. & Blakemore, C. L. (1989). Instructional strategies for secondary school physical education. Dubuque, IA: Wm. C. Brown.

Hughley, C. (1973). Modification of teaching behaviors in physical education. Dissertation Abstracts International, 34, 2368-A. (University Microfilms No. 73-26843)

Hunter, M. (1977). A tri-dimensional approach to individualization. Educational Leadership, 34 (5), 351-355.

Hunter, M. (1982). Mastery teaching. El Segundo, CA: TIP Publications.

Hunter, M. (1984). Knowing, teaching, and supervising. In P. L. Hosford (Ed.), Using what we know about teaching 169-192. Alexandria, VA: ASCD.

Hunter, M. (1990, August). Summary of notes on the Hunter lesson design. In M. Hunter (Coordinator), Mastery Teaching. Workshop conducted at Walkersville High School, Walkersville, MD.

Hurwitz, D. (1985). A model for the structure of instructional strategies. Journal of Teaching in Physical Education, 4, 190-201.

Imwold, C. (1984). Developing feedback behavior through a teach-reteach cycle. The Physical Educator, 41 (2), 72-76.

Jordan T. C. (1971). Micro-teaching: A reappraisal of its value in teacher education. Quest, [Monograph] 15 (Jan.), 17-21.

Locke, L. (1984). Research on teaching teachers: Where are we now? (Monograph 2). Journal of Teaching in Physical Education, Summer, 3-60.

Locke, L. & Dodds, P. (1985). Research on preservice teacher education for physical education. In C. L. Vendien & J. E. Nixon (eds.), Physical education teacher education, 113-134. New York: John Wiley & Sons.

Mancini, V. H., Wuest, D. A., & van der Mars, H. (1985). Use of instruction and supervision in systematic observation in undergraduate professional preparation. Journal of Teaching in Physical Education, 5, 22-33.

Marteniuk, R. G. (1976). Information processing in motor skills. New York: Holt, Rinehart, and Winston.

Medley, D. (1979). The effectiveness of teachers. In P. L. Peterson & H. J. Walberg (eds.), Research on teaching: Concepts, findings, and implications, 11-27. Berkeley, CA: McCutchan.

Metzler, M. (1981). A multi-observation system for
    supervising student teachers in physical education. The
    Physical Educator, 38 (3), 152-159.

Metzler, M. (1984). Developing teaching skills: A
    systematic sequence. Journal of Physical Education,
    Recreation, and Dance, 55 (1), 38-40.

Metzler, M. (1986). Using systematic analysis to promote
    teaching skills in physical education. Journal of
    Teacher Education, 37 (4), 29-33.

Mosston, M. (1981). Teaching physical education (2nd ed.)
    Columbus, OH: Charles E. Merrill.

National Association for Sport and Physical Education
    (1987). Physical Education NCATE Guidelines. Reston, VA:
    American Alliance for Health, Physical Education,
    Recreation, and Dance.

Newman, K. Y. (1988). The relationship between
    anticipatory socialization and selected teacher behaviors
    of preservice physical education teachers. Dissertation
    Abstracts International, 49, 1732-A. (University
    Microfilms No. DA8814425)

Olson, J. K. (1979). Adaptation of the observational
    system for instructional analysis (O.S.I.A.) for use in
    physical education. Dissertation Abstracts
    International, 40, 155-A. (University Microfilms No. 79-
    16013)

Olson, J. K. (1982). Recycling the three t's: Teaching, talking, and terminating. Journal of Physical Education, Recreation, and Dance, 53 (2), 82-84.

Olson, J. K. (1983). Research on teaching in physical education. In K. P. DePann (ed.), NAPEHE Annual Conference Proceedings, 52-65. Champaign, IL: Human Kinetics.

Paese, P. C. (1986). Experimental teaching units in physical education teaching research. The Physical Educator, 43 (3), 141-145.

Pare, C., Lirette, M., & Pieron, M. (eds.). (1986). Research methodology in teaching physical education and sports. Quebec: Universite du Quebec a Trois-Rivieres.

Peck, R. F. & Tucker, J. A. (1973). Research on teacher education. In R. M. Travers (ed.), Handbook of research on teaching (2nd ed.), 940-978. Chicago, IL: Rand McNally.

Phillips, D. A. & Carlisle, C. (1983a). The physical education teacher assessment instrument. Journal of Teaching in Physical Education, 2 (2), 62-76.

Phillips, D. A. & Carlisle, C. (1983b). A comparison of physical education teachers categorized as most and least effective. Journal of Teaching in Physical Education, 2 (3), 55-67.

Pieron, M. (1986). Analysis of the research based on observation of the teaching of physical education. In M. Pieron & G. Graham (eds.), Sport pedagogy, 193-202. Champaign, IL: Human Kinetics.

Pieron, M. & Goncalves, C. (1987). Participant engagement and teachers' feedback in physical education teaching and coaching. In G. T. Barrett, R. S. Feingold, C. R. Rees, & M. Pieron (eds.), Myths, models, and methods, 249-254. Champaign, IL: Human Kinetics.

Placek, J. H. & Locke, L. F. (1986). Research on teaching physical education: New Knowledge and cautious optimism. Journal of Teacher Education, 37 (4), 24-28.

Porter, A. C. & Brophy, J. (1988). Synthesis of research on good teaching: Insights from the work of the Institute for Research on Teaching. Educational Leadership, 45 (8), 74-85.

Rankin, K. D. (1975). Verbal and non-verbal interaction analysis of student teachers with students in elementary physical education. Dissertation Abstracts International, 37, 181-A. (University Microfilms No. 76-16683)

Rife, F. N. (1973). Modification of student teacher behavior and its effect upon pupil behavior. Dissertation Abstracts International, 34, 4844-A. (University Microfilms No. 74-3298)

Rink, J. (1979). Development of an observation instrument for content development in physical education. Dissertation Abstracts International, 40, 4476-A. (University Microfilms No. 80-01811)

Rink, J. (1985). Teaching physical education for learning. St. Louis: Times Mirror/Mosby.

Rosenshine, B. V. (1979). Content, time, and direct instruction. In P. L. Peterson & H. J. Walberg (eds.), Research on teaching: Concepts, findings, and implications, 28-56. Berkeley, CA: McCutchan.

Rosenshine, B. V. (1986). Synthesis of research on explicit teaching. Educational Leadership, 43 (7), 60-69.

Rosenshine, B. & Furst, N. (1973). The use of direct observation to study teaching. In R. M. Travers (ed.), Handbook of research on teaching (2nd ed.), 122-183. Chicago, IL: Rand McNally.

Rosenshine, B. & Stevens, R. (1986). Teaching functions. In M. C. Wittrock (ed.), Handbook of research on teaching (3rd ed.), 376-391. New York: MacMillan.

Siedentop, D. (1972). Behavior analysis and teacher training. Quest, 18 (Spring), 73-86.

Siedentop, D. (1983). Developing teaching skills in physical education (2nd ed.). Mountain View, CA: Mayfield.

Siedentop, D. (1985). The great teacher education legend. In H. Huffman & J. Rink (eds.), <u>Physical education professional preparation: Insights and foresights</u>, 48-57. Reston, VA: American Alliance for Health, Physical Education, Recreation, and Dance.

Siedentop, D. (1986). The modification of teacher behavior. In M. Pieron & G. Graham (Eds.), <u>Sport pedagogy</u>, 3-18. Champaign, IL: Human Kinetics.

Siedentop, D., Mand, C., & Taggart, A. (1986). <u>Physical education: Teaching and curriculum strategies for grades 5-12</u>. Mountain View, CA: Mayfield.

Siedentop, D., Birdwell, D., & Metzler, M. (1979). A process approach to measuring teacher effectiveness in physical education. Paper presented at the AAHPERD Convention, New Orleans. (Research Symposium)

Siedentop, D. & Hughley, C. (1975). O.S.U. Teacher behavior rating scale. <u>Journal of Physical Education, and Recreation</u>, <u>46</u> (2), 45.

Siedentop, D. Tousignant, M. & Parker, M. (1982). Academic learning time--physical education: 1982 revision coding manual. Unpublished manual, School of Health, Physical Education, & Recreation, The Ohio State University.

Smith, B. O. (1985). Research bases for teacher education. <u>Phi Delta Kappan</u>, <u>66</u> (10), 685-690.

Stroot, S. A. (1987). The relationship between selected teacher variables and selected feedback variables and student engaged skill learning time. _Dissertation Abstracts International, 49_, 458-A. (University Microfilms No. 88-05791)

Taggart, A. C. (1988). The systematic development of teaching skills: A sequence of planned pedagogical experiences. _Journal of Teaching in Physical Education, 8_ (1), 73-86.

Taylor, M. S. (1977). The use of microteaching to aid preservice physical educators in the acquisition of a variety of teaching strategies as identified by the amount and kind and student decisions. _Dissertation Abstracts International, 38_, 5337-A. (University Microfilms No. 78-01443)

Thomas, J. R. & Nelson, J. K. (1985). _Introduction to research_. Champaign, IL: Human Kinetics.

Thorpe, J. L. (1986). _Methods of research in physical education_. Springfield, IL: Charles C. Thomas.

Turner, R. L. (1975). An overview of research in teacher education. In K. Ryan (ed.), _The Seventy-fourth Yearbook of the National Society for the Study of Education_, Part III (pp. 87-110). Chicago: University of Chicago Press.

Tyler, R. W. (1985). What we've learned from past studies of teacher education. _Phi Delta Kappan, 66_ (10), 682-684.

Underwood, G. L. (1988). _Teaching and learning in physical education: A social psychological perspective._ London: Redwood Burn Limited.

van der Mars, H. (1984). The effects of periodic prompting on selected teaching behaviors of physical education student teachers. _Dissertation Abstracts International, 45,_ 1686-A. (University Microfilms No. 84-19022)

van der Mars, H. (1989). Basic recording tactics. In P. W. Darst, D. B. Zakrajsek, & V. H. Mancini (Eds.), _Analyzing physical education and sport instruction,_ 19-52. Champaign, IL: Human Kinetics.

Whaley, G. M. (1980). The effect of daily monitoring and feedback to teachers and students on academic learning time-physical education. _Dissertation Abstracts International, 41,_ 1477-A. (University Microfilms No. 80-22365)

Yerg, B. J. (1977). Relationships between teacher behavior and pupil achievement in the psychomotor domain. _Dissertation Abstracts International, 38,_ 1981-A. (University Microfilms No. 77-21229)

Yerg, B. J. (1981a). Reflections on the use of the RTE model in physical education. _Research Quarterly for Exercise and Sport, 52_ (1), 38-47.

Yerg, B. J. (1981b). The impact of selected presage and

process behaviors on the refinement of a motor skill.

Journal of Teaching in Physical Education, 1 (1), 38-46.