THE EFFECT OF INTERVENTION ON STUDENT-TEACHERS' TASK PRESENTATION, SPECIFIC CONGRUENT FEEDBACK AND STUDENT APPROPRIATE RESPONSE TO TASK PRESENTATION

by

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B.P.E. B.Ed., Memorial University of Newfoundland, 1988

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS

in the School

of

Physical Education

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ABSTRACT

The purpose of the study was to examine the effectiveness of feedback and goal setting intervention on the task presentation behaviors of physical education student teachers.

Two professional year physical education student teachers volunteered to participate in the study. A total of 18 lessons for Subject A and 20 lessons for Subject B were videotaped over a nine week period and used in the data analysis. The study utilized an ABA'-retention design with the intervention being supervision conferences. Seven task presentation behaviors were the target of conferences: clarity of task presentation, use of demonstrations during task presentations, number of cues used during task presentation, accuracy of cues given during task presentation, qualitative cues given during task presentation, specific congruent feedback provided by teacher following task presentation, and student appropriate response to task presentation. The intervention was implemented by the researcher on six occasions for each subject in an attempt to improve the task presentation behaviors of each subject. Data were analyzed by visually inspecting the graphed data for stability of baselines, changes in mean performance across experimental phases, and changes in level shift across experimental phases (Kazdin, 1982). Results indicated that the intervention was successful in substantially increasing task presentation behaviors across both subjects for three of the seven categories observed. The following task presentation behaviors were shown to have improved for both subjects over the course of the study, the clarity of task presentations, the number of instructional cues used, the instances of specific congruent feedback given to students.

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ACKNOWLEDGEMENTS

I would like to express my sincere thanks to Dr. Turkington for his guidance, support and patience in the development of this thesis.

I would also like to express my gratitude to Dr. Bell and Dr. Bachor of my supervising committee for their valuable input and assistance in making this study come about.

Thanks to Sue who offered time and number crunching to this thesis.

A special thanks to Cathy who made me believe that this day would come, your support and persistence has been more valuable than I can say.

CHAPTER I

INTRODUCTION

Teaching has been regarded as the orchestration of a variety of skills at different times under different circumstances (Brophy & Evertson, 1976). Effective teaching is the application of this idea. Research on teaching effectiveness in physical education has provided insights as to how teaching contributes to motor skill acquisition. Substantial progress has been made by educational researchers (Berliner, 1987; Brophy & Good, 1986) and researchers in physical education (Graham & Heimerer, 1981; Silverman, 1988; Silverman, Tyson & Morford, 1988; Werner & Rink, 1989) toward identifying teacher behaviors important to student learning. Among the variables believed to contribute to student learning are teacher development of instructional content (Rink, 1993), clarity of task presentation (Cruickshank, 1985; Rosenshine, 1979), successful student practice (Silverman, 1985, 1988, 1990), and feedback received by learners (Ashy, Lee & Landin, 1988; Stringer & Hurt, 1981; Rink & Werner, 1987; Silverman, Tyson, & Krampitz, 1991).

Among the most important instructional skills a physical education teacher can develop is the ability to present movement tasks to the learner in a way that facilitates the formation of an accurate motor plan and motivates students to want to engage in the task (Rink, 1993, p. 80). A major emphasis of task presentation is the development of clear tasks as well as the selection and organization of learning cues. Further evidence of effective task presentation has been gained through the observation of student responses to task focus and subsequent teacher specific, congruent feedback (Graham, 1992). These variables are of considerable interest among those engaged in research on

task presentation in physical education (Graham, Soares, & Harrington, 1983; Phillips and Carlisle, 1983; Yerg, 1977). Past studies of task presentation have focused for the most part on the statistical relationship between the clarity of task presentation and the amount of time students actively practice skills. Brophy and Good's (1986) review of classroom research over the past two decades likewise identified teacher presentations as a variable about which the effectiveness research has provided a limited understanding: 'Many questions about effective instruction have not been studied at all yet, or not studied appropriately . . . [Among these are] qualitative aspects of teacher presentation . . . " (p. 369). The primary outcome from the research on task presentation, according to Pieron and Graham's (1984) review of 11 teacher effectiveness or process-product studies in physical education, was that there "was not a definitive relationship between either the clarity or conciseness of a teacher's instruction and student outcome measures" (p. 13). Pieron and Graham (1984) concluded their review of the knowledge base on task presentation with a call for more revealing ways of studying teacher presentations.

> Future research efforts in this area need to focus more on the variables closely related to the quality of the teacher's presentation, rather than on simple measures of time. Variables such as clarity and "appropriateness of instruction" may lead to a better understanding of the functions of a teachers understanding of the function of a teacher's instruction in enhancing student learning. (p. 12)

Given the current, constrained understanding of movement task presentation in physical education classes, and given that" it is intuitively sensible that most effective teachers are those who are good at explaining the

curricular content" (Roehler & Duffy, 1986, p.274), a need was recognized for studies that examine the qualitative aspects of the task presentations of those teachers who were considered to be effective. Graham (1986) attempted to describe the qualitative aspects of teacher's movement task presentations, and the appropriateness of the students' actions in initiating work on those tasks, during a study of a 14-lesson volleyball unit in an eighth grade physical education class. Graham identified several factors critical to effective task presentations, these included; gaining the attention of the learner, choosing a way to communicate (demonstration), selecting and organizing learning cues, improving the clarity of communication, and identifying the degree to which students carried out the task (Graham, 1986).

Current research on task presentation in physical education is based on Rink's (1985) theoretical base and case studies on teacher effectiveness (Rink & Werner, 1987). Rink (1985) referred to the process a teacher uses to develop content through movement tasks as content development (Rink, French, Werner, Lynn, & Mays, 1991). Components of content development include the presentation of tasks to students which refine, extend and apply. According to Rink, refining tasks are used to emphasize proper mechanics and practice quality, extending tasks vary practice conditions for different student abilities, and applying tasks encourage the use of motor skills for self-testing and competitive application. It has been suggested that the primary methods of task presentation, extending, refining, and applying in physical education lessons have an effect on the amount of student learning (Gusthart & Sprigings, 1989; Masser, 1989).

Verification of the quality of task presentation in physical education has been made possible through the use of the Qualitative Measures of

Teaching Performance Scale (QMTPS), which was developed by Rink & Werner (1984). The purpose of the QMTPS was to describe the qualitative aspects of task instruction and is divided into four major constructs: type of task, task presentation, student response appropriate to task focus, and specific congruent feedback. Task presentation skills include clarity of instruction, effective use of demonstrations, providing accurate and appropriate cues and congruent feedback following task presentation.

It can be argued that task presentation skills are subject to change and improvement given instruction, feedback, and opportunity to practice. The teaching internship with supervising and cooperating teachers provides an avenue through which student-teachers can develop these and other valued teaching skills (Mancini, Wuest & van der Mars, 1985; Taggart, 1988; Schmidt, 1987; and Metzler, 1990).

Purpose of the Study

The purpose of this study was to determine the effect of intervention upon the student-teachers' ability to present tasks, to provide specific congruent feedback and to elicit appropriate student response to task presentation.

Research Questions:

The following questions were investigated in this study:

1. What was the effect of intervention on the **clarity** of student-teacher's task presentation?
2 What was the effect of intervention on the **nature** of the demonstrations given during student-teacher's task presentation?

3. What was the effect of intervention on the **number** of instructional cues given by student-teacher's during task presentation?
4. What was the effect of intervention on the **accuracy** of instructional cues given by student-teachers during task presentation?
5. What was the effect of intervention on the the **qualitative** instructional cues given during student-teacher's task presentation?
6. What was the effect of intervention on student-teacher's ability to give **congruent feedback**?
7. What was the effect of intervention on the student-teacher's ability to elicit appropriate **student response**?

Definition of Terms

Augmented Feedback: Information from external sources (observation, videotape, graphed data) which is related to the process or outcome of performance.

Baseline: The natural rate of occurrence of an event or behavior.

Cooperating teacher: The teacher in the field who is entrusted with helping the student-teacher during the practicum. A regular task of the cooperating teacher is to provide frequent and direct supervision and assess student-teachers' performance.

Demonstration: A form of instruction primarily concerned with the process whereby an observer reproduces, or attempts to reproduce, the actions

exhibited by another person (either real life, or through film or video tape) (Gould & Roberts, 1981).

Intervention Strategy: Supervision conferencing between the student-teacher and supervisor designed to address specific teaching behaviors.

Learning Cue: A word or phrase that identifies and communicates to a performer a critical feature of a movement skill.

Modeling: A visual representation of a movement, skill, or task generally carried out by the teacher, a student or dermonstrated on audio-visual equipment.

Observation Instrument: Refers to a pre-set formula which provides categories around which direct viewing of behaviors can take place (Cheffers, 1978).

Remembering: Techniques used to enhance memory of critical features of the demonstration such as mental practice, labeling important parts, summarizing key points, repetition of key points and questioning for understanding.

Specific Congruent Feedback: Feedback given by the teacher during an activity which is congruent with (matched to) the focus of the task.

Student Appropriate Response: The degree to which student's actions reflect an intent to perform the task as stated by the teacher.

Supervisor: The university-based teacher who provides frequent and direct supervision to the student-teacher during the physical education practicum.

Task Presentation: The verbal delivery of information by the teacher to the students that informs students about what to do.

Delimitations

1. The student-teachers taught at the junior/senior secondary school level.

2. Only task presentation behaviors were coded during each lesson.

Limitations

1. The study was limited by the observation of, and intervention upon, two student-teacher interns at junior/senior secondary schools during an extended practicum.

2. The study was limited to public schools in the Saanich School District.

3. The study was limited to the observation of selected and precisely defined student-teacher behaviors.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

In this chapter a review of teaching effectiveness research and those variables related to effective task presentation is presented. Specifically, the following topics are covered; teaching effectiveness research, task presentation, clarity of task presentation, demonstration and motor learning, learning cues, feedback, student teacher preparation, behavior change models and Qualitative Measures of Teaching Performance Scale (QMTPS).

Teaching Effectiveness

What makes teachers effective? This question has been a topic of study since the inception of formalized teaching. Graham and Heimerer (1981) cited three phases of investigation which have attempted over the years to answer this question. The first phase attempted, without success, to identify common characteristics of effective teachers. Researchers in these studies did not observe teachers actually teaching, nor did they measure student learning. Instead, they asked "experts" typically principals, administrators, and occasionally students to identify those teachers whom they thought were the best and which personal characteristics they possessed. The second phase searched unsuccessfully for a method of teaching that was common to effective teachers. The third phase, process-product research, focused on teacher-student interactions in the classroom, and ultimately in the gymnasium. As a result of these early investigations, researchers concluded that effective teaching behaviors were specific to the subject matter, the students, and the environment (Graham and Heimier, 1981).

Educational research experienced enormous growth in the 1970s and focused on cognitive skill acquisition in reading, writing and math by elementary school students in the classroom. Studies have indicated that the skills of effective teachers differed from those of non-effective teachers, that these skills can be learned, and that students of "effective teachers" achieve more than students of ineffective teachers (Brophy, 1982). Most of the process-product research of this period found that teachers who used direct instruction methods were more effective in producing student learning gains. Direct instruction was described by Rink (1993) to include the following:

1. A task-oriented but relaxed environment.
2. Clearly stated instructional goals and materials and a highly active monitoring of student progress toward these goals.
3. Structured learning activities.
4. Immediate, academically oriented feedback (p. 40).

Much of the research on the effectiveness of instruction in physical activity programs has been descriptive in nature (Werner & Rink, 1989); however, descriptions of physical activity instructors' behaviors have not been considered complete. It has been suggested that an in-depth investigation of the process of instruction, when examined with outcomes (or products) of instruction, may help establish a foundation. During the 1970's and early 1980's literature on teaching effectiveness in physical education supported the notion that academic learning time (ALT) can be taken as an indirect measure of effective teaching (Siedentop, 1983). The theoretical support for this variable has been quite high. In addition, the research support for time-on-task variables in classroom research has been very convincing (Rosenshine & Berak, 1979).

Gentile (1972) presented a theoretical teaching model in which major teaching components were identified. Gentile's model reported on the presentation of three series of parallel motor learning activities: student activities, teacher activities, and those of the researcher. This model is closely related to the concepts identified by Dunkin and Biddle's (1974) classification of variables. Dunkin and Biddle (1974) identified the following concepts: presage, context, process, and product whereas Gentile (1972) dealt with teacher variables, and identified the following: goals clarification, task selection, direction of performance, observation, feedback, adjustments, and practice. From a motor learning perspective Rink and Werner (1987) identified several key ingredients which must be present before learning can occur:

1. A task must be selected that is a proper match between learner needs and the content goal.
2. The motor plan must be clearly communicated to give the learner an accurate motor plan.
3. Learners must have adequate quality practice time with the task.
4. Learners must have feedback on their performance (p. 200).

The relationships of these concerns are depicted in Figure 1 in a slightly different format: Learning goal represents long term goal for skill acquisition; task appropriateness; the selection of the learning tasks in an instructional setting; task presentation; the delivery of the task to the learner; and student responses represent the immediate responses of the student to the teacher task. The feedback loop was not meant to dictate any particular kind of feedback at this point.

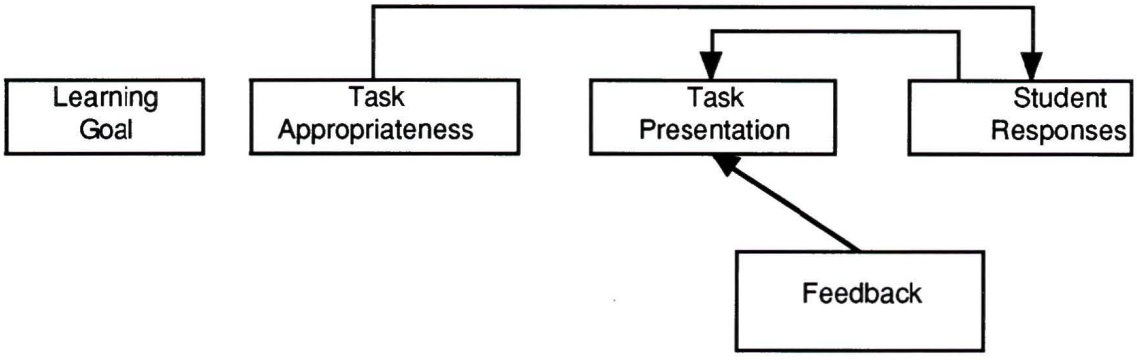

Figure 1. Instructional model for skill acquisition (Gentile, 1977)

The validity of using ALT-PE (Siedentop, Tousignant, & Parker, 1982) or any measure of student responses as an indirect measure of teaching effectiveness has begun to be questioned. The problem of using response time as a measure of teacher effectiveness was illustrated in a study of teachers over a unit of instruction in volleyball (Rink, Werner, Ward, & Timmermans, 1986). One of the teachers in a 15-lesson middle-school volleyball unit spent approximately 40% of the unit time on the overhead set and 38% of the time on the forehand pass. This teacher developed student skill in the set most effectively, and yet the teacher had no positive effect on skill in the forearm pass. Another teacher in the study spent less time on both skills and was very effective in the forearm pass but not the set. All teachers in the study were strong managers, were task oriented, and had very high levels of ALT-PE motor easy time. A second study followed four teachers through six lessons teaching jumping and landing skills (Werner & Rink, 1985). In this study practice trials were used to describe student contact with the content and was not found to be a predictor of achievement. A study by Godbout, Brunelle, and Tousignant (1987) added support to the contention that ALT-PE does not have a

high relationship with teacher effectiveness when more long term process-product studies are conducted.

The problem with using student responses to a teacher task presentation as a measure of effectiveness has been made clear. Student responses may have been appropriate to the teacher task, but the teacher task might not have been appropriate to the learning goal. In addition teachers might not have a learning goal, or may not have selected tasks that have the potential to affect student learning. Under the present ALT-PE system, if students are practicing with some degree of success, motor appropriate time is coded in the instrument, in spite of the fact that the quality of practice may not be sufficient to improve performance or the task may be unrelated to the learning goal.

Task Presentation

It has been suggested that future teacher effectiveness studies should focus on the relationship between student practice and the learning goal (Rink & Werner, 1987). In most cases, measuring this relationship has been difficult due to the complexity of the skills that are the center of physical education instruction. Task presentation, as illustrated by Gentile's (1977) model (see Figure 1), functions to give the learner an accurate motor plan of the intended task, and lies between the learning goal and the responses of students. Therefore, the selection of the appropriate task must be matched with the delivery of that task such that student intent and teacher intent are the same. Task presentation has received considerable interest among those doing teacher effectiveness research in physical education (i.e., Graham, Soares, & Harrington, 1983; Phillips & Carlisle, 1983; Yerg, 1977). In past

research, task presentation has been studied in terms of whether the clarity of the teacher's presentation and/or the amount of time spent on the activity were statistically related to student learning (i.e., learning as defined by student gain scores on end-of-instruction performance measures).

Classroom effectiveness research has determined the importance of teacher clarity and explicitness in communicating teacher expectations. Kennedy, Cruickshank, Bush and Myers (1978) suggested that instructional clarity was a variable which students were able to identify. Specifically, it was suggested that teacher clarity consisted of simple explanation, deliberate pacing, frequent repetition and examples, and that students discriminated well between clear and unclear teachers. The effect of teacher clarity variables (vagueness terms, and mazes) on student achievement was the focus of research by Land (1981). He concluded that when groups were given high, medium and low clarity instruction student achievement varied accordingly.

The importance of task presentation skills to learning in physical education does not have a clear research tradition but has been viewed from several theoretical perspectives that allude to the importance of carefully selecting and presenting information to the learner. Task presentation has been defined by Rink (1987) as "the presentation of movement tasks to learners in such a way that the formation of an accurate motor plan is facilitated and providing motivation for students to want to engage in the motor plan."(p. 201) The importance of focusing the learners' attention on a few relevant critical aspects of the movement has been well documented in the information processing, motor learning, and motor development literature (Feltz & Landers, 1977; Gentile, 1972; Burwitz & Zuckerman, 1976; Thomas, 1980; Weiss 1982).

Graham's (1986) investigation of a 14-lesson volleyball unit in an eighth grade physical education class identified thirteen factors which were considered important for effective task presentation, of which 5 were recognized as critical. These factors included; gaining the attention of the learner, choosing a way to communicate (demonstration), selecting and organizing learning cues, improving the clarity of communication, and identifying the degree to which students carried out the task (Graham, 1986).

Clarity of Task Presentation

Teacher clarity has been operationally defined in different ways. Basically, teacher clarity has been described with reference to the following teacher behaviors: (a) gives explanations students can understand; (b) teaches step by step; (c) describes the work to be done and how to do it; (d) gives specific examples; (e) works through examples and explains them; (f) stresses difficult points; and, (g) prepares students for what they will be doing next (Kennedy et al., 1978; Land, 1981).

In the motor learning literature, the first stage in learning a motor skill has been described as primarily cognitive in nature (Fitts & Posner, 1967; Gould & Roberts, 1982; Rink, 1985; Skully & Newell, 1985). The teacher's ability to communicate information on performance in a way that gives the learner an accurate motor plan for performance or modifies that plan has been identified as a critical aspect of teaching motor skills to younger learners (Graham, 1986; Yerg, 1981).

Presenting the learning task in a clear, concise and specific manner was assumed to facilitate pupil achievement of the task. Behavioral indicators included modes of presentation and specificity of the information presented

(Yerg, 1981). Supporting evidence found in the skill acquisition models of Gentile, Merrill and Marteniuk clearly emphasized the importance of precisely presenting the task to the learner. Gentile (1972) stated that the learner's attention must be focused on a subset of all the stimuli present in the environment. Marteniuk (1976) cautioned against information overload, i.e., providing more information than the learner is able to process. Phillips and Carlisle (1983) reported that teachers who were rated as being more effective "presented their students with a clearer picture of learning outcomes" than did those who were considered to be less effective. Rink and Werner (1987) supported this with the statement that "before learning can occur, the motor task must be clearly communicated to give the learner an accurate motor plan" (p. 201).

Teacher clarity was identified in early research and has continued to be supported as a key variable in teacher effectiveness (Dunkin, 1984). In addition, Doyle (1979) suggested that clear task requirements needed to be communicated to the learner since students felt insecure in situations where learning requirements were unclear or open-ended. Maneuvering and negotiation were unlikely to result when clarity of expected performance and limits of conduct were established. Soar and Soar (1979) suggested that teachers who initially established clear instructional guidelines minimized current interaction with students, that is, the need for students to seek clarification of task expectations. Rosswork (1977) found that specific goal setting enabled student behavior to be initiated and directed which lead to significant gains in academic performance.

Siedentop (1992) described task presentation as task communication. He suggested a number of guidelines which should be adhered to in order to

increase the instructional clarity in physical education classes. These include: (1) careful planning; (2) inclusion of all necessary information; (3) using understandable language and enthusiasm; (4) demonstrations using conditions that the students will practice under; (5) multiple views; and (6) checking students' understanding.

Rink (1993) suggested a number of guidelines which can increase the clarity of task presentation in the physical education setting. These include the use of seven components: (a) set induction, which refers to providing advance information as to the nature of skills to be practiced in class; (b) sequencing, which refers to presenting material in a logical order; (c) the use of examples and non-examples to emphasize the qualitative aspects of a movement; (d) personalizing presentation; (e) repetition of difficult concepts; (f) draw on personal experience of students; and, (g) checking for understanding by questioning or asking students to demonstrate what they learned from the task presentation.

Demonstration and Motor Learning

Physical educators frequently demonstrate the task and/or techniques for performing a motor skill. While the majority of observational research has been carried out in the last two decades, initial work which focused on observational learning was carried out by Tarde (1903) and McDougall (1908). These investigations lead to the suggestion that modeling was a basic instinct, however, this assumption was never empirically tested. Further study by Allport (1924), Holt (1931), Humphrey (1921), Miller & Dollard (1941), Guillaume (1926/1971), and Piaget (1951) reinterpreted imitation and classified it as a component of associative or operant conditioning. Of this research,

however, only the work of Miller and Dollard was based upon a systematic data base.

Weiss and Klint (1987) state that four essential observer characteristics were required to ensure clear understanding and accurate reproductions of a demonstration during task presentation: (1) the observer must selectively attend to the demonstration; (2) the observer must actively rehearse the modeled act to secure it into long term memory; (3) the observer must be able to perform the modeled act; and, (4) the observer must be motivated to practice the task. Wiese-Bjornstal and Weiss (1992) suggested that students learning a novel task initially gain a clearer understanding of the task if it is performed at full speed first, followed by slow motion presentation. McCullagh, Weiss, and Ross (1989) indicated that the actions of the model in addition to clear verbal description of the behavior appears to influence learning of motor skills.

The method of communication has been described as a critical aspect of how a task is presented to the learner. Typically, teachers have chosen to present tasks through a combination of verbal and visual means. In physical education, demonstration has been identified as the most common form of visual communication (Feltz & Landers, 1979; Gould & Roberts, 1982; Carroll & Bandura, 1982; Lirgg & Feltz, 1991; Rink, 1992). Many terms have been used to describe the phenomenon whereby behavioral changes result from an observer's exposure to another person's performance of a cognitive or motor act. Bandura (1965), however, insisted that the various terms were in fact describing the same learning process. Therefore in the present review, terms such as demonstration, imitation, observational learning, and modeling will be used synonymously to describe the process whereby an observer reproduces the overt actions exhibited by a model, regardless of whether the responses

are novel, or modified versions of existing behaviors. Within the physical education and sport setting, many types of demonstrations have been observed. For example, informal modeling has occurred when a child attempted to copy the play or style of a popular sports figure, whereas, a more structured type of modeling might occur in a teacher-student/player-coach setting where students and athletes attempt to replicate actions demonstrated by the coach or teacher (Sheffield, 1961).

Bandura (1965, 1969, 1974) suggested a meditational contiguity theory of modeling which stimulated great interest in the research directed toward the modeling process. Bandura (1974) stated that: "Modeling influences operate principally through their informative function; and that observers acquire mainly symbolic representation of the modeled events, rather than specific stimulus response associations"(p. 16). He has subdivided the modeling process into two distinct phases: a) a response acquisition phase of modeling and b) a performance reproduction phase of modeling.

Bandura (1974) described his meditational-contiguity theory of modeling by organizing the modeling into four necessary subprocesses for learning to occur: a) an observer must attend to the important features of the model's behavior; b) an observer must remember the important features of the model's behavior; c) an observer must possess the modeled behavior; and, d) an observer must be reinforced.

Initially Bandura's work was all but ignored in the teaching effectiveness research area within physical education Recently investigators in the areas of physical education, sport psychology and motor performance have attempted to generate theoretical and empirical interest in the topic of modeling and motor skill acquisition. In a series of studies, Burwitz (1975)

examined the effects of whether information gained through observing a model demonstrate a task influenced the observer's subsequent performance of the same task. Although the studies resulted in conflicting results, evidence suggested that a modeling effect was indeed present and that stimulus discrimination was an important prerequisite to observational learning.

Further studies were carried out by Martens, Burwitz and Zuckerman (1976) in an effort to determine the role of demonstration/modelling in the learning of motor skills. The specific purpose was to test Bandura's hypothesis that observation of a model conveyed task-relevent information to the observer and that this information facilitated the observers subsequent task performance. These investigations were important since they demonstrated that modeling procedures were an effective means of providing pertinent information to the learner, and that this information resulted in the learning of motor skills more efficiently.

Westcott (1978), Rolider, Cooper and Van Houlten (1984) discovered that the rate of positive statements made by students was increased as a result of modeling. This indicated that teacher modeling had a significant influence on the subsequent behavior of students. As a result of his research, Westcott (1979) suggested four steps which can be taken to enhance one's modeling influence:

1) Observers are more likely to imitate models who are in some way similar to themselves. It appears that physical educators and coaches who develop common interests with their charges are more effective as models of behavior.

2) Physical educators and coaches who are more nurturing toward their students and athletes have a greater modeling effect than non-nurturant models.

3) Competent models are more effective than models with lesser ability. Physical educators and coaches may increase their modeling influence by becoming skillful and knowledgeable in the activities they teach or coach.
4) Teachers and coaches are encouraged to reinforce their students and athletes with praise, privileges and so forth.

The use of students to demonstrate tasks has been practiced in most gymnasiums to some degree. Polock and Lee (1992) suggested that watching a learning model (unskilled model) can be beneficial to observers. They believed that watching a model learn and improve a motor skill engaged the observer in many problem solving processes. Perhaps the observation of a student learning model receiving feedback during the demonstration, has the ability to enhance the cognitive involvement of the learner and establish specific motor responses (Weiese-Bjorstal & Weiss, 1992). Rink (1993) supported this notion and suggested that students should be used to demonstrate skills where possible.

In their review, Gould and Roberts (1982) indicated that modeling was the most widely used teaching technique employed in physical education and sport. They suggested some ideas to guide the teaching and coaching process:
1. Modeling was an effective teaching method for conveying relevant information to facilitate a learners motor skill acquisition.
2. Coaches and teachers must consider the nature of the task being learned and attempt to modify the type of demonstration employed to correspond with the characteristics of the skill.
3. The teacher or coach made a better model for skill acquisition than a peer and a filmed well-known athlete was found to be more effective than an unknown model.

4. High-status models (teacher, coach) must accurately and skillfully portray the skill (because of its affective impact on the learner).

5. Models who were the same sex as the observer would, at times, have a greater effect on motor performance than opposite sex models.

6. Tasks which are readily broken down into natural sub-units may be more effectively learned if the model demonstrated each of the sub-units in sequence, and allowed the observer to practice each unit before progressing to the next unit.

Demonstrations have been shown to influence learning in various ways. Studies have focused on such topics as the number of demonstrations, developmental factors, task specificity, reinforcement, model characteristics and observational cues. Initial studies by Cook (1937), McGuire (1961) and Fouts (1970) have shown that repetitive demonstrations enhances motor performance. Research by McCoby and Sheffield (1961) has indicated that various tasks required different numbers of demonstrations to facilitate performance. Later studies (Landers & Landers,1973; Landers, 1975; Feltz & Landers, 1978) found that optimal modeling effect was linked closely with the task and that between two and four demonstrations were optimal for motor learning.

The characteristics of the observer have been identified as important factors when determining whether or not accurate reproductions of the modeled act would take place. Weiss and Klint (1987) stated that accurate reproductions of the modeled skill would not occur unless: (a) the observer selectively attended to the model; (b) the observer actively rehearsed the activity to secure it into long term memory; (c) the observer possessed the motor ability to exercise the required movements; and (d) the observer was

motivated to reproduce the demonstrated skill or act. Presumably, the absence of any of these four elements would hinder learning and skill acquisition.

Learning Cues

The teacher's selection and organization of learning cues has been suggested as one of the most essential ingredients in successful task presentation (Graham, 1992). Learning cues have been defined as a word or phrase that identifies and communicates the critical features of a movement skill or task to the performer (Rink, 1993). Good cues, as described by Rink have several characteristics. They are accurate, critical to the task being presented, few in number (three or less) and appropriate to the learner's age and stage of learning. A further value of learning cues was identified as their role in focusing the learners attention to a few specific points during a motor skill demonstration. To prevent various levels of performance resulting from students focusing on different aspects of the demonstration, specific cues must be provided to direct the attention of learners (McCullagh, 1987). It was found that children attended to as many irrelevant cues as to relevant ones, when their attention was not directed to particular features of a model's actions (Yando, Sietz, & Zigler, 1978) and that verbal cues given by the model helped direct the children's attention to the task (Weiss, 1981).

Werner &and Rink (1989) suggested that accurately defined cues serve to enhance motor learning in students. In one particular study, jumping and landing ability of students was the focus. Of the four teachers partaking in the study, only one accurately identified the learning cues for the skills involved. The subsequent performance of this teacher's students reflected this understanding. The more effective teacher had used reference material to

correctly identify the important cues for the skill being taught (Werner and Rink, 1989). Further work has reinforced this contention where more effective teachers provided more accurate cues for volleyball learning (Gusthart & Spriggins, 1992).

Augmented Feedback

Augmented feedback is information from external sources (i.e., observation, videotape, graphed data) which is related to the process or outcome of performance. It has been generally agreed that feedback is essential to learning, but the necessity or quality of feedback has not been fully explored in terms of the effect on pupil achievement. Over the years several studies have been conducted which give insight into the specific characteristics of good feedback and the types of feedback which could be given to students.

Many researchers have described feedback as error information which is given to the learner. Early experiments concluded that unless error information was given, learning will not occur (Thorndike, 1931; Trowbridge & Carson, 1932). Wiener (1961) referred to feedback as providing the learner with error information. Crossman (1964) defined the information being supplied to the learner as a process, "which enables a choice to be made between alternatives, removing ignorance, uncertainty, or atrophy" (p. 32). Bilodeau (1966) used the term information feedback to describe the stimulus given by the researcher or teacher in response to the performance of the learner. Malina (1969) and Robb (1972) also emphasized the importance of information feedback for learning and facilitating motor skills. More recently, theories of motor learning reiterated that feedback, in the form of

error information, is a critical variable and undoubtedly helped the learning process (Marteniuk, 1976; Schmidt, 1982).

Holding (1965) stated that to be useful, augmented feedback must be informative and aid the learner toward increased awareness of intrinsic cues. Robb (1966) identified that feedback influences human behavior by motivating, regulating and/or reinforcing behavior. This aspect was particularly important in this study when assessing the effects of the student teachers' feedback to the student teachers. Feedback should be task-related, that is, it should provide information that will help the learner adjust his/her motor plan for the next response (Gentile, 1972).

Robb (1972) commented that many psychologists working in the area of human performance would agree with the corrective emphasis related to feedback. Augmented feedback provided to a student or any performer has been identified as a critical element in the learning and/or performing of movement activity (Salmoni, Schmidt and Walter, 1984; Smith, 1986a). Brunelle, Tousignant, and Pieron (1981) reported that effective physical education teachers provided twice the amount of feedback as did ineffective teachers.

Fishman (1974) developed a system to describe the augmented feedback behaviors of physical education teachers. Using the Fishman system, Tobey described feedback in physical education classes as mostly verbal (95%), directed toward a single student (77%), and often non-specific (44%). It was also reported that patterns of feedback varied with the teacher, age of learners and skills being taught. The literature supported that both specificity and task relatedness of feedback are appropriate for skill learning. Considerations of

age of learners, stage of learning, and specific subject matter effect the appropriateness of augmented feedback (Yerg, 1977).

Siedentop (1983) emphasized that the teacher should provide feedback in a positive manner, and suggested a ratio of four positive statements to one corrective statement would establish an environment conducive to learning. Oxendine (1984) emphasized that the reinforcing effects of feedback do not necessarily relate to the specific performance of the task. It was stressed that reinforcement modified behavior so that the probability was increased for successfully performing the task on an ensuing occasion. Teacher feedback has been described as motivational, especially for younger learners (van der Mars, 1989) The earlier discussion of feedback being defined as providing error information could be interpreted as criticism, which may inhibit performance.

In order to change behavior, the researcher manipulates reinforcers to produce a desired response. The connection between reinforcement and learning was established at the beginning of the twentieth century. Oxedine (1984) stated that reinforcement is the connection between stimulus and appropriate responses which assists in facilitating learning. In order for feedback to be meaningful to the learner, it must be specific in nature, as general feedback can be vague and reduce performance (Oxedine, 1984). However, too much information can confuse the learner and cause "analysis paralysis" (Oxedine, 1984, p. 117). Rink and Werner (1987) have further delineated specific feedback as **specific congruent feedback**, which refers to the degree to which feedback matches the focus of the most recent task presented. When teachers used specific congruent feedback, students were made aware of the degree to which they have mastered, or not, the most recent

cues. Ideally this feedback matched the thoughts of the student at that time and therefore was more meaningful.

Feedback has also been characterized as general or specific. Specific feedback occurred when it contained information that allowed the children to know specifically what they needed to practice or how they were moving (Claxton & Fredenburg, 1989; Mustain, 1990; Rink & Werner, 1987). General feedback, while commonly used to motivate students, does not focus on the good or bad aspect of the student performance. Probably the most commonly used examples of general feedback in education today is "Good!". Unfortunately, this term really does not provide the child with the necessary information to improve--what was good about the skill attempt? The use of expressions such as "good," "great," "terrific," "wow," and "all right" are helpful for promoting a warm and positive learning environment. However, exclusive use of terms such as these did little to improve the skill performance of students (Graham, 1992).

Student Teacher Preparation

Although research has indicated teaching behaviors that constitute effective teaching, practical application of research findings to the physical education environment has proved to be a challenging task (Arrighi, 1984). A wealth of information has been produced pertaining to what student teachers need to learn, but the main problem was how to instigate programmes that effectively instructed student teachers in what they need to know and do (Locke, 1985; Lutzer & Martin, 1981).

The student teaching practicum has been cited as the most valuable experience in the preparation of student teachers (Holmes, 1986), but

concerns have been directed to the quality of the supervision during the practicum (Johnson, 1985; Locke, 1984; Paese, 1984). Lanier and Little (1986) have criticized practice teaching and suggested that student teachers do little more than attempt to survive during the placement rather than develop valuable teaching skills. Further criticism suggested that the learning experiences in the schools contradicted the university based teacher preparation process (Tannehill & Zakrasjek, 1990). It has been suggested that if preservice teachers are to develop teaching skills, then repeated supervised practice in a variety of settings is necessary (Metzler, 1990).

Gage & Berliner (1979) indicated that if teaching behaviors were specifically defined, student teachers would be assisted in learning and using effective teaching behaviors. Objective data from systematically observing teaching behaviors has resulted with changes in the performance of the student teacher (Fuller & Brown, 1975; Gliessman, 1981; Siedentop, 1981; Mancini, Wuest, & van der Mars, 1985). If sponsor teachers and university supervisors are not familiar with pedagogical research techniques in the analysis of teaching, then the improvement of the instructional capabilities of the student teacher will be restricted (Johnston, 1985; Locke,1985a; Paese, 1984).

Behavior Change Model - Intervention Package

Various models have been used in behavior analysis to change teacher behavior. For the most part however, changing teacher behavior has been based on the systematic supervision model or intervention protocol. It has been suggested that effective supervision/intervention procedures are ones which include the following (Metzler, 1990):

1) Supervision should allow for feedback to be given to the performer as soon as practically possible after the lesson.

2) Supervision should be systematic and outline an overall scheme for implementation, identify each person's role in the program and provide for efficient monitoring.

3) Supervision should be consistent across time, settings, and teachers.

4) Supervision should focus on relevant teaching skills.

5) Supervision should be related to developmental goals and identify a teachers' current level of performance on selected skills, outline sequential plans for improvement, and set goals collaboratively.

6) Supervision should be directed at providing accurate, timely, relevant, and objective performance feedback.

It has been suggested through various studies that systematic supervision strategies form the basis for effective intervention packages which are capable of fostering change in student-teachers. In a study by Mancini, Wuest and van der Mars (1985) it was suggested that systematic supervision strategies which included instruction as a part of the supervisor/student-teacher relationship were effective in bringing about changes in teacher behaviors.

Providing feedback to the teacher has emerged as a significant and essential factor for changing teaching behavior (Gliessman, 1981; Good & Brophy, 1974; Marteniuk, 1976; Pieron, 1979; Metzler, 1990). Systematic observation of student-teachers' behaviors has also been touted as an invaluable source of feedback to the learner. Schmidt (1987) suggests that feedback is one necessary requirement for learning and it is necessary that the student-teachers receive this feedback through the supervision process

(Metzler, 1990). Although providing terminal feedback had been cited as the optimal occasion to give information to the learner, Berliner (1969) stated that a delay in receiving feedback on teaching performance, did not result in reducing the facilitation of learning the new teaching behaviors. For feedback to be effective it has been suggested that it be specifically communicated so that student teachers are held accountable for future performances (Locke, 1979; Ocansey, 1988; Parker, 1986; Tinning & Siedentop, 1985).

Biddle (1967) stressed the importance of videotaping when he stated that, " only audiovisual recording preserves the richness of the classroom for subsequent explorations in behavioral encoding" (p.341). Other advantages of using videotape as a tool for changing teaching behaviors has been suggested by Bailey and Talab (1987). They suggest that videotaping:

(1) minimizes observer subjectivity;

(2) provides a permanent record which can be played at the experimenter's and teacher's convenience;

(3) captures two crucial dimensions of the teaching/learning act for analysis-verbal and nonverbal communication; and

(4) provides a common frame of reference for supervisor or teacher as opposed to relying on written or recall information provided by the observer (p. 25).

Videotape feedback has been utilized in a great many studies which focus on changing student-teacher behaviors. Videotape feedback has been related to increasing praise provided to students (Saudergas, 1972). Frager (1985) suggested the use of videotape in supervision can be useful in setting goals and provides objective feedback in peer teaching experiences. In

addition, charting or documentation of teacher performance over a sustained period of time with the VCR can be carried out in a controlled, orderly manner. Van der Mars, Mancini and Fryer (1981) videotaped subjects in a peer teaching situation. The treatment group was more accurate in perceiving observed classroom behaviors and was able to alter its behaviors in the normal classroom situation.

Criticism has been directed toward using video cameras because the presence of the camera elicited teaching behaviors that normally did not occur. However, Borg (1969) stated that teaching behaviors could not be momentarily demonstrated unless the selected behaviors were well established in the normal classroom situation. If videotapes were to be used for relaying information, Diamond (1978) stressed that replays must have a specific focus.

Goal setting has been touted as an important aspect of modern supervision models. Much of the present day research in the area of goal setting stems from the work of Edwin Locke. Locke's theoretical construct has been based on the belief that "conscious intentions in the form of goals regulate subsequent actions and behaviors" (Locke, 1967). It has been suggested that student teachers are more likely to strive to attain teaching competencies if these teaching behaviors are identified as specific parts of goals set during supervision conferences (Locke & Latham, 1984). In addition research has shown that participative goal setting is superior to assigned goals, and that the level of commitment increases with participative goal setting (Locke & Latham, 1990).

The length of time teaching skills are retained after intervention has been questioned in the literature. Gliessman (1981) emphasized that the retention of new skills cannot be assumed and Saudargas (1972) criticized the

lack of follow through by experimenters to determine the extent of lasting behavior change. However, Speidal and Tharp (1978) reported that five months after training behavioral changes had been maintained. McKenzie (1981) and Williamson (1985) found similar results in retention phases of 12 and 10 months.

Based upon a thorough review of literature, the following factors were selected to form the intervention package in the study;

1. Instruction on the nature of task presentation;
2. Feedback;
3. Social praise;
4. Target goal setting; and,
5. Video feedback.

These strategies were selected because of their success in previous studies for changing teacher behavior. However, Hersen (1982) commented that when using a "package" for the intervention, it was not evident which strategy had the most predominant effect in changing behavior.

Qualitative Measures of Teacher Performance Scale (QMTPS)

QMTPS was developed by Rink and Werner (1989) to describe the characteristics of teacher task presentation, student responses, and teacher feedback. The categories and their definitions are presented in Appendix A. QMTPS was developed primarily in response to the broad use of academic learning time in physical education (ALT-PE) as an indicator of teacher effectiveness. As Siedentop (1983) has suggested the theoretical support for this variable is quite high. The validity of using ALT-PE (Siedentop, Tousignant, & Parker, 1982) or any other measure of student response as a

direct measure of teaching effectiveness has been questioned. A number of studies demonstrated the ineffectiveness of ALT as a predictor of teaching effectiveness (Rink, Werner, Hohn, Ward & Timmermans, 1986; Werner & Rink, 1985; Carlisle, 1983).

Rink and Werner's major argument against the use of ALT-PE as a measure of teacher effectiveness was that student responses could be appropriate to a teacher task, but the teacher task may not be appropriate to the learning goal. In response Rink and Werner (1989) focused their attention on what was happening between the presentation of the learning goal and the student response. As Gentile's (1972) model suggested, task appropriateness and task presentation were considered crucial to motor learning (see figure 1). The teachers' selection of an appropriate task and the characteristics were beginning points for inquiry because they represented intermediaries between the learning goal and the responses of the student. QMTPS was designed to provide a clearer picture of task appropriateness, task presentation and feedback in the physical education setting.

Conclusion

Effective instruction in sport skills is a complex and dynamic process that involves many variables. To understand the dynamic nature it is important to examine the multidimensional aspects. Locke proposed that research is needed on a variety of elements and then attempts to "understand how the pieces fit together" can be made (cited by Grayham, 1981). Silverman (1988) observed that before teachers and coaches can understand certain aspects of motor skill learning an awareness of the relationships among presage, process, and product variables must be developed. QMTPS allowed a

picture to be drawn which reflects how differences in teacher instruction, and presentation affect student behavior and how these behaviors change as a result of intervention.

This review suggests that many relationships need to be studied if we are to increase our understanding of effective teaching.

CHAPTER III

METHOD

The single subject research design employed in this study utilized a naturalistic setting to collect information on student teachers' task presentation behaviors. Patton (1980) stressed that it was necessary to observe naturally occurring phenomena in naturally occurring settings. Siedentop (1982) also suggested that in order to improve teaching easily identifiable variables for effective teaching are needed and the best way to discover these variables is to analyze them in the real setting.

This chapter is structured to describe: the subjects, data collection and coding procedures, training observers, inter-observer agreement, dependent and independent variables, and the data analysis used in the study.

Subjects and Setting

Two physical education interim teachers, who were participating in their second practicum in the final year of their professional preparation at two secondary schools in the Sannich School District, were subjects in the study. As suggested by Keogh (1988), subjects were equated on eight marker variables which include; gender, age, activity background, academic background, coaching background, teaching background, grade point average, and school setting. Participation in the study was voluntary, and an informed consent letter (Appendix A) was signed by each subject prior to commencement of the study.

The subjects were observed throughout a six week period during which they taught the activities listed in Table 2.

Table 1

Student-teacher responsibilities during practicum

Week	Subject A	Subject B
1-2	Volleyball	Rugby
3-4	Softball	Soccer
5-6	Football	Softball

Instrumentation

For the purposes of this study the Qualitative Measures of Teacher Performance Scale (Rink & Werner, 1989) was used (Appendix, B). This instrument was designed to collect data on several teacher instructional and student response variables at the same time. The constructs of the instrument as used in this study were as follows: task presentation (clarity, demonstration, appropriate number of cues, accuracy of cues, qualitative cues); student responses appropriate to task focus; and teacher specific congruent feedback.

Intervention

Supervision conferencing was the intervention method used in this study. The intervention was comprised of the following strategies (Appendix, C):

1. Instruction on the nature of task presentation;
2. Graphic representation of demonstration behaviors;
3. Target goal setting; and,
4. Video feedback.

During the initial baseline period the subjects were not aware of the specific focus of the investigation. During this time no feedback was given to the subjects regarding task presentation behaviors.

Following lesson observation, intervention conferences were held during which specific feedback regarding the student-teachers' task presentation was provided. Conferences addressed all areas of teaching but specific attention was focused on behaviors associated with task presentation, student appropriate responses to task focus and teacher specific congruent feedback. Conferencing typically took place following each instructional session, however, scheduling considerations restricted the frequency of conferences to three per week. The intervention session lasted for 30-60 minutes and included specific examples of effective task presentation behaviors, as well as, a student handbook outlining literature and examples of effective demonstration techniques (Appendix C).

Research Design

An ABA' - retention design (Kazdin, 1982) was utilized in the study. The baseline period of approximately two weeks was represented by "A", "B" represented the intervention period of three weeks and the "A'" represented differential reinforcement of alternate behaviors other than task presentation behaviors. The retention phase followed the intervention by approximately one week. The intervention was focused on changing specific demonstrating behaviors which were identified in the baseline phase of the study.

Contextual variables such as class content and class composition were sources of variability in this study. It was not possible to control class content

(see Table 2) but class composition was controlled through the observation of the student-teacher with the same class throughout the entire study.

Data Collection

Student teachers were videotaped a minimum of three times per week during the six week practicum. An attempt was made to minimize possible student-teacher and student reactivity to the presence of taping equipment by taping a class for each student teacher prior to the actual beginning of the study. This pre-taping session gave the student teacher an opportunity to explain the study to the students. The camera was in place before the beginning of class and was located on a raised platform such as a stage or table or on bleachers during outside classes. Equipment used included a VHS tape deck, monitor, Nady wireless microphone, and a Panasonic video camera. The subjects wore a wireless microphone during taping.

Conferencing between the experimenter and subjects followed immediately after lessons where possible, and where scheduling problems existed, the meeting was held as soon as possible thereafter with the maximum observation-conference delay being two days. Additional anecdotal information gathered by the experimenter during lesson recording and coding was used to enhance the evaluation of data and subsequent decisions regarding which behaviors to target for change throughout the course of the study.

The intervention period, lasting four weeks included eight (Subject A) and ten (Subject B) videotaped classes, which was followed by a withdrawal of one week. Following withdrawal, two further classes were videotaped to determine whether modeling behaviors were maintained.

Videotaped lessons were used to record QMTPS data. This was for the purpose of assessing the categories of task presentation, congruent feedback, and student responses. Type of task was not recorded in this study. A task was identified as a unit of work given verbally and/or visually by the student-teacher that focuses students on the intended skill or aspect of that skill to be executed once the activity is initiated. The observer stopped the videotape after each task was delivered by the teacher to identify the task and code the section of the instrument on task presentation. The coder stopped it again after an activity to code students responses and teacher feedback (Rink & Werner, 1989).

Reliability

A crucial component of direct observation of behavior was that observers score the behaviors consistently. Inter-observer agreement was assessed prior to analysis of data by having two trained observers simultaneously but independently observe a videotaped lesson of a student teacher who was not involved in the study. The resulting scores were compared to evaluate the consistency of the observations. Inter-observer reliability was calculated through the use of a point-by-point agreement ratio. The scoring of the observers for each response can be compared directly to see whether all observers had coded a particular response as having occurred. The formula for computing point-by-point agreement consists of:

$$\text{Point-by-Point Agreement} = \frac{A}{A + D} \times 100$$

Where A = agreements for the trial or interval
Where D = disagreements for the trial or interval

An agreement coefficient of over .80 was achieved before proceeding on the data analysis in the study.

To determine inter-observer reliability, two videotaped lessons from an expert and a preservice teacher who were not involved in the study were analyzed. Two independent observers were trained to use the coding system and inter-observer reliability scores of .88, and .91 were obtained before analyzing the videotapes of the study. Inter-observer reliability checks were made through the use of a point-by-point agreement ratio.

Intra-observer reliability was carried out on the second and fifth week of data analysis. One lesson from each subject was coded independently by the experimenter. Two intra-observer agreement ratio checks were carried out for each subject in week two and seven and resulted in scores of 93.2%, 95%, 88% and 91.4%.

Data Analysis

Data were analyzed from the videotapes using QMTPS with each demonstration being recorded on a coding data sheet (Appendix B). In order to facilitate a meaningful interpretation of the results, coded behaviors were converted to a ratio and expressed as a percentage which reflected the occurrence of the most desirable response in each category. As an example, if 10 task presentations were observed in a lesson, the variable clarity, would be coded 1-Yes or 2-No with 1 indicating the most desirable response. If 1 was coded 4 times, then the most desirable response was observed 4 out of ten times 4/10 or 40% of the time. Since the number of task presentations varied from lesson to lesson percentages were used so that comparisons could be drawn across lessons with different numbers of task presentations. Considerable

variability was observed in the graphed data points due to the low frequency of task presentations throughout the study (Appendix D). As an example, in two consecutive lessons where there were 11 task presentations given, the difference between 4/11 and 5/11 appropriate occurrences was 36% to 45%. When these data points were graphed stability did not appear to be evident.

The data were analyzed using visual inspection of the graphed data and descriptive statistics of the targeted behaviors. The criteria used in the visual inspection included stability of baselines, trend in the baseline, changes in mean performances across experimental phases, latency of change, and changes in level shifts across experimental phases (Kazdin, 1982).

The baseline data revealed what subjects were doing before the intervention or treatment was implemented. Changes in mean performance demonstrated how the the target behaviors changed across the experimental phases, that is, how the behavior changed as a result of the intervention. The changes in level shift reflected changes to the target behaviors directly after the first intervention had been implemented. A level shift is the change that occurs between the last baseline lesson and the first intervention lesson.

CHAPTER IV

RESULTS & DISCUSSION

The purpose of this study was to examine the effectiveness of augmented feedback on the task presentation behaviors of two physical education student teachers. Seven variables were monitored during each instructional lesson; the clarity of task presentation, use of demonstrations (full, partial, none), the number of cues given during task presentation, the accuracy of cues given during task presentation, qualitative cues given during task presentation, student appropriate response to task presentation, and specific congruent feedback delivered to students by the teacher following task presentation. This chapter will present the findings for both student teachers on each of the variables together with a discussion of the implications derived from the results

Specific data points were gleaned by determining the ratio of most appropriate responses (as outlined by QMTPS) as compared to the number of task presentations observed in the lesson. This method was similar to Werner and Rink's (1989) study which used mean percentages in each QMTPS category to assess teacher performance in baseline and intervention phases of the study. In several instances it was impossible to claim that baselines were stable since relatively low numbers of task presentations (6-14) were given in each class. The focus of comparison in the study was mean percentages across the baseline phases, level shift, and latency of change across experimental phases.

The intervention phase consisted of instruction on the nature of task presentation, graphic representation of task presentation behaviors, and social praise for targets achieved. Student teachers were unaware of the

nature of the study until the baseline data had been collected. During the intervnetion phase, intervention was provided by the researcher to each subject on five different occasions.

Subject A

During the study, Subject A taught a grade 10/11 girls physical education class and concentrated on volleyball (lessons 1-6), softball (lessons 7-12) and football (lessons 13-18). The class was new to the teacher, therefore, a general impression of class behavior, management problems and work habits were not possible to determine prior to the commencement of the study.

1. What was the effect of intervention on the **clarity** of student-teachers' task presentation?

Clarity of task presentation for Subject A showed variability in the baseline where clear demonstrations were present between 36 and 54% of the time with a mean of 46% (Figure 2). The first eight classes were characterized by the subject competing with students, and in many instances trying to talk over class noise. Often the subject initiated task presentations before all students were able to see and hear the presentation, and inconsistently checked for student understanding before sending students off to practice tasks. Baseline data also provides support for the strength of intervention since all intervention measures were equal to, or exceeded the maximum baseline measure of 54%. There was an increase in the mean percentage of clear task presentation of 32 points from the baseline (46%) to the intervention(78%) with a slight 3 point decrease (78% to 75%) in the retention phase (Figure 2).

Level shift across experimental phases was not immediate for Subject A perhaps indicating a latency effect of the intervention. Subject A revealed a

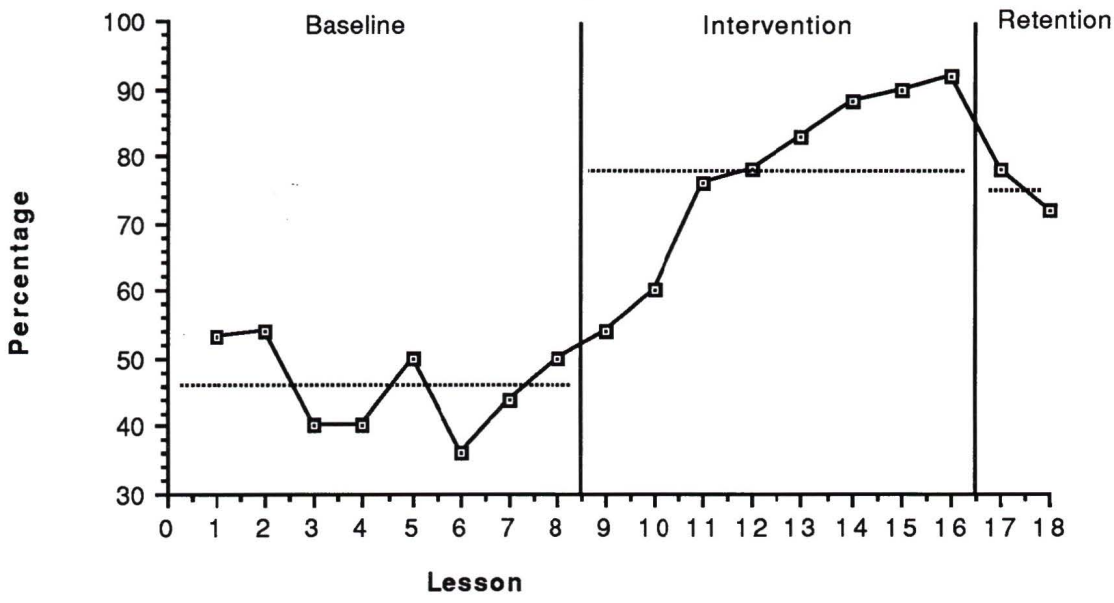

Figure 2. Clarity of task presentation for subject A across experimental phases, expressed in percentage most desirable responses

slight upward level shift for task clarity from the last baseline lesson (50%) to the first intervention lesson (54%). A downward level shift was evident between the last intervention lesson (92%) and the first retention lesson (78%) (see Figure 2).

A number of behaviors were addressed in the intervention sessions with the goal of increasing the clarity of Subject A's task presentations. It was suggested during intervention sessions that the teacher be patient, and wait for full attention from students before beginning instruction. Finally, intervention addressed the issue of questioning students to establish whether or not they had understood key points in the task presentation before they practiced the task (Rink, 1993; Grayham, 1988).

During the intervention meetings, the student-teacher admitted to feelings of self-consciousness and nervousness during class which were related to the feeling that she considered herself unskilled in volleyball and therefore, unable to teach the required material effectively. It was suggested during the softball and football units, that the subject attempt to practice skills in advance, read various manuals to familiarize herself with proper technique, seek the help of skilled individuals, and use skilled students as models during task presentation. Peer modeling has been suggested as an effective method of facilitating accurate preformance in observers (McCulagh, 1987). Pollock and Lee (1992), further suggested that using student models who were learning as they performed the task was effective reducing the errors made by the learner since they have already cognitively processed the task. Subject A indicated that she did spend extra time practicing skills which were difficult for her. Lesson observation also showed that skilled students were used for demonstrations where the opportunity presented itself.

The subject's concerns were reported to have lessened during the intervention phase and she began taking more control of the teaching situation and establishing more control of the learning environment. Clarity of task presentation, which was measured as student compliance following task presentation (QMTPS) (Darst, Zakrajsek, & Mancini,1989), improved slowly at first, perhaps indicating a latency of effect, followed by a rapid upward trend later in the intervention phase. Latency was expected in teaching situations where the student-teacher was adjusting to various teaching considerations as well as focusing on specific teaching characteristics which were outlined in the intervention meetings. It was interesting to note that the increase in clarity scores paralleled the change to softball, a sport the subject had previously played and coached. However teaching patterns were altered from the baseline to the intervention phase which indicated the strength of the intervention. Specific points which were altered during task presentation included questioning students for understanding, using organizational formats which enabled all to see, and specific points were repeated during the task presentation. The effect of the intervention was verified when clarity scores during football, a novel teaching area, remained high.

During the retention phase, task clarity declined slightly. This was attributed to the fact that near the end of the school year, the student-teacher had agreed to a couple of "fun" days where lessons were less structured and teaching procedures were not as strictly adhered to. Normal routines, which were displayed during the intervention phase were not used to the same degree.

2. What was the effect of intervention on the **nature** of demonstrations during student-teacher's task presentation?

a) Use of full demonstrations during student-teacher's task presentation?

Demonstration has been suggested as an important function of effective task presentation (Rink, 1993; Grayham, 1993; Pollock & Lee, 1992; Weiss-Bjorstal and Weiss, 1992). The most desirable response for QMTPS has been identified as full demonstrations, which indicated that the demonstration attended to all aspects of the task being presented (Rink & Werner, 1989). Rink (1993) suggested that at some point, students need to see the whole action performed at correct speed and context. The use of full demonstrations for Subject A showed a variable baseline with a range from 6 and 27%. As indicated in Figure 3, Subject A used full demonstrations 17% of the time, on average, over the baseline period. As suggested earlier Subject A was uncomfortable with the subject being taught over the first eight lessons. Full demonstrations therefore, were inconsistently used in the baseline, were exclusively given by the subject and those which were given were rushed and often inaccurate.

There was an increase in mean performance from the baseline (17%) to the intervention (52%). This increase coincided with the intervention sessions which focused the attention of the student teacher on the importance of demonstrations for giving accurate motor pictures of what was expected in the practice session. The intervention session revealed an increase of demonstrations where full demonstrations were given. It was noteworthy that while intervention data points were not stable, all data points are greater than the highest baseline data. The retention check indicated that full

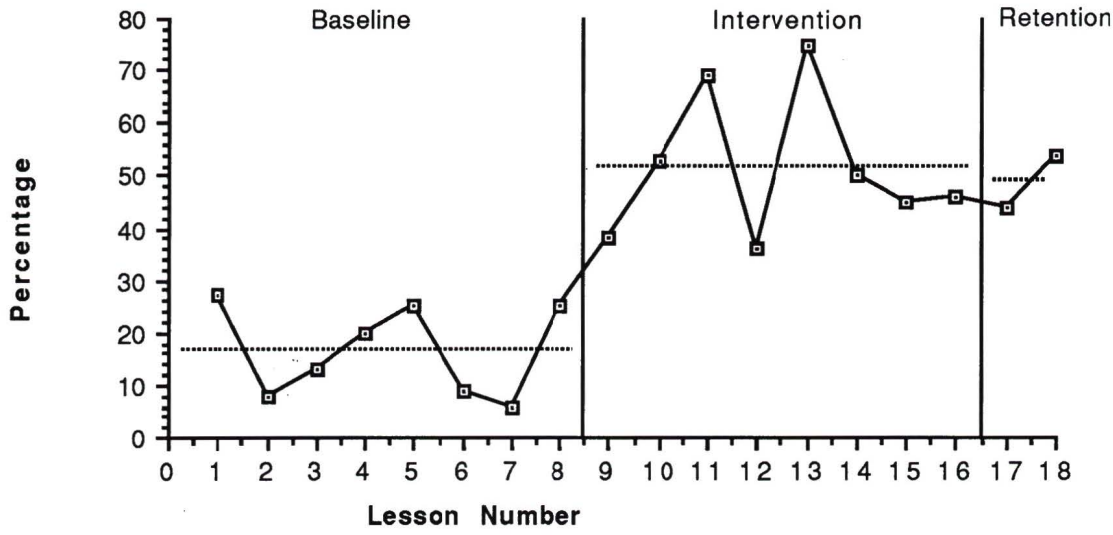

Figure 3. Full demonstrations given during task presentation for subject A across experimental phases, expressed as percentage most desirable response

demonstrations were given 49% of the time on average which was consistent with the intervention mean (Figure 3).

Subject A revealed a minimal upward level shift from the last baseline lesson (25%) to the first intervention lesson (38%) (Figure 3). A slight downward level shift was evident from the last intervention lesson (46%) to the first retention lesson (44%) (Figure 3). Level shift was considered important in this variable since one goal of intervention was to increase the rate at which full demonstrations were presented during task presentation.

Intervention sessions allowed the subject an opportunity to request information to improve her ability to demonstrate effectively. Specific issues which were attended to during intervention meetings and carried into the subjects teaching included the use of student models when the subject felt unable to demonstrate, and the use of organizational formats during demonstration that matched the practice situation. On two occasions videotaped models of behavior was used to show more clearly how the skill was used in a game situation.

b) Use of partial demonstrations during student-teacher's task presentation?

Partial demonstrations were identified as modeled task exhibiting only a portion of the desired movement, thus representing a gap between the teachers' expectation and what was actually modelled. This type of demonstration was Subject A's primary method of presenting tasks. This trend increased over the baseline period (Figure 4). A sizeable decrease in mean performance (22%) was evident from the baseline (53%) to the intervention phase (31%) while this behavior remained constant into the retention phase (30%). Decreasing the relative frequency of partial demonstrsations was a desired outcome of the intervention.

Baseline data and observation indicated that Subject A used partial demonstrations which were incomplete, rather than using it in an appropriate manner focusing on a subset of the desired outcome. Evidence of the strength of the intervention was gleaned from the fact that a substantial level shift was evident from lesson 8 to lesson 9. Kazdin (1982) has suggested that when data points drift in the opposite direction of treatment, and level shift between phases is apparent, there was a basis for attributing a change to the intervention. The desire to decrease the occurrence of partial demonstrations was consistent with QMTPS and its negative connotation for partial demonstrations. The Subject commented that she did not feel comfortable performing the skills used in volleyball since she considered herself weak in this area.

Intervention provided evidence that Subject A did decrease the number and reliance upon partial demonstrations during task presentation. Conferencing sessions with Subject A attempted to encourage use of student or guest demonstrators where she felt particularly unskilled to demonstrate and to work on those skills prior to teaching them. This was evident in the subsequent classes as she was more cognizant of giving full demonstrations in the intervention phase. As an example, Subject A utilized a highly skilled football player to demonstrate the spiral pass and pass patterns.

c) Absence of demonstrations during student-teacher's task presentation?

Subject A showed a highly variable baseline where demonstrations were absent between 17% to 46% of the time. The baseline revealed that demonstrations were absent during task presentation an average of 30% of the time (Figure 5). QMTPS identified the category 'no demonstration' as negative

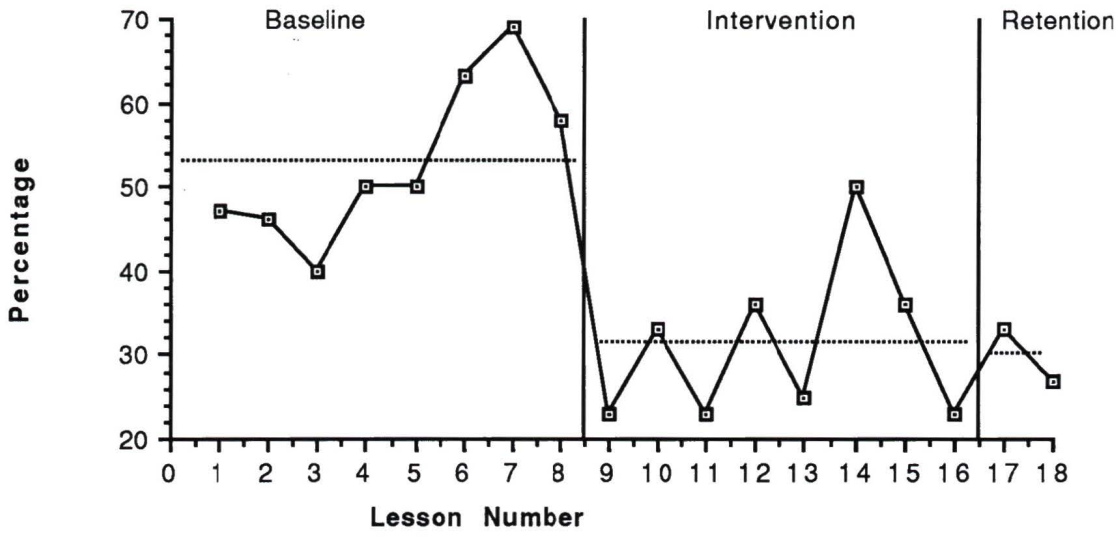

Figure 4. Percent partial demonstrations given by Subject A across experimental phases, expressed in percent most desirable response

in the overall task presentation since it was expected that a complete task presentation would include a demonstration, preferably a full demonstration (Rink, 1993; Rink & Werner, 1989). Rink further suggests that students need to see the whole action performed at correct speed and in context (Rink, 1993, p. 86).

Subject A demonstrated a slight decrease in mean performance from the baseline (31%) to intervention (17%). There was a slight increase in the retention phase (21%). Subject A displayed an increase from the last baseline lesson (17%) to the first intervention lesson (39%).

Data indicating the number of occurrences where no demonstration was given by Subject A were highly variable across all phases of the study (Figure 5). The result was weak and was not discussed.

3. What was the effect of intervention on the **number** of instructional cues given during student-teacher's task presentation?

Closely associated with effective task presentation is the number, appropriateness, and nature of the cues being presented during a task presentation. QMTPS identified the most appropriate number of cues to be given during task presentation between one and three (Darst, Zakrajsek, & Mancini, 1989). Subject A showed a stable baseline and provided an appropriate number of cues (1-3) between 15 and 31% of the time, and an average of 26% from lesson 2 through 7 (see Figure 6). A stable baseline was observed following lesson 1 where the subject used posters and notes to remind herself of the appropriate cues to be provided and was followed by a change in the mean performance and increasing trend in the intervention phase. During baseline the tendency for Subject A was to provide far too many

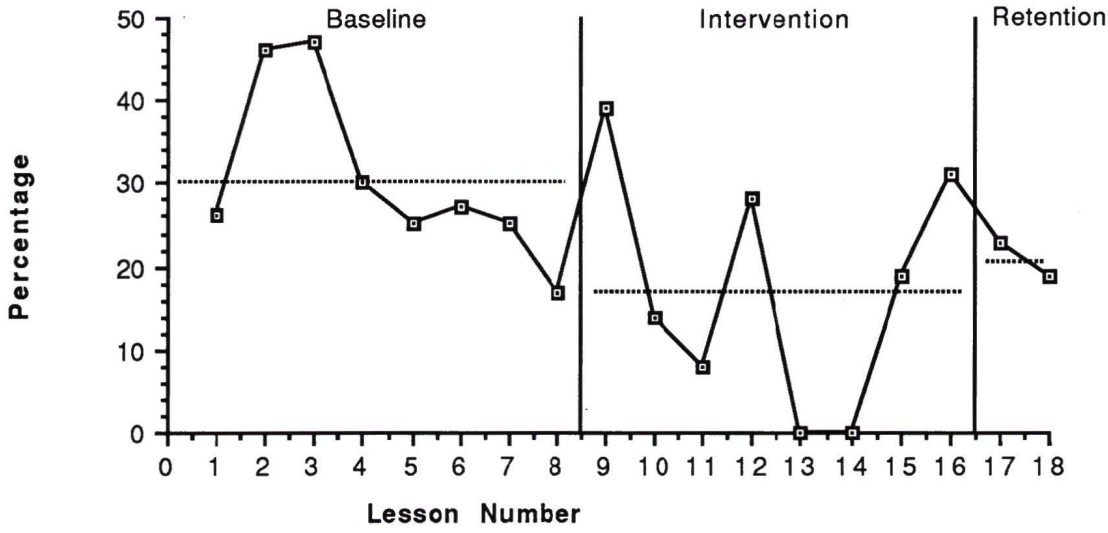

Figure 5. Task presentations in which no demonstration was given by Subject A across experimental phases expressed in percentage most desirable response.

cues per task presentation. Latency of effect was once again observed, perhaps indicating that she was not able to deal with numerous suggested changes at once and therefore she had to learn to use the various techniques suggested in the intervention session. The change of mean performance, trend and latency once again were indicators of the strength of the intervention for this variable. This finding was consistent with the results of a study by Werner and Rink (1989) where the number of cues presented decreased in a teach-reteach situation for two of four subjects. Drawing inferences about the intervention effects is greatly facilitated when baseline levels show trend or trend opposite that predicted by intervention. When data showed these patterns it was easy to infer that change in level or trend are associated with onset of the treatment (Kazdin, 1982).

Video taped examples of this behavior were shown to the subject to allow her to observe this behavior first hand. In lesson two, for example, Subject A gave an average of six learning cues per task presentation over the course of the lesson. Literature suggests that too many cues diffuse the focus of the task presentation and subsequently decrease the clarity and motor image of what the teacher expects of students during the practice session (Graham, 1986; Rink, 1993). Practical suggestions given included the use of cue cards, posters of important cues to be learned that day, and using the reference material to determine the most crucial cues to provide to learners. Subject A selected to carry small cue cards on which two or three specific cues per task were noted or while in the gymnasium, to post key cues on posters mounted on the wall.

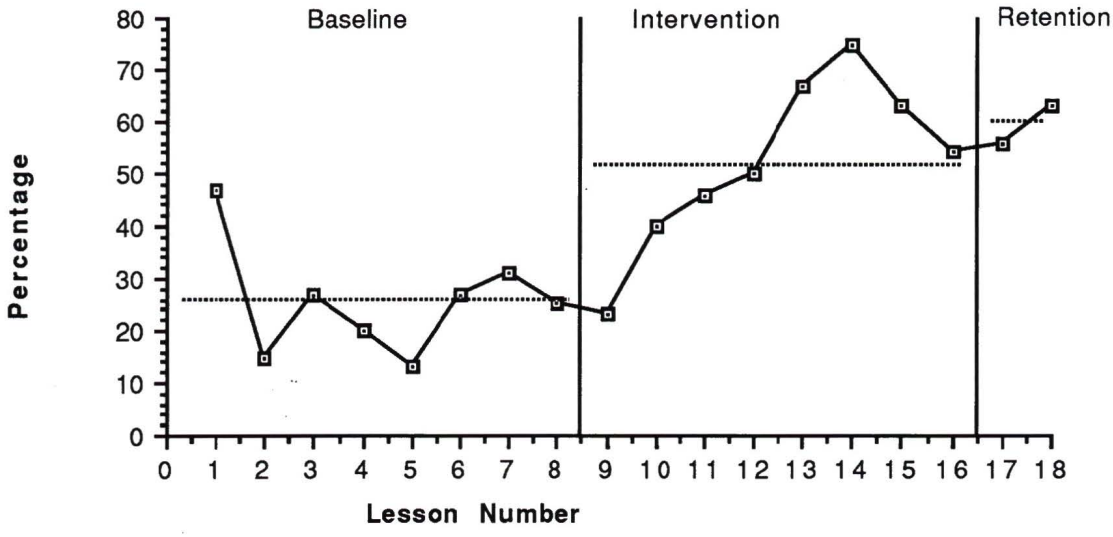

Figure 6. Appropriate number of cues per task presentation for Subject A across experimental phases, expressed in percentage most desirable responses

4. What was the effect of intervention on the **accuracy** of instructional cues given during student-teacher's task presentation?

Learning or instructional cues have been identified as integral parts of effective task presentation in physical education teaching. Subject A displayed a stable but low baseline where accurate cues were given only 7% of the time (Figure 7). A critical problem identified during intervention meetings was that the subject did not take advantage of available resources to become aware of the most appropriate cues to be taught, especially in volleyball. This was most evident in lessons 5, 6 and 7 where the subject attempted to teach complex skills, such as, spiking and blocking before the prerequisite skills were present. Entire lessons were taught without reference to body position, balance, jumping technique, hand position etc. Following lesson eight it was suggested that Subject A actively use reference materials and carry a note pad to class in order to remember important cues for proper execution of the skill. The intervention appeared to have an effect since there was a noticeable level shift from the last baseline lesson (8%) to the first intervention lesson (38%), and the mean increase from the baseline (7%) to the intervention (52%) (see Figure 7). A certain degree of improvement was expected from baseline to intervention since Subject A moved from an unfamiliar teaching area (volleyball) to a familiar one (softball) in lesson 7. The strength of the intervention was reinforced since the accuracy of cues given coincided with intervention and continued into the next unfamiliar teaching area (football).

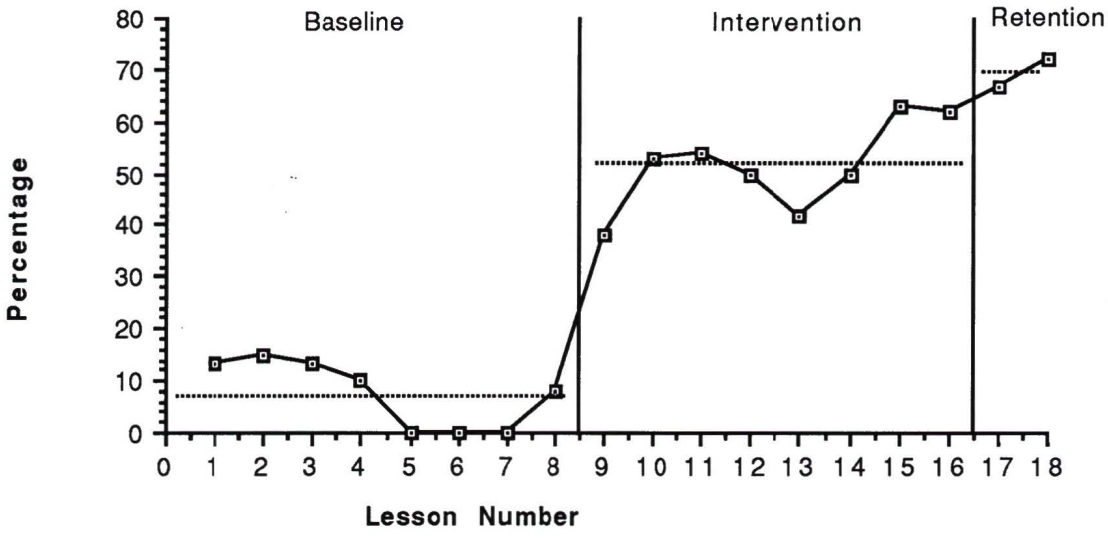

Figure 7. Accuracy of cues presented during task presentation for Subject A across experimental phases, expressed in percent most desirable response

5. What was the effect of intervention on the **qualitative** instructional cues given during student-teacher's task presentation?

Qualitative cues have been described as cues that are provided to the learner in order to provide the learner with information on the process, or the mechanics movement (Rink, 1993). Subject A did not give qualitative cues frequently over the baseline phase which revealed a variable baseline from classes 1 through 4 followed by a stable baseline of (0%) for the remainder of the lessons. Conferencing resulted in an increase in the mean performance (45%) of qualitative cues given. The strength of the intervention for this variable was determined since the mean performance changed between the baseline and the intervention along with the latency of effect observed in lessons 9 and 10.

Subject A verbally expressed an unwillingness to use these types of cues and associated them with elementary style teaching. Intervention consisted largely of showing the subject videotape of her baseline teaching where her behavior could be clearly pointed out. In addition, examples of qualitative cues were given to the subject in order to clarify what qualitative cues were. It was believed that an awareness contributed to the increase in the use of qualitative cues in the intervention phase. The retention phase revealed that Subject A had continued with the use of qualitative cues and, in fact, increased their use by 11 percentage points (Figure 8).

6. What was the effect of intervention on the student teacher's ability to give **congruent feedback**?

The use of specific congruent feedback by Subject A showed a stable and decreasing trend in the baseline with a mean of (5%). There was a dramatic

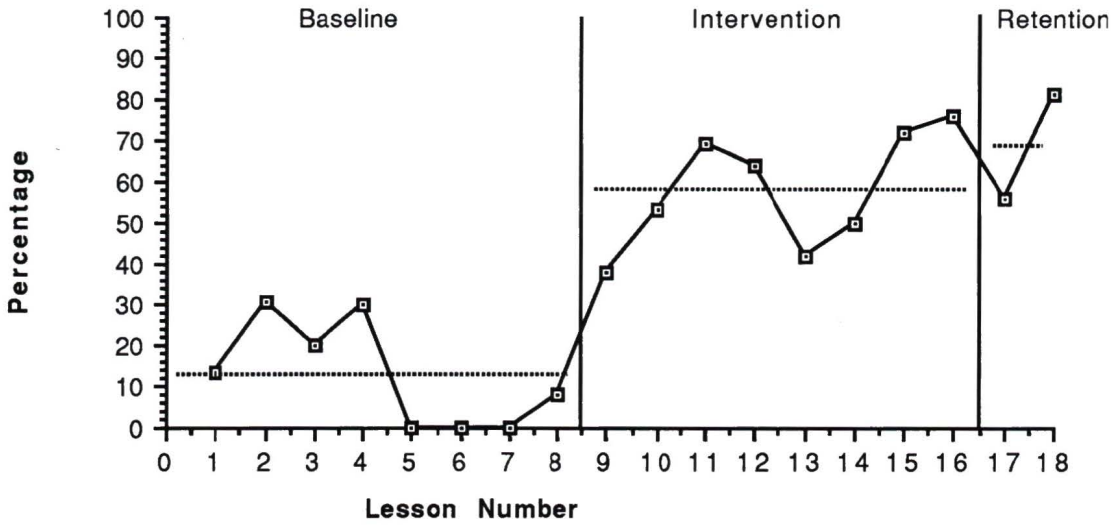

Figure 8. Qualitative cues given during task presentation for Subject A across experimental phases, expressed in percentage most desirable response

increase to 89% in the intervention and 87% in the retention phase (Figure 9). Distinct increases in the mean behavior and the immediacy of the level shift indicated the strength of the intervention in changing these behaviors. This was not to say that Subject A gave no feedback. Instead, it was a comment on the nature of feedback which was frequently positive and general. Examples of feedback statements which served to illustrate this point include; "good job!, nice try!, ok!, right on!". While these terms were positive in nature and fostered a positive learning environment, they were not considered appropriate to focus the attention of the learner on the specific aspects of the performance. Subject A gave minimal specific congruent feedback in the baseline (see Figure 9). It has been suggested that the feedback must be congruent to the task focus to be meaningful and increase learning (Oxedine, 1984; Graham, 1992).

Video examples of the type of feedback delivered served as a source of motivation for Subject A to change. The intervention phase was characterized by a dramatic increase in specific congruent feedback (82 points) (Figure 9). The subject was helped to recognize the role of congruent feedback in focusing student responses and creating accountibility for the task presented. In addition, the subject was shown videotape of a master teacher who did deliver congruent feedback and the impact on student task focus. Efficacy of the intervention was evident through examination of the data and focusing on level shift from lessons 8 to 9 (0-82%) and mean difference (5-87%) across experimental phases. This increase was also supported in the raw data where instances of specific congruent feedback during each lesson increased from 0 to 14. Subject A continued to provide general positive feedback, however the incidence of specific congruent feedback increased dramatically in the

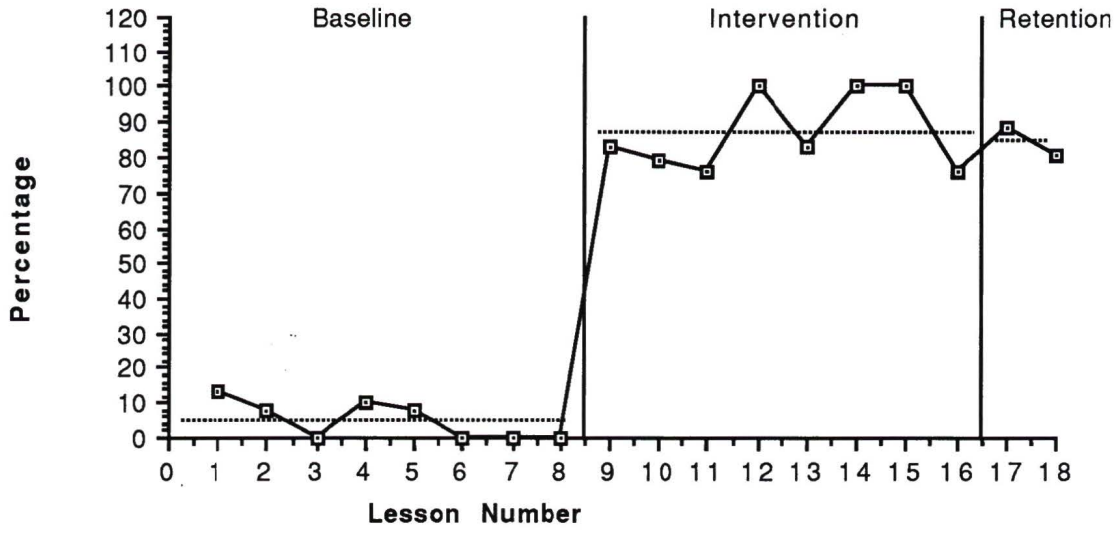

Figure 9. Specific congruent feedback provided following task presentation for subject A across experimental phases, expressed in percentage most desirable responses

retention phase. This result differs from previous research which showed low increases in specific congruent feedback following intervention (Werner & Rink, 1989).

7. What was the effect of intervention on the student-teacher's ability to elicit appropriate **student response**?

Data relating to student responses to task presentation for Subject A was highly variable across the baseline, intervention, and retention phases (Figure 10). This result was weak and was not discussed.

Subject B

Subject B taught rugby (lessons 1-6), softball (lessons 7-13) and soccer (lessons 14-20) to a grade 10/11 girls physical education class over the course of the study. The study commenced at the beginning of the third term, therefore students were new and had not been together as a group before. However, the opinion of other teachers, was that they would be a good class. The class consisted of 26 girls, and remained constant throughout the duration of the study.

1. What was the effect of intervention on the **clarity** of student-teachers' task presentation?

The baseline behavior for clarity of task presentation was stable and high with a mean of 63% (Figure 11). During the intervention phase, clarity of task presentation increased to a very high level (91%) as indicated by the increase in mean performance and immediate level shift across phases.

Subject B did many things well in the baseline phase; she demanded

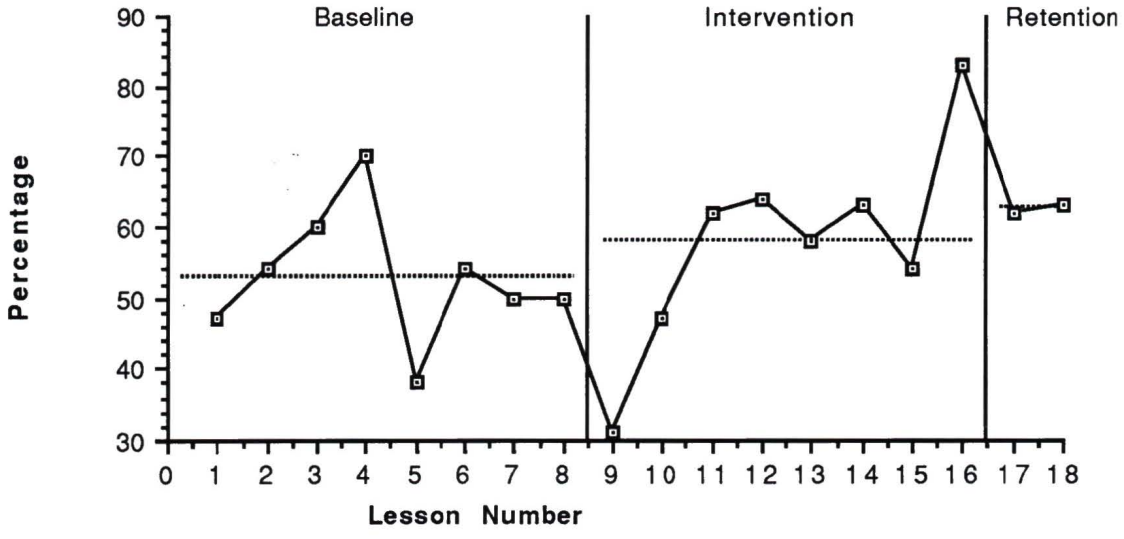

Figure 10. Percentage student appropriate responses for Subject A across experimental phases, expressed in percentage most desirable response

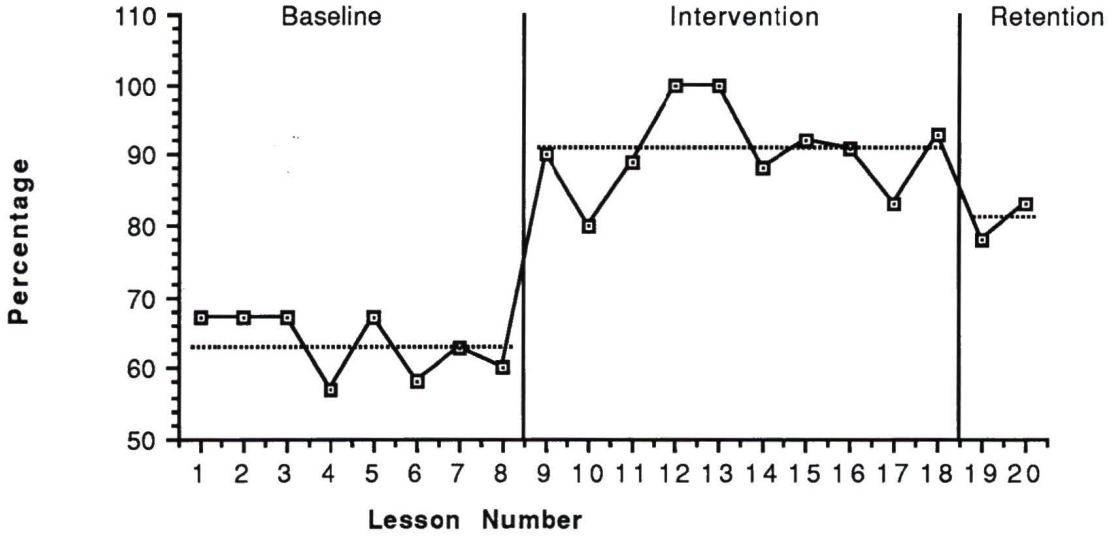

Figure 11. Clarity of task presentation for Subject B across experimental phases, expressed in percentage most desirable responses

attention before beginning instruction, spoke clearly in understandable terms, and removed students from distractions. A major weakness identified during intervention sessions was Subject B's inability to group students so that all could see the task presentation. Quite often students were blocked from view, or spread out over a large area making observation of the task presentation difficult. Grouping strategies, therefore, were an important focus of intervention. Along with grouping, Subject B took a long time communicating the task to students, which resulted in a loss of the students' attention before the task presentation was complete.

Following intervention, Subject B brought students together, especially where a new or novel task was being taught and made eye contact with as many students as possible. In this way she was be able to monitor students attention to task presentation. She was also encouraged to complete task presentations within one minute where possible, in order to keep the attention of the group (Rink, 1993). Similar to Subject A, Subject B rarely verified student understanding of the task before having them practice. Subject B commented that she had felt that students were often afraid to ask questions regarding the task and typically asked friends or tried to fake it. As a result she checked student understanding through questioning before practice took place.

2. What was the effect of intervention on the **nature** of demonstrations during student-teacher's task presentation?

a) Use of full demonstrations during student-teacher's task presentation?

Subject B revealed a variable occurrence of full demonstrations in the baseline. The mean occurrence of full demonstration during baseline was 40%

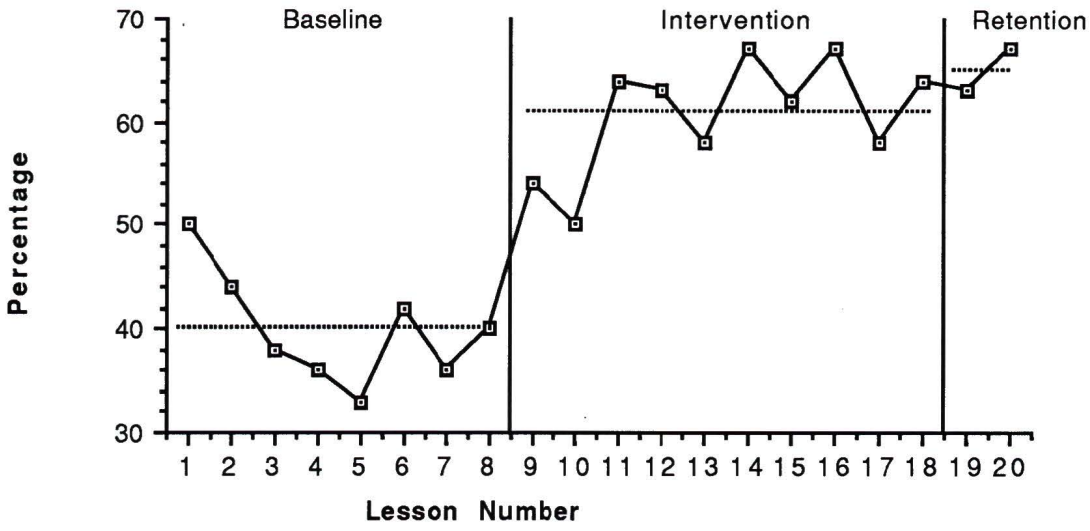

Figure 12. Full demonstrations given during task presentation for Subject B across experimental phases, expressed in percentage most desirable response

and ranged between 33 and 50% (Figure 12). The intervention, while focusing on the development of full demonstrations also affected Subject B's behavior as indicated by the change of mean performance and latency of effect across the experimental phases. Examination of the data revealed that Subject B either communicated tasks through demonstration or verbalized the skill to be carried out by her students. It was determined during intervention meetings that Subject B would attempt to increase the average number of times full demonstrations were given. Since the literature suggested that a combination of demonstrations and verbal communication was best for increased learning, the percentage of full demonstrations used during task presentation was a goal of the intervention. As with Subject A, it was suggested that Subject B attempt giving full, accurate demonstrations which provided a complete picture of the skill being taught in the context it was to be practiced.

The effect of intervention was demonstrated in the visual interpretation of the data (Figure 12). A substantial mean level shift was evident across experimental phases. The change in units for Subject B reinforces the effect of the intervention in this case since the subject moved from an area of strength (Rugby) to a relatively weak area (softball). In addition, the decreasing trend identified in the baseline was reversed and a level trend in the intervention phase was present. As Kazdin (1982) suggested, change of mean and trend across phases is an indicator of the strength of the intervention.

b) Use of partial demonstrations during student-teacher's task presentation?

Partial demonstrations (Figure 13) shows a variable baseline with partial demonstrations occurring between 0 and 13% of the time in the baseline and increasing substantially in the intervention (27%). This was a

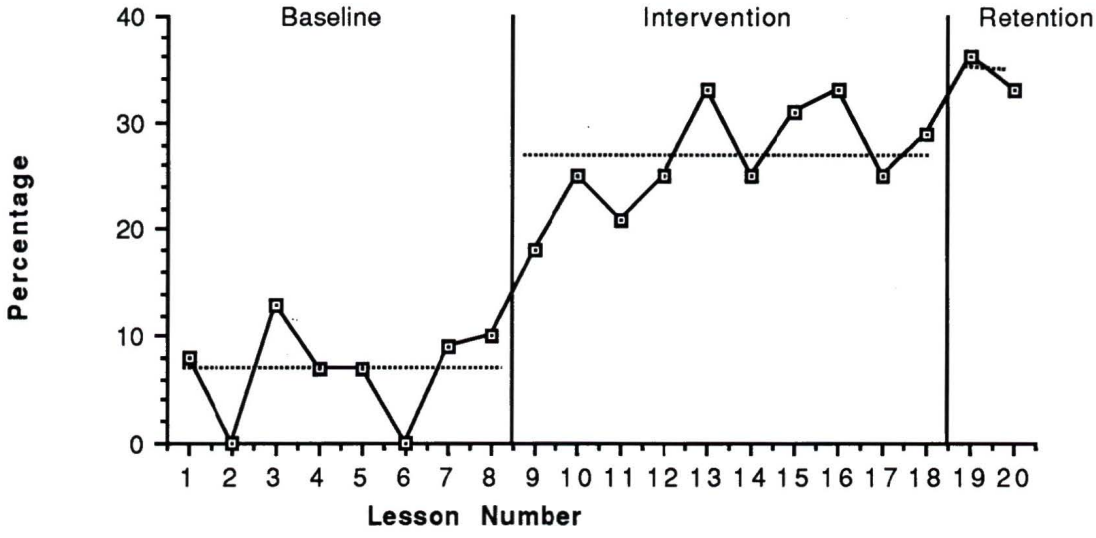

Figure 13. Partial demonstrations given during Subject B's task presentation across experimental phases, expressed in percentage most desirable response

clear indicator that Subject B relied heavily on verbal explanations when giving corrections, or extending tasks. An increase of 20 percentage points between the baseline and the intervention phase allowed this change to be attributed to the intervention. Again, a latency of effect was observed which indicated learning was occurring and perhaps trial and error was taking place in the student-teachers behavior. Following the intervention, demonstrations (full or partial) occurred approximately 87% of the time. Observation of videotaped lessons indicated that Subject B retained high verbal content across phases but added motor demonstrations to many of her task presentations.

c) Absence of demonstrations during student-teacher's task presentation?

Associated with the low incidences of demonstrations given in the baseline, the data showed that there was a high percentage of task presentations given in which no demonstrations were present (53%) (Figure, 14). Generally, Subject B verbally explained the task until little uncertainty was present, often repeating important points, without always demonstrating. A major weakness of this method of task presentation was the inordinately large amount of time required to convey the intention of the task. In many instances, five minutes of verbal description could have been replaced with one or two well placed demonstrations. These issues were addressed during the intervention sessions and Subject B admitted to not realizing that she was losing potential activity time with verbal explanations. In addition, she suggested that this was her typical behavior, and that she did it without even thinking. A particular task presentation, which took six minutes of class time, felt to her as if it was only a couple of minutes. Video feedback, along with average times of task presentations, throughout the intervention served as the motivating factor for Subject B to attempt to change her behavior.

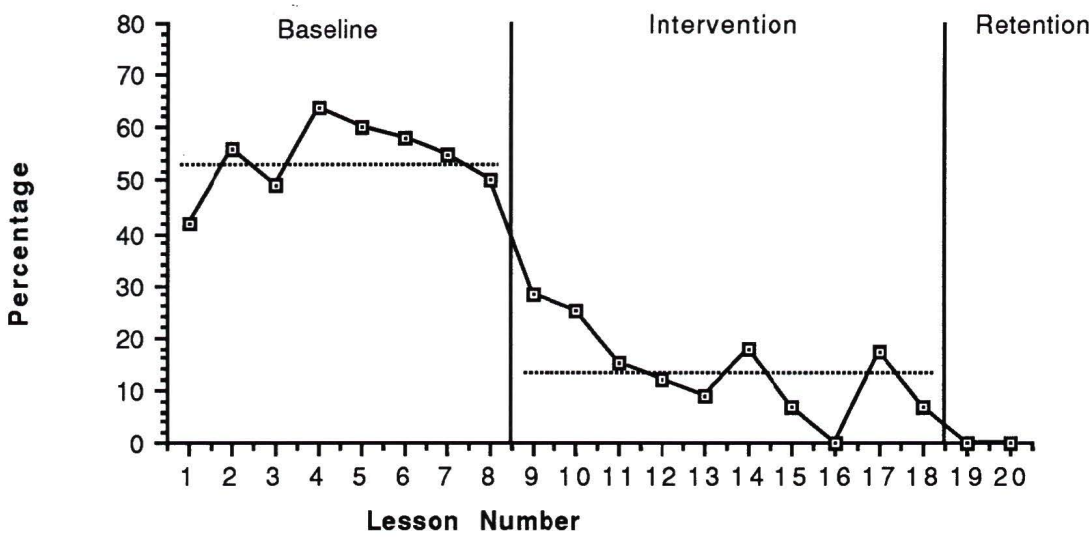

Figure 14. Task presentations in which no demonstration was given by Subject B across experimental phases expressed in percentage most desirable response

Providing feedback to students was successful in reducing the number of task presentations in which no demonstration was present to 13% in the intervention phase and this was held constant 0% in the retention phase. Video observation by the subject and practice teaching with the experimenter allowed the subject to try new techniques and stop intermittently to receive clarification where necessary from the experimenter. Interestingly, the mean occurrence of task presentations without demonstrations decreased from 53% to 11% across phases, indicating the intervention was successful (Figure 14). The most interesting method used by Subject B to decrease her verbalization was to ask three students to start stretching and yawning when they noticed lengthy instructions or when instructions were being repeated.

3. What was the effect of intervention on the **number** of instructional cues given during student-teacher's task presentation?

The appropriate number of cues were provided by Subject B between 39 and 50% of the time and revealed a stable baseline from lessons 4 through 8 (Figure 15). A target of intervention was to increase this frequency. Subject B often gave too much information, resulting in too many cues given to the students and an apparent increased level of confusion. Intervention relied on the use of two specific video clips where 8 and 12 cues were given for individual task presentations. Reducing the number of cues per task presentation and decreasing the time taken for each task presentation while increasing the number of short demonstrations given during the lesson were also discussed. It was also suggested that Subject B carry a notebook to class for the remainder of the study. The intervention appeared to have an immediate effect since there was a 21% level shift increase in most appropriate responses

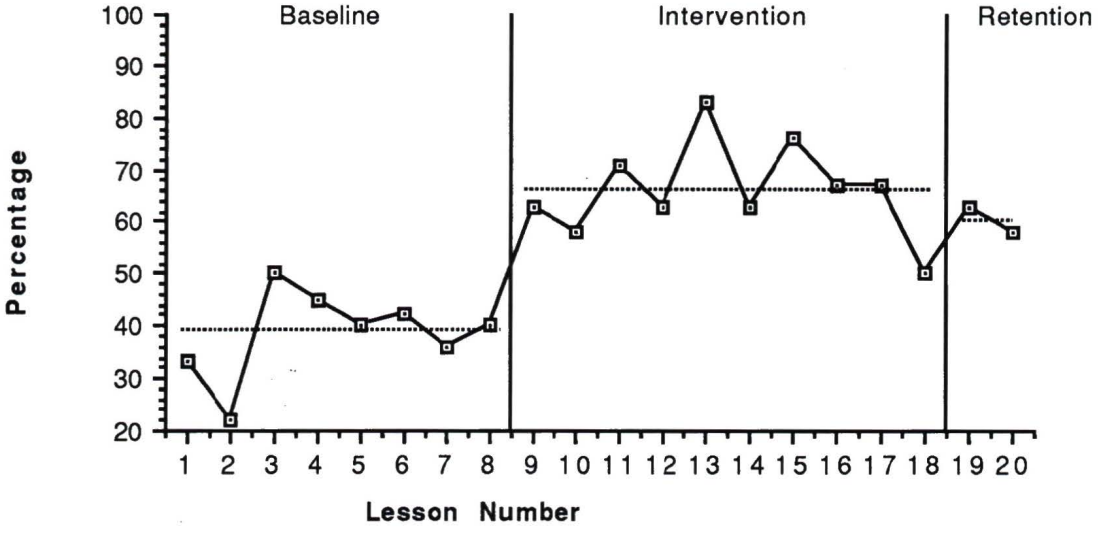

Figure 15. Appropriate number of cues given during task presentation by Subject B across experimental phases, expressed in percentage most desirable responses

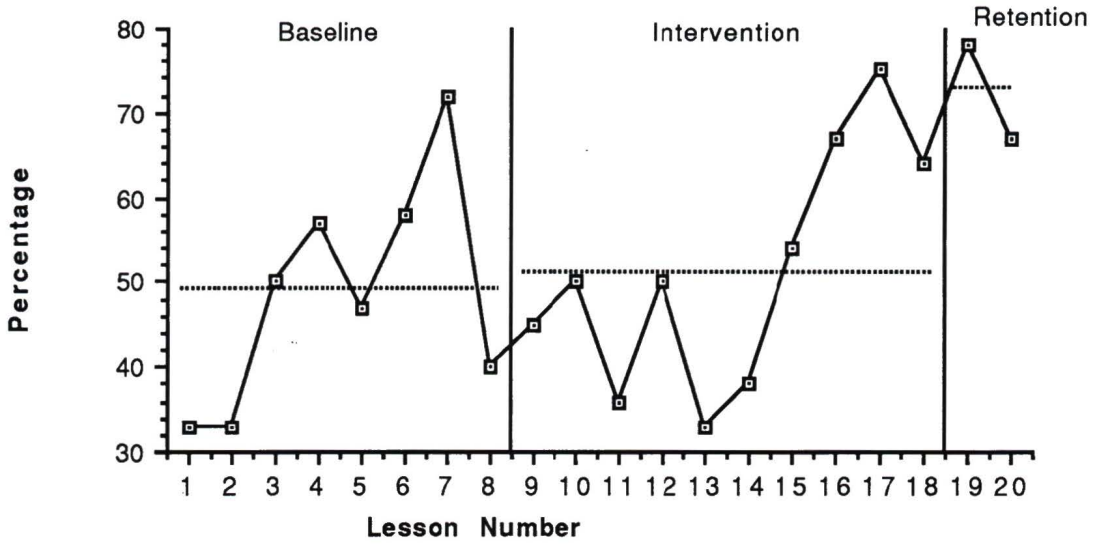

Figure 16. Accurate cues given for Subject B during task presentation across experimental phases, expressed in percentage most desirable responses

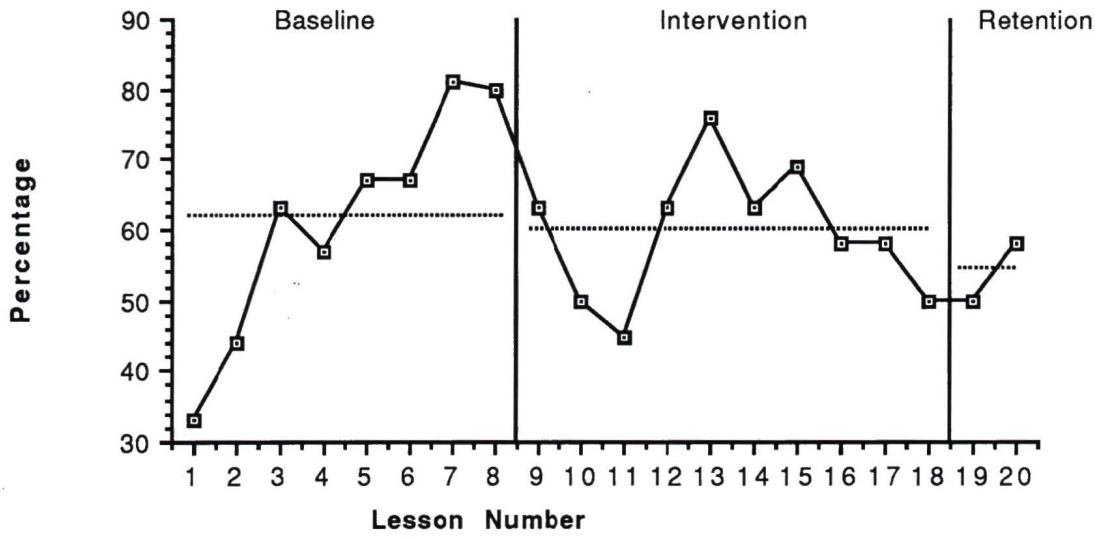

Figure 17. Qualitative cues given for Subject B across experimental phases, expressed in percentage most desirable response

from the last baseline lesson to the first intervention lesson, and mean performances across experimental phases increased by 27%.

4. What was the effect of intervention on the **accuracy** of instructional cues given during student-teacher's task presentation?

The data relating to accuracy of cues presented for Subject B was highly variable across all phases of the study (Figure 16). This result was weak and was not discussed.

5. What was the effect of intervention on the **qualitative** instructional cues given during student-teacher's task presentation?

The rate at which qualitative cues were given during the study revealed a variable baseline in all phases of the study (Figure 17). The result was weak and not discussed.

6 & 7. What was the effect of intervention on the student teacher's ability to give **congruent feedback** and elicit appropriate **student response**?

Congruent feedback was given appropriately only 9% of the time over the baseline period (Figure 18). Subject B was a source of much feedback however the direct references to task was moderately low. The subject tendency during the baseline phase was to to be very positive in her comments. As an example, statements such as "good job guys!, nice going, keep it up!" were prevalent. During intervention meetings it was decided that this be a target for improvement. Conferencing first addressed the concept of general and specific feedback as described by Rink (1993). Further work was carried out between the researcher and Subject B where by the subject taught skills to the researcher. The researcher focused on each general positive

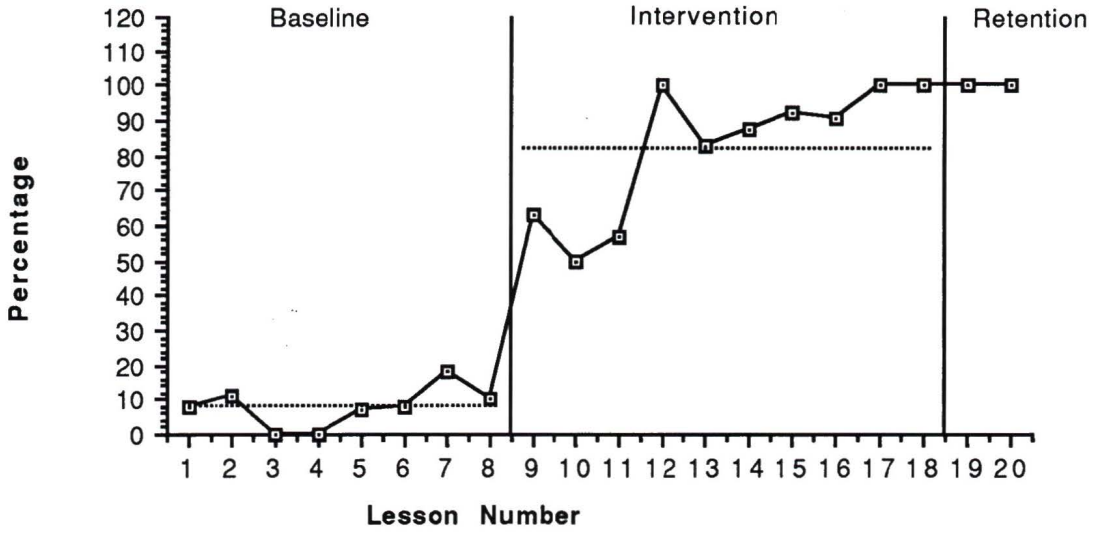

Figure 18. Specific congruent feedback given following task presentation for Subject B across experimental phases, expressed in percentage most desirable response

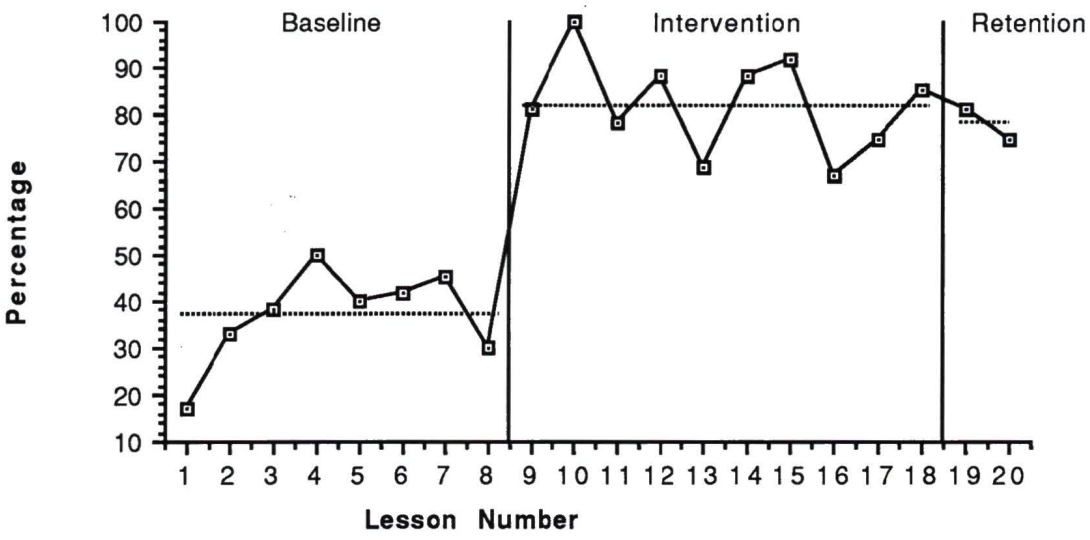

Figure 19. Appropriate student response to task presentation for Subject B across experimental phases, expressed in percentage most desirable responses

comment, and asked the subject what she meant by the feedback, thereby forcing the subject to think through to the specific aspect of performance she considered good. It was further suggested that the subject refer directly to teaching cues when providing feedback to students.

The efficacy of the intervention can be attributed to the substantial level shift from lesson 8 to lesson 9 along with the mean difference between the baseline and intervention (74 points) (Figure 19). The strength of the intervention was determined since the 100% level was achieved in lessons 17, 18 and into the retention phase and mean performance improved dramatically from 9% to 80% across phases.

Student response to task presentations showed considerable increase from the baseline (38%) to the intervention phase (80%) (Figure 19). The intervention effect was reflected in the mean performance improvement, and level shift across phases in the study.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter includes a summary of the research study, conclusions based upon the research questions outlined in Chapter 1 and recommendations for further study.

Summary

The purpose of this study was to examine the effectiveness of augmented feedback on the task presentation behaviors of two physical education student-teachers. Specifically, seven variables were monitored during each instructional session; the clarity of the task presentation, use of demonstrations (full, partial, none), the number of cues given during task presentation, the accuracy of cues given during task presentation, the quality of instructional cues, the student response to task presentation and the specific congruent feedback delivered to the students by the teacher following task presentation.

Two physical education interim teachers who were near the end of a 10 month practicum were subjects in the study. Each student agreed to participate in a series of lessons designed to improve their ability to present tasks, to give feedback and to get students to respond favorably following task presentations. The student-teachers were observed, without feedback, for two weeks as baseline data was collected. Each student-teacher then taught for a period of three weeks and during this time their lessons were video-taped a minimum of three times per week and they received feedback based upon the results obtained through the administration of the Qualitative Measures of

Teacher Performance Scale (Rink & Werner, 1989). This scale was designed to collect data on the above listed variables. Responses were coded as Yes (1) or No (2) and a percentage of occurrences was calculated for comparison purposes. Supervision conferencing, in which the student-teacher received results from the observation and suggestions for improvement, was the intervention method used in the study. Following a one-week absence from the intervention phase of the study, two lessons were video-taped to determine if the modelled behaviors were maintained.

Conclusions

Research Question #1- What was the effect of intervention on the clarity of student-teacher's task presentation?

The clarity of task presentation was enhanced through intervention for both student-teachers. Consistent changes were observed following the intervention, with Subject A changing immediately while Subject B displayed latency. Both subjects carried the intervention phase levels for clarity into the retention phase.

Research Question # 2- What was the effect of intervention on the nature of demonstrations given during task presentations?

When full demonstrations were used as the method of presentation, there was a consistent, albeit slow, increase in student effectiveness from baseline to the completion of the intervention phase. The intervention, particularly with the use of video-tape, provided both subjects with real instances where improvement was needed and therefore was very effective. No consistent findings were found when partial demonstrations were given as part of the task presentation,. The data collected on Subject A was variable

while a noticeable effect was observed for Subject B and hence this lack of consistency does not allow conclusions to be drawn across subjects.

Research Question #3- What was the effect of intervention on the number of instructional cues given during student-teacher's task presentation?

Both subjects improved their ability to give the appropriate number of instructional cues during task presentations. The subjects indicated that they were unaware of their tendencies until it was pointed out during the intervention conferences.

Research Question #4- What was the effect of intervention on the accuracy of instructional cues given during student-teacher's task presentation?

Subject A displayed a degree of improvement from baseline to intervention and this improvement carried over into the retention phase while the percentage of accurate cues remained variable throughout all phases for Subject B. As a result no generalization may be made as to the effectiveness of this intervention.

Research Question #5- What was the effect of intervention on the qualitative instructional cues given during student-teacher's task presentation?

Subject A showed improvement from baseline to intervention in giving quality instructional cues. This improvement was maintained through the retention phase. Subject B showed variable results throughout all phases of the study. As a result no generalization may be made as to the effectiveness of this intervention.

Research Question #6- What was the effect of intervention on the student-teacher's ability to give congruent feedback?

Substantial increases in the amount of specific congruent feedback were observed during the teaching of both subjects. General positive feedback was common for both subjects in the baseline phase and was quickly replaced with congruent feedback once the intervention phase was commenced. This improvement was maintained throughout the retention phase.

Research Question #7- What was the effect of intervention on the student-teacher's ability to elicit appropriate student response?

A considerable amount of variance was observed in regards to the adherence of student response to the student-teachers task presentation. Hence it was not possible to make any generalizations.

Recommendations

1. Long term studies examining task presentation behaviors should be carried out to strengthen or refute the findings of this study and expand the literature base regarding task presentation in physical education.
2. "Expert Teacher" task presentation behaviors should be studied in relation to different age groups, ability levels and lesson content.
3. Studies should be carried out using QMTPS as as determinant of the teachers task presentation efficacy, but with other tests, such as pre and post performance scores to establish student improvement as related to task presentation efficacy.

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Appendix A

QMTPS Coding Sheet

Teacher _____ Coder _____

Focus of Lesson _____

Lesson number _____

Task		Presentation of task							Type of task
NUMBER	TYPE OF TASK	CLARITY	DEMONSTRATION	NUMBER OF CUES	ACCURACY CUE	QUALITY CUES	STUDENT RESPONCE	SPECIFIC CONGRUENT FEEDBACK	I-Informing R-Refine(quality) E-Extend(variety) Re-Repeat (same task) A-Apply self-testing
									Clarity 1-Yes 2-No
									Demonstration 1-Full 2-Partial 3-None
1									Number of Cues 1-Appropriate 2-Inappropriate 3-None Given
2									
3									
4									
5									Accuracy of cues 1-Accurate 2-Inaccurate 3-None given
6									
7									
8									
9									Qualitative Cues 1-Yes 2-No
10									
11									
12									Student responses 1-All 2-Partial 3-None
13									
14									
15									
Totals		1- 2-	1- 2- 3-	1- 2-	1- 2- 3-	1- 2-	1- 2- 3-	1- 2- 3-	Specific Congruent Feedback 1-yes 2-Partial 3-No
Percent for each category		1- 2-	1- 2- 3-	1- 2-	1- 2- 3-	1- 2-	1- 2- 3-	1- 2-	
Percent most desirable									Total QMTPS

QMTPS - RINK

CATEGORY DESCRIPTIONS

Type of Task

The type of task concerns the nature of the movement activity that the teacher posed to the students for them to execute. There are five types of tasks.

Informing
A task that names, defines, or describes a skill or movement concept with no focus other than just to do it. It is usually the first task in a sequence of tasks.

Refining
A task that qualitatively seeks to improve motor performance. Usually this type of task focuses on improving the mechanics of a skill or tactical/strategic aspects of play.

Extending
A task that quantitatively changes the original task content by manipulating the level of difficulty or complexity of conditions under which the task is performed or that seeks a variety of responses.

Repeating
A simple repetition of the previous task with no changes.

Applying
A task that focuses the purpose of the student performance outside the movement itself. It is usually competitive or self-testing in nature.

Task Presentation

Task presentation concerns the delivery of information by the teacher to the students. There are five categories.

Clarity
Teacher's verbal explanation/directions communicate a clear idea of what to do and how to do it. This judgement is confirmed on the basis of student movement responses to the presentation and is relative to the situation.

Yes. Students proceed to work in a focused way on what the teacher asked them to do.

No. Students exhibited confusion, questions, off-task behavior, or lack of intent to deal with the specifics of the task.

Demonstrate

Modelling desired performance executed by the teacher, student(s), and/or visual aids.

Yes. Full model of the desired movement.

Partial. Incomplete model of task performance exhibiting only a portion of the desired movement.

No. No attempt to model the movement task.

Appropriate Number of Cues.

The degree to which the teacher presents sufficient information about the movement task without overloading the learner.

Appropriate. Three or fewer new learning cues related to the performance of the movement task

Inappropriate. Either more than three or no new learning cues related to the performance of the movement task.

None Given. No attempt at providing learning cues was made.

Accuracy of Cues

The degree to which the information presented was technically correct and reflected accurate mechanical principles.

Accurate. All information presented was correct.

Inaccurate. One or more incidences of incorrect information.

None Given. No cues given.

Qualitative Cues Provided

Verbal information provided to the learner on the process or mechanics of movement.

Yes. Teacher's explanation or direction included at least one aspect of the process of performance.

No. Teacher's explanation or direction included no information on the process of performance

Student Responses Appropriate to Task Focus

This category measures the degree to which student responses reflect an intent to perform the task stated by the teacher.

All. No more than two students viewed on the video screen exhibited inappropriate responses.

Partial. Three or more students exhibited inappropriate behavior on the video screen.

None. No students exhibited appropriate behavior.

Teacher Specific Congruent Feedback

The final category looks at the degree to which teacher feedback during an activity is congruent with (matched to) the focus of the task.

Yes. More than two incidences were evident in which teacher feedback was congruent with task.

Partial. One or two incidences of congruent feedback were evident

No. No congruent feedback was given

Appendix B

Letters of Consent and Information

Information Letter

UNIVERSITY OF VICTORIA

April, 1993

To: Students participating in the study
From: Robert G. Evans
School of Physical Education
University of Victoria

I am conducting a research project to determine the effects of an intervention (supervision) on the teaching behaviors of student teachers in physical education. The study involves videotaping physical education lessons taught by student teachers for approximately two weeks. During videotaping student teachers will wear a cordless microphone in order to record verbal interactions of the student teacher. This videotaping is intended to provide baseline information about the teaching behaviors under consideration in this study. Videotaping will continue throughout the practicum.

The second part of the study involves conferences with the student teacher which are a regular part of the supervisory process. These conferences are intended to provide feedback to the student teachers about the teaching behaviors which are the focus of this study. Subsequent to these conferences, a series of lessons will again be videotaped to determine whether there have been changes in the teaching behaviors in question. This study is designed to coincide with the student teaching practicum and will not involve any work or preparation beyond what is normally required for the normal completion of the practicum.

Upon completion of the study, a confidential report of the results will be provided to the student teachers upon request. All subjects will remain completely anonymous during the collection of data and the reporting of any results. Participation in this study will have no bearing on the mark received for the student teaching practicum. If you have any questions regarding the nature or purpose of the study I can be contacted in Room 153. If you wish to participate in this study, please sign and return the attached consent form. your cooperation is greatly appreciated.

Sincerely,

Robert G. Evans

UNIVERSITY OF VICTORIA

School of Physical Education
Victoria, B C

INFORMED CONSENT

I UNDERSTAND THAT THE PURPOSE OF THIS STUDY IS TO LEARN MORE ABOUT TEACHING IN PHYSICAL EDUCATION.

I CONFIRM THAT MY PARTICIPATION AS A SUBJECT IS ENTIRELY VOLUNTARY. NO COERCION OF ANY KIND HAS BEEN USED TO GAIN MY COOPERATION.

I UNDERSTAND THAT I MAY WITHDRAW MY CONSENT AND TERMINATE MY PARTICIPATION AT ANY TIME DURING THE INVESTIGATION.

I UNDERSTAND THAT ALL INFORMATION PERTAINING TO THIS STUDY WILL REMAIN IN A LOCKED FILING CABINET, IN A LOCKED ROOM WHILE THE STUDY IS IN PROGRESS.

I UNDERSTAND THAT ALL OF MY RESPONSES WILL REMAIN COMPLETELY ANONYMOUS, AND THAT, IF REQUESTED, THE VIDEOTAPES WILL BE DESTROYED AFTER ANALYSIS.

I WISH TO GIVE MY CO-OPERATION AS A SUBJECT.

SIGNED:_____

Signature of Student teacher

DATE:_____

Appendix C

Intervention Protocol

Intervention

Intervention Package

Various models have been used in behavior analysis to change teacher behavior. The major emphasis of research has focused upon the response of the teacher to appropriate and inappropriate student behavior.

The factors selected to form the intervention package in the study comprise the following strategies:

1. Instruction on the nature of task presentation;
2. Graphic representation of task presentation behaviors;
3. Social praise;
4. Target goal setting; and
5. Video feedback.

The strategies were selected because of their success in previous studies for changing teaching behavior. However, Hersen (1982) commented that when using a "package" for intervention, it was not evident which strategy had the most predominant effect in changing behavior.

Providing verbal feedback to the teacher has emerged as a significant factor for changing behavior (Gliessman, 1981; Good & Brophy, 1974; Marteniuk, 1976; Pieron, 1979). Although providing terminal feedback has been cited as the optimal occasion to give information to the learner, Berliner (1969) stated that a delay in receiving feedback on teaching performance, does not result in reducing the facilitation of learning the new teaching behaviors.

Graphic representation provides the student teacher with a visual perception of the rate of response for a selected variable. It is therefore important that realistic targets are set for the student teacher to achieve success for increasing task presentation efficiency, and to receive social praise from the researcher for improved performance.

The intervention for each subject in the study consisted of the following stages.

Following baseline data collection over a period of three weeks, subjects were individually appraised in order to determine the most effective order to proceed.

In both cases subjects were given an outline which was adapted from Rink, (1993) and were asked to read this in order to familiarize themselves with the areas of interest in the study.

Both subjects were intervened upon in a similar manner, in an attempt to standardize the intervention across subjects.

Intervention # 1

During the first intervention the subjects met with the experimenter in an attempt to clarify the behavior being studied. Brief descriptions of task presentation variables were given. In addition, any questions arising from reading the outline manual were addressed.

Baseline levels of performance for each of the target behaviors were discussed and shown to the subjects via graphed data. In addition, verbal descriptions of the subjects tendances were given. The researcher also suggested accepted teaching practices which might be used to increase effectiveness.

Initial goal setting was attempted for each subject with the desire to improve each aspect of task presentation behavior before the next intervention meeting. Specific targets were not set at this time, instead 'do your best goals' were suggested for each subject.

General social praise was given by the researcher during each intervention session in order to attempt to maintain subject interest and enthusiasm for the study and make the intervention meetings, comfortable and enjoyable. As an example, "your doing great, for next class we'll really try to use full demonstrations by using students if you don't feel comfortable..."

Intervention #2

During the second intervention the subjects were given graphed data as well as numerical representations of the data garnered to this point in the study.

This was followed by video clips of the subjects 'typical' behaviors during instruction. Video information was useful in providing the subject with visual evidence of behaviors which were targeted for improvement. One subject suggested that actually seeing themselves talking for five minutes , giving "tons" of verbal instruction was a real eye-opener and served as motivation to attempt to change. Since both subjects were able to improve all aspects of QMTPS variables, the researcher decided to provide video of all behaviors in order to reinforce the behaviors being studied and to highlight specific examples where improvement could take place.

Once again, suggestions were made, which were designed to help improve the effectiveness of teachers.

Intervention # 3

This session consisted primarily of video feedback, and goal setting for all behaviors under study. Video feedback was used to highlight improvements in performance that had occurred to this point in the study. Goal setting at this point was specific in nature, with the researcher assisting the subject in specifying goals that were attainable given the progress, or lack of progress to this point.

In addition suggestions were made for behaviors that had not improved or had remained variable over the intervention. Also, the subject was encouraged to provide the researcher with information regarding whether they were happy with the study to this point.

Intervention meeting #4

This session was characterized by providing graphed data for both subjects. The reason being to identify areas where improvement had occurred and to

suggest alternate methods of improving behaviors that were slow to improve to this point in the study.

Intervention #5

This intervention session consisted of video feedback and final goal setting for the remainder of the study and retention check. General discussion regarding long term teaching behavior, and future assessment. In addition, mean baseline scores were compared to mean intervention scores to that point in the study.

Appendix D

QMTPS Raw Data

Subject A

Appendix D Subject A Raw Scores

Frequency of response								Factors																			
Clarity				Demonstrations				Number Cues				Accur. Cues				Qual Cues			Student Response				Specific Congruent F			
Less	Yes	No	%	Full	Part	None	%	Appl	Inapp	None	%	Acc	Inac	None	%	yes	No	%	All	Part	None	%	Yes	Part	No	%
1	8	7	53	4	7	4	27	7	4	4	47	2	6	7	13	2	10	13	7	8	0	47	2	6	7	13
2	7	6	54	1	6	6	8	2	10	1	15	2	10	1	15	4	9	31	7	4	2	54	1	2	10	8
3	6	9	40	2	6	7	13	4	5	6	27	2	7	6	13	3	12	20	9	4	2	60	0	6	9	0
4	4	6	40	2	5	3	20	2	4	4	20	1	5	4	10	3	7	30	0	7	3	0	4	3	3	40
5	4	4	50	2	4	2	25	1	4	3	13	0	5	5	0	0	8	0	3	1	4	38	1	2	5	13
6	5	6	46	1	7	3	9	3	4	4	27	0	5	6	0	0	11	0	6	5	54	0	0	11	0	0
7	7	9	44	1	11	4	6	5	5	6	31	0	10	6	0	0	15	0	8	5	3	50	0	8	8	50
8	6	6	50	3	7	2	25	3	3	6	25	1	7	4	8	1	11	8	6	5	1	50	0	6	6	0
9	7	6	54	5	3	5	38	3	4	6	23	5	2	6	38	5	8	38	4	6	3	31	11	0	2	83
10	9	6	60	8	5	2	53	6	2	7	40	8	2	5	53	8	7	53	7	4	4	47	12	2	1	79
11	10	3	76	9	3	1	69	6	4	3	46	7	4	2	54	9	4	69	8	3	2	62	10	2	1	76
12	11	3	78	5	5	4	36	7	3	4	50	7	4	2	50	9	5	64	9	5	0	64	14	0	0	100
13	10	2	83	9	3	0	75	8	2	2	67	5	5	2	42	5	7	42	7	3	2	58	10	1	1	83
14	7	1	88	4	4	0	50	6	1	1	75	4	1	3	50	4	4	50	5	2	1	63	8	0	0	100
15	10	1	90	5	4	2	45	7	3	1	63	7	3	1	63	8	3	72	6	2	3	54	11	0	0	100
16	12	1	92	6	3	4	46	7	4	2	54	8	3	2	62	10	3	76	11	2	0	83	10	2	1	76
17	7	1	78	4	3	2	44	5	2	2	56	6	2	1	67	5	4	56	6	2	1	62	8	1	0	89
18	8	3	72	6	3	2	54	7	2	2	63	8	3	0	72	9	2	81	7	2	2	63	9	1	1	81

Appendix E

Raw Data

Subject B

Appendix E Subject B Raw scores

Frequency of response								Factors																			
Clarity				Demonstrations				Number Cues				Accur. Cues				Qual Cues				Student Response				Specific Congruent F			
Less	Yes	No	%	Full	Part	None	%	Appı	Inapp	None	%	Acci	Inac	None	%	yes	No	%	All	Part	None	%	Yes	Part	No	%
1	8	4	67	6	1	5	50	4	6	2	33	4	4	4	33	4	8	33	2	7	3	17	1	3	8	8
2	6	3	67	5	0	4	56	2	4	3	22	3	4	2	33	4	5	44	6	3	0	33	1	4	4	11
3	5	3	67	3	1	4	38	4	1	3	50	5	3	63	3	4	1	38	0	4	4	0	0	6	9	0
4	8	6	57	5	1	8	36	6	4	4	45	8	2	4	57	8	7	57	7	5	2	50	0	7	7	0
5	10	5	67	8	1	6	53	6	8	1	40	7	7	1	47	10	5	67	6	3	6	40	1	7	7	7
6	7	5	58	5	0	7	42	5	3	4	42	7	2	3	58	8	4	67	5	6	1	42	1	6	5	8
7	7	4	63	4	1	6	36	4	5	2	36	8	3	0	72	9	2	81	5	4	2	45	2	4	5	18
8	6	4	60	4	1	5	40	4	4	2	40	4	4	2	40	8	2	80	3	5	2	30	1	5	4	10
9	10	1	90	6	2	3	54	7	2	2	63	5	2	4	45	7	4	63	9	1	1	81	7	1	3	63
10	10	2	83	5	3	4	42	7	3	2	58	6	3	3	50	6	6	50	12	0	0	100	6	6	0	50
11	12	2	89	9	3	2	64	2	9	3	17	5	6	3	36	6	8	45	9	3	2	78	8	4	2	57
12	8	0	100	5	2	1	63	5	1	2	63	4	3	1	50	5	3	63	6	2	0	75	8	0	0	100
13	12	0	100	6	4	2	50	10	1	1	83	4	7	1	33	9	3	76	8	2	2	69	10	1	1	83
14	7	1	88	4	4	0	50	6	1	1	75	4	1	3	50	4	4	50	5	2	1	63	8	0	0	100
15	12	1	92	8	4	1	62	10	2	1	76	7	4	2	54	9	4	69	12	0	1	92	12	1	0	92
16	11	1	91	8	4	0	67	8	2	2	67	8	2	2	67	7	5	58	8	2	2	67	11	0	1	91
17	10	2	83	7	3	2	58	8	3	1	67	9	2	1	75	7	4	58	9	1	2	75	12	0	0	100
18	13	1	93	9	4	1	64	7	4	3	50	9	1	4	64	7	7	50	12	2	0	85	14	0	0	100
19	9	2	78	6	4	1	54	7	2	2	63	9	1	1	78	6	5	50	9	2	0	81	11	0	0	100
20	10	2	83	5	4	3	42	7	3	2	58	8	4	0	67	7	5	58	9	3	0	75	12	0	0	100

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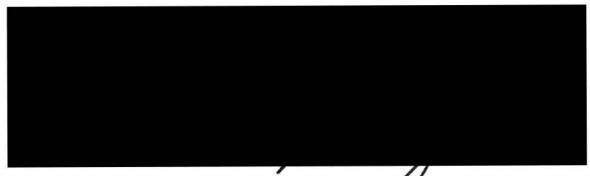
Author: 

ROBERT GARFIELD EVANS

March 7/95