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A COMPARISON OF COMMAND STYLE TEACHING AND MOVEMENT EDUCATION
STYLE TEACHING IN ELEMENTARY PHYSICAL EDUCATION
WITH RESPECT TO TEACHER BEHAVIOR
AND STUDENT INVOLVEMENT

by

Kathleen Fay Smith

An Abstract

of a thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in the School
of Health, Physical Education,
and Recreation at
Ithaca College

May 1985

Thesis Advisor: Dr. Victor H. Mancini

ABSTRACT

A comparison of the command style teaching and the movement education style teaching for one instructional unit in elementary physical education with respect to teacher behavior and student involvement was the purpose of this investigation. The subject was one female elementary physical education teacher from the central New York area. Thirty children from two first-grade classes also participated in the investigation. The teacher was provided with two unit plans developed by the investigator, an experienced teacher. Each unit plan contained the same physical education content--manipulative and ball-handling skills. One class was taught using the command style of teaching while the other class was taught using the movement education style. The teacher wore a wireless microphone and was videotaped for each 5-day unit. The behaviors and interaction patterns between the teacher and her students were coded using Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972). The data collected from the coding of CAFIAS were transferred onto the computer for analysis. The computer scoring of CAFIAS yielded percentages for each of the 20 CAFIAS variables. Descriptive statistics were used to determine if differences existed in the behavior and interaction patterns of the teacher with the command style and the movement education style of teaching. Visual analysis of the CAFIAS results indicated that the teacher spent more time giving information, direction, and criticism in the command style of teaching. Likewise, the students in the command style of teaching responded with more predictable behaviors. During classes taught with the movement

education style of teaching the teacher asked more questions and gave more praise and acceptance to her students. The students tended to respond with more interpretive behaviors. This led to the acceptance of the hypothesis which stated there would be a significant difference in the teaching behaviors in the classes taught by a teacher using a command style and a movement education style of teaching. This study also compared the Academic Learning Time in Physical Education (ALT-PE) of students taught using the command and the movement education style of teaching. The videotapes were coded using the ALT-PE (Siedentop, Tousignant, & Parker, 1982) instrument. The data collected were computed manually and were compiled into percentages and ratios for the ALT-PE parameters. Visual analysis of the ALT-PE data revealed that students taught with the command style of teaching spent a greater amount of time in transition, management, and warm-up activities as well as in waiting, off-task, on-task, and cognitive behaviors. Students taught using the movement education style of teaching spent more time in skill practice and motor-appropriate (accrued ALT-PE) physical education activities. This led to a rejection of the hypothesis which stated there would be no difference in the ALT-PE accrued by students taught a unit using the command style and the movement education style of teaching.

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STYLE TEACHING IN ELEMENTARY PHYSICAL EDUCATION
WITH RESPECT TO TEACHER BEHAVIOR
AND STUDENT INVOLVEMENT

A Thesis Presented to the Faculty of
the School of Health, Physical
Education, and Recreation
Ithaca College

In Partial Fulfillment of the
Requirements for the Degree
Master of Science

by
Kathleen Fay Smith
May 1985

Ithaca College
School of Health, Physical Education, and Recreation
Ithaca, New York

CERTIFICATE OF APPROVAL

MASTER OF SCIENCE THESIS

This is to certify that the Master of Science Thesis of

Kathleen Fay Smith

submitted in partial fulfillment of the requirements
for the degree of Master of Science in the School of
Health, Physical Education, and Recreation at Ithaca
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Dean of Graduate
Studies:

Date:

Feb. 18, 1985

ACKNOWLEDGMENTS

The investigator would like to extend her sincere appreciation to the following people:

1. To Gary, Sandy, and Mark, my brothers and sister, for their love, understanding, and support throughout my life.
2. To Dr. Victor H. Mancini, my thesis advisor, for his expertise, direction, and guidance throughout the completion of this thesis.
3. To Dr. Deborah Wuest, for her valuable time and understanding in helping to write this thesis.
4. To the Jackson family, Judy, Jenny, Peter, and Lisa, for sharing their home, their love, and their laughter.
5. To my friend, Brenda, for her encouragement, understanding, and friendship.
6. To Bonnie Happel, my typist, for her effort and endurance in helping me to complete this thesis.
7. To Marcia Kiechle without whose help and assistance this investigation would not be possible.

DEDICATION

This thesis is dedicated to love, which is the greatest gift of all, and to my father and mother, two people who have loved, and given so much. I thank them and love them dearly.

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Chapter 1

INTRODUCTION

Is movement education, an indirect style of teaching, more effective than command and the more direct styles of teaching? Can what is classified as movement education and indirect teaching produce equally if not more desirable results in student behavior as command and the direct styles of teaching? Is one style of teaching in the gymnasium more effective than another? In order to determine the answers to the above questions as to the extent to which effectiveness occurs with various styles of teaching, effective teaching must first be defined and put into measurable terms.

Placek (1983) stated that researchers have viewed effective teaching as student learning. Studies of elementary classrooms have shown a positive relationship between student learning and time-on-task (Fisher, Filby, Marliave, Cahen, Dishaw, Moore, & Berliner, 1972); therefore, teacher effectiveness has seemed to have a direct relationship to student learning. Yet, Metzler (1983b) emphasized that to accurately determine the relationship between effectiveness and various teaching styles, effectiveness must be defined and assessed in terms of stated goals and/or objectives of the lesson. Expressed more clearly, Peterson (1979) suggested that the effectiveness of various instructional approaches depended upon the type of learner and educational outcomes desired. If teaching effectiveness could be defined and measured on the basis of the desired goals of the lesson and the actual amount of student learning, then perhaps the effectiveness of various styles in teaching within a

given classroom setting could more accurately be determined.

Movement education has been considered a curriculum in physical education which incorporated a more indirect and child-centered style of teaching (Tillotson, 1968). It has been a program which provided its learners with problem-solving situations and experiences which stimulated creativity (Sweeney, 1970). Teacher educators have advocated the use and benefits of various approaches and styles of teaching. A pioneer in the investigation of teaching styles, Muska Mosston (1966, 1972, 1981) has supported the belief that more effective teaching occurs when the learner is allowed a more active role in the teaching-learning process. Mosston has maintained that the more indirect styles of teaching foster greater learning than command and the more direct styles of teaching. Yet, Hellison (1973) has written that it was necessary to investigate the effectiveness of command teaching in comparison to more indirect teaching before describing indirect teaching as a better teaching style.

Systems of observation have been developed in physical education to enable a more objective investigation of teaching style and methodology. Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972) is one observation instrument developed for use in the gymnasium. CAFIAS was specifically designed for describing teachers' and students' verbal and nonverbal interaction in physical activity settings. The CAFIAS observation instrument has been considered useful in the gymnasium for the following purposes (Darst, Mancini, & Zakrajsek, 1983): (a) to describe class practices and behaviors, (b) to provide a tool for analysis of teaching, (c) to discriminate between different patterns of teaching, and (d) to determine the relationships between

class behaviors and student growth. In relationship to teaching styles, therefore, CAFIAS could be used to help researchers identify, describe, and compare differences among the various styles of teaching found in the gymnasium.

Academic Learning Time in Physical Education (ALT-PE) (Siedentop, Tousignant, & Parker, 1982) has been another observation instrument designed for use in the gymnasium. ALT-PE has been used to investigate student behavior as a process measure of teacher effectiveness (Metzler, 1983b). ALT-PE uses student activity in the gymnasium as a valid yardstick to measure the effectiveness of the teaching taking place. Anderson (1983) has believed that all coding systems have their limitations; yet, the selection, classification, and delineation of ALT-PE categories could provide important information regarding activities and events occurring in the gymnasium. The characteristics of the ALT-PE instrument have made it a valuable tool in the investigation of teacher effectiveness in the gymnasium.

This study was based on the premise that different behaviors and interaction patterns occur between teachers and students with different styles of teaching. The effectiveness of these styles could be observed and measured through the type of student behavior each elicits. The purpose of this study was to compare the command style of teaching to the movement education style of teaching. Through the use of CAFIAS and ALT-PE the differences in behaviors and interaction patterns between these two styles of teaching could be identified and compared and the differences in student involvement measured.

Scope of Problem

A comparison of command style teaching and movement education style teaching in elementary physical education with respect to teacher behavior and student involvement was the purpose of this investigation. The subjects were one female elementary physical education teacher from the central New York area and children ($N = 30$) from two first-grade classes. This teacher was provided two unit plans containing the same physical education content matter. One unit plan was taught using the command style of teaching while the other was taught using movement education. Each class was taught a unit of manipulative and ball-handling skills. Both units were 5 days in length and contained selected psychomotor tasks which had the following characteristics: (a) appropriate to children in grade one, (b) representative of the kinds of tasks found in an elementary school physical education curriculum, (c) easily learned independent of children's fitness levels, and (d) amenable to control of operational differences between the different styles of teaching under study (Dauer & Pangrazi, 1975).

Each class was videotaped by the investigator for the 5 days involved in the unit. The teacher was asked to wear a wireless microphone which would not interfere with her teaching. The videotapes were coded using CAFIAS and ALT-PE. Descriptive statistics were used to analyze the data. Comparisons were made between the percentages of the two classes on each of the 20 CAFIAS categories and the 21 ALT-PE categories.

Statement of Problem

A comparison of command and movement education styles of teaching

in elementary physical education with respect to teacher behavior and student involvement was the purpose of this investigation.

Hypotheses

There will be a significant difference in the teaching behaviors in the classes taught by a teacher using a command style and a movement education style of teaching.

There will be no difference in the ALT-PE accrued by students taught a unit using the command style and the movement education style of teaching.

Assumptions of Study

The following assumptions were made for the purpose of this study:

1. The coding of 10 physical education classes using CAFIAS and ALT-PE would yield valid data to test the hypothesis.
2. There would be no partiality on the part of the teacher in her actions toward the students with either style of teaching used.

Definition of Terms

The following terms were operationally defined for the purpose of the study:

1. Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) is an extension of FIAS developed to record verbal and nonverbal behaviors for specific application in describing teacher-pupil interactions in predominantly movement-oriented settings (Cheffers, Amidon, & Rodgers, 1974).

2. Academic Learning Time in Physical Education (ALT-PE) is an observation system used to measure the amount of time that a student is successfully engaged in a relevant motor task with a high degree of

success in physical-activity settings (Siedentop et al., 1982).

3. Allocated time is the amount of time designated by the instructor for a learner task (Siedentop, Birdwell, & Metzler, 1979).

4. Engaged time is the percent of allocated time the students are actively responding (Siedentop et al., 1979).

5. Indirect teaching behavior is student-centered teaching behavior which promotes independence in decision-making by the students and encourages students to respond individually and to participate in all aspects of the learning process except for preparation of the lesson (Mosston, 1972).

6. Direct teaching behavior is teacher-centered teaching behavior in which the teacher makes all of the decisions in regard to the learning process, and the learner has no other role except for the execution of the given instructions (Goldberger, 1983).

7. Movement education is an indirect, child-centered style of teaching which involves both a content and a process which includes the following set of characteristics: (a) teacher use of Laban's analytic language concepts of force, space, time, and flow to describe movement skills for children, (b) learning tasks in which children can experience variations in movement performances according to their own abilities and creativity, and (c) direct verbal interactions between teacher and students with the specific intention of helping children analyze both the form and result of their movement performances (Shute, Dodds, Placek, Rife, & Silverman, 1982).

8. Command style teaching is a direct, teacher-centered approach to teaching commonly found in physical education which consists of teacher

instruction, explanation and/or demonstration, student execution or imitation, and teacher evaluation (Golderger, 1983).

9. Unit in physical education is a planned sequence of learning experiences based on an activity area. Both the general and specific objectives which give direction and focus to the instruction are integral parts of a unit (Dauer & Pangrazi, 1975).

Delimitations of Study

The following were the delimitations of this study:

1. The subject was one female elementary physical education teacher from the central New York area and 30 children, 15 each from two first-grade classes.
2. The unit plan was only 5 days in length.
3. Manipulative and ball-handling skills were the psychomotor tasks taught during this investigation.
4. CAFIAS was the only observation instrument used to measure the actual teaching behaviors and interaction patterns in this study.
5. ALT-PE was the only observation instrument used to measure student involvement in this study.

Limitations of Study

The following were the limitations of this study:

1. The findings may only be valid for female physical education teachers similar to the one who participated in this investigation.
2. The findings may only be valid for elementary school children similar to those who participated in this investigation.
3. A different amount of time devoted to an elementary physical education unit plan may yield different findings.

4. Using different psychomotor tasks during an investigation of effective teaching behaviors may yield different results.

5. The findings related to teaching behaviors and interaction patterns may only be valid when CAFIAS is the observation instrument used.

6. The findings related to student involvement may only be valid when the observation instrument is ALT-PE.

Chapter 2

REVIEW OF RELATED LITERATURE

The review of literature related to this study focused on the following areas: styles of teaching, perceptions of effectiveness in teaching, studies using the Cheffers' Adaptation of Flanders' Interaction Analysis System, and Academic Learning Time in Physical Education. A summary is also provided.

Styles of Teaching

Physical education has been said to be a road toward creative physical responses, toward enhancement of self-concept in a changing environment, and toward a clearer use of thinking abilities (Mosston, 1966). This statement, like most philosophy statements, has failed to mention the many other goals, objectives, and parameters central to teaching physical education. Yet, it has been the methods and approaches which a teacher uses to secure these and other qualities in a learner which has been under much investigation in the past 20 years (Mosston, 1966). Muska Mosston has pioneered in this investigation of teaching styles and has been said to be one of the strongest influences in the way professionals conceptualize teaching in physical education today (Metzler, 1983b).

Mosston developed the spectrum of teaching styles which first appeared in print in his 1966 book entitled Teaching Physical Education. The spectrum is an operational design of alternative teaching styles. It is, in essence, a continuous and unified structure of teaching and learning behaviors. The spectrum is based on the axiom that teaching behavior is a chain of decision-making (Mosston, 1972). More

specifically, teaching is a process where decisions are made in regard to pre-impact (preparation), impact (execution), and post-impact (evaluation) phases of a lesson. The actual teaching styles emerge by identifying who--the teacher or the students--make the decisions. Mosston's (1981) spectrum contains eight models from which a teacher can choose.

The spectrum begins with command style teaching which is characterized by the term teacher-maximum decision-making (Goldberger, 1983). In this style the teacher makes all of the decisions in regard to the learning process; the learner has no other role except for the execution of the given instructions. Command teaching consists of teacher instruction, explanation, and/or demonstration, student execution or limitation, and teacher evaluation. The spectrum originates at this very dictatorial, teacher-centered approach to teaching (Mosston, 1966). This style of teaching has also been referred to as direct style teaching (Oliver, 1983) or what Rosenshine (1977) calls "direct instruction." As the spectrum progresses through a "direct cluster" of teaching styles (Goldberger, Gerney, & Chamberlain, 1982), it passes to the more indirect and student-centered styles of teaching (Metzler, 1983b).

In the spectrum of teaching, Mosston (1972) identified the most indirect and student-centered style of teaching as the student's designed program of teaching. This program or style is characterized by student-maximum decision-making. The student's designed program, also known as the individual program, allows students to design their own program and make all of the decisions in regard to the preparation, execution, and evaluation of a lesson. Where command style begins the

spectrum as the most-direct or teacher-centered approach to teaching, the learner-designed program ends the spectrum as the most indirect or student-centered style of teaching. Also included in Mosston's spectrum of styles as indirect or student-centered teaching are the guided discovery and divergent or problem-solving approaches (Mosston, 1972). In these styles, teaching behavior promotes independence in decision-making by the students. As learners they are encouraged to respond individually and participate in all aspects of the learning process except for the preparation of the lesson. Each of Mosston's eight styles of teaching is unique unto itself and has its own inherent characteristics.

The purpose of this section is not to present an analysis of Mosston's spectrum of styles but rather to present a groundwork for a better understanding of the continuum of teaching styles as it progresses from directness to indirectness. Regardless of where a style is positioned on the spectrum, the principal value of any teaching style lies in the conditions for learning that it can produce. That is, the value of any style is reflected in the relationship between the specific teaching process and the actual learning outcomes it creates.

In the past education has emphasized the more indirect approaches to teaching though direct teaching has been considered the most common approach found in schools today (Goldberger, 1983). Educators maintain that more effective teaching, that is, learning, occurs when the learner is allowed a more active role in the learning process (Siedentop, Birdwell, & Metzler, 1979). Mosston (1966) supports this belief and maintains that progress from the direct to the more indirect styles of

teaching fosters greater learning in the four developmental channels. Mosston identifies these channels as the physical, social, emotional, and cognitive dimensions of the learner. Movement education is a new approach, that is, a different than traditional approach, to physical education which uses Mosston's more indirect styles of teaching. Guided discovery and divergent or problem-solving styles are integral components of movement education.

The essence of movement education is just as much founded on an indirect or student-centered approach to instruction as it is on Rudolf Laban's analysis of movement and the four motion factors. The work of Laban in the early and mid-1900s has formed the foundational basis for the modern concepts, structure, and development of movement education. Laban's ideas and sentiments about human movement led to his development of the theory of movement and the analysis of motion which is composed of weight, space, time, and flow (Laban, 1948). Laban's analysis of movement initiated the creation of movement education by converting basic theories of movement into practical applications in the gymnasium.

What is movement education as it is known in America today? Dauer (1970) has stated that movement education represents not a new kind of physical education, but a new approach, a new method, and a new way of providing learning experiences with emphasis on the individual child. Shüte, Dodds, Placek, Rife, and Silverman (1982) concluded that movement education is an indirect teaching style which maximizes success for all students and equalizes the opportunity to learn for each child regardless of specific student characteristics. Movement education has been defined as a child-centered approach to teaching which allows for individuality,

creativity, spontaneity, and self-discipline with the aim of developing an awareness of the self in the physical environment (Tillotson, 1968). Basic movement education has been a new approach to content and method. This "new" approach included problem-solving and has been cited as being older than any other technique found in teaching (Gilliom, 1970). Simply stated, movement education has been learning to move and moving to learn (Dauer & Pangrazi, 1975). In essence, movement education has been a program which provides the learner with problem-solving situations. These problem-solving situations have allowed children to discover and experience their own movement abilities; they have required vigorous movement, stimulated creativity, and encouraged self-expression, all in a noncompetitive learning environment. The essence of movement education has been student or child-centered teaching with an indirect approach to relaying information and content matter.

Perceptions of Effectiveness in Teaching

The issue at hand is not so much the definition of various styles, methods, and approaches to teaching as it is discerning their inherent effectiveness and, even more, determining what actually defines or constitutes effective and successful teaching. Before the issue of effective and/or successful teaching can be addressed, consideration of the subjective and reasonable beliefs of teachers must first be viewed (Fenstermacher, 1979). Fenstermacher states that teachers' views of success differ from researchers. He claimed that the school situation is a complex social system which greatly influences the practitioners' beliefs about their work. Fenstermacher added that the views of the teachers should become the initiating focus and primary consideration for

teacher effectiveness research.

Placek (1982) addressed this issue of teachers' perceptions of successful teaching when she sought answers to direct questions about how physical educators view success and nonsuccess in their teaching. Placek's investigation supported Fenstermacher's views; she concluded that teachers' perceptions of success were related to immediate, observable happenings, specifically, student participation, student enjoyment, and appropriate student behavior in the gymnasium. This is, the students served as the measuring stick for the teachers' perceptions of success. Placek determined that the primary province of success in teaching, as viewed by teachers, focused upon the students. Specifically, teachers perceived themselves as successful if their students were "busy, happy, and good" (Placek, 1983).

Placek (1983) recognized the discrepancies in teachers' and researchers' views of successful albeit effective teaching. She maintained that researchers view effective teaching as student learning. Placek added that if researchers continued to utilize the results of teacher effectiveness studies to tell teachers how to become more effective, specifically, how to produce more student learning, when, in essence, teachers themselves do not see this as related to success in teaching, then problems will continue to arise.

Although studies of elementary classrooms have shown a positive relationship between time-on-task (busy) and student learning (Fisher, Filby, Marliave, Cahen, Dishaw, Moore, & Berliner, 1972), the issue of effective teaching still has not been answered. Metzler (1983b) has begun to address this issue when he states that effectiveness must be assessed in terms of the stated goals. Metzler's belief was students'

behavior rather than the teachers' behavior is the best measure of teaching process effectiveness; that is, it was the extent to which stated goals are realized by the students which determines the effectiveness of the teaching. He maintained that there is too much emphasis on teacher behavior. The overconcern with teaching behavior and styles was diverting researchers from attending to the better measure for assessing instructional effectiveness, namely, student behavior. This point of view considered the teacher as an important part of the instructional environment, yet saw the student, more specifically, student behavior, as the cause of student learning and determinant of teaching effectiveness. In more concise terms, teacher behavior, style, approach, and/or method only facilitated student learning; it did not determine it.

In this literature review, effective teaching was viewed from the perspective of student behavior, that is, learning and stated goals (Metzler, 1983b), with special consideration for the subjective beliefs of the teacher (Fenstermacher, 1979). The inherent effectiveness of the various styles, methods, and approaches to teaching physical education was viewed from the standpoint of student behavior as a valid measure of student learning.

While various teacher educators have advocated the use and benefits of various approaches and styles of teaching, researchers have been unable to assess the effectiveness of these various approaches in terms of meeting the claimed outcomes. Mosston (1972) claimed that problem-solving and the more indirect styles of teaching stimulated divergent thinking; gave the individual license to be different; elicited, developed, and maintained creativity; and promoted self-actualization in the learner.

Hellison (1973), on the other hand, maintained that it was necessary to investigate the effectiveness of the command style of teaching in comparison to the more individualized indirect approaches before assessing individualized instruction as a better teaching method.

Do the more indirect and movement-oriented styles of teaching, movement education and those approaches using guided discovery and problem-solving, more effectively facilitate the learning of motor skills than other styles of teaching? Does movement education enhance the acquisition of cognitive abilities and desirable effective qualities over command and the more direct styles of teaching? Many efforts have been made in order to answer these questions by viewing effective teaching using the criterion of student behavior, actual student learning.

In a study designed to compare conventional instruction and movement education instruction Toole and Arink (1982) found no significant differences in students' psychomotor development. Forty-seven first-grade students were taught movement principles by either a conventional, that is, direct approach, or a movement education approach. The results indicated that the movement education approach was no better than training provided by the traditional approach.

Yet in a series of seven studies (Lydon, 1978; Mancini, 1974; Martinek, 1976; Pirano, 1977; Schempp, 1977, 1981; Viglione, 1977) which investigated the effects of two different decision-making models--teacher decision-making and shared decision-making--on interaction patterns, attitudes toward physical education, self-concept, motor skill, and creativity, researchers found quite noticeable differences between the two styles of teaching. The teacher decision-making approach (TDMA) is

characterized by the teacher making all the decisions relative to the learning process. In the shared decision-making approach (SDMA) the students are allowed a more active role in their learning environment by sharing in the decision-making process. The TDMA is considered a more direct and teacher-centered approach to teaching; whereas, the SDMA is a more indirect and child-centered approach. Each of these studies compared the TDMA and the SDMA in regard to specific variables of student behavior and attitude. Findings from these seven studies indicated that the students in the SDMA expressed more positive attitudes toward physical education classes (Mancini, 1974; Pirano, 1977; Schempp, 1981); possessed a healthier self-concept (Lydon, 1978; Martinek, 1976; Schempp, 1981; Viglione, 1977); gained in creativity (Schempp, 1981); and experienced a greater amount of physical activity (Pirano, 1977; Schempp, 1977; Viglione, 1977) than students in the TDMA. Findings for motor skill achievement were not so defined. Martinek (1976) and Schempp (1977) found that the TDMA was much better than the SDMA in the development of motor skills; while Lydon (1978), who required the students use task cards, determined that there was no significant difference between the two approaches with respect to motor skill development. In the latest study, Schempp (1981) reported that the SDMA was better than the TDMA in the improvement of motor skills. The consensus from these studies indicated that when students are allowed a more active role in their learning process they are more prone to develop positive attitudes toward physical activity, participate more in class activity, experience more creativity, and possess healthier self-concepts than when the teacher is the sole director of the learning process.

In another study, Moore, Reeve, and Pissanos (1981) compared the direct versus exploration methods of teaching the overhand throw to kindergarteners. Children in the exploration treatment practiced with various balls and targets. Children given direct instruction threw only one type of ball and received specific demonstrations. The results of this study found that children in the exploration classes and children given direct instruction did not have different levels of throwing skill.

Shute, Dodds, Placek, Rife, and Silverman (1982) found results to be much more extensive and conclusive in regard to the indirect approaches to teaching. Shute et al. (1982) used the Academic Learning Time in Physical Education (ALT-PE) instrument (Siedentop, Birdwell, & Metzler, 1979) to describe the behavior of students in one physical educator's elementary movement education classes. The ALT-PE observation instrument can be used as a process indicator for assessing instructional effectiveness (Siedentop et al., 1979). The results from this study not only provided information with regard to student actions as a direct measure of the learning process but also information with respect to the potential for student achievement, the successful performance of psychomotor and cognitive skill, that exists in the more movement-oriented and indirect approaches to teaching. Shute et al. (1982) concluded that the teacher, in keeping with the movement education theme of maximizing success for all students, created a learning environment in which all children--regardless of specific student characteristics--found equal amounts of success and opportunity for learning.

In a study involving 96 fifth-grade students, Goldberger, Gerney, and Chamberlain (1982) found quite different results. Goldberger et al. (1982)

used the following styles in their investigation: practice, reciprocal, and inclusion. These styles were included in the "direct cluster" of Mosston's spectrum and were considered the common type of instruction found in most schools today (Goldberger, 1983). The researchers were primarily interested in the effects of these teaching styles on psychomotor performance. The psychomotor task selected was a hockey accuracy task. In addition to psychomotor performance, other qualities primarily from the affective domain were also selected for study. The results revealed that irrespective of style, all three treatment groups improved equally in their performance of the psychomotor task. Contrary to what has been hypothesized, the inclusion style of teaching, the most indirect style of the three which provided the most individualized instruction, was not found to be any more effective in motor skill development and was not found to be particularly effective with low-ability children.

Research findings have not been in unanimous agreement or conclusive in regard to the inherent effectiveness of various styles, methods, and approaches to teaching physical education. A consensus has not yet been reached in terms of what type of teacher behavior better facilitates the process of student learning (Metzler, 1983b). In his book How Children Learn (1982) John Holt stated that children learn sport movement effectively by themselves without professional instruction. Does this imply that the behavior changes being measured are children's individual abilities to learn rather than the potential effectiveness of various teaching styles?

In answer to this, Peterson (1979) notes that researchers should be

cautious about accepting the results of instructional research "carte blanche." Some studies report that effective teaching, that is, student learning, seems to involve a more structured or formal set of instructional principles. These more formal instructional approaches seemingly enhance the learning of certain basic skills. Other studies conclude that the more individualized and indirect approaches to teaching facilitate greater learning in the psychomotor, cognitive, and affective domains. Very simply put, Peterson (1979) suggests that the choice of one instructional approach over another clearly depends on the type of learner and the educational outcomes desired.

The preceding discussion was presented to illustrate that each style of teaching has its own rationale and way of teaching supported by current studies and authorities in the behavioral sciences. It was found that movement educators stress more divergence, creativity, experiences with the dimensions of movement, cognitive understanding of movements, and self-direction compared to traditional teachers using the command and more direct approaches to teaching (Wright, 1982). Movement education is based on individuality, creativity, spontaneity, and self-actualization of the learner. The question is to determine whether this approach to teaching, that is, movement education, can be perceived as an inherently more effective way of teaching affording greater opportunity for student learning. Can movement education and indirect teaching produce equally if not more desirable results as command and direct teaching taking into account the specific and stated goals and the reasonable and subjective views of the teacher? Perhaps each style of teaching can better be assessed by discerning and defining the teacher's

objectives and goals that a particular style can most effectively secure.

Studies Using the Cheffers' Adaptation of
Flanders' Interaction Analysis System

Cheffers' Adaptation of Flanders' Interaction Analysis System or CAFIAS is not a new systematic observation instrument but an adaptation of the Flanders' Interaction Analysis System (FIAS) (Flanders, 1960) for specific application in predominantly movement-oriented settings (Cheffers, 1972). FIAS has been one of the most widely used systems for categorizing verbal behavior occurring in the classroom. FIAS contained 10 categories which were further divided into three major divisions: teacher talk, student talk, and silence or confusion. Teacher talk was further divided into direct and indirect approaches. Student talk was divided into predictable response categories. The use of FIAS was limited in the area of physical education primarily because it only described verbal interactions. Since much of the activity in the gymnasium is nonverbal as well as verbal, there was a need to develop a system that could measure both verbal and nonverbal behaviors.

Various attempts have been made to modify FIAS so that nonverbal behaviors common to physical education could be coded (Daugherty, 1971; Mancuso, 1972; Melograno, 1971). Cheffers (1972) felt that the majority of the modifications of FIAS had shown very little evidence of validity and reliability. In an attempt to remediate these shortcomings, Cheffers developed the Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972). CAFIAS permitted the recording of both verbal and nonverbal behaviors of both the teacher and student and allowed for a more complete description of the behavior and interaction.

patterns within a physical education setting. CAFIAS is a validated extension of FIAS to record verbal and nonverbal behaviors. It is specifically designed for use in describing teacher-student interactions in predominantly physical activity settings (Cheffers, Amidon, & Rogers, 1974). Allard (1979) stated that CAFIAS was the most widely used interaction analysis system in physical education.

CAFIAS consisted of 10 nonverbal counterparts to each of Flanders' original 10 verbal categories; moreover, CAFIAS included additional categories, the eight (8) categories, to account for interpretive student behavior. In addition to recording verbal and nonverbal teacher-student behavior CAFIAS provided for the description of overall class structure and the teaching agency. CAFIAS allowed the class to be coded as a whole (W), where the entire class is functioning as one unit; part (P), where the class is broken into small groups or students are working individually; or (I), where no teacher influence is present. Additionally, through postscripting CAFIAS permitted the classification of the teaching agency as the teacher, other students, or the local environment.

Since its development by Cheffers in 1972, CAFIAS has been used in various types of comparative, descriptive, and intervention studies in physical education. Mancini (1974) completed the first in a series of seven studies (Mancini, 1974; Martinek, 1976; Pirano, 1977; Schempp, 1977, 1981; Viglione, 1977; Lydon, 1978) designed to compare two decision-making models employed in a human movement program at the elementary level. This study delineated two decision-making approaches and investigated their effects on student attitudes. Mancini used CAFIAS

to reveal any significant differences in the interaction patterns of the two decision-making models. The two decision-making approaches included a teacher decision-making approach (TDMA) where the teacher has complete responsibility for all decisions made, and a shared decision-making approach (SDMA) where the students share in the decision-making process. The TDMA is similar to those styles which are considered part of the direct cluster of teaching styles (Goldberger, 1983). The SDMA is similar in content to the more indirect styles of teaching which include guided discovery, problem-solving, and more child-centered teaching.

CAFIAS data revealed that the predominant interaction patterns in the classes using the TDMA were teacher information, followed by teacher direction, followed by predictable student nonverbal response, followed by more teacher direction. In the classes using the SDMA the predominant interaction patterns were characterized by teacher information, followed by teacher question, followed by student nonverbal interpretive response, followed by student verbal and nonverbal initiation, followed by teacher acceptance and praise. Mancini (1974) also found that children given the opportunity to share in the decision-making process showed greater interaction with teachers, greater initiative behavior and contributions, and increased variety in teaching agencies.

The characteristic interaction patterns of the Mancini (1974) study were identified through the use of CAFIAS and were used as a criterion measure to validate the treatment approaches in subsequent studies (Lydon, 1978; Martinek, 1976; Schempp, 1981). Martinek (1976) used CAFIAS to validate the different teaching models and to study their effect on self-concept and specific motor skills. Martinek found that students in

the SDMA classes had more positive interactions with their teachers and showed significant improvement in their self-concept scores. Martinek concluded that when motor skill development is the prime concern, a teacher-directed approach appears to be better than a shared-decision approach. Teacher-student interaction patterns were similar to those found by Mancini (1974).

Pirano (1977), Schempp (1977), and Viglione (1977) extended the work of Mancini (1974) and Martinek (1976) with the TDMA and the SDMA models to investigate their effects on student attitudes toward physical activity, motor skill development, physical activity involvement, and self-concept. Pirano (1977) confirmed the findings of Mancini (1974) when she found more positive attitudes toward physical education expressed by students in the SDMA classes. Schempp's (1977) findings agreed with Martinek's (1976) report that students in the TDMA classes demonstrated significantly better motor skill performance. On the other hand, Schempp (1977) found that students in the SDMA classes experienced a greater amount of activity in class compared to students in the TDMA classes. Viglione (1977) determined that students in the SDMA had healthier self-concepts and confirmed the results found by Martinek (1976).

Lydon (1978) like Martinek (1976) used CAFIAS as a criterion measure to verify the treatment effects of the two decision-making models when she studied their effects on self-concept and motor skill development. Lydon obtained similar results as Martinek (1976) in student self-concept scores with differences in favor of the SDMA. Lydon manipulated the decision-making variable with the introduction of a task card. Unlike

Martinek (1976), Lydon found no significant differences between the two decision-making approaches with respect to motor skill achievement, and suggested that the use of a task card guided students' decision-making efforts. The CAFIAS data revealed similar interaction patterns as those described in the Mancini (1974) study.

Schempp (1981) assessed the effects of the two different models on student attitudes, self-concept, motor skills, and creativity. Schempp also used CAFIAS to verify characteristic interactions of the two different approaches as treatment effects. Schempp found that students in the SDMA classes had more positive attitudes toward physical education; scored higher on self-concept and creativity measures, and improved more in motor skill development compared to the TDMA classes.

The CAFIAS instrument was used in these studies to reveal and confirm differences in interaction patterns between the TDMA and the SDMA. CAFIAS was instrumental in the original study (Mancini, 1974) in delineating characteristic interaction patterns; it was used in subsequent studies (Martinek, 1976; Lydon, 1978; Schempp, 1981) to verify the treatment effect and the characteristic interaction patterns.

Cheffers and Mancini (1978) used CAFIAS when they described the interaction patterns and teaching behaviors on 83 videotapes which were collected as part of the Data Bank project by Anderson (1975). Among their findings, the investigators pointed out that there was an absence of teacher praise and acceptance and student-initiated activity throughout the tapes. The predominant interaction patterns found for both elementary and secondary physical education classes were mostly extended teacher information-giving, followed by teacher direction and predictable student responses. It was also found that physical education

classes placed a greater accent on participation than other subject area classes. In general, these findings indicated widespread use of direct teacher influence, teacher dominance of classroom activity, lack of encouragement and questioning by teachers, and lack of student-initiated activity.

Wright (1981) also used CAFIAS to describe the instructional behaviors and class organization of eight movement educators. CAFIAS data revealed that the movement educators received high scores on the CAFIAS parameters related to teacher contribution, class structure as one unit, teacher questioning, teacher acceptance and praise, teacher-suggested pupil initiation, and teacher as teacher. Low scores were recorded for silence and/or confusion, student or environment as teacher, and class structure with no teacher influence.

CAFIAS has also been used in intervention studies. Lombardo (1979) and Stevens (1979) studied teacher behavior on a day-to-day basis. The first five videotapes were used as baseline data. The next 10 days served as a training period in which all subjects received some form of feedback. The control group received conventional feedback the day following their lesson. Those in the treatment group received instruction and supervision in CAFIAS. The final 5 days were used for data collection. Both researchers found that instruction in CAFIAS increased the amount of teacher praise, acceptance of students' ideas, and actions, nonverbal questions, and empathetic behavior.

Hendrickson (1975), Rochester (1976), Vogel (1976), and Getty (1977) also used CAFIAS in their intervention studies to train preservice physical educators during micro-peer teaching lessons. The students in

the control group viewed their videotapes and received conventional supervisory feedback. The treatment group students viewed their videotapes and received conventional supervisory feedback plus instruction in CAFIAS and feedback in the form of computer printouts. Results revealed that the classes taught by preservice teachers trained in CAFIAS exhibited more teacher questioning, more teacher praise and acceptance, more individual and small group instruction, and more student contribution. That is, these researchers found that teachers instructed in CAFIAS showed more indirect behaviors than teachers not instructed in CAFIAS.

Steffen (1983) investigated the effects of instruction and supervision in CAFIAS on teaching behaviors of elementary physical education teachers. Steffen also used the Dyadic Adaptation of CAFIAS (DAC) (Martinek & Mancini, 1979). DAC is an instructional and intervention instrument used to measure and assess teaching behaviors directed toward individual students. Four teachers were randomly assigned to control and treatment groups. Each teacher was asked to identify three disruptive children in a selected class. CAFIAS was used to identify teacher behavior toward the whole class. Teacher behaviors which were exhibited toward those three disruptive children in each class were identified through the use of DAC.

The data revealed that following conventional feedback the control group exhibited only slight differences in their behaviors toward the whole class and toward the disruptive children. The control group teachers were found to be more restrictive in their behaviors and to utilize more directions and criticisms in their interactions with the

disruptive children compared with the treatment group. The treatment group teachers, on the other hand, were found to exhibit more distinct differences in their interactions with the whole class and with the disruptive children. Following CAFIAS and DAC feedback, the treatment group exhibited more praise and acceptance of students' ideas and actions, asked more questions, provided more information, and allowed more student interpretive behavior compared to their pretest behaviors and the control group behaviors. It was concluded that teachers in the control group continued to exhibit direct behaviors to their disruptive students and the entire class; whereas, the teachers in the treatment group exhibited indirect behavior to their disruptive students and the entire class.

Quinn (1982) was one of the first to investigate the lasting effects of instruction and supervision in CAFIAS on teaching behaviors, effectiveness, and attitudes of inservice physical educators up to 4 years later. Twenty-six physical educators were assigned to either the control or treatment group depending on the type of supervisory feedback they received during their teacher training. Those in the control group received conventional supervisory feedback. Those in the treatment group received conventional feedback plus instruction and supervision in CAFIAS. The Teacher Performance Criteria Questionnaire (TPCQ) was used to measure teacher effectiveness and the Teacher Situation Reaction Test (TSRT) for assessing attitudes toward teaching.

Significant differences between the treatment and control groups were found for all 11 variables in the TPCQ. The treatment group was considered to be more effective. The teachers' attitude scores on the TSRT also revealed significant differences between the two groups. The

treatment group was considered to be more indirect in their attitudes toward teaching than those in the control group.

It was concluded that physical educators who received instruction and supervision using CAFIAS during teacher training were more indirect in their teaching style and made more use of verbal and nonverbal acceptance and praise and verbal questioning in their classes. Their students also exhibited more verbal and nonverbal initiated behavior. It was also concluded that all of these effects could be maintained 1 to 4 years following training in interaction analysis, that is, CAFIAS.

Designed with the primary purpose of describing teachers' and students' verbal and nonverbal behaviors in physical activity class, CAFIAS has been successfully used to help teachers become more aware of the behaviors they exhibit to children. As an observation instrument, CAFIAS has been used to analyze, describe, and compare teacher-student interaction behaviors with various styles of teaching; it has been used as an intervention instrument to help teachers become more aware of their behaviors in the classroom; and has been shown to have lasting effects on those behaviors, as well as on teacher effectiveness and attitudes for up to 4 years later.

Academic Learning Time in Physical Education

According to Locke (1977) physical educators have treated the gymnasium as a "black box" where students, teachers, and curricula have been placed in the gym for a period of time and no attempt is made to describe the process in learning. Locke concluded that failure to look inside the "black box" of the gymnasium and, in particular, failure to confirm treatment conditions, has reduced most experimental investigations

of teaching methodology to meaningless nonsense. In the quest to more clearly understand the physical education class and to overcome the limitation of many earlier studies of pedagogy in physical education, new approaches have been borrowed from research in other subject matter areas.

During the early 1970's a major research effort was initiated by Far West Laboratory of Educational Research and Development. The project was called The Beginning Teacher Evaluation Studies (BTES) (Fisher et al., 1972). Though not the original intention, the main objective of the study became to identify teacher and student classroom behavior relative to achievement in elementary reading and math. The findings revealed that time was the most important variable in the learning process. The research team decided to study the time variable more thoroughly. Fisher et al. (1972) determined that the teaching process included two time variables and two non-time variables: allocated time (time apportioned for learning a task), engaged time (the percentage of allocated time in which students are actively responding), task relevancy (the degree to which an activity can be viewed as contributing to an identified academic goal), and success rate (for the engaged task).

A teaching process model including these two time and non-time variables was constructed. The model became known as Academic Learning Time (ALT). ALT was initially used as a process-product measure of teaching effectiveness. ALT was defined as the amount of time a student spends engaged in a relevant learning task with a high success rate (Marliave, 1976a). The empirical testing of the teaching process model ALT consequently became the major goal of subsequent phases of the project (Marliave, 1976b).

In the ALT model, teaching had six functions: diagnosis, prescription, presentation, student activity, feedback, and monitoring. According to Fisher, Filby, Marliave, Cahen, Dishaw, Moore, and Berliner (1979), the ALT instructional model did not dictate rigid behavior patterns for teachers in any function. The teaching functions could be fulfilled by a wide range of diversified teacher behaviors. The researchers stressed the importance of fulfilling these various functions, but emphasized that there were many ways to fulfill them.

The BTES research indicated that effective teaching must be viewed in terms of student behavior, that is, how students spend time in class, and student achievement rather than in terms of teacher behavior. From the ALT perspective teacher behaviors are mediating variables that can affect (increase or decrease) the amount of student learning (Metzler, 1983b). Student learning is measured through accrued ALT. The effectiveness of teacher decision-making and instructional behavior, therefore, as measured by the ALT instrument, was determined by the extent to which a teacher could affect the amount of ALT accrued by students.

Metzler (1980) originally modified the BTES' ALT instrument for use in the physical education context. Metzler demonstrated that ALT data could be collected reliably in physical education at the elementary and secondary levels. The concept of ALT as a process indicator of teacher effectiveness in physical activity learning settings was first proposed by Siedentop et al. (1979). Siedentop et al. (1979) extended the original concepts of ALT developed from research done in math and reading to physical education. This model was called Academic Learning Time in

Physical Education (ALT-PE).

Initially the ALT-PE system included four major categories: setting, content general and physical education, learner moves, and task difficulty. Twenty-five categories were utilized to further explain the major categories. ALT-PE was originally defined as the amount of time students spend in class activity engaged in relevant overt responding, including both cognitive and motor responses, at a high success rate (Metzler, 1983a). A subvariable, the category labeled ALT-PE (M), was included to identify when the target student was engaged in a relevant motor task with an easy level of difficulty.

Siedentop, Tousignant, and Parker (1982) revised the original ALT-PE system in order to make it easier to use. This revised system is the present form of ALT-PE and is known as "General ALT-PE." General ALT-PE, like its predecessor, focused on the most crucial element in the educational setting, the learner (Anderson, 1983). General ALT-PE is concisely defined as the amount of time that a student is successfully engaged in a relevant motor task with a high degree of success (Siedentop et al., 1982).

The present ALT-PE instrument includes three major subdivisions at the context level: general content, subject matter knowledge, and subject matter motor. Two major subdivisions are included at the learner involvement level: not motor engaged and motor engaged. There are 13 categories within the subdivisions of the context level that describe the nature of the class environment and 8 categories within the learner involvement level that describe individual student behavior.

Comparisons made between the original ALT-PE (Siedentop et al., 1979)

and the revised ALT-PE (Siedentop et al., 1982) systems showed that the original ALT-PE instrument contained four decision levels and four major categories; whereas, the revised system contained only two decision levels. The revised system omitted the setting category and expanded the content physical education category of the original system to include subject matter knowledge and subject matter motor. The general content categories remained basically the same in both the original and revised systems. The only difference in general content categories was the original system included waiting as a category; whereas, the revised system eliminated waiting and included warm-up as a category. The major difference in these two systems was evidenced in what constitutes actual ALT-PE by the learner. The original ALT-PE system included learner cognitive and motor activity as accrued ALT-PE; the revised system considered only motor appropriate learner motor activity as accrued ALT-PE. The original system incorporated motor appropriate activity in its content physical education category under easy, medium, cognitive, and indirect levels. Aside from these differences between the original and revised ALT-PE instruments, all other categories and subdivisions remained essentially the same.

There has been said to be a tremendous lack of process-product research in physical education (Graham & Siedentop, 1978). However, the determinant variables of ALT-PE (task relevancy, motor engagement, and high success rate) have been found to formulate a sound theoretical perspective from which to analyze student opportunities to acquire the skills and knowledge of motor play activities (Metzler, 1982). Though the research foundation of the BTES' ALT instructional model was centered

on elementary reading and math, the theoretical aspects of ALT were directly adaptable to the teaching of motor play skills. McLeisch (1981) stated that time-on-task, academic learning time, and opportunities to learn were one in the same and was the vital component of effective teaching. He emphasized that the ALT-PE system focused on this major component in evaluating effective teaching in physical education. Various researchers in the field of physical education have used the ALT-PE instrument to describe physical education classes at the elementary, junior high, secondary, and college levels.

In the initial ALT-PE field study, Metzler (1980) measured the amount of ALT-PE accrued by students in a variety of physical education settings. This study was undertaken to determine whether the original ALT instructional instrument developed for use in the BTES research of classroom teaching could be used in physical education. The study involved 33 classes, 11 each at the elementary, junior high, and senior high school levels. The classes were observed from three to seven times each. The descriptive statistics used to analyze each level were allocated time, ALT-PE, and ALT-PE(M). Metzler concluded that the direct and task categories accounted for 99% of the time variable in setting. Additionally, 75% of the time devoted to content material was spent in specific physical education activity. It was found that elementary students, in general, were engaged in physical education content 11.8% more of the time than secondary students. This initial field study established the value of ALT-PE as a systematic observation instrument in physical education.

ALT-PE records now exist for elementary, secondary, and college

students; for traditional and movement education approaches to elementary physical education; and for a representative variety of movement forms including team, individual, and life-time sports, gymnastics, rhythms and dance, and fitness activities (Dodds, 1983). Shute, Dodds, Placek, Rife, and Silverman (1982) used the ALT-PE instrument for a descriptive analysis of one physical educator's elementary school movement education classes. The ALT-PE descriptive data were collected to answer the following questions:

1. What are the overall ALT-PE patterns for all students in a movement education instructional mode?
2. In what respects do student ALT-PE patterns show differences for girls and boys?
3. In what respects do student ALT-PE patterns show differences for special and nonspecial needs categories?
4. In what respects do student ALT-PE patterns show differences for high, medium, and low skill levels?

The subjects for this study included 105 elementary school children in 20 classes ranging from grade K-6 and one female physical educator in her first year of teaching. There were 60 boys and 45 girls, and 11 students were identified as special needs children. All students were classified into high-, medium-, and low-skilled groups based on the teacher's perceptions of how successfully they performed movement skills. A total of 147 observations were made on these students. Only the naturally occurring events of teaching and learning were recorded and descriptively analyzed to identify patterns and associations in movement education.

The data revealed that students rated by the teacher as high-, medium-, and low-skilled were engaged in physical education content activities similar percentages of time, 80%, 78%, and 78%, respectively. The data concluded that there were no significant discrepancies in the teacher's treatment of girls and boys; special and nonspecial needs students; and high-, medium-, and low-skill students. In keeping with the movement education theme of maximizing success for all students, regardless of special characteristics, the ALT-PE of the children in these classes indicated that all students received similar and equal treatment. The movement educator did indeed equalize the opportunity to learn for all children.

In a study conducted by Godbout, Brunelle, and Tousignant (1983), the ALT-PE instrument was used to determine how much ALT-PE was experienced by elementary and secondary school students during regular physical education classes. The subjects were 30 elementary and 31 secondary physical education teachers. Subjects were observed twice over a 2-month period. The researchers reported that the secondary students accrued significantly more ALT-PE than elementary students, 36.5% compared with 31.3%, respectively. When class groups were involved in physical education content activities, the individual target students were effectively engaged 50% of the time. From 19% to 34% of class time was spent on activities other than physical education content activities. The researchers concluded that better management of students' time might significantly increase the percentage of student ALT-PE in a given class period.

Intervention and experimental investigations using the ALT-PE

instrument have established a strong case that several relatively simple changes in what teachers do can increase ALT-PE over baseline levels. Birdwell (1980) used an intervention package to change teaching behaviors and to examine the effect of such changes on student ALT-PE. Techniques that worked included increasing teacher feedback to students and reducing managerial time. Birdwell found these techniques were successful in changing teachers' behaviors and increasing ALT-PE. Paese (1982) obtained the same results, that is, increased student ALT-PE, by using task cards for students and changing game rules and structures. In swimming classes for children ages 5, 6, and 7, McKenzie (1980) found that applying behavior analysis strategies of timeout for disruptive behavior and posting completed tasks as a positive reinforcement also increased student ALT-PE.

Further ALT-PE data have been collected for students possessing particular characteristics such as special needs or disabilities. Aufderheide, Olson, and Templin (1981) conducted a study to determine the degree to which mainstreamed handicapped and regular students had an equal opportunity to learn. The students included 34 junior high school students and four teachers. A mainstreamed handicapped and a nonhandicapped student were coded in each of the 17 classes. The results revealed no significant differences in the amount of ALT-PE accrued by regular and handicapped students, 45.9% compared with 44.9%, respectively. Handicapped students were found to be engaged more often in ALT-PE than regular students, 58.6% compared with 54.3%. However, regular students accrued more ALT-PE(M) than handicapped students, 9.1% compared with 8.0%, respectively.

General ALT-PE and CAFIAS were utilized in an investigation which compared the interaction patterns and the ALT-PE of low- and high-burnout secondary physical educators (Mancini, Wuest, Clark, & Ridosh, 1982). Subjects included 20 physical educators classified into low-burnout ($n = 10$) and high-burnout ($n = 10$) groups. Results indicated that low-burnout teachers exhibited significantly more praise and acceptance of the students' ideas and actions and interacted more frequently with their students than high-burnout teachers. High-burnout teachers had less ALT-PE recorded for their students.

Dodds (1983) made the first attempt to correlate what teachers do when they teach with what ALT-PE indicates students do when they learn. The purpose was to discover the relationships which appear when students' behaviors, as measured by ALT-PE (Siedentop et al., 1979), and a teacher's behaviors, as measured by the Tharp-Gallimore Coaching Behavior Observation Instrument (Tharp & Gallimore, 1976) were compared directly. This analysis centered on the following questions:

1. What were typical class days like for the students and the teachers?
2. What ALT-PE patterns appeared when class sessions were the unit of analysis?
3. What teacher behavior patterns appeared when class sessions were the unit of analysis?
4. What are the direct relationships present between teacher behavior and student learning time when these events are considered together?

The subjects included one intercollegiate Division I varsity

lacrosse coach and 17 students in her physical education skills class. Thirty-six observations were equally distributed across the 17 students during eight class sessions which were randomly dispersed across the whole semester. Pearson product-moment correlations (\underline{r}) between categories were used to determine whether relationships existed between specific teacher behaviors and student learning measures.

The ALT-PE percentages revealed that 85% of class time was spent in content physical education with skill practice accounting for 46% of the total and knowledge accounting for 37% of the total. It was found that of the 86% of class time spent on lacrosse, 21% of the time was spent waiting, usually for a turn, and students engaged in lacrosse content were successfully engaged 49% of the time.

In an average class session, the teacher emitted almost 600 behaviors; one-third directed to individuals and two-thirds to the class as a whole. Instructions, cues, and praises accounted for the majority of the instructional moves in the teacher's behavior.

The correlations (\underline{r}) for teacher behavior categories and selected ALT-PE measures yielded 29 statistically significant correlations. This indicated that some teacher behaviors appeared quite regularly at the same time as particular student behaviors. When learners were in a content physical education knowledge mode, the teacher instructed, criticized, and demonstrated mistakes but was not likely to praise. During skill practice, students performed motor skills while the teacher praised quite frequently but did not often instruct, criticize, or demonstrate mistakes. Correlations showed that the teacher generally gave new or additional information or criticism or demonstrated mistakes

while students were unsuccessfully performing lacrosse skills.

Dodds (1983) concluded that there really were no easy answers for teachers who wanted to do the right things to produce high ALT-PE for their students. Successful engagement with subject matter (ALT units) was related to only 3 of the 12 teacher behaviors and successful motor engagement (ALT-PE units) did not appear at all in the table of significant correlations. This study confirmed the complexities involved in teaching as related to learning.

With respect to ALT-PE, Anderson (1983) commented that all coding systems have their limitations and can only portray a "mere shadow" of the real world of the gymnasium. Yet, he concluded that ALT-PE gets at the crucial information and that the selection, classification, and delineation of ALT-PE categories reveal important and useful demarcations regarding events in the gymnasium.

Summary

Educational researchers have been investigating teacher-student interactions for almost 50 years (Allard, 1979). Researchers in physical education have been studying teaching methodologies and approaches to instruction for almost 20 years (Mosston, 1966). Mosston (1966) has been the forerunner in this investigation of teaching styles through his conceptualization and development of the spectrum of styles (1966). Numerous studies have been undertaken since the development of the spectrum to isolate, identify, promote and establish various approaches and/or styles of teaching (Cheffers & Mancini, 1978; Goldberger et al., 1982; Lydon, 1978; Mancini, 1974; Martinek, 1976; Moore et al., 1981; Pirano, 1977; Schempp, 1977, 1981; Shute et al., 1982;

Toole & Arink, 1982; Viglione, 1977).

In recent years, the trend in education has been toward the more indirect and child-centered approaches to teaching. Movement education is based on problem-solving and guided discovery, which are Mosston's more indirect and child-centered styles of teaching (Mosston, 1966). Yet, research has not been conclusive with the respect to the inherent effectiveness of one style or approach. Peterson (1979) warns of accepting experimental research regarding instructional effectiveness "carte blanche."

Fenstermacher (1979) stated that when perceiving effectiveness in teaching that teachers' views of success differ from those of researchers'. When teaching effectiveness is investigated, researchers must consider the subjective and reasonable beliefs of the teacher. Metzler (1983) claimed that the teaching effectiveness of any style must be assessed in terms of stated goals, that is, the extent to which stated goals are realized by the students will determine the inherent effectiveness of any teaching or teaching style.

Various systematic observation instruments have been developed in physical education to enable a more objective investigation of teaching methodology and style. ALT-PE (Siedentop et al., 1982) is one observation instrument which has been used in numerous types of studies to investigate student behavior as a measure of teacher effectiveness (Aufderheide et al., 1981; Birdwell, 1980; Dodds, 1983; Godbout et al., 1983; Mancini et al., 1982; McKenzie, 1982; Metzler, 1980; Paese, 1982; Shute et al., 1982). Teaching effectiveness in ALT-PE is reflected in the amount of ALT-PE that students accrue while in physical

education.

CAFIAS is another observational instrument, developed by Cheffers (1972), for use in the gymnasium. CAFIAS records the verbal and nonverbal behaviors of both teachers and students and allows a complete description of the behavior and interaction patterns in activity and play settings. Teaching effectiveness in CAFIAS is reflected in the amount of positive teacher-student interaction that results throughout a class. Many researchers have used CAFIAS to measure the effects of various styles of teaching in the gymnasium (Cheffers & Mancini, 1978; Lydon, 1978; Mancini, 1974; Martinek, 1976; Pirano, 1977; Schempp, 1977, 1981; Viglione, 1977). CAFIAS has also been used as an intervention instrument to help preservice and inservice physical educators become more effective in their teaching (Hendrickson, 1975; Lombardo, 1979; Quinn, 1982; Steffen, 1983; Stevens, 1979).

Both the ALT-PE and CAFIAS systematic observation instruments have provided important, useful, and specific information in regard to what is happening in the gym. Each style of teaching, approach, and methodology has its own rationale for instruction. The information these instruments provide in conjunction with the intentions of the style and/or approach, the stated goals and objectives (of the lesson), and the teachers' subjective beliefs can help in the quest toward discovering and attaining a clearer understanding of what comprises effective teaching.

Chapter 3

METHODS AND PROCEDURES

This chapter outlines the methods and procedures that were used for gathering the data for this investigation. The chapter is divided into eight sections: selection of subjects, testing instruments, procedures, method of data collection, intraobserver agreement and coder reliability, scoring of data, treatment of data, and summary.

Selection of Subjects

The subjects for this investigation were a female elementary physical education teacher from the central New York area and 30 children from two first-grade classes. The investigator chose a physical education teacher who used both the command and the movement education styles of teaching throughout her 10 years of teaching experience. The investigator received the subjects' permission to participate in this study through the use of informed consent forms (Appendix A and B). The teacher was asked to teach two unit plans involving the same physical education content matter but using the two different styles of teaching under investigation. The physical educator taught two first-grade physical education classes using a single method of instruction for each class for the entire length of the unit. Three target students from each were randomly selected for observation during each day of the unit; thus 15 students were observed from each class. The children in these classes were not labeled or identified for any reason throughout this investigation.

Testing Instruments

Academic Learning Time in Physical Education (ALT-PE) (Siedentop, Tousignant, & Parker, 1982) and Cheffers' Adaptation of Flanders' Interaction Analysis (CAFIAS) (Darst, Mancini, & Zakrajsek, 1983) were the observational instruments used to measure the behaviors and interaction patterns in this study. ALT-PE is concisely defined as the amount of time that a student is successfully engaged in a relevant motor task with a high rate of success. The ALT-PE observational instrument uses student activity in the gymnasium as a valid measure of the effectiveness of the teaching taking place. ALT-PE utilizes a 6-second interval recording system. Selected or target students are observed throughout a class, and their behaviors are classified to determine and describe the type and amount of student involvement in physical education. ALT-PE was used in this study to compare and contrast the type of student behavior and involvement found between the two different styles of teaching. CAFIAS is an observational instrument developed primarily for physical activity settings. The CAFIAS instrument objectively reads both verbal and nonverbal behaviors of both the teacher and the students and identifies the specific teaching agency as well as class structure. In CAFIAS, behaviors are recorded every 3 seconds or every time a behavior changes. CAFIAS was used in this study as a method of recording the behaviors and interaction patterns between the teacher and students in the two different styles of teaching under investigation.

Procedures

The teacher was videotaped using two different styles of teaching. The physical education content matter and grade level taught were the

same for the two styles of teaching. Two first-grade classes were taught a 5-day unit in manipulative and ball-handling skills. Each class was exposed to one method of instruction for the entire length of the unit. The teacher was videotaped during the entire length of the unit. Throughout the course of the videotaping the teacher was asked to wear a wireless microphone, which did not interfere with her teaching. Three target students were randomly selected from each class for observation during each day of the unit; 15 students were observed from each class.

Method of Data Collection

Data for analysis were obtained from the videotapes of the teacher. The videotapes were coded by Dr. Victor H. Mancini, an expert coder in the use of ALT-PE and CAFIAS.

Intraobserver Agreement and Coder Reliability

Intraobserver agreement was used in this study to determine and establish the coder's reliability using the ALT-PE instrument. Two videotapes were randomly selected and coded using ALT-PE during two independent sessions. The scored-interval method as described by Hawkins and Dotson (1975) was used. The intraobserver agreement or IOA was calculated by dividing the number of agreements by the number of disagreements and multiplying the results by 100 (Herson & Barlow, 1976).

In determining the reliability of the coder's CAFIAS coding, one videotape was selected at random to be coded using CAFIAS on two independent observation sessions. The top 10 cells for each session were ranked, and the Spearman rank-order correlation was applied to the two sets of rankings.

Scoring of Data

The data collected from the coding of CAFIAS were transferred onto the computer for analysis. The data were compiled into percentages and ratios for the 20 CAFIAS variables as well as the resulting interaction patterns. The data collected by the ALT-PE instrument were computed manually and then compiled into percentages and ratios.

Treatment of Data

Descriptive statistics were used to determine whether differences in teaching behavior, interaction patterns, and student learning as defined by CAFIAS and ALT-PE existed between the two different styles of teaching. The percentages and ratios for the CAFIAS and ALT-PE categories were visually compared to help determine these relative differences.

Summary

The subjects for this investigation were a female physical education teacher from the central New York area and 30 children, 15 each from two first-grade classes. The teacher was asked to teach a unit involving the same physical education content matter using two different styles of teaching--direct and indirect. Two first-grade classes were chosen; each was taught a 5-day unit in manipulative and ball-handling skills. Each class was exposed to only one style of teaching. The instructor was videotaped throughout both 5-day units for the entire length of the unit.

The videotapes were coded by a reliable coder trained in CAFIAS and ALT-PE. The CAFIAS system was used to record the interactions between the teacher and the whole class. The data collected through CAFIAS were transferred onto the computer for analysis. The computer scoring of

CAFIAS yielded percentages for each of the 20 CAFIAS variables, which were compared by visual analysis. The ALT-PE instrument was used to measure the amount of time students were actively involved in a task. Three target students were randomly selected for observation during each class period. The data collected by ALT-PE were computed manually and compiled into percentages and ratios for the ALT-PE variables. These variables were then compared by visual analysis. Descriptive statistics were used to calculate the differences between the two different styles of teaching in teacher and student behaviors, and visual comparisons were used to determine the differences in teacher-student interaction patterns.

Chapter 4

ANALYSIS OF DATA

The results found when comparing command and movement education style teaching with respect to teacher behavior and interaction patterns and student involvement are presented in this chapter. One female elementary physical education teacher was asked to teach two 5-day units in manipulative and ball-handling skills to two first-grade classes. Both units contained the same physical education content matter; each was taught using a different style of teaching. The CAFIAS (Cheffers, 1972) observation instrument was used to measure the behavior and interaction patterns between the teacher and her students. The revised Academic Learning Time in Physical Education (ALT-PE) instrument (Siedentop, Tousignant, & Parker, 1982) was used to identify how students ($N = 30$) spent their time in class.

Coder Reliability and Intraobserver Agreement

In order to establish coder reliability for this study, two videotapes were randomly selected to be coded using CAFIAS on two independent observation sessions by Dr. Victor H. Mancini, an expert in coding CAFIAS. The mean correlation of .984 that was found was sufficient to indicate that the coder was reliable.

In order to determine intraobserver agreement (IOA) for the ALT-PE coding, the scored-internal method as described by Hawkins and Dotson (1975) was used. Two randomly selected videotapes were coded on two independent observation sessions by Dr. Victor H. Mancini. Reliability was determined for each of the categories of the ALT-PE

recording instrument by dividing the number of agreements by agreements plus disagreements and multiplying by 100 (Herson & Barlow, 1976). IOA ranged from 92.0% to 100%.

CAFIAS Results

The use of the major CAFIAS parameters by the physical education teacher with command and movement education style teaching is summarized in Table 1. Visual comparisons indicated that differences existed in the CAFIAS patterns of the teacher with the two different styles of teaching. The most significant differences existed in the teacher's use of questions, acceptance, and praise. With movement education the teacher asked more questions, gave more acceptance, and used more praise both verbally and nonverbally with her students. There were also differences in teacher-suggested student-initiated responses. In the movement education style, students initiated more verbal and nonverbal responses on suggestion of the teacher than in command style. The total student-initiated response, teacher-suggested, was greater in movement education than command while student-suggested student-initiated response, both verbally and nonverbally, was greater in the command style.

The percentages of behaviors in each CAFIAS category for command and movement education style teaching are shown in Figure 1. Visual comparisons revealed differences in the 20 CAFIAS teacher and student behaviors between the two different styles of teaching. In comparison to the command style teaching, the teacher in the movement education style exhibited much more verbal praise and acceptance toward her students. There was slightly more nonverbal praise and acceptance in the movement education style as well. The teacher asked more questions both verbally

Table 1
Use of Major CAFIAS Parameters by the Teacher

CAFIAS Parameters	Command	Movement
		Education
Teacher Contribution, Verbal (TCV)	43.02	43.79
Teacher Contribution, Nonverbal (TCNV)	10.76	9.08
Total Teacher Contribution (TTC)	53.78	52.87
Student Contribution, Verbal (SCV)	11.54	17.16
Student Contribution, Nonverbal (SCNV)	29.29	25.70
Total Student Contribution (TSC)	40.82	42.86
Silence and/or Student to Student Nonverbal Interaction (S)	1.19	.73
Confusion and/or Student to Student Verbal Interaction (C)	4.20	3.54
Total Silence and/or Confusion and/or Total Student to Student Verbal and Nonverbal Interaction (SCT)	5.39	4.27
Teacher Use of Questioning, Verbal (TQRV)	9.14	44.55
Teacher Use of Questioning, Nonverbal (TQRNV)	4.94	73.63
Total Teacher Use of Questioning (TTQR)	8.29	48.35
Teacher Use of Acceptance and Praise, Verbal (TAPRV)	16.19	80.12
Teacher Use of Acceptance and Praise, Nonverbal (TAPRNV)	16.14	71.33
Total Teacher Use of Acceptance and Praise (TTAPR)	16.18	78.36

Table 1 (continued)
Use of Major CAFIAS Parameters by the Teacher

CAFIAS Parameters	Movement	
	Command	Education
Student Verbal Initiation, Teacher Suggested (SVITSR)	49.29	85.37
Student Nonverbal Initiation, Teacher Suggested (SNVITSR)	18.42	77.84
Total Student Initiation, Teacher Suggested (TSITSR)	27.15	80.86
Student Verbal Initiation, Student Suggested (SVISSR)	28.65	15.21
Student Nonverbal Initiation, Student Suggested (SNVISSR)	20.54	6.62
Total Student Initiation, Student Suggested (TSISSR)	24.71	10.25
Content Emphasis, Teacher Input (CETI)	38.36	40.67
Percent of Verbal Emphasis (CEVI)	58.77	64.49
Percent of Nonverbal Emphasis (CENVI)	41.23	35.51
Teacher as Teacher (TT)	98.86	99.17
Other Students as Teacher (ST)	.0	.0
The Environment as Teacher (ET)	1.14	.83
Class Structure in One Unit (W)	85.42	98.40
Class Structure in Individual or Group (P)	14.28	1.60

Table 1 (continued)

Use of Major CAFIAS Parameters by the Teacher

CAFIAS Parameters	Command	Movement Education
Class Structure with No Teacher Influence (I)	.30	.0

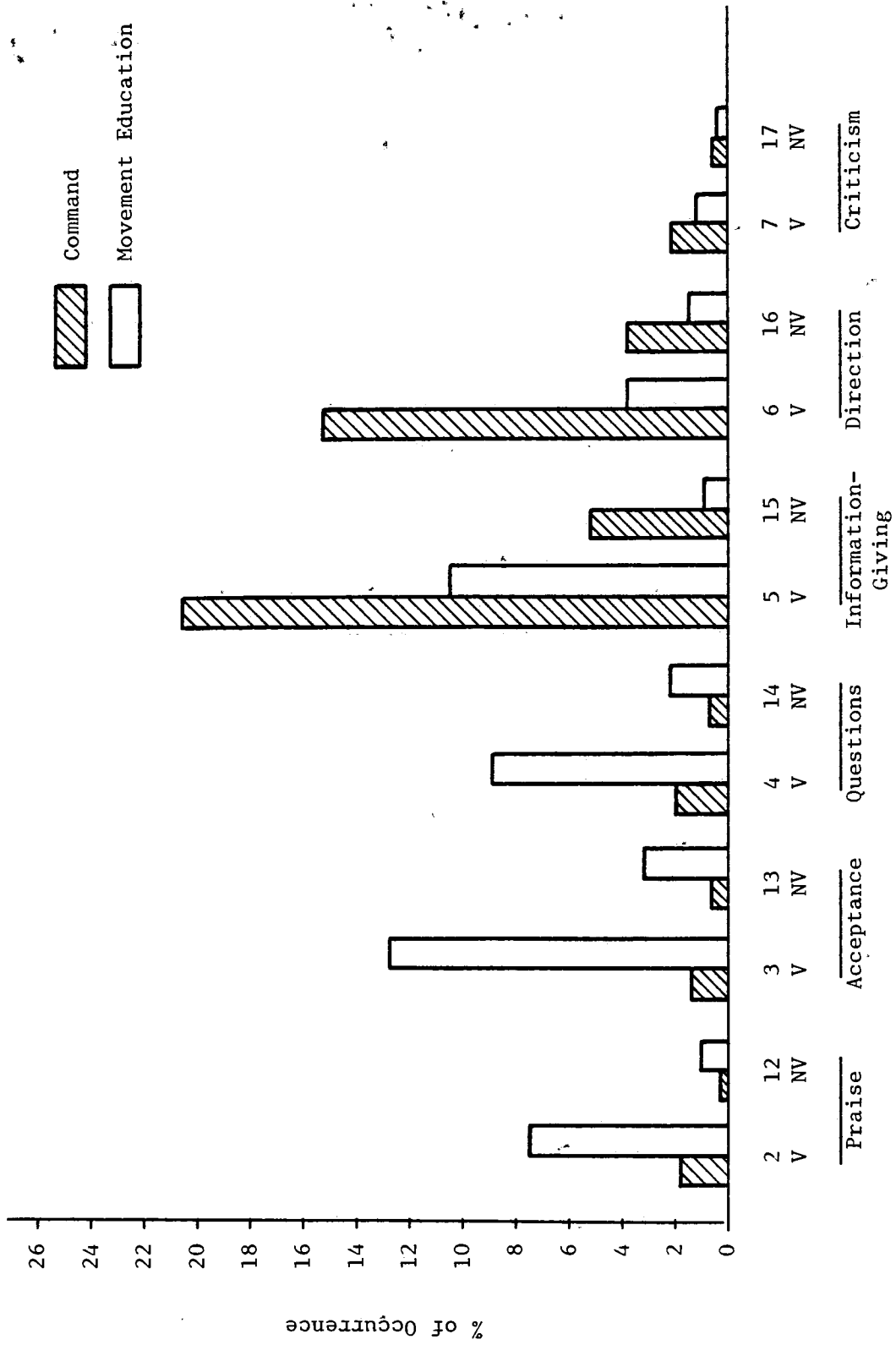


Figure 1. Mean percentages of behaviors in each CAFIAS category.

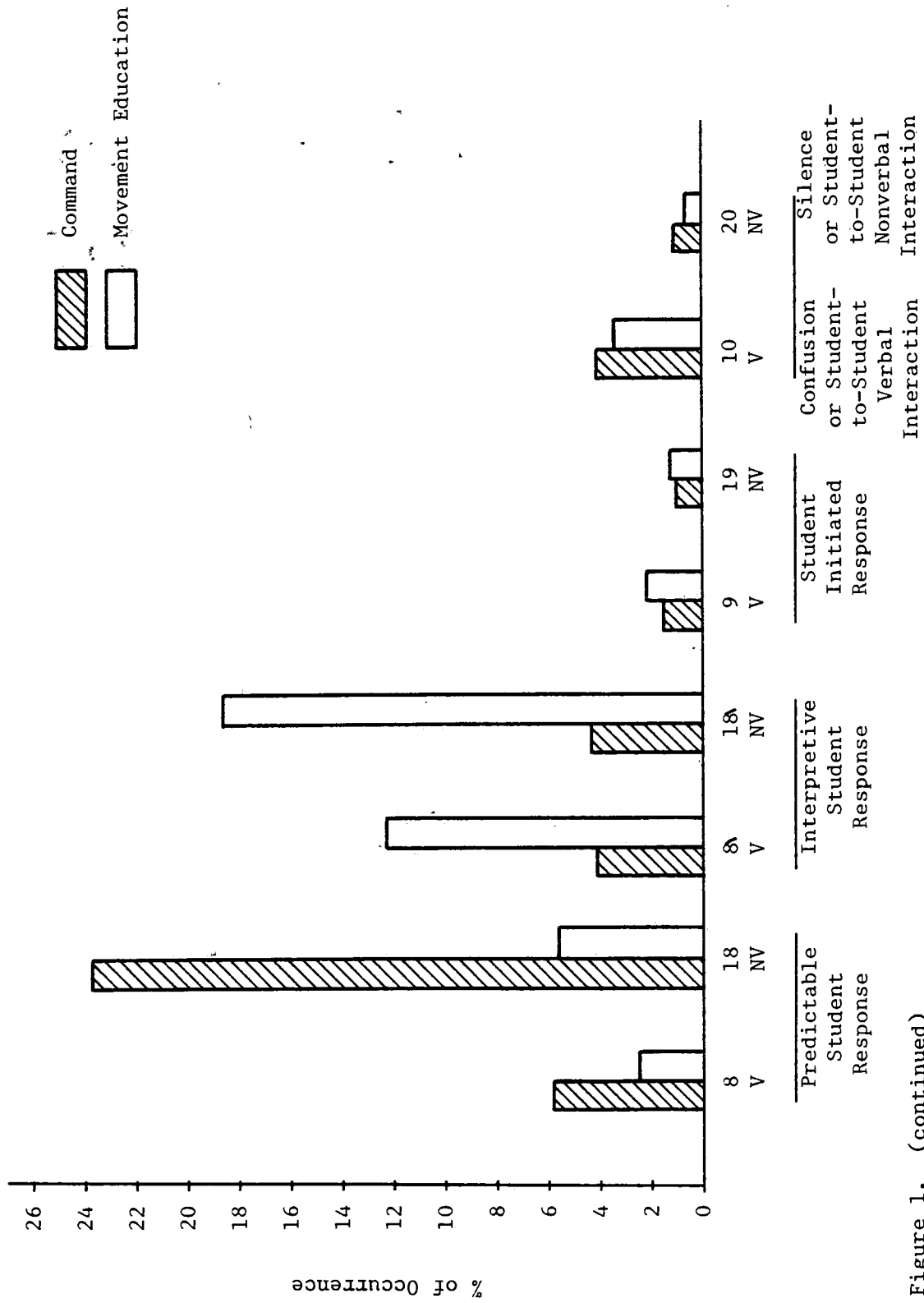


Figure 1. (continued)

and nonverbally in the movement education style, while in the command style the teacher spent more time giving information and directions, both verbally and nonverbally. The teacher also spent more time giving verbal criticism in the command style. The amount of nonverbal criticism between the two styles was essentially the same. In the command style, there was much more verbal and nonverbal predictable student response. In the movement education style, there was more verbal and nonverbal interpretive student response. There were little differences in the amount of verbal and nonverbal student-initiated response and silence and/or student-to-student nonverbal interaction between the two styles. There was more confusion and/or student-to-student verbal interaction in the command style.

The most frequent interaction patterns and their percentages of occurrence for both the command and movement education style teaching are presented in Table 2. The interaction patterns of the physical educator in the command style teaching were characterized by extended teacher information-giving followed by teacher direction and predictable student response followed by more teacher direction (5-5-6-8-6). This was the predominant interaction pattern exhibited in the command style. This was followed by extended predictable student behavior which was followed by more teacher information-giving and teacher direction (8-8-5-6). Other interaction patterns characteristic to the command style were extended student-to-student interpretive interaction or game play (8-10-8); teacher direction followed by interpretive student response (6-8); and student-initiated behavior followed by teacher criticism (9-7).

Table 2

Summary of the Most Frequent CAFIAS Interaction
 Patterns and Percentages of Occurrence
 Between Command and Movement Education
 Styles of Teaching

Command		Movement Education	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
5-5-6-8-6	48.90	8-3-8	16.34
8-8-5-6	14.47	4-8	9.84
8-10-8	7.04	8-2-8	8.66
6-8	3.02	8-8	7.21
9-7	1.69	6-8	3.61
		8-5	3.10

Interaction Pattern Description

5-5-6-8-6	Extended teacher information-giving followed by teacher direction followed by student predictable response followed by more teacher direction.
8-8-5-6	Extended student predictable behavior followed by teacher information-giving followed by teacher direction.
8-10-8	Extended student-to-student interpretive behavior or game play.
6-8	Teacher direction followed by student interpretive response.

Table 2 (continued)

9-7	Student initiated behavior followed by teacher criticism.
8-3-8	Student interpretive behavior followed by teacher acceptance followed by more student interpretive behavior.
4-8	Teacher question followed by student interpretive behavior.
8-2-8	Student interpretive behavior followed by teacher praise followed by more student interpretive behavior.
8-8	Extended student interpretive behavior.
6-8	Teacher direction followed by student predictable response.
8-5	Student interpretive behavior followed by teacher information-giving.

The interaction patterns of the physical educator in the movement education style teaching were characterized by interpretive student behavior followed by teacher acceptance and more interpretive student behavior (8-3-8). Following the teacher questions the students exhibited more interpretive responses (4-8). Interpretive student response led to teacher praise which led to more interpretive student responses (8-2-8). Extended interpretive student behavior (8-8), teacher directions followed by predictable student responses (6-8), and interpretive student behavior followed by teacher information-giving (8-5) also characterized the movement education style of teaching.

ALT-PE Results

The percentages for the ALT-PE categories with respect to the command and the movement education styles of teaching are summarized in Table 3. Visual comparisons of the data indicated that differences existed between the two styles of teaching.

Significant differences were found at the context level. In the area of general content, during the command style teaching, 36.5% of the class time was devoted to general content as compared to 19.1% with the movement education style. The teacher, using the command style, allocated 21.8% of the time to transition activities compared to 12.1% for the movement education style. When taught using the command style students spent more time in managerial and warm-up activities. The teacher using the command style allocated 3.3% of class time to management activities and 11.4% to warm-up; when teaching using the movement education style the teacher allocated .7% and 6.2%, respectively, to these activities.

Table 3
Percentages for ALT-PE Categories

Categories	Command ^a	Movement ^b
	Percentages	Education Percentages
<u>Context Level</u>		
General Content	36.5	19.1
Transition	21.8	12.1
Management	3.3	.7
Break	.0	.0
Warm-up	11.4	6.2
Subject Knowledge	19.9	15.5
Technique	15.2	10.1
Strategy	.0	.4
Rules	3.4	4.3
Social Behavior	.0	.0
Break	1.2	.7
Subject Motor	43.6	65.4
Practice	28.6	51.3
Scrimmage	.0	.0
Game	15.1	14.1
Fitness	.0	.0

Table 3 (continued)
 Percentages for ALT-PE Categories

Categories	Command ^a Percentages	Movement ^b Education Percentages
<u>Learner Involvement</u>		
Not Engaged	64.3	40.5
Interim	.0	.4
Waiting	8.4	1.3
Off-task	4.8	1.8
On-task	23.8	16.3
Cognitive	27.4	20.7
Engaged	35.7	59.5
Motor appropriate	23.0	44.1
Motor inappropriate	11.2	15.4
Motor supporting	1.5	.0

^aTotal intervals = 669.

^bTotal intervals = 676.

Several differences occurred in the subject matter knowledge area. The teacher using the command style of teaching devoted 15.2% of class time to transmitting information concerning technique compared to when using the movement education style. Slight differences also existed in the amount of time spent on rules and background. The teacher using the movement education style allocated more time to rule-giving (4.3%) compared to when she taught using command style (3.4%); whereas, the teacher when using command style spent slightly more time in giving information regarding background (1.2%) compared to movement education (.7%).

Significant differences existed in the subject matter motor area. In the command style classes the teacher allocated 43.6% of the time to subject matter-related activities compared to 65.4% in the movement education classes. The amount of time the teacher spent on practice activities contributed to most of this difference. The teacher using the command style allocated 28.6% of class time to practice activities compared to 51.3% allocated during movement education. There were slight differences in the amount of time spent in game play situations between the two styles. Students spent 15.1% of class time in game play situations in the command style classes compared to 14.1% experienced by the students in the movement education classes.

The most significant differences occurred in the learner involvement level. Differences were found between the two styles in the amount of student time spent in not-engaged activities. Students in classes spent 64.3% of class time in not-engaged behavior compared to 40.5% for students in movement education classes. Students in the

command style class waited 8.4% of the time compared to student in the movement education style classes; they waited 1.3% of the time. In the command style classes students spent more time in both off-task and on-task activities (4.8% and 23.8%, respectively) in comparison to students in the movement education classes (1.8% and 16.3%, respectively). Differences also existed in the amount of student time spent in cognitive activity. Students in the command style classes spent 27.4% of the time in cognitive activity compared to students in the movement education classes who spent 20.7%.

Significant differences were found in the amount of time students spent actively engaged in motor tasks between the two styles. Students were actively engaged in motor tasks 35.7% of the time in the command style classes in comparison to 59.5% in movement education style classes. Students in the command style classes were motor-appropriate 23.0% of the time compared to students in the movement education classes who were motor-appropriate 44.1% of the time. This indicated that students in the movement education style classes accumulated more ALT-PE than students in the command style classes. Differences between the two styles also existed in the amount of time students spent in motor-inappropriate and motor-supporting behaviors. Students in the command style classes spent 11.2% of their time in motor-inappropriate activities and 1.5% in motor-supporting behaviors; in movement education classes 15.4% of student time was spent in motor-inappropriate activities and no time was spent in motor-supporting behaviors.

Summary

In order to determine coder reliability for this study, one

videotape was randomly selected to be coded using CAFIAS on two independent observation sessions by Dr. Victor H. Mancini, an expert coder of CAFIAS. The predominant interaction patterns were ranked and then subjected to the Spearman rank-order correlation technique. The mean correlation of .984 that was found was sufficient to indicate that the coder was reliable.

In order to determine reliability for using ALT-PE, the scored-interval agreement method, as described by Hawkins and Dotson (1975), was used. Two randomly selected tapes were coded on two independent observation sessions by Dr. Victor H. Mancini. IOA was determined for each of the categories of the ALT-PE recording instrument by dividing the number of intervals on which there was agreement by the number of agreements plus disagreements and multiplying the figure by 100 (Herson & Barlow, 1976). IOA ranged from 92.0% to 100%.

Visual comparison of Table 1, Figure 1, and Table 2 indicated that differences existed in the behaviors and interaction patterns of the physical education teacher with the two different styles of teaching. In the movement education style the teacher exhibited more use of questions, acceptance, and praise, both verbally and nonverbally, than in the command style. There was more teacher-suggested student-initiated verbal and nonverbal behavior in the movement education style in comparison to the command style. The teacher spent more time verbally and nonverbally giving information, direction, and criticism in the command style compared to the movement education style. There was more verbal and nonverbal predictable student behavior in the command style while in the movement education style there was more

verbal and nonverbal interpretive student behavior. The predominant interaction pattern in the command style involved extended teacher information-giving followed by teacher direction and predictable student response followed by more teacher direction (5-5-6-8-6). In the movement education style, the predominant interaction pattern consisted of interpretive student response followed by teacher acceptance and more interpretive student response (8-3-8).

Visual comparisons of Table 3 indicated that differences existed in the ALT-PE categories between the two styles of teaching. There were significant differences at the context level in the general content area where students taught using the command style spent 21.8% of class time in transition activities compared to students taught using the movement education style who spent 12.1% of class time. Differences were found in the subject matter knowledge area. Students in command style classes spent 15.2% of time receiving instruction about techniques as compared to 10.1% of the time spent by students in the movement education classes. In the subject matter motor area there were significant differences in the amount of time spent in practice activities. The teacher using the movement education style allocated 51.3% of class time to practice activities compared to 28.6% of the time in command style classes.

Major differences existed at the learner involvement level in the engaged and not-engaged areas. In the command style classes, students were not engaged in motor behavior 64.3% of the time compared to movement education classes where students were not engaged 40.5% of the time. In the command style class, students spent more time in

on-task and cognitive activities (23.8%) and 27.4%, respectively) compared to students in the movement education classes (16.3% and 20.7%, respectively). In the movement education style students were engaged in motor activity 59.5% of the time compared to 35.7% of the time recorded by students in the command style classes. Most of this difference occurred in the motor-appropriate area; where students in the movement education classes spent 44.1% of the time appropriately engaged in motor activity in comparison to the 23.0% spent by students in the command style classes. In the command style classes students spent 11.2% of the time in motor-inappropriate behavior and 1.5% in motor-supporting behavior compared to movement education classes where students spent 15.4% of the time in motor-inappropriate and no time in motor-supporting behaviors.

Chapter 5

DISCUSSION OF RESULTS

Before a discussion can commence of the results found in this study comparing the command and movement education styles of teaching, a restatement of the questions we are attempting to answer is in order. The initial question of this study asked whether movement education, an indirect style of teaching, was more effective than command and the more indirect styles of teaching. As a result of the information collected in this study, this question can now be addressed. Were there any real visual and/or practical differences--supported by data--between these two styles of teaching? Were these differences, if any, supported by the results found in other studies? And finally, are there any practical applications in relationship to teacher effectiveness, particularly as it relates to the engaged time and/or the appropriate activity of the students? Throughout this chapter these questions will be answered as the results of this study are discussed.

Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972) was used in this study to record the behaviors and interaction patterns between the teacher and the students in the two different styles of teaching--command and movement education. The CAFIAS observation instrument has been considered useful in the gymnasium as a tool for the analysis of teaching and for the purpose of discriminating between various patterns of instruction (Darst, Mancini, & Zakrajsek, 1983). CAFIAS has been used in similar studies (Mancini,

1974; Martinek, 1976; Lydon, 1978; Schempp, 1981) to compare and verify two teaching models used in a human movement program at the elementary level. Wright (1981) used CAFIAS to describe the teaching behaviors and class organization of eight movement educators. Cheffers and Mancini (1978) also used CAFIAS when they examined the interaction patterns and instructional behaviors found on 83 videotapes collected as part of the Data Bank project by Anderson (1975). CAFIAS, designed for describing teacher-student behaviors and interaction patterns, has been said to be the most widely used interaction analysis system in physical education (Allard, 1979).

This investigation also used the revised Academic Learning Time in Physical Education instrument (ALT-PE) (Siedentop, Tousignant, & Parker, 1982) to identify and compare how students taught by the command and movement education styles of teaching spent their time. ALT-PE is a process measure of effective teaching which uses student behavior as an indirect, albeit efficient, measure of teacher effectiveness, particularly in terms of motor skill development (Siedentop, Birdwell, & Metzler, 1979). Mancini, Wuest, Clark, and Ridosh (1982) used the ALT-PE instrument to investigate the interaction patterns and the ALT-PE of low- and high-burnout secondary physical educators. In another comparison study Godbout, Brunelle, and Tousignant (1983) used the ALT-PE instrument to determine how much ALT-PE was experienced by elementary and secondary school students during physical education classes. Aufderheide, Olson, and Templin (1981) used the ALT-PE instrument to compare the academic learning time of mainstreamed handicapped students with regular students. In a descriptive study,

Shute, Dodds, Placek, Rife, and Silverman (1982) used the original ALT-PE instrument to record the activity of 105 elementary school children, grades K-6, in one physical educator's movement education classes.

Visual analysis of the CAFIAS results indicated that differences did exist in the behaviors of the physical education teacher and her students when she taught using the command and movement education styles of teaching. During the physical education classes taught with the movement education approach the teacher gave much more praise and acceptance and asked more questions. The latter (i.e., more question asking) probably resulted in the large amount of interpretive student response found in the movement education style. In the command style of teaching, on the other hand, the teacher tended to give more information, direction, and criticism. Likewise, the students in the command style classes responded with more predictable, rote responses, and did not exhibit as many interpretive responses as found in the movement education approach. The most frequent interaction pattern for the entire study (occurring 48.9% of the time) was extended teacher information-giving followed by teacher direction followed by predictable student response followed by more teacher direction (5-6-8-6). This interaction pattern was found with the command style teaching. It is important here to note the relationship between the amount of extended teacher information-giving and direction and the amount of predictable student response with the lack of interpretive student response found in the command style teaching. Characteristic of this type of class activity would be the teacher giving information

about how to dribble a ball with directions on when to get the ball and where to dribble in the gym. This would then elicit the "predictable" response of children getting the balls and dribbling in the prescribed manner. The most frequent interaction pattern found in the movement education style teaching was interpretive student behavior followed by teacher acceptance followed by more interpretive student behavior (8-3-8). This type of student behavior/response seems to be a product of the structure of the class as well. Characteristic of this type of class activity would be the children responding to the teacher's question by exploring different ways of moving the ball with their hands, feet, etc. Following the teacher's acceptance and praise of such activity, the children would continue to explore and discover different ways of moving the ball.

The results of this study indicated that differences existed in the behaviors and interaction patterns of the physical education teacher with the command and movement education styles of teaching. These results were similar to the results obtained by Mancini (1974), Martinek (1976), Lydon (1978), and Schempp (1981). Each of these studies investigated the effects of the teacher decision-making approach (TDMA) and the shared decision-making approach (SDMA) on elementary children in physical education settings. The TDMA is similar to the command style of teaching in that in both the teacher makes all of the decisions relative to the education process. In the same manner, the SDMA is similar to the movement education style of teaching in that both approaches are child-centered and encourage children to participate in the decision-making process. Using CAFIAS,

Mancini (1974) delineated characteristic behaviors and interaction patterns in the TDMA and SDMA models of teaching. These characteristic interaction patterns were used as a criterion measure, also identified through the use of CAFIAS, to validate treatment approaches in the Lydon (1978), Martinek (1976), and Schempp (1981) studies. CAFIAS data revealed differences in the behaviors and interaction patterns of the TDMA and SDMA similar to those found between the command and movement education styles in the present study. In classes using the TDMA and the command style of teaching the predominant interaction patterns were teacher information-giving, followed by teacher directions, followed by predictable student response, followed by more teacher direction (5-6-8-6). Likewise, SDMA classes and those using the movement education style of teaching were characterized by teacher questions, interpretive student behavior, and teacher acceptance and praise (4-8-3-2).

A study by Cheffers and Mancini (1978) indicated widespread use of direct teacher influence and teacher dominance in elementary and secondary physical education classes. When they described the interaction patterns and teaching behaviors of this direct teacher influence, they found a predominance of extended teacher information-giving, followed by teacher direction, and predictable student response, with an absence of teacher praise and acceptance and interpretive student behavior. These interactions and teaching behaviors characterizing direct teacher influence were similar to those found in the command style of teaching, considered a direct style of teaching, in the present study.

Wright (1981), who used CAFIAS to describe the instructional behaviors of eight movement educators, found that movement educators scored highly in the areas of teacher questioning, teacher acceptance and praise, and teacher-suggested student-initiative behavior. These behaviors were congruent to those exhibited by the teacher using the movement education style of teaching in the present study.

Several intervention studies have used CAFIAS training as a treatment approach to monitor and/or change teacher behaviors and interaction patterns. Although the current investigation is different in concept in that it is a comparison study, some comparisons can be made. Getty (1977), Hendrickson (1975), Lombardo (1979), Quinn (1982), Rochester (1976), Steffen (1983), Stevens (1979), and Vogel (1976) all reported more indirect teaching behaviors following CAFIAS training than before CAFIAS training and/or with no training at all. These indirect teaching behaviors were consistently characterized by increased amounts of teacher-suggested student-initiative behavior, that is, interpretive student response. These indirect teaching behaviors are consistent with those exhibited by the physical educator using the movement education style of teaching, a more indirect approach to teaching, in the present study.

This study used the revised Academic Learning Time in Physical Education (ALT-PE) observation instrument (Siedentop et al., 1982) to compare the academic learning time in physical education of students taught using the command and the movement education styles of teaching. The results of this study indicated that differences existed in the academic learning time of students with the two different styles of

teaching. Visual analysis of Table 3 indicated where these differences existed between the two styles. There were significant differences at the context level. The most noticeable difference was found in the general content area. In classes taught using the command style of teaching students spent 36.5% of the time in general content compared to 19.1% spent by students in the movement education classes. This type of activity refers to class time where students are not involved in physical education related activities; such activities include class management and organization, such as changing equipment, moving from one space to another, and/or teacher explanation of the organization of a lesson. Other activities considered general content activities include time devoted to class business, such as discussing field trips and taking attendance, time devoted to celebrating a birthday or telling a joke, and/or time devoted to warm-up activities with the intention of preparing the students for further activity. Since such a large amount of the time in the command style of teaching was spent in information-giving and direction, it would seem that at least some of this time was spent in the managerial and organizational activities of the general content area.

Only slight differences existed in the subject matter knowledge area indicating that both styles of teaching devoted approximately equal time to transmitting information to students concerning physical education content matter. This type of information includes explaining and/or demonstrating the proper technique for performing a particular motor skill, such as dribbling a ball or swinging a bat, discussing strategy for game play, stating the rules and regulations of a game,

and discussing sportsmanship or fair play rules in a game activity. The teacher when using the command style of teaching devoted 19.9% of class time to subject matter knowledge activities compared to 15.5% for movement education classes. Most of this difference was found in the amount of time devoted to transmitting information concerning techniques of a motor skill. The teacher using the command style teaching spent 15.2% of the time in this area; whereas, she spent only 10.1% of the time relating information about techniques in the movement education classes. This indicates that the teacher when using movement education spent less time directing student behaviors; this was in keeping with the movement education style of instruction, that is, guiding rather than directing the activities of the students through self-exploration and discovery.

More significant differences existed in the subject matter motor area where students in the command style classes spent 43.6% of their time compared to students in the movement education style classes who spent 65.4% of their time. The subject matter motor area refers to class time when the focus of student activity is on motor involvement in physical education related activities. Activities included in this area include skill practice and drill activities, scrimmages and routines, game play, and fitness activities. The amount of time spent on practice activities contributed to most of this difference. Students in the command style of teaching spent 28.6% of class time in practice activities compared to students in the movement education style who spent 51.3% in such activities. The amount of time spent in practice activities in the movement education style seems to be in keeping with

the theme of movement education which is based on the freedom to move and explore in the physical environment. The amount of time devoted to this exploration is evident in the amount of student activity.

The most significant differences were found in the learner involvement level. Major differences were found in the time spent in not-engaged activities. Students in the command style classes spent 64.3% of their time in such activities; whereas, students in the movement education spent 40.5%. These types of activities refer to those which require motor involvement which are not subject-matter related. Not-engaged motor activities include interim activities, such as retrieving a ball; waiting activities, such as standing in line; off-task activities, such as misbehavior; on-task activities, such as helping set up equipment; and cognitive activities, such as watching a demonstration or listening to the teacher describe a game. Students in the command style classes waited 8.4% of the time compared to students in the movement education classes who waited 1.3%. In the command style classes students spent 4.8% and 23.8% in off-task and on-task activities, respectively, compared to students in movement education classes who spent 1.8% and 16.3% of the time in off-task and on-task activities, respectively. Students in the command style classes spent 27.4% of their time receiving subject-matter related information compared to students in the movement education classes who spent 20.7%. This, also, would be expected since more time is typically spent giving information and directions with the command style approach as compared to the movement education approach.

The most notable differences between the two styles were found in

the amount of time students spent actively engaged in motor tasks. This refers specifically to motor involvement with subject matter oriented activities. Motor-appropriate activities refer to activities where the student is engaged in such a way as to produce a high degree of success. Students in the command style classes were motor-appropriate 23.0% of the time compared to students in the movement education style classes who were motor-appropriate 44.1%. This indicated that students exposed to the movement education style of teaching accumulated more ALT-PE than students taught by command style. This seems to imply that when children are allowed to explore, discover, and learn at their own rate, as in a movement education class, they experience greater success which in turn promotes greater activity and possibly greater learning. Flanders (1960) stated that direct teacher-dominated behavior, such as information-giving and directing, leads to an atmosphere which restricts and inhibits the students' desires to respond freely.

Slight differences existed between the two styles in the amount of time students spent in motor-inappropriate activity, or motor activity which is either too difficult or too easy to justifiably contribute to a lesson's goals. Students in the command style classes spent 11.2% of their time in motor-inappropriate activities compared to students in the movement education classes who spent 15.4%. Students taught by the command style of teaching spent 1.5% of the time in motor supporting activity, such as throwing a ball to a hitter; students in the movement education classes spent no time in motor supporting activities.

Many of the investigations to this point have utilized the original ALT-PE system (Siedentop, Birdwell, & Metzler, 1979). The present investigation used the revised ALT-PE system (Siedentop et al., 1982) which makes context level decisions based on class activity and learner involvement decisions based on the individual learner. Subject matter knowledge and subject matter motor in the revised system contain categories that are almost identical as the P.E. content level categories in the original system. Sub-categories in the general content category are similar in both systems with the exception being that the category of warm-up in the revised system replaced waiting in the original system. Motor engaged in the revised system is similar to engaged responding in the original system. It is important to note that the amount of ALT-PE in the original system is determined by the motor activity at the easy, medium, and hard levels; whereas, the ALT-PE in the revised system is equivalent to the percentage of time in the category of motor appropriate activity. The other categories for both systems are very similar.

In the study done by Godbout et al. (1983) the researchers reported that elementary students accrued an average of 31.3% ALT-PE. This was more than the accrued ALT-PE found in the command style of teaching in the present study, but less than what was found in the movement education style of teaching. Godbout et al. (1983) also reported that class time spent on activities other than P.E. content was between 19% and 34%. Class time spent on activities unrelated to subject matter in the command style of teaching was 36.5%, higher in comparison to what was reported in the Godbout et al. (1983) study. The amount of time spent in such activities in the movement education style of teaching was 19.1%,

which was consistent with what was reported in the Godbout et al. (1983) study. Essentially these findings indicate that students taught by the movement education style of teaching spent less time in activities unrelated to subject matter in comparison to students taught by the command style and also less time than averaged in the study done by Godbout et al. (1983).

In comparing the ALT-PE of mainstreamed handicapped students with regular students in an effort to discern opportunities for learning, Aufderheide et al. (1981) found that mainstreamed handicapped students accrued 44.9% ALT-PE compared with the 45.9% accrued by regular students. This revealed no significant difference in the amount of ALT-PE accrued. In comparison with the present study the students taught using the command style of teaching experienced much less ALT-PE (23.0%); the students taught with the movement education style experienced similar amounts of ALT-PE (44.1%). This would seem to indicate that students taught using the command style of teaching have less opportunities for learning than those taught using the movement education style.

Direct comparisons can be made between this study and the investigation done by Shute et al. (1982). Although Shute et al. (1982) used the original ALT-PE instrument (Siedentop et al., 1979), as aforementioned, the categories are essentially the same. Comparisons will be made among the results reported by Shute et al. (1982), who described the actions of students in one physical educator's elementary movement education classes and the actions of students taught with the command and movement education styles of teaching used by one physical educator in the present study. Shute et al. (1982) reported total

class time spent in general content physical education activities was 21%. This was similar to the 19.1% found in the movement education style of teaching in the present study. In contrast, with the command style of teaching 36.5% of class time was devoted to general content activities. This seems to indicate that the structure of command style teaching necessitates more managerial and organizational activities.

Shute et al. (1982) found the amount of class time students spent in physical education content activities, such as skill practice, games, and fitness, was 79%; this is similar to the 80.9% reported for movement education and less than the 63.5% found for command teaching in the present study. In this study the amount of time spent in physical education content activities is determined by combining the amount of time students spent in the subject matter knowledge areas and subject matter motor areas. In this study, students in the movement education classes spent 80.9% of their time in physical education content activities; whereas, students in the command style classes spent 63.5% of their time on physical education content activities. The findings of this study with respect to the movement education style of teaching are consistent with those obtained in the Shute et al. (1982) investigation. Both of these findings are considerably higher than those found with the command style of teaching indicating that teachers in movement education settings generally involve their students in more learning experiences related to physical education content rather than in the organizational and managerial activities which seem to be emphasized in the command style of teaching.

At the learner involvement level the students were engaged in

physical education activities 57% of the time in the movement educator's classes in the Shute et al. (1982) study, 59.5% of the time with the movement education style of teaching in the present study, and 35.7% of the time with the command style of teaching. The comparisons made between the movement education classes are consistent with each other and, again, in contrast with those found with the command style of teaching. This seems to support the movement education theme of maximizing student involvement in the learning environment.

Students in the Shute et al. (1982) study were reported to be not-engaged in physical education content activities 43% of the time. These findings are similar to those found with movement education style of teaching in the present study, 40.5%, and, again, in contrast, much lower than those recorded in the command style of teaching, 64.3%. Further comparisons can be made when analyzing the amount of time students spent engaged and not-engaged in physical education activities between the two studies. In the movement education classes in this study and in those described in the Shute et al. (1982) investigation, students spent relatively more time engaged in physical education activities than not-engaged; approximately 60% of the time the students were engaged and approximately 40% of the time not-engaged. On the other hand, students taught using the command style of teaching spent more time, relatively, not-engaged in physical education activities than engaged; 64.3% compared to 35.7%, respectively. When the goals of the teacher are to promote student involvement in appropriate and effective activity in the learning environment; the collective data seem to support the use of a more movement-oriented approach to teaching.

These data seem to suggest possible relationships between the CAFIAS and ALT-PE instruments with respect to information about teacher behaviors and student actions as a learning process measure, giving indirect indications about potential student achievement. In answer to the initial questions posed at the beginning of this study and this chapter, the students taught with a movement education style of teaching were asked more questions, received more praise and acceptance, and were allowed to respond with more interpretive behaviors. They also spent a higher percentage of time engaged in physical education activity, more specifically, motor-appropriate activity or ALT-PE. The students taught with the command style of teaching received more information, direction, and criticism and responded with more predictable, rote behaviors. They were exposed to less subject matter motor activity and were engaged much less in motor-appropriate activity.

Summary

This study used the CAFIAS (Cheffers, 1972) and ALT-PE (Siedentop et al., 1982) instruments to compare the command and movement education styles of teaching in elementary physical education with respect to teacher behavior and student involvement. Visual analysis of the data showed that differences existed in both the teacher's behavior and the students' involvement between the two styles of teaching.

Visual analysis of the CAFIAS data supported the research hypothesis that stated there would be a significant difference in the teaching behaviors in the classes taught by a teacher using a command style and a movement education style of teaching. The teacher gave much more information, direction, and criticism in the command style of

teaching. In the movement education style of teaching, the teacher asked more questions and gave more acceptance and praise. The students taught with the command style of teaching were characterized by predictable, rote behaviors; whereas, students taught with the movement education style were characterized by more interpretative behaviors. The results of this study with regard to teaching behaviors are similar to those found by Lydon (1978), Mancini (1974), Martinek (1976), Schempp (1981), and Wright (1981).

Visual analysis of the ALT-PE data led to the rejection of the research hypothesis that stated there would be no difference in the ALT-PE accrued by students taught a unit using the command style and the movement education style of teaching. The ALT-PE data revealed significant differences in the ALT-PE accrued by students taught using the command style and students taught using the movement education style of teaching. Students taught using the command style of teaching were engaged in motor-appropriate activity (accrued ALT-PE) 23% of the time; whereas, students taught using the movement education style were engaged in motor-appropriate activity 44.1% of the time. There were also differences between the two styles in student involvement in the not-engaged, subject matter motor, and subject matter knowledge areas. The not-engaged and subject matter knowledge percentages were generally higher in the classes taught using the command style of teaching compared to the classes taught using movement education style; whereas, percentages favored the movement education style of teaching in the subject matter motor area. The findings of this study can be compared in varying degrees to the results of other studies (Aufderheide et al.,

1981; Godbout et al., 1983; Mancini et al., 1982; Shute et al., 1982).

Yet, the purpose and structure of these investigations must be considered, and the comparisons must be made carefully.

The collective data of this study revealed that there are real visual and practical differences between the command style and the movement education style of teaching. These differences are supported by the results found in other studies. There seems to be a relationship between teacher behavior and student involvement in the gymnasium; in addition, there seems to be a favorable relationship between indirect teaching styles and desirable student behaviors, that is, greater student involvement in physical education content activities.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

This investigation was conducted to compare the command style of teaching and the movement education style of teaching in elementary physical education with respect to teacher behavior and student involvement. The subjects for this investigation were one female physical education teacher from the Ithaca, New York area and 30 children. The teacher was asked to teach a unit involving the same physical education content matter using two different styles of teaching--command style and movement education style. Two first-grade classes were chosen and taught a 5-day unit in manipulative and ball-handling skills. Each class was exposed to a different style of teaching. The instructor was videotaped throughout both 5-day units for the entire length of the unit. Three target students were randomly selected from each class for observation.

The videotapes were coded by a reliable coder trained in the CAFIAS and ALT-PE instruments. The Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) was used to assess teacher behavior and teacher-student interactions. The Academic Learning Time in Physical Education (ALT-PE) instrument was used to describe student involvement. The data collected from the coding of CAFIAS were transferred onto the computer for analysis. The data were compiled into percentages for each of the 20 CAFIAS variables. The data collected for ALT-PE were computed manually and compiled into percentages for the ALT-PE parameters. These

parameters were then compared by visual analysis.

Visual comparisons of the CAFIAS results for the 5-day units indicated that differences did indeed exist in the behaviors and interaction patterns of the physical education teacher with the command and the movement education styles of teaching. During the physical education classes taught with the command style of teaching the teacher spent more time giving information, direction, and criticism to the students. Likewise, the students in the command style of teaching responded with more predictable, rote behaviors. In the movement education style of teaching the teacher asked more questions and exhibited more praise and acceptance of students' ideas and actions which resulted in more interpretive student responses. Visual interpretation of the data found in this study supported the research hypothesis which stated there would be a significant difference in the teaching behaviors in the classes taught by a teacher using a command style and a movement education style of teaching.

Examination of the ALT-PE data resulted in the finding that significant differences existed in the amount of ALT-PE experienced by students taught with the command style of teaching and the movement education style of teaching. Students taught using the command style of teaching spent a greater amount of time in general content activities which include transition, management, and warm-up; subject matter knowledge activities; and not-engaged physical education activities which include waiting, off-task, on-task, and cognitive behavior. Students taught using the movement education style of teaching had a greater percentage of time in subject matter motor activities and engaged

physical education activities which included motor-appropriate activities or accrued ALT-PE. Visual interpretation of the ALT-PE data led to the rejection of the research hypothesis which stated that there would be no difference in the ALT-PE accrued by students taught a unit using the command style and the movement education style of teaching.

The collective data of this study, when viewed, suggested a tentative, albeit favorable, relationship between indirect teacher behavior and student involvement. Students taught using the movement education style of teaching, an indirect approach to teaching, were asked more questions and experienced more praise and acceptance from their teacher. They also exhibited more interpretive behaviors and experienced more motor-appropriate activities than students taught using the command style of teaching, a more direct approach to teaching. The students taught using the command style of teaching received more information, direction, and criticism and had more predictable responses. This may be related to the fact that they spent more time in not-engaged physical education activities and less time in engaged activities and motor-appropriate behaviors.

Conclusions

The results of this study led to the following conclusions regarding the behaviors and the interaction patterns of a female physical education teacher using a command style and a movement education style of teaching and the accumulated ALT-PE of students taught using a command style and a movement education style of teaching for an entire unit of instruction:

1. The behaviors and interaction patterns of the physical education teacher were not the same with the command and the movement education

styles of teaching.

2. The physical education teacher gave more information, direction, and criticism to students when using the command style of teaching.

3. The physical education teacher received more predictable responses from the students who were taught using the command style of teaching.

4. The physical education teacher asked more questions and gave more praise and acceptance of actions and ideas to the students when using the movement education style of teaching.

5. The physical education teacher received more interpretive responses from students who were taught using the movement education style of teaching.

6. The students taught using the command style of teaching spent considerably more time in the general content activities of physical education than the students taught using the movement education style of teaching.

7. The students taught using the command style of teaching spent more time in not-engaged physical education activities than the students taught using the movement education style of teaching.

8. The students taught using the movement education style of teaching spent considerably more time in subject matter motor activities than the students taught using the command style of teaching.

9. The students taught using the movement education style of teaching were more actively engaged in motor-appropriate responses than the students taught using the command style of teaching.

Recommendations for Further Study

The following recommendations are suggested for further study:

1. Conduct a similar study using a larger number of teachers and students.
2. Conduct a similar study using other teaching approaches, such as those which comprise the Mosston (1981) spectrum of styles.
3. Conduct a similar study using a unit of instruction different than the one used in the present study.
4. Conduct a similar study using a male physical educator as the subject.
5. Conduct a similar study using a different age and grade level of students than used in the present study.

Appendix A

INFORMED CONSENT FORM

TEACHER'S COPY

1. a) Purpose of the Study. Research is being conducted to describe and compare two different teaching styles used in physical education classes for an entire unit of instruction. Comparisons will be made between the teacher's and students' interactions as well as the students' academic learning time-physical education.
b) Benefits. The resulting information may prove useful in determining which method or style of teaching is more appropriate and/or effective for certain types of subject matter found in physical education. This information may also help the individual teacher determine which type of teaching method is more effective in meeting the need of the students in the psychomotor, cognitive, and affective domains.
2. Methods. As a subject you will be asked to participate in the following manner:
 - 1) Construct with the researcher two workable unit plans using two different methods of instruction. One method will be using a traditional or direct style of teaching; the other will be using a movement-oriented style of teaching.
 - 2) Permit the researcher to videotape an entire unit of teaching using two first-grade physical education classes. Each class will be exposed to a different method of instruction. During this time the only thing that you will be asked to do is

Appendix A (continued)

wear a small wireless microphone.

Each videotape will be coded using the Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) and the Academic Learning Time-Physical Education (ALT-PE) instrument.

3. Will this hurt? There are no apparent physical or psychological risks involved in participation of this study. The coding systems which will be used on the videotapes are non-evaluative.
4. Need more information? If you wish to know more information about the study or the results from the study research, please feel free to contact me at Ithaca College, Ithaca, New York 14850.
5. Withdrawal from the study. Participation is voluntary and your initial agreement to participate does not prevent you from discontinuing your participation at any time.
6. Will the data be maintained in confidence? It is assured that names in this study will be kept in the strictest confidence. Taping is solely for the purpose of this study. Data analysis on information gathered on your classes will be available for review upon request. Thank you.

Researcher: Kathleen F. Smith

_____ Yes, I agree to participate in this study.

_____ No, I do not agree to participate in this study.

Signature

Date

Appendix B

INFORMED CONSENT FORM

PARENT'S COPY

The study in which your son/daughter is asked to participate is looking at the interaction behavior patterns of an elementary physical educator with her students. The study examines the effects of using two different methods of instruction. The Cheffers' Adaptation of the Flanders' Interaction Analysis System (CAFIAS) will be used to measure the interaction and behavior patterns between the teacher and her students. The students' academic learning time-physical education will be measured by the Academic Learning Time-Physical Education (ALT-PE) instrument.

Your son/daughter will be videotaped for five classes during the 1983-1984 school year. The taping will not interfere with the student's normal actions in class, nor will he/she be required to wear any identifying markers during the videotaping. Participation is voluntary, and the parents' agreement to the student's participation does not prevent them from discontinuing the student's participation at any time.

It is assured that names in this study will be kept strictly confidential. The tapes will be disposed of promptly following the study. If you do not have any questions and are willing to let your son/daughter participate in this study, please sign your name below.

Thank you,

Kathleen F. Smith

Student's Name

Parent's Signature

Date

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