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The effects of instruction and supervision in interaction analysis on the teaching behaviors of high-burnout secondary physical education teachers

Whitney Keith Vantine

THE EFFECTS OF INSTRUCTION AND SUPERVISION IN

INTERACTION ANALYSIS ON THE TEACHING

BEHAVIORS OF HIGH-BURNOUT SECONDARY

PHYSICAL EDUCATION TEACHERS

by

Whitney Keith Vantine

An Abstract

of a thesis submitted in partial fulfillment

of the requirements for the degree of

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Thesis Advisor: Dr. Victor H. Mancini

ABSTRACT

The effects of instruction and supervision in Cheffers' Adaptation of

Flanders' Interaction Analysis System (CAFIAS) on the teaching behaviors of

high-burnout secondary physical education teachers were investigated.

Thirty secondary physical education teachers from the southern tier

section of New York State were contacted and asked to be subjects. If

the teacher agreed, he/she was requested to complete the Maslach Burnout

Inventory (MBI). Using the median split technique, teachers were placed

into high-burnout or low-burnout groups on the basis of their scores on

the MBI. Ten teachers were randomly selected from each group to

represent that group. From the high-burnout (HB) group, six teachers

were randomly selected and then randomly assigned to treatment ($N = 3$)

and control ($N = 3$) groups. Each teacher was videotaped nine times by the

investigator while teaching an entire regularly scheduled physical

education class. The videotaping was divided into three phases. During

Phase One, each subject was videotaped three times for baseline data

collection. During Phase Two, all teachers were videotaped three times

and received 5 days of feedback. The control group received

conventional supervisory feedback to analyze their teaching; the treatment

group received conventional supervisory feedback along with instruction,

supervision, and feedback in CAFIAS and an analysis in the form of a

computer print-out for each class videotaped. During Phase Three, all

teachers were videotaped three times for posttest data collection and at

the conclusion of the videotaping the MBI was again administered. Data

for final analysis were collected from the Phase One and Phase Three

classes which were coded using CAFIAS by an expert coder. CAFIAS was

used to describe verbal and nonverbal behaviors and illustrate teachers'

and students' behaviors. The scores of each of the 17 variables

described by CAFIAS were transposed onto computer cards for computer

analysis. Descriptive statistics were used to determine whether

differences identified by CAFIAS existed between treatment and control

groups. Percentages and ratios were obtained from the computer scoring of

CAFIAS. Visual comparisons were made between treatment and control

subjects to determine the relative standings of both groups on each

CAFIAS variable during Phase One and Phase Three. Visual inspection of

the data was used to compare pretest and posttest scores on the MBI and

to compare changes on the two dimensions of each of the three subscales

of the MBI. Differences were evident in teaching behaviors of the

treatment group from pretest to posttest observation periods. The post-

test classes were characterized by increased teacher acceptance and

praise, teacher use of questioning, and increased teacher empathetic

behavior, along with increased student-to-student interaction. Decreases

were evident in teacher emphasis on content, nonverbal emphasis, teacher

direction-giving and teacher criticism. Slight changes were revealed in

the teaching behavior of the control group from pretest to posttest

observation periods. Posttest classes were characterized by increased

teacher use of questioning, silence and confusion by students, and verbal

emphasis. Decreases were evident in the parameters of teacher use of

acceptance and praise, teacher emphasis on content and nonverbal emphasis.

Visual interpretation of the MBI data illustrated that frequency and

intensity of depersonalization and emotional exhaustion decreased, while

personal accomplishment scores for frequency increased and for intensity

decreased for the treatment group from pretest to posttest observation

periods. Visual interpretation of the MBI data revealed decreases on the emotional exhaustion: frequency, emotional exhaustion: intensity, depersonalization: intensity, personalization: intensity subscales, and increases on the depersonalization: frequency and personal accomplishment: frequency subscales from pretest to posttest for the control group. The magnitude of the changes on the MBI were greater for the treatment group indicating a greater decrease in the level of burnout. Visual interpretation of the data led to the rejection of the major hypothesis which stated there will be no significant difference between the teaching behaviors of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback. Visual interpretation of the data from the MBI led to the rejection of the hypothesis which stated there will be no significant differences between Maslach Burnout Inventory (MBI) scores of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers only receiving conventional supervisory feedback.

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PHYSICAL EDUCATION TEACHERS

———————————

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

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by

Whitney Keith Vantine

May 1983

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

CERTIFICATE OF APPROVAL

_____

MASTER OF SCIENCE THESIS

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This is to certify that the Master of Science Thesis of

Whitney Keith Vantine,

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 has been approved.

Thesis Advisor:

Committee Member:

Candidate:

Chairman, Graduate
    Programs in Physical
    Education:

Dean of Graduate
    Studies:

Date: _____ _June 16, 1983_____

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DEDICATION

This thesis is dedicated to life, life that has had the pleasures of warmth, love, support, kindness, and understanding, that life being my own.

Robert F. Kennedy wrote about what his father meant to him, and I quote: "What it really adds up to is love. Not love as it is described with such facility in popular magazines, but the kind of love that is affection and respect, order and encouragement and support. Our awareness of this was an incalculable source of strength. And because real love is something unselfish and involves sacrifice and giving we could not help but profit from it."

I extend this quote to include my mother. To these two beautiful human beings who have given of themselves in an effort to enhance and enrich our lives, I dedicate this simple gift of lasting love and respect, bound in a book.

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Chapter 1

INTRODUCTION

Teacher burnout is one of the most serious problems in education today (McGuire, 1979; Sparks & Hammond, 1981; Truch, 1980). Burned out teachers, confronted with unrelieved work stress, are leaving the profession in increasing numbers (Truch, 1980; Veninga & Spradley, 1981). Other burned out teachers cope with burnout by remaining on the job and going on "active retirement"--teaching by simply "going through the motions" (Austin, 1981a; Ricken, 1980; Veninga & Spradley, 1981). Burned out physical educators may go "through the motions" by "throwing out the ball."

Burnout can be defined as chronic stress accompanied by physical, emotional, and attitudinal exhaustion (Austin, 1981b; Truch, 1980). Kyriacou and Sutcliffe (1979) viewed burnout as a multidimensional phenomena that affects each individual differently, resulting in a manifestation of a diversity of physiological, psychological and/or behavioral symptoms and in varying degrees of debilitation. According to Maslach and Jackson (1981), individuals who experience a high level of burnout frequently report increased feelings of emotional exhaustion and display negative cynical attitudes toward their clients (i.e., students). These individuals may feel dissatisfied with their job performance and unhappy with their personal accomplishments.

A diversity of factors may contribute to teacher burnout. One of the primary factors is teacher stress. The New York State United Teachers organization conducted a questionnaire survey in 1979 in an

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attempt to determine the causes of teacher stress ("Stress," 1980).

Among the teachers involved in this survey managing "disruptive" children,

incompetent administrators, maintaining self-control when angry, and

overcrowded classrooms were cited as major causes of teacher stress.

Additional stressors include dealing with community racial issues,

disagreeing with the supervisor, and being the target of student verbal

and physical abuse (McGuire, 1979; Ricken, 1980; Veninga & Spradley, 1981).

Another factor which contributes to teacher burnout is inadequate

supervisory feedback which may contribute to teacher apathy, complacency,

performance decrements and eventually to teacher burnout (Ricken, 1980).

Family and personal problems may also affect teacher burnout (Veninga &

Spradley, 1981).

The potential consequences of teacher burnout are very serious for

the teacher as well as for the students and school involved. Burnout

appears to contribute to job turnover, absenteeism, low morale, and poor

job performance (Maslach, 1976; Maslach & Jackson, 1981; Veninga &

Spradley, 1981). Farber and Miller (1981) asserted that the greatest

impact of teacher burnout will be on the delivery of educational services--

instruction. Teacher burnout may result in behavioral inflexibility,

inefficiency, and infrequent or careless planning of classes (Farber &

Miller, 1981; Sparks & Hammond, 1981, Veninga & Spradley, 1981). Burned-

out teachers may be critical of their students and provide their students

with a minimum of feedback (Mancini, Wuest, Clark, & Ridosh, 1982;

Sparks & Hammond, 1981; Veninga & Spradley, 1981). Little praise,

encouragement, and reinforcement of students' efforts may be offered

(Farber & Miller, 1981; Mancini et al., 1982). Lack of involvement and

infrequent student interactions as well as lowered expectations for

student achievement are also common (Farber & Miller, 1981; Maslach & Jackson, 1981; Veninga & Spradley, 1981).

While burnout has become increasingly common, a search of the literature reveals few instruments designed to specifically measure burnout. One instrument is the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). Maslach and Jackson (1981), in developing the MBI, conceptualized burnout as a continuous rather than a dichotomous variable. Thus, burnout may be described in terms of low to moderate to high degrees. The MBI assesses burnout in terms of three characteristics: (a) emotional exhaustion, (b) negative, cynical attitudes, and (c) personal accomplishment. These characteristics are described in terms of two dimensions: frequency and intensity.

While few instruments have been developed to measure burnout, the literature contained many suggestions as to how teachers can cope with or alleviate burnout. O'Brien (1981) offered seven recommendations on how to effectively cope with burnout: development of inservice programs, use of more effective communication techniques, role negotiations, redefinition of job expectations, utilization of steering committees, use of support groups, and implementation of physical fitness programs. Research conducted by Maslach (1976) indicated that those professionals who had some sort of social-professional support system showed lower levels of burnout that those who had no support groups. According to Kuhlmaier (1981), involvement of teachers in program development and in the decision-making process has been effective in relieving burnout. Ricken (1980) perceived supervisors as having a crucial role in preventing teacher burnout and asserted that preventing teacher burnout is the supervisory challenge of the 1980's.

One approach frequently cited to alleviate burnout is to assist teachers by providing opportunities for teachers to become aware of their behaviors. Vergamini (1981) suggested that self-awareness and a realistic assessment of personal limitations and strengths are an effective approach to remediate burnout. Malone and Rotella (1981) supported this concept and suggested that burnout can be prevented by promoting self-awareness and by maintaining an accurate perspective of the situation.

Researchers (Good & Brophy, 1973; Martin & Keller, 1976; Withall, 1972) have found that teachers are not aware of the behaviors exhibited by themselves and their students. Withall (1972) stated that teachers rarely consciously monitored their teaching, were unaware of what they were doing, and unable to explain why they used certain behaviors. Good and Brophy (1973) concluded that there are three major factors hindering a classroom teacher's ability to perceive classroom activity in an accurate manner: (a) the interaction in the classroom takes place at too rapid a pace, (b) teachers lack the training to monitor and study their behaviors, and (c) teachers infrequently receive systematic feedback from their supervisors. One approach to increase teachers' awareness of their behaviors is by providing them with objective feedback about the behaviors they are exhibiting through the use of systematic observation.

One systematic observation technique is called interaction analysis (IA). The Flanders' Interaction Analysis System (FIAS) (Flanders, 1960) has been the most widely used interaction analysis system in education. In order to describe behaviors more effectively in physical education classes, Cheffers (1972) developed Cheffers' Adaptation of Flanders' Interaction Analysis System. This modification, called CAFIAS, expanded

FIAS to permit the coding of verbal and nonverbal behaviors, teaching agencies, and class structure. Researchers (Getty, 1977; Inturrisi, 1979; van der Mars, 1979) have used CAFIAS as both an observational instrument and intervention technique to modify teachers' behaviors. The researchers found that teachers who have received training in CAFIAS and/or supervisory feedback utilizing CAFIAS used more indirect teaching patterns, and utilized more questioning, acceptance, praise, and student initiated behavior than those who have received no training or only conventional supervisory feedback.

As suggested by Ricken (1980), this study is an attempt to assess the impact of systematic supervisory feedback on high-burnout teachers' behaviors and on teacher burnout. Specifically, this study investigated the effects of instruction and supervision in CAFIAS on the teaching behaviors of high-burnout secondary physical educators. Additionally, the effects of supervisory feedback on teacher burnout, as measured by the MBI, will be described.

Scope of the Problem

The effects of instruction and supervision in Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) upon the teaching behaviors of high-burnout secondary physical education teachers were investigated. Thirty secondary physical education teachers from the southern tier section of New York State were contacted and asked to be subjects. If the teacher agreed, he/she was requested to complete the MBI. Using the median split technique, teachers were placed into high-burnout ($N = 15$) or low-burnout ($N = 15$) groups on the basis of their scores on the MBI. Ten teachers were randomly selected to represent each group. From the high group, six teachers were randomly selected and then

randomly assigned to treatment ($\underline{N}$ = 3) and control ($\underline{N}$ = 3) groups. Each teacher was videotaped nine times by the investigator while teaching an entire regularly scheduled physical education class. The videotaping was divided into three phases.

During Phase One all teachers were videotaped three times teaching an entire physical education class for baseline data collection. During Phase Two all teachers were videotaped three times and received 5 days of feedback. The control group received conventional supervisory feedback to analyze their teaching; the treatment group received conventional supervisory feedback along with supervision, instruction, and feedback in CAFIAS and an analysis in the form of a computer print-out for each class videotaped. During Phase Three all teachers were videotaped three times for posttest data collection and at the conclusion of videotaping the MBI was again administered.

Comparisons were made between percentages or ratios of the two groups on each of the 17 CAFIAS variables. Subjects' pretest and posttest scores on the MBI were compared visually in terms of the frequency and intensity scores on the three subscales: depersonalization, emotional exhaustion, and personal accomplishment.

Statement of Problem

This investigation was undertaken to compare the effects of instruction and supervision in Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) on the teaching behaviors of high-burnout secondary physical education teachers. The effect of systematic feedback on level of burnout was also investigated.

Hypotheses

1. There will be no significant difference between the teaching

behaviors of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback.

2. There will be no significant difference between Maslach Burnout Inventory (MBI) scores of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback.

Assumptions of Study

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

1. The subjects were representative of secondary physical education teachers.

2. Coding of six entire classes using CAFIAS would be adequate for obtaining valid data to test the hypothesis.

3. The Maslach Burnout Inventory (MBI) was an adequate instrument to determine high-burnout teachers.

4. There was no collusion between control and treatment subjects relative to this study.

Definition of Terms

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

1. Secondary physical education teacher is a teacher certified by the State of New York to teach physical education in grade levels 7 through 12.

2. Interaction analysis (IA) is an observational technique that records the frequency of teacher-pupil interpersonal behaviors (Amidon & Hough, 1967).

3. Flanders' Interaction Analysis System (FIAS) is an objective

system specifically designed to analyze the verbal interaction between teacher and students as it occurs in the classroom (Amidon & Flanders, 1971).

4. Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) is a validated expansion of FIAS and is designed to measure the verbal and nonverbal interaction between teacher and pupil, class structure, and a variety of teaching agents (see Appendix A).

5. Seventeen parameters of CAFIAS refers to 17 variables of CAFIAS (Cheffers, Mancini, & Martinek, 1980). The following are definitions of these terms:

a. Total Teacher Contribution (TTC) refers to all teacher behaviors, verbal and nonverbal, observed during the coding period, including praise, acceptance, questions, lecturing, directions, criticism, and empathy.

b. Total Student Contribution (TSC) refers to all student behaviors, verbal and nonverbal, observed during the coding period, including rote (expected or automatic manner) or predictable responses, interpretive or evaluative responses, and student-initiated, unexpected or unpredictable behaviors.

c. Total-Silence and/or Confusion (SC) refers to each 3-second period during the observation when there is either silence, confusion, or anything other than student or teacher talk.

d. Total Teacher Use of Questioning (TTQR) refers to the nonverbal questions of the teacher as compared with nonverbal lecturing behaviors.

e. Total Teacher Use of Acceptance and Praise (TTAPR) is the teacher's verbal and nonverbal use of acceptance, praise, encouragement, and empathy as compared with verbal and nonverbal use of direction and criticism.

f. Total Student Initiation, Teacher Suggested (TSITSR) is the total of students' verbal and nonverbal interpretive or evaluative responses and their unexpected or unpredictable behaviors compared with the total of students' verbal and nonverbal behaviors.

g. Total Student Initiation, Student Suggested (TSISSR) is all student verbal and nonverbal unexpected or unpredictable self-initiated student behaviors compared with the total of students' verbal and nonverbal behaviors.

h. Content Emphasis--Teacher Input (CETI) is the amount of class time the teacher devotes to subject matter.

i. Teacher as Teacher (TT) is the amount of class time during which the teacher is the teaching agent.

j. Other Students as Teacher (ST) is the amount of class time during which one or more of the students is the teaching agent.

k. The Environment as Teacher (ET) is the amount of class time during which the environment (a book, film, piece of equipment, etc.) is the teaching agent.

l. Verbal Emphasis (VE) is all behaviors during the class that are expressed verbally.

m. Nonverbal Emphasis (NVE) is all observable behaviors during the class that are not expressed verbally.

n. Class Structured as One Unit (W) is the amount of class time during which the class is structured to function as a whole unit.

o. Class Structured as Groups or Individuals (P) is the amount of class time the class is structured in such a way that the students work in groups or as individuals.

p. Class Structured with No Teacher Influence (I) is the amount of class time the teacher has no influence over the class (i.e., talking with another teacher, answering the phone, correcting work at the table, hanging posters, etc.).

q. Teacher Empathy to Student Emotions (TE) is the amount of times during the class when the teacher is empathetic in response to an emotional pupil behavior.

6. Verbal Behavior is an audible action or reaction.

7. Nonverbal Behavior is an action or reaction that is not audible.

8. Burnout is chronic stress accompanied by physical, emotional, and attitudinal exhaustion (Maslach & Jackson, 1981; Veninga & Spradley, 1981).

9. Maslach Burnout Inventory (MBI) is an instrument designed to assess the level of burnout characteristics that an individual exhibits (Maslach & Jackson, 1981). There are three subscales in this inventory: emotional exhaustion, depersonalization, and personal accomplishment. The three subscales are measured in terms of two dimensions: frequency and intensity.

10. High-Burnout Teacher is an individual whose scores on the MBI placed him/her in the top 50th percentile of the subjects who took the MBI.

Delimitations of Study

The following are the delimitations of this study:

1. The subjects were secondary physical education teachers from the southern tier section of New York State.

2. This study used one interaction analysis system, CAFIAS, to describe teaching behavior.

3. This study used one instrument, the MBI, to determine high- or low-burnout characteristics.

4. Each subject was videotaped nine times.

Limitations of Study

The following were the limitations of this study:

1. The findings may only be valid for secondary physical education teachers.

2. The findings related to teaching behavior may only be valid when CAFIAS is used as the observation instrument.

3. The findings related to burnout may only be valid when the MBI is used to determine level of burnout.

Chapter 2

REVIEW OF RELATED LITERATURE

The review of related literature of this study focused on the
following areas: the use of systematic observation in physical education,
the use of CAFIAS for intervention in preservice and inservice physical
education, and teacher burnout. A summary is provided.

The Use of Systematic Observation

in Physical Education

Prior to 1970, few observation systems were available to record
behaviors in physical education classes. Researchers, cognizant of the
lack of systematic observation instruments in physical education, sought
to fill this void by developing systems to describe the teaching process
(Anderson, 1975; Barrette, 1977; Fishman, 1975; Hurwitz, 1975; Johnson,
1975; Laubach, 1974; Rankin, 1975; Seidentop & Hughley, 1975; Tobey,
1975).

In 1971, Anderson (1975) initiated the Videotape Data Bank Project.
Under the auspices of this project, videotapes of 83 elementary and
secondary physical education classes from 60 different schools were
collected. Descriptive-analytic instruments were then designed to
describe the behaviors that occurred during the physical education classes.

The Data Bank's videotapes were first analyzed by Anderson (1975)
utilizing the Occurrence of Physical Activities, a system designed to
classify the length and occurrence of observed physical education
activities. Fishman (1975) developed the Augmented Feedback System to
describe teacher feedback given to students learning motor skills. The

major categories of feedback included form of feedback, direction of feedback, and specific referent of feedback. Tobey (1975) modified Fishman's (1975) system and used it to observe the augmented feedback in 81 elementary and secondary physical education classes. He found that teachers relied predominantly on verbal feedback, and the majority of feedback was directed toward a single student rather than the entire class. Tobey suggested that feedback was of vast importance in the acquisition of motor skills.

The Behavior of Students in Physical Education (BESTPED) System was developed by Laubach in 1974 to monitor the behavior of an individual student in physical education class. Costello (1977) employed the BESTPED System to describe the behavior of 193 students in 20 different physical education classes.

Teachers' Role in the Learning Activity Selection Process (Tri-Lasp) was designed by Hurwitz (1975) to study inservice teachers. This system described the ways in which teachers provided information for students to use in choosing the class content and the manner in which to execute the chosen content.

Flow of Teacher Operational Procedures (FOTOP) system was developed by Johnson (1975) to describe the manner in which a teacher utilized specific categories of the operational procedures found in physical education classes. The system classified the frequency and recorded the chronological order in which a teacher utilized operational procedures necessary for the function of the class.

The occurrence, distribution, and length of teacher behaviors in 40 elementary and secondary physical education classes was described by Barrette (1977). The Physical Education Teachers' Professional Functions

System (PETPE) was employed to observe these behaviors. Teacher behavior was coded six ways: (a) function, (b) subscript, (c) mode, (d) duration, (e) substance, and (f) direction. Teachers spent the majority of instructional time dealing in interactive functions, specifically guiding and observing of motor activities.

The O.S.U. Teacher Behavior Rating Scale was developed by Seidentop and Hughley (1975). It is an eight-category system designed to gather descriptive data on the teaching behavior of physical education teachers. A number of researchers under the direction of Seidentop at the Ohio State University have trained physical education teachers to modify behaviors using this instrument (Cramer, 1977; Hutslar, 1976).

Several systems have been developed as interaction analysis instruments for use in physical education. The Rankin Interaction Analysis System, developed by Rankin in 1975, has been utilized to measure both verbal and nonverbal interactions of student teachers and their students in elementary physical education classes.

The interaction analysis system most often cited by researchers is Flanders' Interaction Analysis System (FIAS) which was developed by Flanders in 1960. FIAS was designed to analyze verbal behaviors in the classroom by placing the classroom behaviors into any one of 10 categories, with seven categories concerned with teacher talk, two with student talk, and the remaining category for silence or confusion. Flanders (1970) categorized teacher behavior as either direct or indirect. FIAS requires behaviors to be numerically recorded every 3 seconds on a tally sheet. These behaviors are then transferred to a 10 x 10 matrix and analyzed.

Only verbal interaction between the teacher and student is analyzed in the Flanders' system. Much of the interaction in the physical education

environment is nonverbal in nature. A number of researchers have modified FIAS for use in the physical education setting (Cheffers, 1972; Dougherty, 1971; Mancuso, 1972).

FIAS was modified by Dougherty (1971) to include nonverbal behaviors which occurred in the physical education setting. Dougherty inserted an extra category dealing with periods of meaningful nonverbal activity. Teacher talk categories were subdivided into interaction with the entire group and interaction with individuals.

A combination of FIAS and the nonverbal categories of the Love-Roderick System (Love & Roderick, 1971) was developed by Mancuso (1972) to instruct physical education student teachers. The addition of a purposeful motor activity category and a nonpurposeful activity category were utilized to record verbal and nonverbal interaction in secondary physical education classes. Mancuso found that student teachers instructed in interaction analysis showed significantly higher degrees of indirect behavior than those student teachers not instructed in interaction analysis.

Cheffers (1972) developed Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) in order to measure both verbal and nonverbal interaction between the teacher and students in the physical education setting. Cheffers (1972) cited three major limitations of FIAS:

1. It is concerned with verbal behavior only.

2. It is concerned with the teacher as the sole teaching agent.

3. It is concerned only with classes which are conducted with the class structure as a whole unit.

CAFIAS allows for a more complete description of the behaviors and interaction patterns within a physical education class setting because it permits the recording of both verbal and nonverbal behaviors of both the

teacher and student. CAFIAS also identifies various teaching agents and allows for greater diversity in describing student behaviors (see Appendix A).

The Use of CAFIAS for Intervention
in Preservice and Inservice
Physical Education

Since Cheffers (1972) developed CAFIAS, it has been used in many studies (Getty, 1977; Hendrickson, 1975; Inturrisi, 1979; Kielty, 1975; Rochester, 1976; Stevens, 1979; van der Mars, 1979; Vogel, 1976) as an intervention tool with both preservice and inservice teachers to promote teacher's awareness of his/her exhibited behaviors.

CAFIAS was used by Kielty (1975) as an independent variable and as an observational tool to investigate the effects of instruction and supervision in interaction analysis on teaching behaviors exhibited by student teachers. Kielty's intent was to determine whether subjects who received instruction and supervision in interaction analysis were more effective as teachers. Teachers' effectiveness was measured by use of the Teacher Performance Criterion Questionnaire (TPCQ). The Teaching Situation Reaction Test (TSRT) was used to measure the student teachers' attitude toward teaching. The students in the class being taught by the teachers completed the Pupil Opinion Questionnaire (POQ). No significant differences were shown between the pretest and posttest observations of the two groups following the 3-week treatment phase. However, Kielty found that teachers who had received interaction analysis training were perceived by their students as more indirect in their teaching.

Hendrickson (1975) employed CAFIAS as both the dependent and the independent variable. Preservice physical education majors involved in

micro-peer teaching were studied. Treatment subjects received instruction in CAFIAS as well as conventional supervisory feedback. The control subjects received only conventional supervisory feedback. Both groups had three classes videotaped for feedback. A significant difference was revealed between the two groups, with subjects in the treatment group exhibiting more questioning, praise, and acceptance as well as having a greater amount of student initiation and contribution in their classes.

Rochester (1976) investigated the effects of actual practice in the coding of CAFIAS on the effectiveness and teaching behaviors of preservice physical education students. The TPCQ was used to measure teacher effectiveness. The treatment and control groups received instruction and supervision in CAFIAS. The treatment group received additional instruction in the coding of CAFIAS, experience in coding, and supervisory feedback on students' coding. Results indicated an increase in pupil initiation and verbal questioning, and a decrease in teacher talk by those subjects who had received additional instruction in coding of CAFIAS when compared to those subjects who had not received additional instruction in coding of CAFIAS. A significant correlation between teachers' behavior and effectiveness variables was found.

Vogel (1976) investigated the effects of instruction and supervision in CAFIAS on the teaching behaviors of physical education student teachers. Treatment subjects received 10 hours of instruction in the use of CAFIAS and CAFIAS feedback while the control subjects received no training. Those subjects who had received instruction in CAFIAS were found to be more indirect in their teaching behavior. More verbal and nonverbal student contribution, more acceptance and praise of student ideas, and the use of more nonverbal questions of students in classes of

teachers involved in CAFIAS training were found.

Expanding Vogel's (1976) investigation, Getty (1977) increased the length of the feedback sessions to 15 hours and examined the lasting effects of the study by utilizing a 1-month follow-up. He found that the treatment group showed more student initiated behaviors, greater use of questioning, and more student talk. Finally, he found the effects of CAFIAS on teaching behavior were maintained over a 1-month period.

Inturrisi (1979) investigated the effects of feedback and interpretation of interaction analysis, specifically CAFIAS, on attitudes and teaching behaviors of physical education student teachers. The Teaching Situational Reaction Test (TSRT) was used to assess teaching attitudes. CAFIAS was employed to identify the teaching behaviors. Each subject was videotaped three times, with the control group receiving conventional supervisory feedback regarding their teaching and the treatment subjects receiving conventional supervisory feedback and feedback in the form of interpretation of CAFIAS data by computer print-out. Results of the study indicated that those subjects who had received feedback and interpretation of CAFIAS had more positive teaching attitudes and teaching behaviors than those subjects who had not received feedback and interpretation in CAFIAS.

Van der Mars (1979) investigated perceived and observed teaching behaviors in junior physical education majors ($N = 36$). Each subject was videotaped three times. Prior to every taping and after each taping, the subjects completed the Teacher Questionnaire on Objectives (TQO). All three tapes were coded using CAFIAS. The treatment group and control group received conventional supervisory feedback while viewing their tapes. Treatment subjects also received instruction and supervision

through CAFIAS and received information comparing their estimated post-teaching TQO percentages with their actual teaching percentages. Those subjects who had received the instruction and supervision in CAFIAS tended to be more accurate in estimating behaviors than those subjects who had not received instruction and supervision in CAFIAS. Significant differences between the two groups were teacher use of both verbal and nonverbal praise, and teacher suggested pupil initiation.

The effects of instruction and supervision in CAFIAS upon teaching behaviors of elementary physical education teachers was investigated by Stevens (1979). Treatment subjects received instruction and supervision in CAFIAS in conjunction with conventional supervisory feedback. Differences in the teaching behaviors of the treatment subjects were evident from pretest to posttest phases. Posttest classes were characterized by an increase in teacher acceptance, praise, questioning, and empathy. Decreases were found in teacher use of information-giving, teacher direction-giving, emphasis on content, and teacher use of criticism. Stevens also determined that activity remained consistent across all observations.

Barr (1978) investigated the effects of instruction and supervision in CAFIAS on the coaching behaviors of 20 secondary team sport coaches. Each subject was videotaped three times during their practice sessions. Treatment subjects received instruction and supervision in CAFIAS; control subjects did not. It was found that coaches who had received CAFIAS feedback used greater amounts of verbal and nonverbal questioning than those coaches who had not received CAFIAS feedback. Multivariate analysis of variance revealed that the secondary school coaches who received feedback in CAFIAS made greater use of questioning, acceptance,

and praise than those coaches who did not receive such instruction.

In summary, studies conducted in physical education using interaction analysis, specifically CAFIAS, as an intervention technique have found an increase in teacher behaviors of acceptance, praise, and questioning, and more student initiated behavior (Barr, 1978; Getty, 1977; Inturrisi, 1979; Stevens, 1979; van der Mars, 1979; Vogel, 1976).

<div align="center">Teacher Burnout</div>

Definitions and Causes of Burnout

Teacher burnout is considered by authorities to be one of the most critical problems in education today (McGuire, 1979; Sparks & Hammond, 1981; Truch, 1980). Teachers, burned-out and confronted with unrelieved work stress, are abandoning the profession in increasing numbers. Other burned-out teachers remain on the job, many of them less effective, attempting to cope with burnout by going on "active retirement" or, in other words, teaching by simply "going through the motions" (Austin, 1981a; Ricken, 1980; Veninga & Spradley, 1981). Burnout has not only become increasingly prevalent in the teaching profession but has become increasingly common in professions with a high degree of people contact or people orientation, particularly in the helping professions such as nursing and social work (Maslach & Jackson, 1981). Professionals involved in work that, by nature, has a high degree of inherest stress, such as air traffic controllers and police, have also been affected by burnout.

Concurrently with the increase in popularity of burnout during the past decade there has been a proliferation of definitions of burnout and descriptions of its effects and consequences. Burnout can be defined as chronic stress accompanied by physical, emotional, and attitudinal

exhaustion (Austin, 1981b; Truch, 1980). Kyriacou and Sutcliffe (1979) perceived burnout as a multidimensional phenomena that affects each individual differently, resulting in a manifestation of a diversity of physiological, psychological, and/or behavioral symptoms and varying degrees of debilitation.

Maslach and Jackson (1981) described burnout as a syndrome of emotional exhaustion and cynicism. The key aspects of the burnout syndrome are feelings of being overextended by one's work, feelings of emotional exhaustion, and the development of negative or impersonal feelings and attitudes about one's clients (i.e., students). Another aspect of the burnout syndrome is the tendency to evaluate one's job performance negatively and to feel dissatisfied with one's personal accomplishments.

According to Austin (1981b), the burnout syndrome is caused by chronic stress that accumulates without compensatory relaxation resulting in somatic, psychological, and/or behavioral problems. Symptoms of burn-out include the following: fatigue and physical exhaustion, headache, weight loss, anxiety, alcoholism, and lowered occupational self-esteem (Truch, 1980; Veninga & Spradley, 1981).

Burnout may be caused by a variety of factors. One of the major factors in job burnout is stress. The New York State United Teachers Organization conducted a questionnaire survey in 1979 ("Stress," 1980) to determine the causes of teacher stress. The respondents identified three major causes of stress which were evident across all situations of teaching (i.e., age, grade level, school size, and sex). Managing "disruptive" children, incompetent administrators, maintaining self-control when angry were cited as major stressors. These stressors, as

well as additional stressors such as dealing with community racial issues, disagreeing with one's supervisor, and being the target of student verbal and physical abuse, contribute to teacher stress and, subsequently, teacher burnout (McGuire, 1979; Ricken, 1980). The National Education Association attributes much of the problem of teacher burnout to teachers' perceived sense of having lost control of their classes (Bardo, 1979). Another factor is inadequate supervisory feedback which may lead to teacher apathy, complacency, performance decrements and, eventually, teacher burnout. Other contributory factors include family and personal problems as well as the stress associated with fulfilling the simultaneous demands of work and home (Veninga & Spradley, 1981).

Consequences of Teacher Burnout

The potential consequences of teacher burnout are very serious for the teacher as well as for the students and teachers involved. Teachers may experience a variety of health problems which may increase absenteeism and decrease effectiveness. Truch (1980) emphasized that teachers may find it difficult to participate with their students (i.e., play games with them). Hendrickson, cited in Truch (1980), stated that "it's difficult to play kickball with the kids when you are tired . . . it's difficult to be excited about a topic you are teaching when you are uncomfortable and out of sorts all the time" (p. 8).

Teacher burnout may precipitate a deterioration in job performance and significantly affect the nature and quality of instruction. Farber and Miller (1981) asserted that the most critical impact of burnout will be on the delivery of educational services--instruction. Burned-out teachers may exhibit behavioral inflexibility, inefficiency, and infrequent or careless planning of classes. The quality of their

interactions with their students may also be affected. Burned-out
teachers may display impersonal or negative attitudes as well as a
detached or depersonalized manner (Maslach & Jackson, 1981). Little
praise, encouragement, sympathy, and reinforcement of students' effort
may be offered (Farber & Miller, 1981; Mancini et al., 1982). Burned-
out teachers may be critical of their students, provide them with a
minimum of feedback, and hold lowered expectations for student performance
(Farber & Miller, 1981; Mancini et al., 1982; Veninga & Spradley, 1981).
Infrequent interactions and lack of involvement with students are also
common (Maslach & Jackson, 1981; Veninga & Spradley, 1981).

A review of the literature on the effects of teacher burnout,
particularly in physical education, reveals it is primarily descriptive
in nature. The first study in physical education which used systematic
observation techniques to describe the effects of teacher burnout was
completed by Mancini et al. in 1982. The interaction patterns and
Academic Learning Time-Physical Education of low-burnout and high-burnout
teachers were compared. Two systematic observation instruments were used
in this investigation. Cheffers' Adaptation of Flanders' Interaction
Analysis System (CAFIAS) (Cheffers, Mancini, & Martinek, 1980) described
teacher and student behaviors and interaction patterns. The Academic
Learning Time-Physical Education instrument (ALT-PE) (Siedentop,
Tousignant, & Parker, 1982) described individual student behavior and
learner involvement. The Maslach Burnout Inventory measured the teachers'
level of burnout.

Analysis of the CAFIAS data revealed significant differences in
teacher behavior and interaction patterns between low-burnout and high-
burnout teachers. Low-burnout teachers exhibited significantly more

verbal and nonverbal praise and acceptance toward their students than high-burnout teachers and displayed a greater percentage of verbal and nonverbal questioning and information-giving. Low-burnout teachers were more varied in their teaching behaviors, both in the manner in which they presented their material and provided feedback to their students. They were more supportive and encouraging of their students' efforts.

High-burnout teachers exhibited more teacher direction and criticism toward their students. Their behaviors were less varied and more restrictive in nature. High-burnout teachers also interacted less frequently with their students than their low-burnout colleagues. Students taught by low-burnout teachers gave slightly more verbal predictable responses and displayed a greater amount of nonverbal broad interpretation of student activities. Students in classes taught by high-burnout teachers exhibited more nonverbal predictable responses and gave slightly more verbal interpretation than students taught by low-burnout teachers. Little student initiation was evident in both groups. Large amounts of student-to-student verbal interaction were present in both groups.

The ALT-PE data indicated that high-burnout teachers spent slightly more time in general content activities and their classes were less efficient in transition and managerial activities when compared to low-burnout teachers. Low-burnout teachers spent slightly more time on subject-related knowledge and in motor involvement and participation. The most distinct difference between the low-burnout and high-burnout teachers were found in the nature of student involvement in their classes. Students were not engaged in motor activity 43.9% of the time in low-burnout teachers' classes while lack of motor involvement by students in

high-burnout teachers' classes occurred 57.5% of the total class time.

Mancini et al. (1982) found students in low-burnout teachers' classes were more actively involved in motor activity than students in the high-burnout teachers' classes. Students in low-burnout teachers' classes were actively involved 56% of the time and were engaged in motor appropriate activity (ALT-PE)--activity which contributed to lesson goals and which the student could perform successfully--48% of the time. In contrast, students in high-burnout teachers' classes were actively engaged in motor activity only 42% of the class time and were engaged in motor activity (ALT-PE) only 25.7% of the time. Additionally, twice the amount of inappropriate activity--activity which did not contribute to lesson goals or which was too difficult or too easy for the student--was recorded for students in high-burnout teachers' classes as compared to students in low-burnout teachers' classes.

Alleviation of Burnout

Numerous suggestions have been advanced as to how teachers can cope with or alleviate burnout. Maslach (1976) asserted that because many of the causes of burnout are rooted not in the permanent traits of people but in specific situational factors that can be changed, a variety of techniques could be utilized to deal with burnout. O'Brien (1981) offered several recommendations on how to effectively cope with burnout. His suggestions included establishment of inservice programs, utilization of more effective communication techniques, role negotiations, discussion and appraisal of job expectations, and the establishment of steering committees, support groups, and physical fitness programs. Kossack and Woods (1980) noted that individuals in the helping professions need to direct some of their energies into formulating constructive programs to

decrease the inherent amount of stress within their profession. Prager-
Decker and Decker (1980) investigated the effectiveness of muscle
relaxation techniques in coping with stress. They found muscle
relaxation techniques to be an effective means to mitigate the effects
of prolonged stress. In discussing burnout among athletic trainers,
Gieck, Brown, and Shank (1982) suggested the utilization of stress
modifiers to reduce burnout. These modifiers included: having an active
outside life, participating in a regular exercise program, and maintaining
a positive perspective with respect to job stress, job duties, and
occupational goals.

The establishment of support groups has also been suggested as a
means to alleviate burnout (Maslach, 1976; Sparks, 1979; Veninga &
Spradley, 1981). Maslach's (1976) research indicated that those
professionals who had some sort of social-professional support system
showed lower instances of burnout than those who had no support group.
One approach to the development of support groups is the establishment
of teacher centers. Teacher centers can provide teachers with the
opportunity to meet and discuss concerns; these centers may offer
programs designed to reduce stress and burnout and to help teachers learn
effective coping skills and strategies (Sparks, 1979). Teacher centers
may promote the establishment of mutuality and solidarity among teachers
(Fibkins, 1981).

One approach frequently cited to alleviate burnout is to provide
opportunities for teachers to become more aware of their behaviors and
to establish an accurate perspective of their abilities and their job
(Malone & Rotella, 1981; Veninga & Spradley, 1981). Vergamini (1981)
suggested that self-awareness and a realistic perception of personal

limitations is an effective means to alleviate burnout.

Ricken (1980) perceived administrative supervision as having a crucial role in preventing burnout. He emphasized that supervisory feedback stimulates continued teacher growth and maintains teacher effectiveness. Ricken asserted that preventing teacher burnout is the supervisory challenge of the '80s.

Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI) was constructed by Maslach and Jackson (1981) to measure three aspects of the burnout syndrome: emotional exhaustion, depersonalization, and personal accomplishment. The Emotional Exhaustion subscale measures feelings of being overextended and emotionally exhausted by one's work. Unfeeling attitudes are assessed by the Depersonalization subscale. Feelings of competence and achievement in one's work are measured by the Personal Accomplishment subscale. In constructing the MBI, Maslach and Jackson (1981) conceptualized burnout as a continuous rather than a dichotomous variable. Thus, various aspects of the burnout syndrome can be described as ranging from low to moderate to high degrees of the experienced feeling.

In constructing the MBI, Maslach and Jackson utilized interview and questionnaire data from burned-out workers and reviewed numerous established scales on burnout and related concepts, such as stress. The MBI items are written in the form of statements about personal feelings and attitudes which are then rated on the two dimensions of frequency and intensity.

The preliminary form of the MBI consisted of 47 items each of which was to be rated in terms of frequency of occurrence and strength or intensity of the feeling. This form was administered to a sample of 605

people from a variety of health and service occupations which were identified through previous research by Maslach (1976, 1978) as having a high potential for burnout. These data were subjected to factor analysis. Three-fourths of the variance was accounted for by 10 factors. Four criteria were then used to reduce the number of items: "a factor loading greater than .40 on only one of the factors, a large range of subject responses, a relatively low percentage of subjects checking the 'never' responses, and a high item-total correlation" (Maslach & Jackson, 1981, p. 5). An item was required to meet all four criteria to be retained. Application of the criteria reduced the number of items in the MBI to 25.

The 25-item MBI was then administered to a new sample of 420 people. Since factor analysis of the second sample's data yielded results very similar to those of the first sample, the two samples were combined ($\underline{N}$ = 1025). Using the combined sample, factor analysis of the 25 items yielded similar 4-factor solutions for both the frequency and intensity dimensions. Three factors--Emotional Exhaustion, Depersonalization, and Personal Accomplishment--had eigenvalues greater than unity and were viewed as subscales of the MBI. The fourth factor--Involvement--was determined by Maslach and Jackson to require additional research and was not included as a subscale of the MBI. Thus, the final form of the MBI consists of three subscales encompassing a total of 22 items which are rated in terms of the dimensions of frequency and intensity. The Emotional Exhaustion subscale contains nine items, the Depersonalization subscale contains five items, and the Personal Accomplishment subscale contains eight items. The three items associated with the fourth factor, Involvement, were not included on the MBI.

Adequate reliability coefficients for internal consistency (ranging

from .71 - .90) and test-retest reliability (ranging from .53.- .82)
were obtained by Maslach & Jackson. Substantial evidence was provided
for the convergent validity of the MBI. The researchers also
demonstrated that the MBI significantly discriminated burnout from other
psychological constructs which may be confounded with job burnout, such
as job dissatisfaction.

Since the MBI was only recently completed, few researchers have had
the opportunity to use this instrument in their investigations of teacher
burnout. The MBI was used by several researchers (Anderson, 1980;
Mancini et al., 1982; Schwab, 1980) to assess teachers' perceived level
of burnout. Anderson (1980) investigated the relationship between
teacher burnout, perceived need deficiencies, and selected background
variables. She observed that emotional exhaustion was experienced with
greater frequency and intensity than depersonalization. Teachers recorded
higher group means on the intensity dimension of the three MBI subscales
than on the frequency dimension. Mancini et al. (1982) found significant
differences in the interaction patterns of low-burnout and high-burnout
teachers and reported noticeable differences in the Academic Learning
Time-Physical Education of students in low-burnout and high-burnout
teachers' classes. Schwab (1980) examined the relationship among role
conflict, role ambiguity, and teacher burnout and found significant
relationships between role conflict and role ambiguity and the various
subscales of the MBI. Iwanicki and Schwab (1981) investigated the
reliability and validity of the MBI when used to assess burnout among
teachers. Factor analysis revealed that the MBI assesses the same three
factors--Emotional Exhaustion, Depersonalization, and Personal Accomplish-
ment--when employed with teachers as were revealed in studies using

individuals in other helping profession occupations. The reliabilities obtained for teachers were similar to those reported by Maslach and Jackson (1981) for the helping professions.

Summary

Within the last several decades the use of systematic observation by researchers has yielded data on the behaviors of both teachers and students in physical education classes and other classes.

Anderson (1975) initiated the Videotape Data Bank by collecting 83 videotapes of elementary and secondary physical education classes. A number of observation systems have been developed from the utilization of these videotapes (Barrette, 1977; Fishman, 1975; Hurwitz, 1975; Laubach, 1974; Tobey, 1975). Flanders' Interaction Analysis System (FIAS), developed by Flanders in 1960, has served as the standard for interaction analysis systems and has been the basis for systems designed by Cheffers (1972), Dougherty (1971), and Mancuso (1972). Dougherty (1971) inserted an extra category dealing with periods of meaningful nonverbal activity. Mancuso (1972) added a purposeful motor activity category and a nonpurposeful activity category to record verbal and nonverbal interaction in secondary physical education classes. Cheffers (1972) developed Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) in order to record both verbal and nonverbal behaviors exhibited by both teacher and student.

CAFIAS allows for the recording of both verbal and nonverbal behaviors of teacher and students and also identifies various teaching agents. CAFIAS permits researchers to describe the interaction patterns within the class as well as different class structures. Since Cheffers (1972) developed CAFIAS, it has been used in various studies (Getty, 1977;

Hendrickson, 1975; Kielty, 1975; Inturrisi, 1979; Rochester, 1976;

Stevens, 1979; van der Mars, 1979; Vogel, 1976) as an intervention

tool both with inservice and preservice teachers to promote teacher's

awareness of their exhibited behaviors.

Concurrently with the increase in popularity of burnout during the

past decade there has been a proliferation of definitions of burnout and

descriptions of its effects and consequences. Burnout can be defined as

chronic stress accompanied by physical, emotional, and attitudinal

exhaustion (Austin, 1981b; Truch, 1980). Ricken (1980) perceived

administrative supervision as having a crucial role in preventing burnout.

He emphasized that supervisory feedback stimulates continued teacher

growth and maintains teacher effectiveness.

There are few instruments available to measure burnout. The MBI

measures it in terms of three items: depersonalization, emotional

exhaustion, and personal accomplishment. The MBI items are written in

the form of statements about personal feelings and attitudes which are

then rated on two dimensions: frequency and intensity. Maslach and

Jackson (1981) obtained adequate reliability and convergent validity in

using the MBI. The researchers also demonstrated that the MBI

significantly discriminated burnout from other psychological constructs

which may be confounded with job burnout, such as job dissatisfaction.

Since the MBI was only recently completed, few researchers have had

the opportunity to use this instrument in their investigations of teacher

burnout. The MBI was used by several researchers (Anderson, 1980;

Mancini et al., 1982; Schwab, 1980) to assess teachers' perceived level

of burnout.

Chapter 3

METHODS AND PROCEDURES

This chapter describes the selection of subjects, the procedures administered to each group, and the testing instruments employed to measure both interaction patterns and high- and low-burnout traits. The establishment of coder reliability, methods of data collection, statistical procedures applied to these data, and a summary are also included.

Selection of Subjects

The subjects for this study included 30 secondary physical education teachers from the southern tier section of New York State. The investigator received each teacher's permission to participate in the study through the use of an informed consent form (Appendix D). Each subject completed the Maslach Burnout Inventory (MBI) (Appendix B). Using the median split technique, teachers were placed into high-burnout or low-burnout groups on the basis of their scores on the MBI. From the high-burnout and low-burnout groups, 10 teachers were randomly selected to represent each group. Then, from the high-burnout group, six teachers were randomly selected and then randomly assigned to treatment (N = 3) and control (N = 3) groups. The six teachers included four males and two females. These teachers had no previous instruction in the use and application of CAFIAS.

Procedures

Following the administration of the MBI and the assignment of the teachers to groups, teaching schedules were obtained by the investigator

from each teacher allowing a schedule for videotaping and feedback sessions to be arranged. Each subject was videotaped nine times by the investigator while teaching an entire physical education class. The videotaping was divided into three phases. During Phase One, all subjects were videotaped three times for baseline data collection.

During Phase Two all subjects received 5 days of feedback. Subjects in the control group received conventional supervisory feedback while viewing and critiquing their videotapes with the investigator. On Day 1, subjects in the control group discussed with the investigator the general parameters of teaching. On Day 2, they received feedback concerning their first 3 days of teaching from Phase One. On Days 3 through 5, the subjects were videotaped once each day, and on the following day viewed their videotapes with the investigator who provided general supervisory feedback. Subjects in the treatment group received 5 days of feedback utilizing CAFIAS. On Day 1, the teachers received an orientation to CAFIAS, an overview of the CAFIAS ground rules, an explanation of CAFIAS categories and parameters, and a CAFIAS computer printout. On Day 2, teachers received CAFIAS feedback concerning their first 3 days of teaching (Phase One). On Days 3 through 5, the teachers were videotaped teaching once each day. The videotapes were coded using CAFIAS and a computer printout generated. The teacher then met the next day with the investigator and reviewed his/her videotapes and the CAFIAS data.

During Phase Three, all subjects were again videotaped three times without receiving feedback. At the conclusion of Phase Three, the MBI was again administered to all subjects. All subjects' videotapes from Phase One and Phase Three were coded using CAFIAS.

Testing Instruments

Cheffers' Adaptation of Flanders' Interaction Analysis System
(CAFIAS) (Cheffers, 1972) was selected to measure the interaction
patterns and behaviors in this study (Appendix A). Developed primarily
for use during physical activity classes, CAFIAS records objectively the
verbal and nonverbal behaviors exhibited by a teacher and students in a
class setting. It identifies specific teaching agencies, class structure,
percentage of behaviors exhibited, and illustrates students' response
behaviors. Behaviors in CAFIAS are recorded every 3 seconds or any
time a change in behavior occurs. Cheffers (1972) established that
CAFIAS is a valid and effective measure of behavior.

The Maslach Burnout Inventory (MBI), developed by Maslach and
Jackson (1981), was used to determine the teacher's level of burnout.
The MBI is comprised of three separate subscales: Emotional Exhaustion
(EE), Depersonalization (DP), and Personal Accomplishment (PA). Each
subscale assesses burnout in terms of two dimensions: frequency (F) of
the feelings and intensity (I) or strength of the feelings. The EE
subscale measures the feelings of being emotionally exhausted and
overextended by one's job. Negative responses and impersonal feelings
towards one's clients (i.e., students) is assessed by the DP subscale.
Feelings of competence and perceptions of achievement in one's job is
measured by the PA subscale.

The MBI contains 22 items requiring 20 to 30 minutes to complete.
For each subject six scores are computed, one for each dimension of the
three subscales: EE:F, EE:I, DP:F, DP:I, PA:F, PA:I. A high level of
burnout is indicated by high scores on four subscales--EE:F, EE:I, DP:F,
and DP:I--and low scores on two of the subscales--PA:F and PA:I.

Maslach and Jackson (1981) obtained adequate reliability coefficients for internal consistency (ranging from .71 - .90) and test-retest reliability (ranging from .53 - .83). Substantial evidence was provided for the convergent validity of the MBI.

Coder Reliability

The Spearman rank-order correlation technique was utilized to establish coder reliability for this investigation. Two videotapes from the treatment group and two videotapes from the control group were randomly selected. Each videotape was coded during two independent observation sessions by an expert coder, Dr. Victor H. Mancini. The top 10 cells were ranked and the Spearman rank-order correlation was applied to the rankings.

Methods of Data Collection

Data for analysis were obtained from comparisons of baseline (Phase One) CAFIAS data with post-treatment (Phase Three) CAFIAS data. The videotapes were coded using CAFIAS by an expert coder. The pretest and posttest scores obtained on the MBI were also compared.

Scoring of Data

Data collected from CAFIAS were transposed to computer cards for computer analysis. Computer printouts indicated the matrices, tabulated ratios, and the percentages of behavior exhibited. The MBI tests were manually scored, yielding frequency and intensity scores on the three subscales.

Treatment of Data

Due to the small number of subjects and short length of the feedback period, descriptive statistics were used to determine differences in teaching behaviors, as identified by CAFIAS, existing between treatment

and control groups. Computer printouts indicated ratios, percentages, and patterns of behavior for the subjects. Visual comparisons were made between treatment and control groups to determine the relative standings of both groups and individuals on each of the variables during Phase One and Phase Three observation periods.

Subjects' pretest and posttest scores on the MBI were compared visually. Comparisons were made between the treatment and control groups to determine the relative standings of both groups and individuals on each MBI subscale.

Summary

Thirty secondary physical education teachers from the southern tier of New York were administered the MBI. Using the median split technique, teachers were placed in high-burnout and low-burnout groups on the basis of their MBI scores. Next, 10 teachers were randomly selected to represent each group. Then, from the high-burnout group, six teachers were randomly selected and then randomly assigned to treatment ($N = 3$) and control ($N = 3$) groups.

During Phase One, each subject was videotaped three times in order to establish baseline data. During Phase Two, each subject was again videotaped three times and received 5 days of supervisory feedback. The control group subjects received only conventional supervisory feedback. Treatment subjects received conventional supervisory feedback and instruction in the use of CAFIAS. In Phase Three, each subject was again videotaped three times. At the conclusion of videotaping, the MBI was again administered to all subjects.

Data for statistical analysis were collected from Phase One and Phase

Three videotapes and were coded using CAFIAS by an expert coder. CAFIAS

was used to describe verbal and nonverbal behaviors and to illustrate

students' and teachers' behaviors. The scores of each of the 17

variables described by CAFIAS were transposed onto computer cards for

computer analysis. The MBI was manually scored, yielding frequency and

intensity scores on the three subscales (EE:F, EE:I, DP:F, DP:I, PA:F,

PA:I) to describe the teachers' levels of burnout during pretest and

posttest observation periods.

Descriptive statistics were used to determine whether differences

identified by CAFIAS existed between treatment and control groups.

Percentages and ratios were obtained from the scoring of CAFIAS. Visual

comparisons were made between treatment and control subjects to determine

the status of both groups on each CAFIAS variable during Phase One and

Phase Three.

Visual inspection of the data was used to compare pretest and post-

test scores on MBI to determine the changes in teachers' levels of burn-

out.

Chapter 4

ANALYSIS OF DATA

The effects of instruction and supervision in CAFIAS on the teaching

behavior of burned-out secondary physical education teachers were studied.

The subjects were six secondary physical education teachers from the

southern tier section of New York State. Descriptive statistics were

used to formulate a detailed description of the profile of the treatment

and control groups in each of the following areas: use of major CAFIAS

parameters, percentages of behavior in each CAFIAS category, interaction

patterns, and degree of burnout as measured by the Maslach Burnout

Inventory (MBI) (Maslach & Jackson, 1981).

This chapter has been divided into six sections: (a) coder

reliability, (b) combined profile of the treatment group, (c) combined

profile of the control group, (d) combined profile of the treatment group

on the MBI, (e) combined profile of the control group in the MBI, and

(f) summary.

Coder Reliability

The Spearman rank-order correlation technique was utilized to

establish coder reliability for this investigation. Two videotapes from

the treatment group and two videotapes from the control group were

randomly selected. The four selected videotapes were each coded twice

by an expert coder, Dr. Victor H. Mancini, during two independent observa-

tion sessions. The top 10 cell concentrations were ranked and the Spearman

rank-order correlation was applied to the rankings. The mean scores of the

correlation was .95, which was sufficient to indicate the coder was

reliable.

Combined Profile of the Treatment Group

Table 1 summarizes the combined use of the 17 CAFIAS parameters by the treatment group. The means of percentages for the pretest and posttest observation periods were obtained for all teachers and visually compared. The treatment group exhibited considerable behavioral changes during the posttest situation. A minimal increase in teacher contribution, a slight increase in silence and confusion, and a small decrease in student contribution were observed. A marked increase in teacher use of questions occurred. Very large increases in the parameters of teacher acceptance and praise, and teacher suggested student initiation were observed. Similarly, there was a large increase in the teacher use of empathetic behavior. Verbal emphasis increased markedly and there was a corresponding decrease in nonverbal emphasis.

Only minimal decreases were found in the parameters of student suggested student initiation and content emphasis. No change was found in the teaching agency and the teacher functioned as the teaching agent during all observations. During the pretest observation approximately 70% of the time the class functioned as one unit and 30% of the time the student worked individually or in small groups. During the posttest observations the class functioned as a whole the entire time.

A summary of the combined use of the percentage of behaviors in each CAFIAS category by the treatment group are visually compared in Figure 1. The means for the percentages for the pretest and posttest observation periods were calculated for all three subjects in the treatment group. Analysis of the bar graph revealed pretest to posttest changes in the

Table 1

Combined Use of Major CAFIAS Parameters by Treatment Group

CAFIAS Parameters	Pretest Mean of Percentages	Posttest Mean of Percentages
Total Teacher Contribution (TTC)	43.33	44.86
Total Student Contribution (TSC)	48.12	41.46
Total Silence and Confusion (SC)	8.54	13.68
Total Teacher Use of Questioning (TTQR)	4.00	18.60
Total Teacher Use of Acceptance and Praise (TTAPR)	16.92	76.25
Total Student Initiation-Teacher Suggested (TSITSR)	59.97	89.88
Total Student Initation-Student Suggested (TSISSR)	5.19	3.66
Content Emphasis, Teacher Input (CETI)	34.02	35.39
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
The Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	45.10	63.77
Nonverbal Emphasis (NVE)	54.90	36.23
Class Structure as One Unit (W)	68.89	100.00

Table 1 (continued)

CAFIAS Parameters	Pretest Mean of Percentages	Posttest Mean of Percentages
Class Structured as Groups or Individuals (P)	31.11	.00
Class Structured with No Teacher Influence (I)	.00	.00
Teacher Empathy to Student Emotions (TE)*	8	37

*Sum of frequencies of categories 1 and 11, which are verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings and emotions.
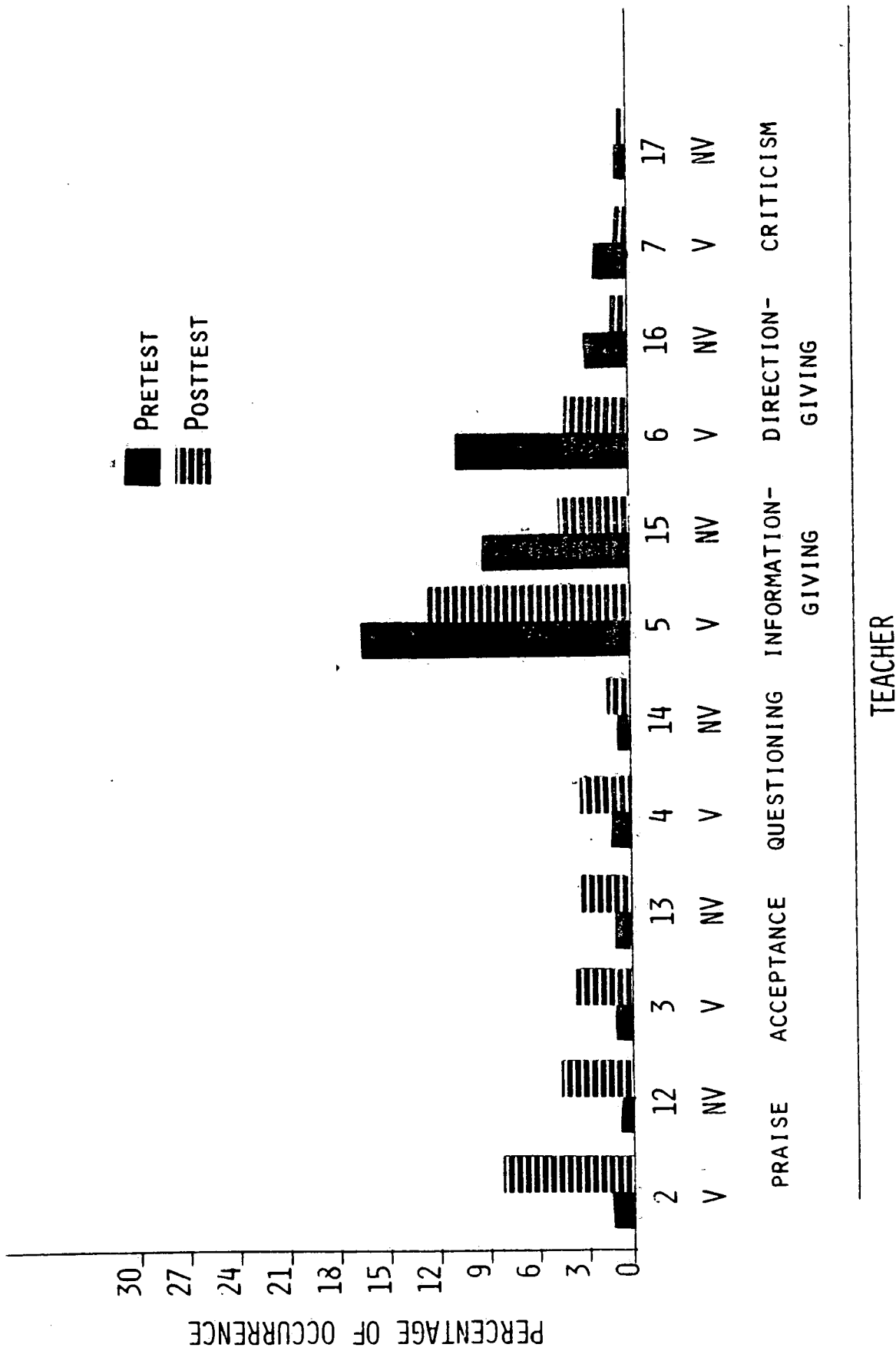
Figure 1. Mean percent of behavior in each CAFIAS category for the treatment group.

PRETEST
POSTTEST

PERCENTAGE OF OCCURRENCE

30 27 24 21 18 15 12 9 6 3 0

8
V
NARROW
DEPENDENCE ON
TEACHER

8
V

18
NV

BROAD
INTERPRETATION OF
TEACHER ACTIVITIES

9
V

19
NV

PUPIL
INITIATION

STUDENT

10
V

CONFUSION OR
STUDENT TO
STUDENT VERBAL
INTERACTION

20
NV

SILENCE OR
STUDENT TO
STUDENT NONVERBAL
INTERACTION

EITHER
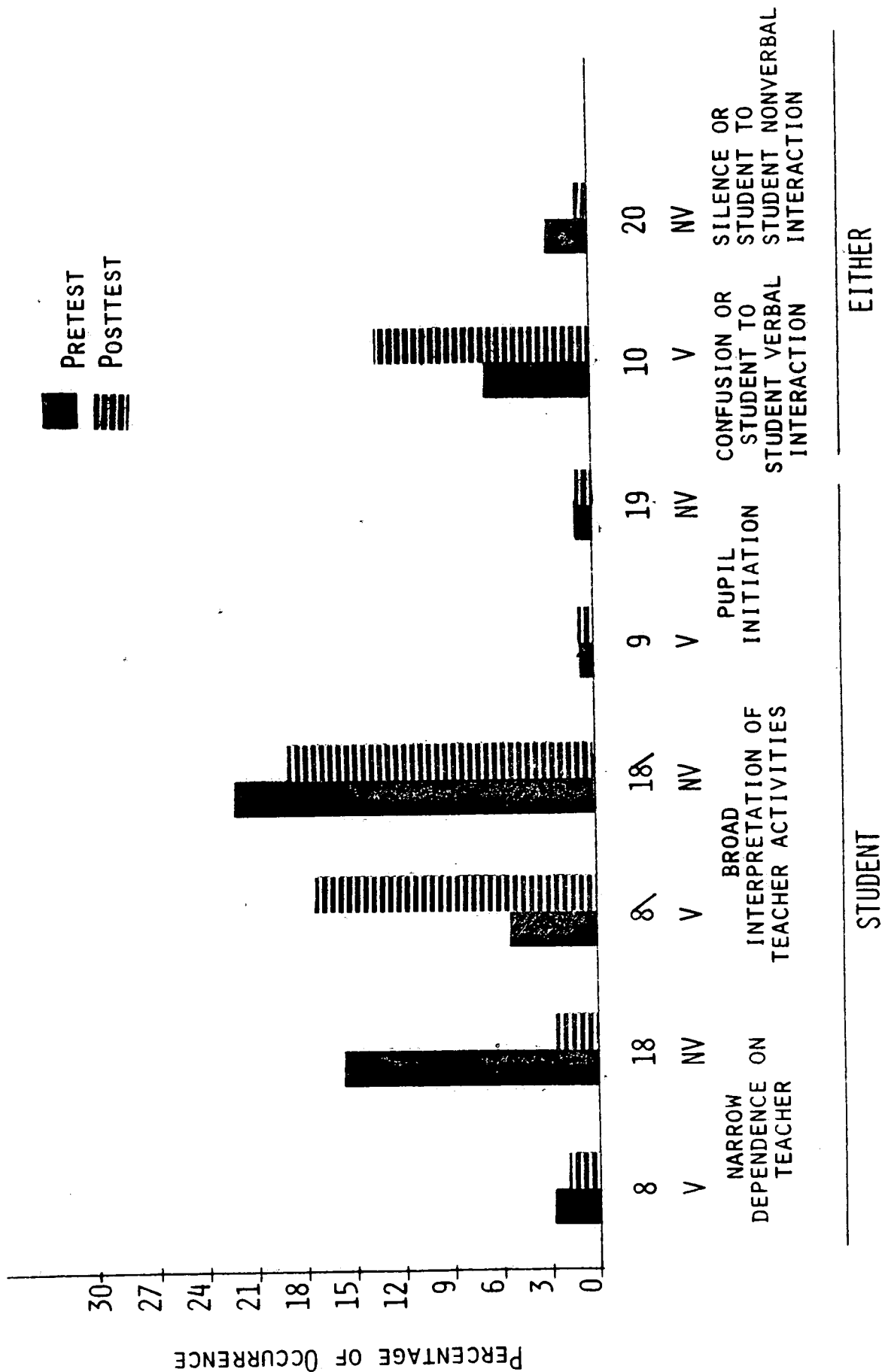
Figure 1. (continued).

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treatment group's behavior. There was a marked increase in the amount of teacher verbal and nonverbal praise, nonverbal acceptance, and verbal questioning. Nonverbal questioning by teachers increased slightly. There was a large decrease in the amount of verbal direction given by the teachers. A moderate decrease in teacher verbal and nonverbal information-giving was recorded. In the posttest situation, teachers also used slightly less verbal and nonverbal criticism, verbal acceptance, and nonverbal directions. The students in the treatment group exhibited less verbal and nonverbal predictable responses, and more verbal and less nonverbal pupil interpretive responses. Student verbal and nonverbal unpredictable, initiative responses remained the same. Increased student interaction was observed in the posttest situation.

The 10 most frequent interaction patterns and mean percentages of occurrence for the treatment group are summarized in Table 2. The pretest interaction patterns of the treatment group were characterized by extended teacher information-giving, followed by extended student interpretive interaction (5-5-8\-8\); teacher direction requiring extended student·predictable behavior followed by more teacher direction (6-8-8-6); extended student interpretive interaction or game play (8\-10-8\); and extended teacher information leading to extended teacher direction, followed by student interpretive behavior (8-8-5-5-6-6-8\). The posttest interaction patterns were described by extended student interpretive interaction or game play (8\-10-8\); teacher information-giving requiring extended student interpretive behavior which was praised by the teacher (5-8\-8\-2); student interpretive interaction followed by teacher information-giving and praise, followed by extended student interpretive behavior (8\-5-2-8\-8\); acceptance from the teacher followed by

Table 2

Summary of the Most Frequent Interaction Patterns

and Mean Percentage of Occurrence Among the

Top 10 Cells Combined for the

Treatment Group

Pretest		Posttest	
Interaction Patterns	Mean Percentage of Occurrence	Interaction Patterns	Mean Percentage of Occurrence
5-5	17.50	10-8\	13.24
8\-8\	15.87	8\-10	13.16
6-8	8.86	5-8\	8.87
8-6	6.15	8\-2	8.66
10-8\	5.72	8\-5	5.82
8\-10	5.71	2-8\	5.58
8-8	5.09	8\-3	4.77
8-5	3.31	5-5	4.32
5-6	2.66	2-5	3.56
6-8\	2.57	3-8\	3.41

Interaction Pattern Description

5-5   Extended teacher information-giving.

8\-8\   Extended student interpretive behavior.

6-8   Teacher direction followed by predictable student response.

8-6   Student predictable response followed by teacher direction.

10-8\   Student-to-student interpretive interaction.

8\-10   Student-to-student interpretive interaction.

Table 2 (continued)

8-8   Extended student predictable response.

8-5   Student predictable response followed by teacher information-
        giving.

5-6   Teacher information-giving followed by teacher direction.

6-8\   Teacher direction followed by student interpretive interaction.

5-8\   Teacher information-giving followed by student interpretive

        interaction.

8\-2   Student interpretation followed by teacher praise.

8\-5   Student interpretation followed by teacher information-giving.

2-8\   Teacher praise followed by student interpretive behavior.

8\-3   Student interpretive interaction followed by teacher acceptance.

2-5   Teacher praise followed by teacher information-giving.

3-8\   Teacher acceptance followed by student interpretive behavior.

extended teacher information-giving, praise, more information-giving,

teacher acceptance, and student interpretive behavior (3-5-5-2-5-3-8\).

Comparison of the pretest and posttest CAFIAS behaviors, parameters,

and interaction patterns of the treatment groups revealed increases in

teacher praise and acceptance of student behavior, and teacher use of

questions. Slight decreases were found in teacher information-giving,

direction-giving, and criticism. An increase in student interpretive

responses was also observed during the posttest situation. Teaching

behavior changed from one of direct to indirect during the posttest

situation.

Combined Profile of the Control Group

Table 3 summarizes the combined use of the 17 CAFIAS parameters by

the control group. The mean percentages for the pretest and posttest

observation periods were obtained for all teachers and visually compared.

The control group exhibited only moderate behavioral changes during the

posttest situation. A moderate decrease in teacher contribution and

student contribution and a slight decrease in teacher acceptance and

praise occurred. Marked increases in silence and confusion, and teacher

suggested pupil initiation were observed in the posttest situation.

Teacher use of questioning increased slightly, and the amount of student

suggested pupil initiation, content emphasis, and nonverbal emphasis

decreased. Verbal emphasis increased while class structure and the

teacher agency remained consistent. No changes were observed in teacher

use of empathetic behavior. During both the pretest and posttest

observations the class functioned as a whole 100% of the time.

A summary of the combined use of the percentage of behaviors in

Table 3

Combined Use of Major CAFIAS Parameters by Control Group

CAFIAS Parameters	Pretest Percentages	Posttest Percentages
Total Teacher Contribution (TTC)	30.06	25.66
Total Student Contribution (TSC)	50.84	46.64
Total Silence and Confusion (SC)	19.10	27.70
Total Teacher Use of Questioning (TTQR)	6.84	8.55
Total Teacher Use of Acceptance and Praise (TTAPR)	13.46	12.44
Total Student Initiation-Teacher Suggested (TSITSR)	65.94	88.75
Total Student Initiation-Student Suggested (TSISSR)	5.42	3.54
Content Emphasis, Teacher Input (CETI)	17.60	12.57
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
The Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	59.97	68.24
Nonverbal Emphasis (NVE)	40.03	31.76
Class Structure as One Unit (W)	100.00	100.00

Table 3 (continued)

CAFIAS Parameters	Pretest Percentages	Posttest Percentages
Class Structure Groups or Individual (P)	.00	.00
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Student Emotions (TE)*	6	6

*Sum of frequencies of categories 1 and 11, which are verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings and emotions.

each CAFIAS category by the control group is represented in Figure 2.

The means of percentages for pretest and posttest observation situations

were calculated for all subjects and visually compared. Analysis of the

bar graph revealed pretest to posttest changes in the control group.

There was more verbal and less nonverbal praise exhibited by the

teachers. Less verbal and nonverbal acceptance, more verbal and fewer

nonverbal questions, less verbal and nonverbal information-giving, more

verbal and fewer nonverbal directions, and more verbal and less nonverbal

criticism occurred. Students during the posttest situation exhibited

less verbal and considerably less nonverbal predictable behavior,

greater verbal and nonverbal student interpretive behavior, less verbal

and nonverbal unpredictable or initiative behavior. An increase in verbal

and nonverbal student-to-student interaction was observed during posttest

period.

The most frequent interaction patterns and mean percentage of

occurrence for the control group among the top 10 cells are summarized in

Table 4. The pretest interaction pattern of the control group was

characterized by extended student interpretive interaction, followed by

predictable behavior (10-8\-8\-10-8-8); teacher direction interpreted by

the students, leading to more direction and ending with student predictable

behavior (6-8\-6-8); more student interpretive behavior, followed by

teacher information-giving, interpretation by students, followed by more

teacher directions (8\-5-8\-6); further student interpretive behavior,

criticism by the teacher, followed by further teacher information-

giving, more student interpretation, followed by information-

giving and directions from the teacher (8\-7-5-8\-5-6).

Similar interaction patterns were observed from pretest to posttest
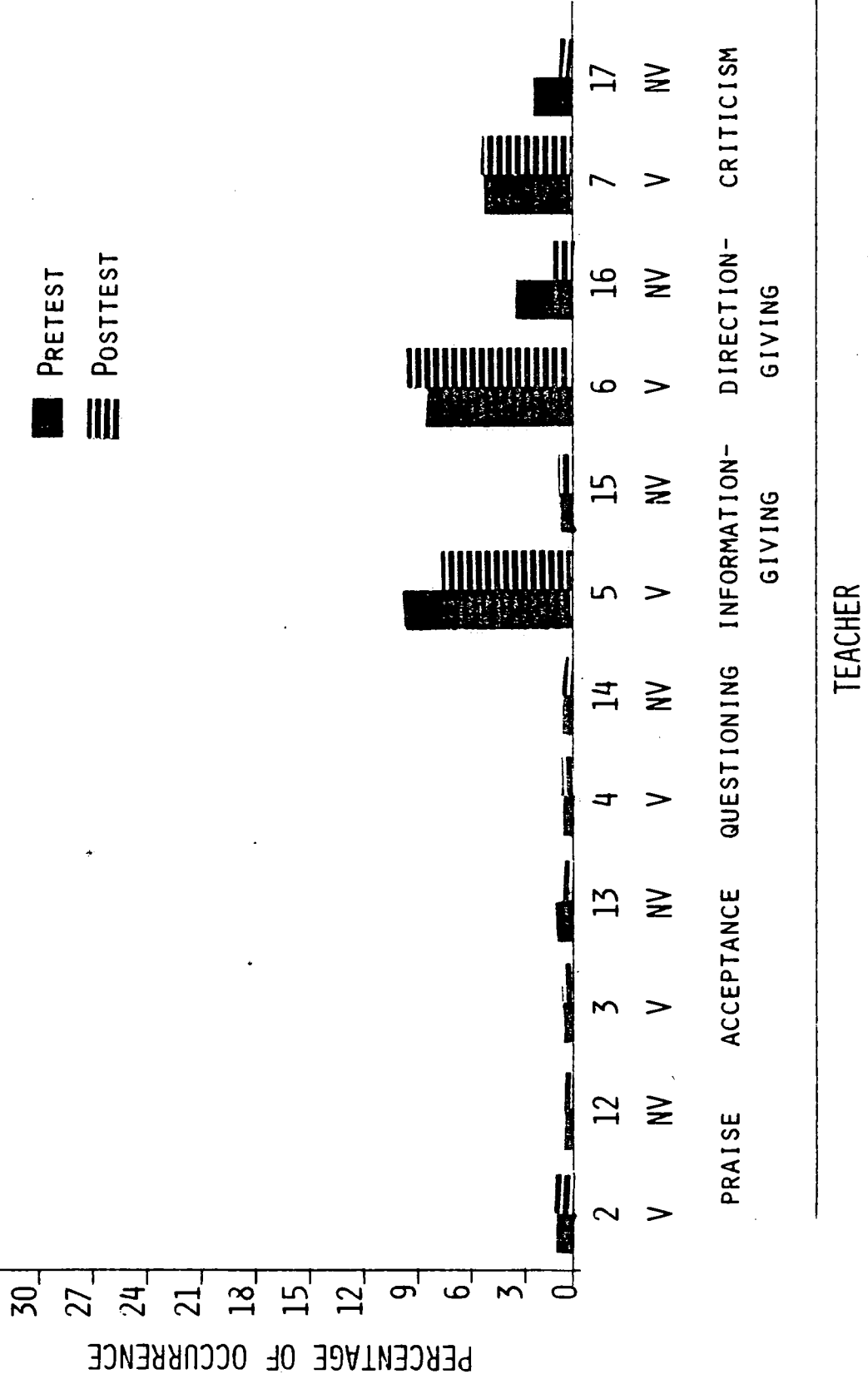
Figure 2. Mean percent of behavior in each CAFIAS category for the control group.
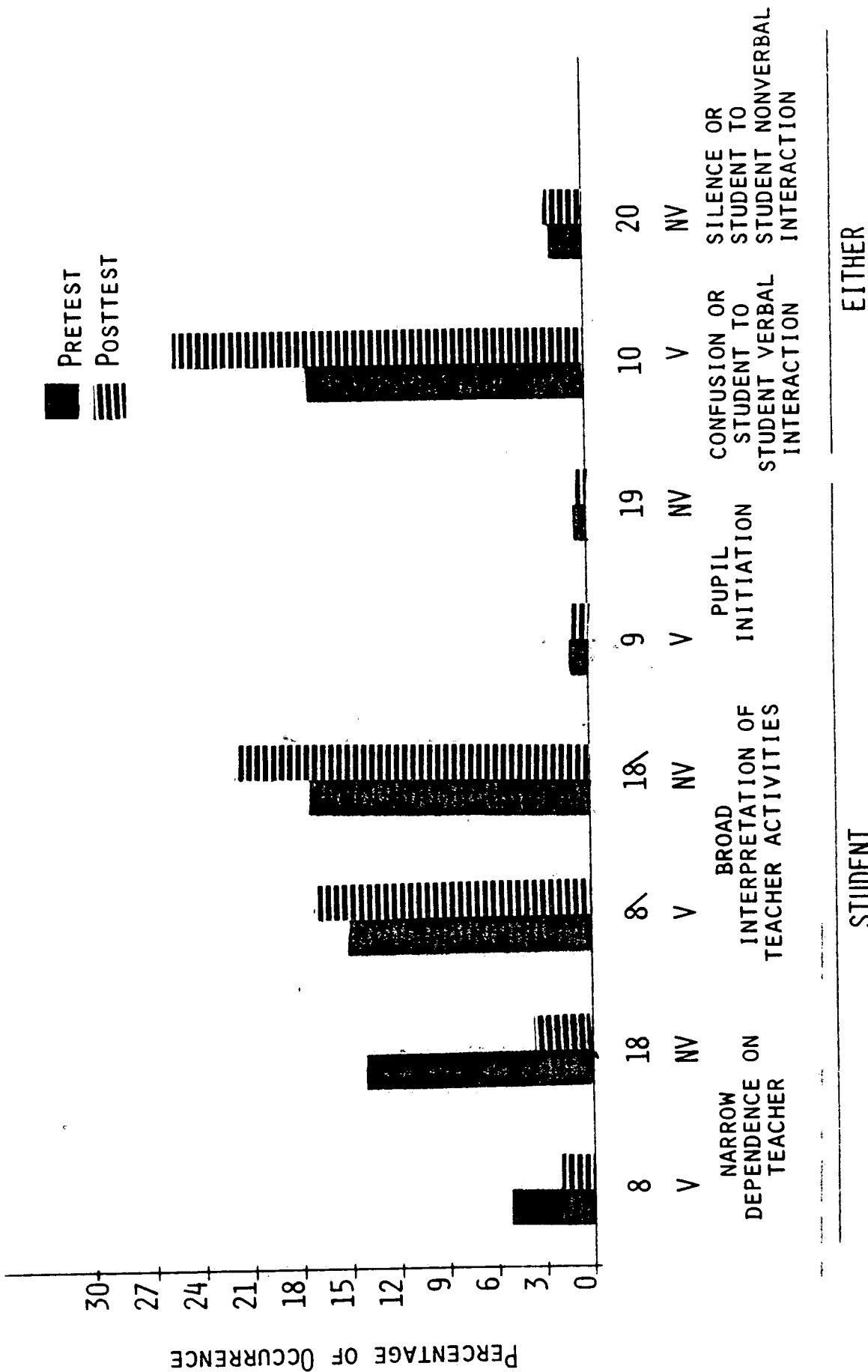
Figure 2. (continued).

Table 4

Summary of the Most Frequent Interaction Patterns

and Mean Percentages of Occurrence Among the

Top 10 Cells Combined for the

Control Group

Pretest		Posttest	
Interaction Patterns	Mean Percentage of Occurrence	Interaction Patterns	Mean Percentage of Occurrence
10-8\	18.45	8\-10	26.96
8\-10	17.73	10-8\	26.92
8-8	9.43	6-8\	5.85
6-8\	6.24	6-8	4.20
6-8	5.21	8\-6	4.16
8\-5	3.86	5-5	3.71
8\-6	3.41	8-6	2.71
8\-7	3.26	8\-7	2.43
5-8\	2.70	8\-8\	2.43
5-6	2.66	8\-5	2.24

Interaction Pattern Description

10-8\   Student-to-student interpretive interaction.

8\-10   Student-to-student interpretive interaction.

8-8   Extended student predictable response.

6-8\   Teacher direction followed by student interpretive behavior.

6-8   Teacher direction followed by student predictable response.

Table 4 (continued)

8\-5   Student interpretive behavior followed by teacher information-giving.

8\-6   Student interpretive behavior followed by teacher direction.

8\-7   Student interpretive behavior followed by teacher criticism.

5-8\   Teacher information-giving followed by student interpretive behavior.

5-6   Teacher information-giving followed by teacher direction.

5-5   Extended teacher information-giving.

8-6   Student predictable response followed by teacher direction.

8\-8\   Student extended interpretive behavior.

for the control group. The posttest situation exhibited behaviors of extended student interpretive interaction, followed by teacher direction causing predictable student behavior, followed by interpretation and further direction (8\-10-8\-6-8-8\-6); followed by extended teacher information-giving resulting in predictable behavior of students, followed by more teacher direction (5-5-8-6); student interpretive behavior criticized by the teacher, followed by further extended student interpretive behavior and resulting in teacher information-giving (8\-7-8\-8\-8\-5).

It was apparent through visual comparisons that the teaching behavior of the control group teachers changed minimally from the pretest to posttest observation periods. A slight decrease in teacher information-giving and small increases in teacher directions and criticism was noted. However, a marked decrease in student nonverbal predictable behavior occurred and increases in student nonverbal interpretive behavior and student-to-student interaction were identified.

Combined Profile of the Treatment Group on the MBI

The combined scores on the MBI subscales by the treatment group are presented in Figure 3. The pretest and posttest mean scores on the frequency and intensity dimensions of the MBI subscales were obtained for the teachers in the treatment group and visually compared. The data revealed a small decrease in the depersonalization: frequency score. Larger decreases were recorded on the emotional exhaustion: frequency subscale, emotional exhaustion: intensity subscale, and depersonalization: intensity subscale. These decreases reflected a decrease in the level of burnout. A moderate increase was noted on the personal accomplishment: frequency subscale; this increase indicated a decrease in the level of
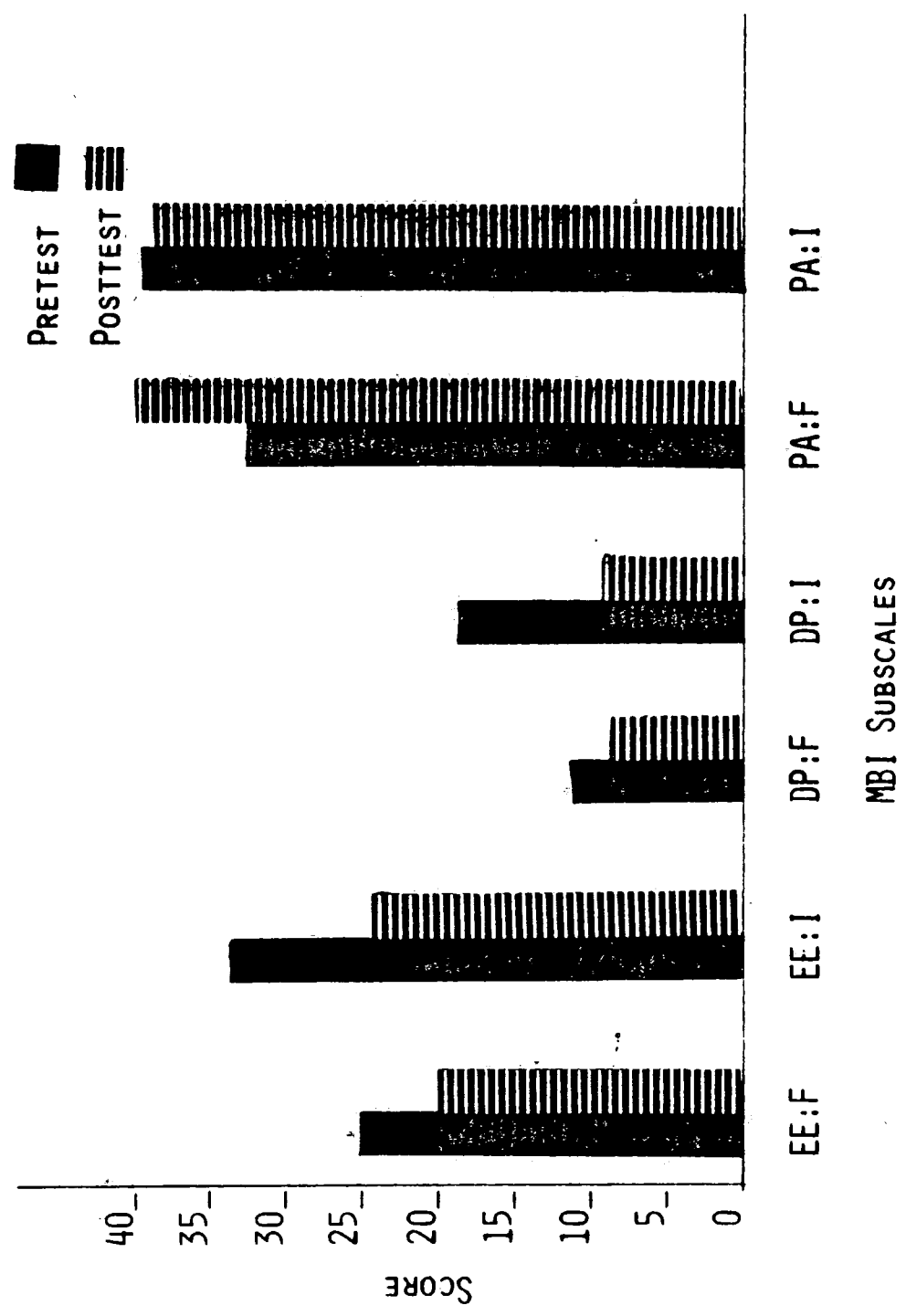
Figure 3. MBI mean scores for the treatment group.

burnout. The small decrease recorded in the personal accomplishment: frequency score indicated a slight increase in the teachers' level of burnout.

Combined Profile of the Control Group on the MBI

The combined scores on the MBI subscales by the control group are presented in Figure 4. The pretest and posttest mean scores on the frequency and intensity dimensions of the MBI subscales were obtained for teachers in the control group and visually compared. The data revealed slight decreases on the emotional exhaustion: frequency subscale, the emotional exhaustion: intensity subscale, and the depersonalization: intensity subscale indicating a decrease in the level of burnout. Scores on the depersonalization: frequency subscale increased slightly, reflecting a small increase in burnout. The small decrease recorded in the personal accomplishment: frequency score indicated a slight increase in the teachers' level of burnout.

Summary

Coder reliability for this study was established through the use of the Spearman rank-order correlation. Two videotapes from the treatment group and two videotapes from the control group were randomly selected. Each videotape was coded during two independent observation sessions by an expert coder. The top 10 cells were ranked and the Spearman rank-order correlation was applied to the rankings. The mean score of the correlation was .95, which was sufficient to indicate coder reliability.

Visual interpretation of Table 1, Figure 1, and Table 2 revealed that the teaching behavior of the treatment group from pretest to post-test changed from direct to indirect in nature.

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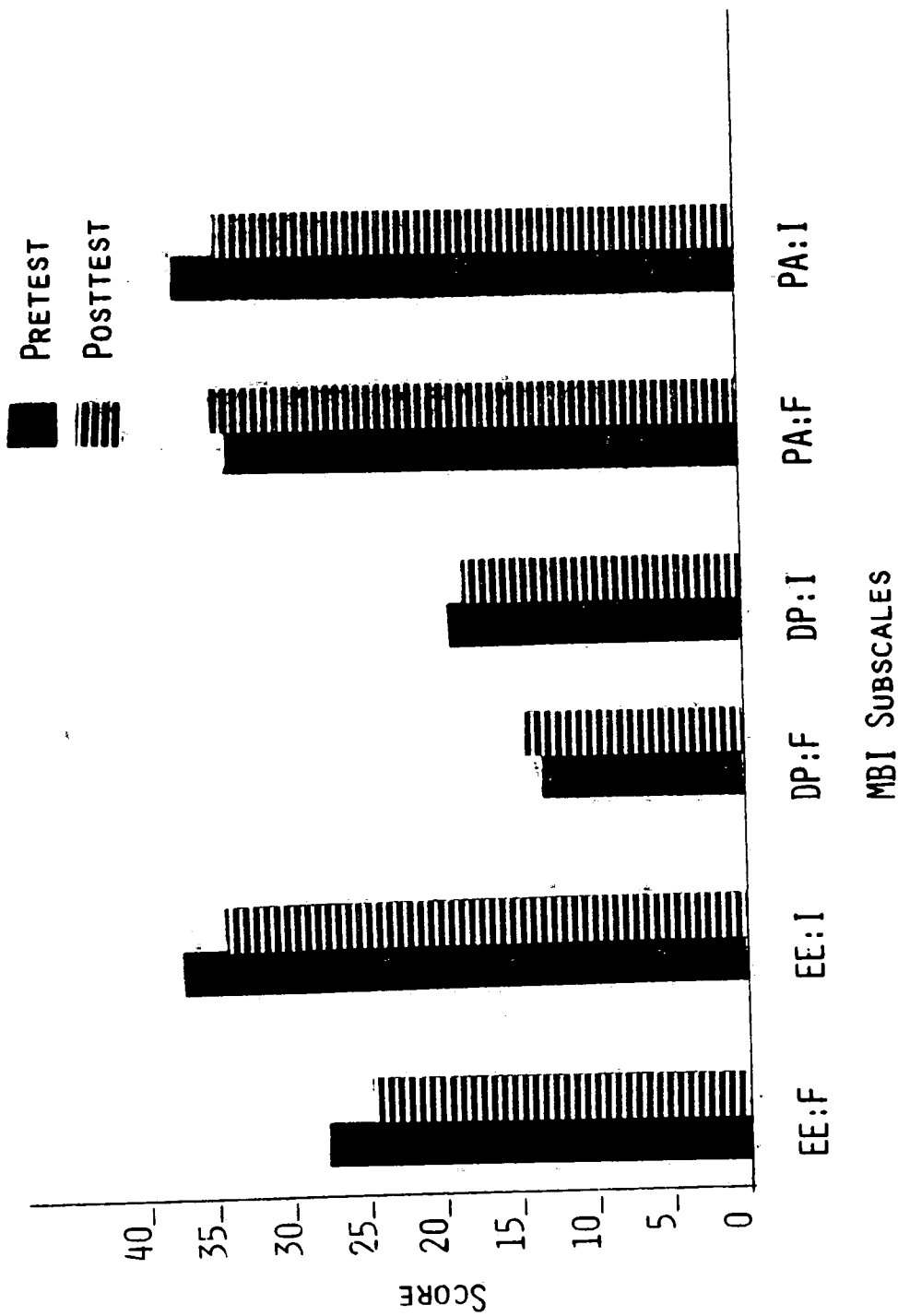
Figure 4. MBI mean scores for the control group.

Visual comparisons of the control group data (see Table 3, Figure 2, and Table 4) revealed that their teaching behavior changed minimally from the pretest to posttest observation periods.

Visual comparison of the MBI data from pretest to posttest (see Figure 3) revealed changes on five of the six subscales indicating a decrease in the treatment group teachers' level of burnout.

Visual comparison of the MBI data from pretest to posttest (see Figure 4) revealed only slight changes on four of the six subscales indicating a decrease in the control group teachers' level of burnout.

These findings led to the rejection of the hypothesis that there would be no significant difference between the teaching behaviors of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback. It also led to the rejection of the hypothesis that stated there would be no significant difference between Maslach Burnout Inventory (MBI) scores of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback.

Chapter 5

DISCUSSION OF RESULTS

The discussion of results of this investigation focused on these

areas: the combined use of the major CAFIAS parameters by the treatment

and control groups, the combined percentages of behaviors in each CAFIAS

category by the treatment and control groups, the most frequent

interaction patterns for the treatment and control groups, the MBI data

for the treatment and control group, and a summary.

The Combined Use of the Major CAFIAS Parameters

by the Treatment and Control Groups

Visual analysis of Table 1 revealed that the treatment group

teachers exhibited increases from pretest to posttest observation periods

on the parameters of teacher contribution, silence and confusion or

student-to-student interaction, teacher use of questioning, teacher use

of acceptance and praise, teacher empathetic behavior, verbal emphasis,

and teacher suggested student initiation. The findings in this

investigation were similar to findings of other studies that examined the

effects of supervisory feedback using CAFIAS on the teaching behaviors of

preservice physical education teachers (Getty, 1977; Hendrickson, 1975;

Rochester, 1976; Vogel, 1976). Hendrickson (1975) used CAFIAS in a

pre-service training program of physical educators videotaped during

micro-peer teaching lessons. Control subjects received conventional

supervisory feedback and viewed their taped lessons. Treatment subjects

received conventional supervisory feedback, viewed their taped lessons,

and received instruction and supervision in CAFIAS. Results from

Hendrickson's (1975) investigation concurred with this investigation on the parameters of increased teacher use of questioning, increased teacher use of acceptance and praise, and increased teacher suggested student initiation.

Rochester (1976) investigated the effects of instruction and supervision in the coding of CAFIAS on preservice physical education teachers' behaviors. Instruction and supervision was received by treatment and control groups. The treatment group received additional feedback with CAFIAS, experience in coding CAFIAS, and supervisory feedback on their coding. Rochester (1976) observed increases on the parameters of student contribution and teacher use of questioning.

CAFIAS was employed by Vogel (1976) to examine the teaching behaviors of student physical education teachers. The treatment subjects received instruction and supervision in CAFIAS, and control subjects did not receive any instruction. Vogel (1976) found increases in parameters of teacher use of acceptance and praise by student teachers who received training in CAFIAS. These results were similar to the findings of this investigation.

Getty (1977) expanded Vogel's (1976) study and found in classes taught by student teachers trained in CAFIAS there were increases in the parameters of teacher use of questioning, teacher use of acceptance and praise, and teacher suggested student initiation. Decreases were evident in student contribution, teacher suggested student initiation, emphasis on content, and nonverbal emphasis from the pretest to posttest observation periods.

Table 3 revealed that the control group displayed increases on the parameters of silence and confusion, teacher use of questioning,

teacher suggested student initiation, and verbal emphasis. These findings were similar to Getty (1977). During posttest decreases were evident on the parameters of teacher use of acceptance and praise, teacher and student contribution, student suggested student initiation, teacher emphasis on content, and nonverbal emphasis. These results are similar to findings in Stevens' (1979) investigation of elementary physical education teachers.

The Combined Percentages of Behavior in Each CAFIAS

Category for the Treatment and Control Groups

An examination of Figure 1 revealed that from the pretest to posttest observation periods the treatment group exhibited greater verbal and nonverbal praise, acceptance, and questioning. The students exhibited increased verbal interpretive behavior and greater confusion and/or student-to-student verbal interaction. Investigations by Stevens (1979) and Lombardo (1979) revealed similar findings.

It was also revealed (see Figure 1) that in the posttest situation less verbal and nonverbal directions, less verbal and nonverbal information-giving, less verbal and nonverbal criticism, less verbal and nonverbal student predictable responses, less nonverbal pupil interpretive behavior, and less nonverbal student interaction were evident. Stevens' (1979) investigation found similar results in decreases of verbal and nonverbal criticism and less nonverbal pupil initiation.

It was observed that the control group (see Figure 2) exhibited virtually no change in verbal and nonverbal praise, acceptance, and questioning. No change was found in nonverbal information-giving, verbal criticism, verbal and nonverbal student initiative, and silence or student-to-student nonverbal interaction. From pretest to posttest observation

periods the control group exhibited less verbal information-giving, less nonverbal direction-giving and criticism, and less verbal and nonverbal student predictable behavior. The posttest situation also revealed greater verbal direction-giving, greater verbal and nonverbal student interpretive behavior, and greater confusion and/or student-to-student verbal interaction. The results of this investigation with respect to the changes found in the CAFIAS categories from pretest to posttest observation periods for the control group were not in congruence with those found by Lombardo (1979) and Stevens (1979).

The Most Frequent Interaction Patterns

for the Treatment and Control Groups

Visual analysis of Table 2 revealed that from pretest to posttest observation periods the interaction patterns of the treatment group were characterized by extended student interpretive interaction or game play (8\-10-8\); teacher information-giving requiring extended interpretive behavior, which was praised by the teacher (5-8\-8\-2); student interpretive behavior followed by teacher information-giving and praise, followed by further extended student interpretive behavior by the students (8\-5-2-8\-8\); followed by teacher acceptance, extended teacher information-giving, teacher praise, more information-giving, further teacher acceptance and student interpretive response (3-5-5-2-5-3-8\). The interaction patterns found by Stevens (1979), Lombardo (1979), and van der Mars (1979) revealed similar use of teacher feedback, praise and acceptance of students' behaviors.

Examination of Table 4 revealed that posttest interaction patterns of the control group were characterized by extended student interpretive interaction or game play, followed by teacher direction and student

predictable behavior, followed by student interpretation and further

teacher direction (8\-10-8\-6-8-8\-6); followed by extended teacher

information-giving, student predictable behavior, and more teacher

direction (5-5-8-6); followed by student interpretive behavior which was

criticized by the teacher, further student interpretive behavior and

teacher information-giving (8\-7-8\-5). Stevens' (1979) study found

similar patterns of teacher direction and student predictable behavior,

and extended student interpretive behavior followed by teacher

information-giving.

Pretest and Posttest Means on the MBI
for Treatment and Control Groups

Examination of the pretest and posttest data on the MBI for the

treatment and control groups (see Figures 3 and 4) revealed changes

reflecting a lower level of burnout for both groups. The treatment group

teachers exhibited changes on five of the six MBI subscales indicating a

decrease in their level of burnout. They reported a decrease in the

frequency and intensity of emotional exhaustion and depersonalization.

They perceived that they were less emotionally drained by teaching and

felt more positive and less cynical toward their students. The increase

on the intensity dimension of the personal accomplishment subscale

indicated they felt more satisfied with their accomplishments and job

performance. However, the frequency dimension of personal accomplishment

decreased indicating they felt satisfied slightly less often.

The control group teachers exhibited slight changes on four of the

six MBI subscales. They reported a decrease in the frequency and

intensity of emotional exhaustion and in the intensity of depersonaliza-

tion. They perceived that they were less emotionally drained and the

strength of their negative feelings toward their students decreased. The increased score on the personal accomplishment: intensity subscale revealed they felt more satisfied with their teaching performance. However, the teachers' scores increased on the depersonalization: frequency and personal accomplishment: intensity subscales indicated a higher level of burnout on these factors.

When the changes of the treatment and control groups were visually compared, the magnitude of the changes were greater for the treatment group teachers, indicating a greater change in their perceived level of burnout. These findings appear to support the contentions of researchers (Malone & Rotella, 1981; Ricken, 1980; Vergamini, 1981) that increasing teacher awareness and providing teachers with supervisory feedback can mitigate the effects of burnout. It seems reasonable to assume that the changes in teachers' level of burnout affected positive changes in their interactions with their students.

Summary

Visual interpretation of the data was used to obtain results for this study due to the small number of subjects (N = 6). Visual interpretation of the data led the investigator to reject the hypothesis that stated there would be no significant difference between the teaching behaviors of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback.

Visual analysis of Table 1, Figure 1, and Table 2 revealed that from the pretest to posttest observation periods the treatment group exhibited increased praise, acceptance, empathetic behavior, student interpretive behavior, and student-to-student interpretive interaction, with all

increases suggesting a more indirect teaching style. Results found within this investigation are similar to data obtained in studies that examined pre-service teaching behaviors (Getty, 1977; Hendrickson, 1975; Rochester, 1976; van der Mars, 1979; Vogel, 1976).

Visual interpretation of Table 3, Figure 2, and Table 4 revealed that only minimal changes occurred in the teaching behaviors of the control group teachers from pretest to posttest observation periods. The teaching behaviors of the control group revealed a large percentage of time spent in information-giving and direction-giving. Student behaviors, however, were predominantly interpretive in nature. Acceptance and praise was minimal by the teachers.

Visual interpretation of the MBI data for the treatment group from pretest to posttest observations revealed changes reflecting a lower level of burnout on five of the six subscales. Teachers in the control group reported feeling slightly less burned out on four of the six MBI subscales. Treatment group teachers reported a greater change in their perceived level of burnout than did the control group teachers.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The subjects for this study were 30 secondary physical education teachers from the southern tier section of New York State. The teachers were administered the Maslach Burnout Inventory (MBI) and using a median split technique were assigned to low- and high-burnout groups on the basis of their MBI scores. Ten teachers were then randomly selected to represent the low- and high-burnout groups. From the high-burnout group, six teachers were randomly selected and randomly assigned to the treatment ($N = 3$) and control ($N = 3$) groups. Each teacher was videotaped nine times by the investigator while teaching an entire physical education class. The videotaping was divided into three phases. During Phase One each subject was videotaped three times in order to obtain baseline teaching data. During Phase Two subjects were videotaped three times and received 5 days of feedback. The control subjects received conventional supervisory feedback while the treatment group received both conventional supervisory feedback and instruction and supervision in CAFIAS. During Phase Three, all teachers were videotaped three times for posttest data collection and readministered the MBI. Data for analysis were collected from Phase One and Phase Three classes which were coded using CAFIAS by an expert coder. CAFIAS was utilized to examine both verbal and nonverbal behavior and to determine the teachers' and students' behaviors.

Raw data for each subject were transposed onto computer cards, and computer analysis provided the scores for each of the 17 CAFIAS parameters.

C

Descriptive statistics were used to determine whether differences in teaching behaviors as identified by CAFIAS existed between treatment and control group teachers. Computer printouts indicated ratios, percentages, and patterns of behaviors. Visual comparisons were made between treatment and control groups to determine the relative standings of both groups and individuals on each of the variables during the Phase One and Phase Three observation periods.

Visual examination of Table 1, Figure 1, and Table 2 revealed differences in the teaching behaviors exhibited by the treatment group from the pretest to posttest observation periods. The posttest classes were characterized by increases in teacher acceptance and praise, teacher use of questioning, and increased teacher empathetic behavior along with increased student-to-student interaction. Decreases were evident in teacher emphasis on content, nonverbal emphasis, teacher direction-giving, and teacher criticism.

An examination of Table 3, Figure 2, and Table 4 revealed minimal differences in the teaching behavior of the control group from the pretest to posttest situations. Posttest classes exhibited increased teacher use of questioning, silence and confusion, and verbal emphasis. Decreases were evident in the parameters of teacher use of acceptance and praise, teacher emphasis on content, and nonverbal emphasis.

Visual interpretation of the data (see Table 1, Table 2, Table 3, Table 4, Figure 1, and Figure 2) led to the rejection of the major hypothesis which stated there will be no significant difference between the teaching behavior of high-burnout teachers receiving conventional supervisory feedback and interpretation of CAFIAS and those teachers receiving only conventional supervisory feedback.

Examination of the MBI scores for the treatment group revealed that the teachers reported a decrease in burnout on five of the six subscales. Teachers in the control group revealed decreases on four of the six subscales indicating a decrease in burnout. Inspection of the MBI scores revealed that the magnitude of the decrease was greater for the teachers in the treatment group. When compared to the control group, teachers in the treatment group revealed a greater decrease in their level of burnout.

Therefore, visual comparisons of the MBI data (see Figures 3 and 4) led to the rejection of the hypothesis which stated that there would be no significant difference between Maslach Burnout Inventory (MBI) scores of high-burnout teachers receiving conventional supervisory feedback and interpretation and supervision of CAFIAS and those teachers receiving only conventional supervisory feedback.

Conclusions

The teaching behaviors of high-burnout secondary physical educators who had received instruction and supervision in the use of CAFIAS (treatment group) and high-burnout secondary physical educators who did not receive instruction and supervision in CAFIAS (control group) were examined. The following conclusions, concerning the changes from the pretest to posttest observation periods, were established from the combined data collected and analyzed for the treatment and control groups.

1. Treatment group classes were characterized by increased student interaction in the form of verbal and nonverbal student interpretive behavior, and teacher suggested student initiation.

2. Treatment group teachers exhibited increased verbal and nonverbal praise, nonverbal acceptance, verbal and nonverbal questioning, and teacher empathetic behavior.

3. Treatment group teachers exhibited less verbal and nonverbal direction, less verbal and nonverbal criticism, less verbal and nonverbal information-giving and less verbal acceptance.

4. Control group teachers exhibited more verbal praise, verbal questions, verbal directions, and verbal criticism.

5. Control group students exhibited less verbal and nonverbal student predictable behavior and more verbal and nonverbal student interpretive behavior.

6. Control group teachers exhibited less nonverbal praise, less verbal and nonverbal acceptance, less nonverbal questions, and less verbal and nonverbal information-giving.

7. The teaching behaviors of the treatment group became more indirect, while the control group changed only minimally.

8. The MBI data revealed that the treatment group teachers exhibited a larger decrease in their level of burnout than the control group teachers whose level of burnout changed only minimally.

Recommendations for Further Study

The following recommendations are suggested for further study:

1. Conduct a similar study utilizing a larger teacher sample.

2. Conduct a similar study using elementary physical education teachers.

3. Conduct a similar study using special physical education teachers.

4. Conduct a similar study utilizing a longer period of feedback.

5. Conduct a similar study utilizing a different instrument to describe teacher burnout.

Appendix A

THE CATEGORIES OF CHEFFERS' ADAPTATION OF FLANDERS' INTERACTION ANALYSIS SYSTEM

Categories 2-17   Teacher Behaviors

Categories 8-19   Student Behaviors

Category 10   Confusion

Category 20   Silence

Categories	Verbal	Nonverbal
2 – 12	2	12
	(A positive value assessment)	Face: Smiles, nods with smile (energetic), winks, laughs.
	Praises, commends, jokes, encourages.	Posture: Applause through clapping hands, congratulatory pats on shoulder, head, etc., wrings student's hands, embraces joyfully, laughs to encourage.

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Appendix A (continued)

Categories	Verbal	Nonverbal
3 - 13	3	13

3

(No value implied)

Accepts, clarifies, uses, and

develops suggestions and feelings

by the learner.

N.B. Flanders category one

which refers to teacher

acceptance of student feeling

and emotions is included in

this category. Coders are

reminded to use 1 and 11 on tally

sheets. These behaviors are

tallied separately for analysis

purposes and included for

parameter purposes in the matrix

as 3 and 13.

13

(Elevates student performance onto a par with teacher

performance)

Face: Nods without smiling, tilts head in empathetic

reflection, sighs empathetically.

Posture: Shakes hands, embraces sympathetically,

places arm around shoulder or waist, catches

an implement thrown by student, accepts

facilitation from students, takes part in

game with students, supports child during

activity, spotting in gymnastics.

Appendix A (continued)

Categories	Verbal	Nonverbal	
4 - 14	4	14	
	Ask questions requiring student answer.	Face:	Wrinkles brow, opens mouth, turns head with quizzical look.
		Posture:	Places hands in air quizzically to expect answer, stares awaiting answer, scratches head, cups hand to ear, stands still half-turned toward person, awaits answer.
5 - 15	5	15	
	Gives facts, opinions, expresses ideas or asks rhetorical questions.	Face:	Whispers words inaudibly, sings or whistles.
		Posture:	Gesticulates, draws, writes, demonstrates activities, paints, points out facts on board.

Appendix A (continued)

Categories	Verbal	Nonverbal
6 - 16	6 Gives directions or orders which will result in immediate observable student response.	16 Face: Points with head, beckons with head, yells at using language other than recognizable words. Posture: Points finger, blows whistle, holds body erect while barking commands, pushes a child in a given direction.
7 - 17	7 (A negative value assessment.) Criticizes, expresses anger or distrust, sarcastic or extreme self-reference.	17 Face: Grimaces, growls, frowns, drops head, throws head back in derisive laughter, rolls eyes, bites, spits, butts with head, shakes head. Posture: Hits, pushes away, pinches, grapples with, pushes hands at student, drops hands at student, drops hands in disgust, bangs table, damages equipment, throws things down.

Appendix A (continued)

Categories	Verbal	Nonverbal
8 - 18	8	18

Verbal (8): Student response that is entirely predictable, such as obedience to orders and responses not requiring thinking beyond the comprehension phase or knowledge (after Bloom).

Nonverbal (18):

Face: Poker-face response, nods, shakes, gives small grunts, quick smile.

Posture: Moves mechanically to questions or directions, responds to any action with minimal nervous activity, robot-like, practices drills, waits in line, etc., student responds by putting hand up in answering to teacher direction.

Appendix A (continued)

Categories	Verbal	Nonverbal
	Eine (8\)	Eineteen (18\)
8\ - 18\	Predictable student responses that require some measure of evaluation, synthesis, and interpretation from the student but must remain within the province of predictability. The initial behavior was in response to teacher initiation. Student interpretation from teacher in discussed activity. A student questioning when related strictly to topic under discussion.	Face: Look of thinking eyes, pensive formal expressions. Posture: Interprets movements, tries to show some arrangement that requires interpretive thinking; e.g., works on gymnastic routine; test taking; interpretation of task cards; all game playing. Student puts hands in air in order to give answer to teacher question.

Appendix A (continued)

Categories	Verbal	Nonverbal
9 – 19	**9** Pupil-initiated talk that is purely the result of their own initiative and which could not be predicted (either positive or negative behavior).	**19** Face: Makes interrupting sounds, gasps, sighs. Posture: Puts hands up in air to ask (unsolicited) question of teachers, gets up and walks around without provocation, begins creative movement education, makes up own games, makes up own movements, shows initiative in supportive movement, introduces new movements into games not predictable in the rules of the games.
10 – 20	**10** Stands for confusion, chaos, disorder, noise.	**20** Face: Silence, children sitting doing nothing, noiselessly awaiting teacher just prior to teacher entry, etc.

MASLACH BURNOUT INVENTORY

Human Services Survey

Christina Maslach and Susan E. Jackson

The purpose of this survey is to discover how various persons in the human services or helping professions view their jobs and the people with whom they work closely. Because persons in a wide variety of occupations will answer this survey, it uses the term recipients to refer to the people for whom you provide your service, care, treatment, or instruction. When answering this survey please think of these people as recipients of the service you provide, even though you may use another term in your work.

On the following page there are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, write a "0" (zero) in both the "HOW OFTEN" and "HOW STRONG" columns before the statement. If you have had this feeling, indicate how often you feel it by writing the number (from 1 to 6) that best describes how frequently you feel that way. Then decide how strong the feeling is when you experience it by writing the number (from 1 to 7) that best describes how strongly you feel it. An example is shown below.

EXAMPLE:

HOW OFTEN:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

HOW STRONG:	0	1	2	3	4	5	6	7
	Never	very mild, barely noticeable			Moderate			Major, Very strong

HOW OFTEN 0-6	HOW STRONG 0-7	Statement: I feel depressed at work.
_____	_____	

If you never feel depressed at work, you would write the number "0" (zero) on both lines. If you rarely feel depressed at work (a few times a year or less), you would write the number "1" on the line under the heading "HOW OFTEN." If your feelings of depression are fairly strong, but not as strong as you can imagine, you would write a "6" under the heading "HOW STRONG." If your feelings of depression are very mild, you would write a "1."

Appendix B (continued)

HOW OFTEN:	0 Never	1 A few times a year or less	2 Once a month or less	3 A few times a month	4 Once a week	5 A few times a week	6 Every day

HOW STRONG:	0 Never	1 very mild, barely noticeable	2	3	4 Moderate	5	6	7 Major, Very strong

HOW OFTEN 0-6	HOW STRONG 0-7	Statements:
1. ___	___	I feel emotionally drained from my work.
2. ___	___	I feel used up at the end of the workday.
3. ___	___	I feel fatigued when I get up in the morning and have to face another day on the job.
4. ___	___	I can easily understand how my recipients feel about things.
5. ___	___	I feel I treat some recipients as if they were impersonal objects.
6. ___	___	Working with people all day is really a strain for me.
7. ___	___	I deal very effectively with the problems of my recipients.
8. ___	___	I feel burned out from my work.
9. ___	___	I feel I'm positively influencing other people's lives through my work.
10. ___	___	I've become more callous toward people since I took this job.
11. ___	___	I worry that this job is hardening me emotionally.
12. ___	___	I feel very energetic.
13. ___	___	I feel frustrated by my job.
14. ___	___	I feel I'm working too hard on my job.
15. ___	___	I don't really care what happens to some recipients.
16. ___	___	Working with people directly puts too much stress on me.
17. ___	___	I can easily create a relaxed atmosphere with my recipients.

Appendix B (continued)

HOW OFTEN 0-6	HOW STRONG 0-7	
18. _____	_____	I feel exhilarated after working closely with my recipients.
19. _____	_____	I have accomplished many worthwhile things in this job.
20. _____	_____	I feel like I'm at the end of my rope.
21. _____	_____	In my work, I deal with emotional problems very calmly.
22. _____	_____	I feel recipients blame me for some of their problems.

Appendix C

INDIVIDUAL PROFILES: TREATMENT AND CONTROL GROUPS

Use of Major CAFIAS Parameters by Treatment Group—Teacher One

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	58.59	55.89
Total Student Contribution (TSC)	36.48	38.85
Total Silence and/or Confusion (SC)	4.93	5.25
Total Teacher Use of Questioning (TTQR)	2.22	12.47
Total Teacher Use of Acceptance and Praise (TTAPR)	23.41	71.26
Total Student Initiation, Teacher Suggested (TSITSR)	39.30	79.39
Total Student Initiation, Student Suggested (TSISSR)	4.87	8.72
Content Emphasis, Teacher Input (CETI)	56.61	44.20
Teacher as Teacher (TT)	100.00	99.97
Other Student as Teacher (ST)	.00	.03
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	42.24	57.17
Nonverbal Emphasis (NVE)	57.76	42.83
Class Structure as One Unit (W)	14.94	100.00
Class Structure as Groups or Individuals (P)	85.06	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	3	14

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings and emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Treatment Group--Teacher One

CAFIAS Category	Pretest Percentage	Posttest Percentage
2 Teacher Use of Praise--Verbal	1.3	6.7
12 Teacher Use of Praise--Nonverbal	.6	3.8
3 Teacher Acceptance--Verbal	.7	4.9
13 Teacher Acceptance--Nonverbal	.7	6.1
4 Teacher Question--Verbal	.8	2.7
14 Teacher Question--Nonverbal	.2	.5
5 Teacher Lecture--Verbal	26.3	17.4
15 Teacher Lecture--Nonverbal	17.1	5.1
6 Teacher Direction--Verbal	7.6	5.9
16 Teacher Direction--Nonverbal	1.4	1.5
7 Teacher Criticism--Verbal	1.4	1.1
17 Teacher Criticism--Nonverbal	.5	.2
8 Student Predictable Response-- Verbal	2.0	2.6
18 Student Predictable Response-- Nonverbal	20.2	5.4
8\ Student Interpretive Response-- Verbal	1.1	10.1
18\ Student Interpretive Response-- Nonverbal	12.6	18.0

Appendix C (continued)

CAFIAS Category	Pretest Percentage	Posttest Percentage
9 Student Initiated Behavior--Verbal	.3	1.5
19 Student Initiated Behavior--Nonverbal	.4	1.2
10 Confusion or Student to Student Verbal Interaction	.7	4.3
20 Silence or Student to Student Nonverbal Interaction	4.2	.9

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Treatment Group--Teacher One

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
5-5	32.37	5-8\	9.26
8\-8\	9.65	8\-3	7.50
6-8	7.19	5-5	6.05
8-5	5.96	8\-2	5.80
5-8	5.05	8\-5	5.41
10-8	4.81	3-8\	4.93
8-10	4.68	2-5	4.45
8-6	4.35	10-8\	4.42
5-6	3.53	8\-10	4.39
8\-5	2.38	3-5	3.91

Note. A description of the interaction patterns may be found on page 111.

Appendix C (continued)

Use of Major CAFIAS Parameters by Treatment Group--Teacher Two

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	39.28	47.03
Total Student Contribution (TSC)	40.02	38.61
Total Silence and/or Confusion (SC)	20.70	14.36
Total Teacher Use of Questioning (TTQR)	4.18	25.04
Total Teacher Use of Acceptance and Praise (TTAPR)	13.65	75.38
Total Student Initiation, Teacher Suggested (TSITSR)	67.64	88.42
Total Student Initiation, Student Suggested (TSISSR)	7.25	2.17
Content Emphasis, Teacher Input (CETI)	25.00	40.13
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	59.18	65.08
Nonverbal Emphasis (NVE)	40.82	34.92
Class Structure as One Unit (W)	100.00	100.00
Class Structure as Groups or Individuals (P)	.00	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	2	11

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings and emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Treatment Group--Teacher Two

CAFIAS Category	Pretest Percentage	Posttest Percentage
2 Teacher Use of Praise--Verbal	1.0	8.5
12 Teacher Use of Praise--Nonverbal	.2	3.9
3 Teacher Acceptance--Verbal	.6	2.2
13 Teacher Acceptance--Nonverbal	1.0	2.0
4 Teacher Question--Verbal	.6	4.7
14 Teacher Question--Nonverbal	.2	1.6
5 Teacher Lecture--Verbal	10.9	12.4
15 Teacher Lecture--Nonverbal	7.3	6.4
6 Teacher Direction--Verbal	9.3	3.1
16 Teacher Direction--Nonverbal	4.7	1.1
7 Teacher Criticism--Verbal	3.2	.9
17 Teacher Criticism--Nonverbal	.2	.2
8 Student Predictable Response--Verbal	1.1	2.2
18 Student Predictable Response--Nonverbal	11.8	2.3
8\ Student Interpretive Response--Verbal	12.3	16.9
18\ Student Interpretive Response--Nonverbal	12.8	16.4

Appendix C (continued)

CAFIAS Category	Pretest Percentage	Posttest Percentage
9 Student Initiated Behavior-- Verbal	1.0	.4
19 Student Initiated Behavior-- Nonverbal	1.0	.3
10 Confusion or Student to Student Verbal Interaction	19.2	13.7
20 Silence or Student to Student Nonverbal Interaction	1.5	0.6

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Treatment Group--Teacher Two

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
10-8\	19.11	10-8\	13.87
8\-10	19.06	8\-10	13.78
5-5	14.07	8\-2	9.46
6-8	10.46	5-8\	7.24
8-6	6.95	5-5	7.15
6-8\	2.55	2-8\	5.28
5-6	2.34	8\-5	5.15
8\-6	1.86	2-5	4.04
8-5	1.70	4-8\	3.24
8\-5	1.54	5-4	2.97

Note. A description of the interaction patterns may be found on
page 111.

Appendix C (continued)

Use of Major CAFIAS Parameters by Treatment Group--Teacher Three

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	28.80	35.28
Total Student Contribution (TSC)	69.71	46.01
Total Silence and/or Confusion (SC)	1.48	18.71
Total Teacher Use of Questioning (TTQR)	13.90	14.63
Total Teacher Use of Acceptance and Praise (TTAPR)	14.39	81.62
Total Student Initiation, Teacher Suggested (TSITSR)	68.89	97.07
Total Student Initiation, Student Suggested (TSISSR)	4.22	2.43
Content Emphasis, Teacher Input (CETI)	15.27	24.85
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	35.47	67.00
Nonverbal Emphasis (NVE)	64.53	33.00
Class Structure as One Unit (W)	100.00	100.00
Class Structure as Groups or Individuals (P)	.00	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	3	12

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings and emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Treatment Group--Teacher Three

CAFIAS Category	Pretest Percentage	Posttest Percentage
2 Teacher Use of Praise--Verbal	1.2	8.6
12 Teacher Use of Praise--Nonverbal	.4	4.2
3 Teacher Acceptance--Verbal	.8	2.6
13 Teacher Acceptance--Nonverbal	.4	3.2
4 Teacher Question--Verbal	1.1	1.5
14 Teacher Question--Nonverbal	.1	.3
5 Teacher Lecture--Verbal	7.7	9.2
15 Teacher Lecture--Nonverbal	.3	1.4
6 Teacher Direction--Verbal	13.2	1.5
16 Teacher Direction--Nonverbal	1.0	.3
7 Teacher Criticism--Verbal	2.1	1.9
17 Teacher Criticism--Nonverbal	.5	.5
8 Student Predictable Response--Verbal	5.8	.8
18 Student Predictable Response--Nonverbal	15.9	.6
8\ Student Interpretive Response--Verbal	2.3	21.7
18\ Student Interpretive Response--Nonverbal	43.7	21.8

Appendix C (continued)

CAFIAS Category	Pretest Percentage	Posttest Percentage
9 Student Initiated Behavior-- Verbal	1.1	.6
19 Student Initiated Behavior-- Nonverbal	.9	.5
10 Confusion or Student to Student Verbal Interaction	.1	18.6
20 Silence or Student to Student Nonverbal Interaction	1.3	.1

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Treatment Group--Teacher Three

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
8\-8\	37.94	10-8\	18.62
8-8	10.77	8\-10	18.53
6-8	9.39	5-8\	10.19
8-6	7.56	8\-2	9.84
6-8\	4.59	2-8\	7.43
8\-6	3.80	8\-5	6.76
5-5	2.82	8\-3	4.93
8\-5	2.12	3-8\	4.67
5-6	1.93	2-5	2.48
5-8\	1.78	8\-7	2.00

Note. A description of the interaction patterns may be found on

page 111.

Appendix C (continued)

Use of Major CAFIAS Parameters by Control Group--Teacher Four

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	26.65	20.25
Total Student Contribution (TSC)	59.12	50.87
Total Silence and/or Confusion (SC)	14.23	28.89
Total Teacher Use of Questioning (TTQR)	6.39	10.48
Total Teacher Use of Acceptance and Praise (TTAPR)	16.46	11.24
Total Student Initiation, Teacher Suggested (TSITSR)	37.68	88.32
Total Student Initiation, Student Suggested (TSISSR)	5.70	4.23
Content Emphasis, Teacher Input (CETI)	16.32	10.34
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	53.98	64.87
Nonverbal Emphasis (NVE)	46.02	35.13
Class Structure as One Unit (W)	100.00	100.00
Class Structure as Groups or Individuals (P)	.00	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	4	2

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings or emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Control Group--Teacher Four

	CAFIAS Category	Pretest Percentage	Posttest Percentage
2	Teacher Use of Praise--Verbal	1.0	.7
12	Teacher Use of Praise--Nonverbal	.3	.2
3	Teacher Acceptance--Verbal	.8	.4
13	Teacher Acceptance--Nonverbal	.4	.2
4	Teacher Question--Verbal	.5	.6
14	Teacher Question--Nonverbal	.2	.1
5	Teacher Lecture--Verbal	9.5	5.5
15	Teacher Lecture--Nonverbal	.9	.1
6	Teacher Direction--Verbal	7.4	7.8
16	Teacher Direction--Nonverbal	1.5	1.5
7	Teacher Criticism--Verbal	3.2	2.7
17	Teacher Criticism--Nonverbal	.9	.5
8	Student Predictable Response-- Verbal	8.6	1.5
18	Student Predictable Response-- Nonverbal	28.3	4.4
8\	Student Interpretive Response-- Verbal	9.3	16.6
18\	Student Interpretive Response-- Nonverbal	11.7	26.5

Appendix C (continued)

CAFIAS Category	Pretest Percentage	Posttest Percentage
9 Student Initiated Behavior-- Verbal	.8	1.1
19 Student Initiated Behavior-- Nonverbal	.5	.8
10 Confusion or Student to Student Verbal Interaction	12.9	28.0
20 Silence or Student to Student Nonverbal Interaction	1.3	.9

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Control Group--Teacher Four

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
8-8	24.79	8\-10	28.17
8\-10	12.59	10-8\	28.06
10-8\	12.48	8\-8\	6.38
6-8	6.69	6-8	4.51
5-5	5.42	6-8\	4.35
8-6	4.40	8\-6	4.02
8-5	3.44	8-6	2.64
8\-8\	2.51	5-5	2.34
5-8	2.26	8\-5	1.90
6-8\	2.06	5-8\	1.79

Note. A description of the interaction patterns may be found on page 111.

Appendix C (continued)

Use of Major CAFIAS Parameters by Control Group--Teacher Five

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	27.52	31.45
Total Student Contribution (TSC)	46.88	42.75
Total Silence and/or Confusion (SC)	25.60	25.80
Total Teacher Use of Questioning (TTQR)	5.88	5.85
Total Teacher Use of Acceptance and Praise (TTAPR)	16.37	13.71
Total Student Initiation, Teacher Suggested (TSITSR)	90.78	88.53
Total Student Initiation, Student Suggested (TSISSR)	3.99	3.55
Content Emphasis, Teacher Input (CETI)	16.29	17.58
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	16.29	17.58
Nonverbal Emphasis (NVE)	33.76	30.49
Class Structure as One Unit (W)	100.00	100.00
Class Structure as Groups or Individuals (P)	.00	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	0	2

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings or emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Control Group--Teacher Five

	CAFIAS Category	Pretest Percentage	Posttest Percentage
2	Teacher Use of Praise--Verbal	1.0	1.9
12	Teacher Use of Praise--Nonverbal	.2	.2
3	Teacher Acceptance--Verbal	.3	.4
13	Teacher Acceptance--Nonverbal	1.6	.2
4	Teacher Question--Verbal	.4	.6
14	Teacher Question--Nonverbal	.1	.1
5	Teacher Lecture--Verbal	8.2	10.3
15	Teacher Lecture--Nonverbal	.1	1.2
6	Teacher Direction--Verbal	7.3	9.9
16	Teacher Direction--Nonverbal	2.6	.5
7	Teacher Criticism--Verbal	4.3	5.4
17	Teacher Criticism--Nonverbal	1.5	.7
8	Student Predictable Response-- Verbal	.7	2.1
18	Student Predictable Response-- Nonverbal	3.7	2.8
8\	Student Interpretive Response-- Verbal	19.8	15.7
18\	Student Interpretive Response-- Nonverbal	21.1	20.8

Appendix C (continued)

	CAFIAS Category	Pretest Percentage	Posttest Percentage
9	Student Initiated Behavior-- Verbal	.9	.7
19	Student Initiated Behavior-- Nonverbal	.8	.6
10	Confusion or Student to Student Verbal Interaction	23.5	22.5
20	Silence or Student to Student Nonverbal Interaction	2.1	3.3

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Control Group--Teacher Five

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
10-8\	26.04	10-8\	25.02
8\-10	24.05	8\-10	24.99
6-8\	6.80	5-5	6.82
8\-5	6.24	6-8\	6.76
8\-6	4.58	8\-6	4.19
5-8\	4.21	6-8	4.07
6-8	3.40	8\-5	3.02
8\-7	3.40	8-6	2.63
5-6	2.25	9-7	2.54
7-8\	1.37	5-8\	2.51

Note. A description of the interaction patterns may be found on

Appendix C (continued)

Use of Major CAFIAS Parameters by Control Group--Teacher Six

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Total Teacher Contribution (TTC)	36.07	25.76
Total Student Contribution (TSC)	44.99	46.02
Total Silence and/or Confusion (SC)	18.94	28.22
Total Teacher Use of Questioning (TTQR)	8.04	11.50
Total Teacher Use of Acceptance and Praise (TTAPR)	9.57	12.15
Total Student Initiation, Teacher Suggested (TSITSR)	85.38	89.42
Total Student Initiation, Student Suggested (TSISSR)	6.58	2.79
Content Emphasis, Teacher Input (CETI)	20.17	10.20
Teacher as Teacher (TT)	100.00	100.00
Other Student as Teacher (ST)	.00	.00
Environment as Teacher (ET)	.00	.00
Verbal Emphasis (VE)	61.37	70.47
Nonverbal Emphasis (NVE)	38.63	29.53
Class Structure as One Unit (W)	100.00	100.00
Class Structure as Groups or Individuals (P)	.00	.00

Appendix C (continued)

CAFIAS Parameters	Pretest Percentage	Posttest Percentage
Class Structure with No Teacher Influence (I)	.00	.00
Teacher Empathy to Students' Emotions (TE)*	2	2

*Sum of the frequencies of categories 1 and 11, which are the verbal and nonverbal representations of Flanders' category teacher acceptance of student's feelings or emotions.

Appendix C (continued)

Percentage of Behavior in Each CAFIAS Category

by the Control Group--Teacher Six

	CAFIAS Category	Pretest Percentage	Posttest Percentage
2	Teacher Use of Praise--Verbal	1.3	1.3
12	Teacher Use of Praise--Nonverbal	.3	.3
3	Teacher Acceptance--Verbal	.3	.3
13	Teacher Acceptance--Nonverbal	.6	.4
4	Teacher Question--Verbal	.6	.6
14	Teacher Question--Nonverbal	.2	.1
5	Teacher Lecture--Verbal	9.4	5.3
15	Teacher Lecture--Nonverbal	.3	.1
6	Teacher Direction--Verbal	8.0	9.3
16	Teacher Direction--Nonverbal	6.0	1.2
7	Teacher Criticism--Verbal	5.5	5.5
17	Teacher Criticism--Nonverbal	3.5	1.2
8	Student Predictable Response--Verbal	1.4	2.0
18	Student Predictable Response--Nonverbal	5.2	2.9
8\	Student Interpretive Response--Verbal	16.4	18.8
18\	Student Interpretive Response--Nonverbal	19.4	21.2

Appendix C (continued)

CAFIAS Category	Pretest Percentage	Posttest Percentage
9 Student Initiated Behavior-- Verbal	1.5	.8
19 Student Initiated Behavior-- Nonverbal	1.1	.4
10 Confusion or Student to Student Verbal Interaction	17.0	26.5
20 Silence or Student to Student Nonverbal Interaction	1.9	1.7

Appendix C (continued)

Summary of the Most Frequent Interaction Patterns and

Percentage of Occurrence Among the Top 10 Cells

for the Control Group--Teacher Six

Pretest		Posttest	
Interaction Patterns	Percentage of Occurrence	Interaction Patterns	Percentage of Occurrence
10-8\	18.65	8\-10	27.56
8\-10	18.08	10-8\	27.54
6-8\	10.43	6-8\	6.51
8\-5	5.25	8\-6	4.29
6-8	5.09	6-8	4.02
8\-7	4.81	8\-7	3.83
8\-6	4.46	8-6	2.84
5-6	4.27	5-5	2.24
5-8\	3.83	5-8\	2.19
7-6	2.37	8\-5	1.86

Note. A description of the interaction patterns may be found on

page 111.

Appendix C (continued)

Description of Interaction Patterns

2-5 Teacher praise followed by teacher information-giving.

2-8 Teacher praise followed by predictable student response.

3-5 Teacher acceptance followed by teacher information-giving.

3-8\ Teacher acceptance followed by student interpretive behavior.

4-8\ Teacher use of questioning followed by student interpretive behavior.

5-4 Teacher information-giving followed by teacher questions.

5-5 Extended teacher information-giving.

5-6 Teacher information-giving followed by teacher direction.

5-8 Teacher information-giving followed by predictable student response.

5-8\ Teacher information-giving followed by student interpretive behavior.

6-8 Teacher direction followed by predictable student response.

6-8\ Teacher direction followed by student interpretive behavior.

7-6 Teacher criticism followed by teacher direction.

7-8\ Teacher criticism followed by student interpretive behavior.

8-5 Predictable student response followed by teacher information-giving.

8-6 Predictable student response followed by teacher direction.

8-8 Extended student predictable behavior.

8-10 Student to student predictable behavior.

8\-2 Student interpretive behavior followed by teacher praise.

8\-3 Student interpretive behavior followed by teacher acceptance.

8\-5 Student interpretive behavior followed by teacher information-giving.

8\-6 Student interpretive behavior followed by teacher direction.

8\-7 Student interpretive behavior followed by teacher criticism.

8\-8\ Extended student interpretive behavior.

8\-10 Student to student interpretive behavior.

Appendix C (continued)

9-5   Student initiative behavior followed by teacher information-giving.

9-7   Student initiated behavior followed by teacher criticism.

10-8   Student to student predictable behavior.

10-8\ Student to student interpretive behavior.

INFORMED CONSENT FORM

Purpose

The study you are being asked to participate in is to determine the effects of instruction and supervision in Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) on teaching behaviors.

Procedure

As a subject you will be asked to be involved in a study consisting of three phases.

Phase One will be baseline data collection. During this phase, you will be videotaped three times. The videotaping will not hinder your teaching; however, a wireless microphone will be worn and this also will not affect your movement or teaching. You will not have to make any alterations in your teaching style.

Phase Two will be the treatment phase. This phase involves giving feedback about your teaching. You will be videotaped three more times. The treatment group will receive both conventional supervisory feedback and interpretation of use in CAFIAS feedback as soon after each videotaping session as possible. CAFIAS is non-evaluative; it is simply designed to provide a description of behaviors to make teachers aware of the behaviors exhibited toward the children. Five days of feedback will be given.

Phase Three will be final data collection. You will again be videotaped three times, but no feedback will be given. At the conclusion of videotaping the MBI will again be administered.

The feedback sessions will take no more than 20-25 minutes. These will be set up to meet your schedules and at your convenience.

The physical and psychological risks are minimal. Only the researcher

Appendix D (continued)

and the teacher will be present at the feedback session. A code number will be used rather than your name for the recording of data. The school administration will not have knowledge of the results.

Participation in this study is voluntary and your initial agreement to participate does not stop you from discontinuing participation at any time. If you have any questions pertaining to this study, please feel free to contact me. If you wish to know information about the findings from this research, you can contact me at Ithaca College, Ithaca, New York.

Please indicate your decision below. Thank you.

_____ Yes, I voluntarily choose to participate in this study. I have read the above and I understand its contents.

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

_____   _____

Signature   Date

Thank you.

Whitney Keith Vantine

Graduate Student

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