The effects of teaching contingency management skills to elementary students on the students self-concepts and physical educators behaviors

Gretchen Lynn Devlin
Ithaca College

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THE EFFECTS OF TEACHING CONTINGENCY MANAGEMENT SKILLS TO ELEMENTARY STUDENTS ON THE STUDENTS' SELF-CONCEPTS AND PHYSICAL EDUCATORS' BEHAVIORS

by

Gretchen Lynn Devlin

An Abstract

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

December 1979

Thesis Advisor: Dr. Victor H. Mancini
ABSTRACT

Disruptive elementary age students were trained in specific contingency management skills in an attempt to alter their respective physical education teachers' direct behavior. The Martinek-Zaichkowsky Self-Concept Scale was administered to the children to determine whether their self-concepts would be affected in any way by the instruction and practice in the contingency management skills. All of the students chosen were identified as being disruptive by their respective physical education teachers. A total of 40 elementary age students and four physical education teachers from four schools in the Ithaca, New York area participated in the study. The students were randomly assigned, 20 to the treatment group and 20 to the control group. The students in the treatment group met with the investigator in a room separate from the classroom for 1 hour per week for 8 weeks to receive instruction in specific contingency management skills. The students in the control group met with the investigator for the same amount of time as did the students in the treatment group, but they did not receive any instruction in the specific contingency management skills. Pretesting and posttesting periods were undertaken through the use of the Dyadic Adaptation of CAFIAS (DAC) to assess the behaviors of the subjects and through the use of the Martinek-Zaichkowsky Self-Concept Scale to measure the students' self-concepts. A multivariate analysis of covariance was run on the posttest scores of the 10 DAC variables with the pretest scores as covariates to determine whether significant covariate effects existed. The pretest scores were disregarded when no significant covariate effects were found, and a multivariate analysis of variance was used to determine significant differences in teacher and student behaviors between the two groups.
Significant behavioral differences between the treatment and control group were found through this analysis. The variables of teacher questioning; teacher acceptance of students' ideas, feelings, and actions; and teacher praise contributed over 75% to the differences between the groups in the discriminant function analysis. An analysis of variance showed significant differences on 8 of the 10 DAC variables at the .05 level of significance. The treatment group had significantly better scores on teacher praise, teacher acceptance, teacher questioning, and student interpretive response, and significantly lower scores on teacher direction, teacher criticism, student predictable response, and student initiated behavior. The results of these tests led to the rejection of the first null hypothesis that there would be no significant differences in the direct behavior of the physical education teachers between the group of students who received instruction in the contingency management skills and the group of students who did not receive instruction in the contingency management skills. An analysis of covariance was performed on the students' total posttest self-concept scores from the MZSCS, with the pretest scores as covariates. Significant covariate effects existed, and a significant difference was found between the treatment and control groups on the students' total scores with the pretest scores accounted for. Univariate analyses of covariance were run on each of the five factors of the self-concept from the MZSCS, which found a significant difference in favor of the treatment group on the first factor, satisfaction and happiness, when the pretest scores were accounted for. These tests led to the rejection of the second null hypothesis which stated that there would be no significant differences between the self-concept scores of the students comprising the treatment group who received instruction in the contingency
management skills and the students comprising the control group who did not receive instruction in the contingency management skills.
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AND PHYSICAL EDUCATORS' BEHAVIORS

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

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

by
Gretchen Lynn Devlin
December 1979
This is to certify that the Master of Science Thesis of Gretchen Lynn Devlin 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.

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Jerry, for sharing so much with me, for putting his confidence in me throughout the year, and for giving me many pleasant memories of Ithaca.
DEDICATION

To Mom and Dad, who have always given me the freedom to do and be what I choose, and whose continued love and support have always been an inspiration to me.
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Chapter 1

INTRODUCTION

Most investigations centered on education have focused on the teacher's contributions to the interaction process, rather than the student's contributions. This is probably due to the fact that in many classrooms throughout our schools today the teacher is at the center of authority and dominance, sometimes even promoting a restrictive type of atmosphere. Consequently, students become unwillingly dependent on the teacher's control and may exhibit uncooperative and inappropriate behavior to resist that control. For this reason, more attention should be focused on the contribution of the student to the learning process.

Brophy and Good (1974b) stated that very little research has focused on the individual student. Allard (1979) advocated the need for research into teacher interactions with individual students in physical education classes. He noted that the generality of results obtained from observational systems which assess interaction patterns of the whole class tend to overlook the differential teacher behaviors directed towards individual students. According to Good and Brophy (1970), the teacher behaviors of praise, criticism, acceptance of students' feelings, and use of students' ideas are more commonly directed toward individual pupils rather than toward the class as a whole. It was for the aforementioned reasons that the present study focused on dyadic interaction patterns, or the patterns of interaction transpiring between a teacher and an individual student.

At present the effect of student influence on teacher behavior is
largely unexplained because of the few studies completed within this realm. According to Jenkins and Deno (1969), Klein (1971), Sherman and Cormier (1974), and Tuckman and Oliver (1968), students do have the power to modify their teachers' behavior. Doenges (1976) and Pratt (1975) went even further and stated that students can modify their teachers' direct behavior to a more indirect manner.

It was Flanders (1960) who said that direct teacher behavior is the behavior dominated by the teacher that discourages students' freedom. As also cited by Flanders (1960), indirect teacher behavior encourages freedom of action by allowing for a greater amount of student initiation because the teacher stimulates more questioning and is more willing to accept the student's ideas. Evidence that the self-concept of the child is related to this freedom available within the environment of the school was provided by Canfield and Wells (1976), Martinek (1976), Purkey (1970), Viglione (1977), and Yamamoto (1972). According to them, allowing for an environment in which the student is free to make his/her own decisions will enhance the child's self-concept.

Because the child spends so much time in school, the type of environment that the school provides will have a definite effect on the child's self-concept. This contention is supported in the writings of Havighurst, Robinson, and Dorr (1965), Hughes (1964), Martinek and Zaichkowsky (1977), Perkins (1965), Purkey (1970), and Staines (1965). This study was based upon the premise that the type of behavior that teachers exhibit toward their students will have an influence on their students' self-concepts. The influence may be a positive, neutral, or negative effect on the child's self-concept, dependent upon the teacher's behavior.
It was the contention of the investigator in this study that if teachers have a direct influence on their students, as is most often the case with disruptive students, then it will be increasingly difficult for the disruptive child to develop a healthy self-concept. On the other hand, if disruptive children are given the tools with which to alter their physical education teacher's "direct" behavior displayed toward them to a more indirect nature, as was accomplished by Doenges (1976) and Pratt (1975), then the child's self-concept may be enhanced. It was the investigator's decision to include a measure of the child's self-concept due to the supporting evidence that indirect teaching patterns afford more freedom to the student (Flanders, 1960) and that this freedom provided by the teacher to the student within the classroom aids in the development of a healthy self-concept (Canfield & Wells, 1976; Martinek, 1976; Purkey, 1970; Viglione, 1977; Yamamoto, 1972).

**Scope of Problem**

The purpose of this study was to determine if "disruptive" elementary age children could alter their physical education teachers' "direct" behavior through the use of specific contingency management skills in an attempt to enhance the child's self-concept.

A total of 40 elementary students in the Ithaca, New York area were selected for participation in this study. All of the students selected were identified by their respective physical education teachers as being disruptive. The subjects were randomly assigned, 20 students to the treatment group and 20 to the control group. The treatment group received 8 hours of instruction in specific contingency management skills. The control group took part in indoor games and craft activities (Cox, 1962) for the same amount of time. A multivariate analysis
of covariance and an analysis of covariance, using pretest scores as the covariates, were used to test for significant differences between the two groups for the assessment of teacher-student interaction and self-concept scores, respectively.

**Statement of Problem**

It was the purpose of this study to determine if disruptive elementary age students who were taught specific contingency management skills could alter their respective physical education teacher's "direct" behavior.

It was also the intent of this study to determine the effects of the learning of these contingency management skills on the child's self-concept.

**Null Hypotheses**

For the purpose of this investigation, there are two null hypotheses. One is that there will be no significant differences between the students comprising the treatment group who received instruction in the specific contingency management skills and the students comprising the control group who did not receive instruction in the specific contingency management skills in their effects on the "direct" behaviors of their physical education teachers. The other null hypothesis is that there will be no significant differences between the self-concept scores of the students comprising the treatment group who received instruction in the specific contingency management skills and the self-concept scores of the students comprising the control group who did not receive instruction in the specific contingency management skills.

**Assumptions of Study**

For the purposes of this investigation, the following assumptions have been made:
1. If students were taught to practice specific contingency management skills, they could contribute positive feedback to the classroom.

2. The coding of the Dyadic Adaptation of Cheffers' Adaptation of Flanders' Interaction Analysis System (DAC) (Martinek & Mancini, 1978) during the videotaped class sessions would yield valid data to test the hypothesis.

3. Eight weeks of instruction was an adequate amount of time to learn and practice the specific contingency management skills and to affect the children's self-conception.

4. Self-concept is a measurable aspect of a child's personality.

5. The children responded honestly to the test items.

**Definition of Terms**

The following terms were operationally defined for the purposes of this investigation:

1. **The Dyadic Adaptation of CAFIAS (DAC):** The coding of the interactions between the teacher and a single student or a small group of no more than four students.

2. **Direct teacher behavior.** Information-giving, direction-giving, and student criticism exhibited by the teacher.

3. **Indirect teacher behavior.** Acceptance of students' feelings, accepting or using students' ideas, praising and encouraging the student, and asking questions.

4. **Disruptive behavior.** Any behavior that is considered to be undesirable for effective learning and functioning in society.

5. **Contingency management.** A technique of changing behavior by controlling and altering the relationships between the occurrence of a
response, the response itself, and the reinforcing consequence.

6. **Martinek-Zaichkowsky Self-Concept Scale (MZSCS).** A nonverbal instrument designed to measure the self-concept of children in the first through the eighth grades.

7. **Self-Concept.** "The sum total view which an individual has of himself." This includes perceptions of social, intellectual, behavioral, physical, and emotional attributes which an individual has of himself (Martinek, 1976, p. 6).

**Delimitations of Study**

The following decisions served as delimitations of this investigation:

1. Only second- third- and fourth-grade students from four elementary schools in the Ithaca, New York area served as subjects for this study.

2. Only 1 hour per week for a period of 8 weeks was used for training in this investigation.

3. Only specific contingency management skills were used for the training in this study.

4. DAC, a modification of CAFIAS, was the only interaction analysis system used in this investigation.

5. The MZSCS was the only measure of self-concept used in this investigation.

**Limitations of Study**

The limitations of this study were as follows:

1. The findings refer only to second- third- and fourth-grade students from four elementary schools in the Ithaca, New York area.

2. A different amount of instruction time in the contingency management skills may obtain different findings.
3. The use of a different contingency management skills program might produce different results.

4. The findings may only be valid when DAC is used.

5. The findings related to self-concept may only be valid for comparison when the MZSCS is used as the measuring instrument.
Chapter 2

REVIEW OF RELATED LITERATURE

The review of literature of this investigation has its concentration in the following areas: (a) contingency management and disruptive behavior, (b) student influence on teacher behavior, (c) interaction analysis and dyadic interaction, (d) problems in self-concept measurement, (e) self-concept measures for children, and (f) factors influential in self-concept development.

Contingency Management and Disruptive Behavior

According to Darst (1979), contingency management is a system focused on managing the motivation of students. Darst (1979) defined a contingency as "a relationship between a behavior and the consequence of the behavior" (p. 81). As cited by Rushall and Siedentop (1972), "Contingency management is a technique for controlling and altering behavior" (p. 175).

Teachers in the last 12 years have been affording a greater amount of attention to the use of contingency management in their classrooms. Madsen, Becker, and Thomas (1968) mentioned that many teachers have been successful in reducing disruptive behavior in their classrooms through the implementation of various contingency management techniques. Rushall and Siedentop (1972) pointed out that any program which uses contingency management should include the following: (a) the contingencies should be fair and clearly stated, (b) student behaviors must be defined in observable and measurable terms, (c) the terminal or final performance must be specified clearly, (d) only the target performance should be reinforced,
and (e) performances should be arranged in a progression so that students can experience success quickly and then proceed to more difficult tasks.

Darst (1979) developed two contingency management learning systems which were utilized with several physical education student teachers. One was implemented at the elementary level with a gymnastics unit and the other at a junior high school with a skin diving unit. Darst (1979) reported the following advantages of the project: (a) the students knew exactly what was expected of them; (b) the students seemed highly motivated; (c) provision was made for a challenge as well as experienced success; (d) students were able to progress at their own rate and choose the order of activities; (e) students were forced to accept a degree of responsibility for learning; and (f) the unit format increased the teacher's time spent as an agent of feedback. Also noted by Darst (1979) was that the proper implementation of contingency management learning systems can improve students' and teachers' attitudes towards the teaching/learning process.

Expanding the original use of contingency management techniques to encompass many types of reinforcement were Rushall and Siedentop (1972). Points, tokens, material reinforcers, grades, and time to engage in favorite activities were all used successfully by Rushall and Siedentop (1972).

Rushall and Pettinger (1969) compared three types of positive reinforcers and a control condition to determine their effect on work volume in swimmers. The three types of rewards were coaches' attention, candy, and money. Coaches used these as positive reinforcements in an attempt to improve the number of laps of swimming completed in a 56-minute period. They found that candy and money significantly improved
performance over coaches' attention and a control condition.

A series of studies (Becker, Madsen, Arnold, & Thomas, 1967; Madsen, Becker, & Thomas, 1968; Thomas, Becker, & Armstrong, 1968) used contingency management techniques by systematically varying the behavior of elementary school teachers in an attempt to reduce disruptive student behavior. Thomas et al. (1968) found that disruptive behaviors increased each time teacher approval was withdrawn. When the teacher's disapproving behaviors were tripled, increases appeared in the rate of disruptive behavior. Thomas et al. (1968) concluded that teachers can actually "create" problems in the classroom by controlling the ways in which they respond to their pupils.

In a study conducted by Becker et al. (1967), five classroom teachers, each with two problem children in his/her class, were instructed to follow a program that involved praising appropriate classroom behaviors and ignoring disruptive classroom behaviors. It was reported that most of the problem children showed remarkable improvements in classroom behavior from the contingency management program.

Certain controls were lacking in the Becker et al. (1967) study which Madsen et al. (1968) attempted to correct. According to Madsen et al. (1968), teachers in Beckér's et al. (1967) study were participating in a behavior theory seminar during the collection of baseline data. Some children improved during baseline, probably because some teachers applied what they were learning from the seminar. Also stated by Madsen et al. (1968) was that Becker et al. (1967) did not record teacher behavior under all experimental conditions. Madsen et al. (1968) attempted to deal with these problems. Two children from a second grade class and one child from a kindergarten class, all considered to have behavior problems, were
selected as the target children in the Madsen et al. (1968) study. The children were observed for 20 minutes per day, 3 days per week. Samples of the teachers' behavior were also recorded. The experiment consisted of the teachers introducing rules, praising appropriate behaviors, and ignoring inappropriate behaviors. Madsen et al. (1968) concluded that rules alone exerted little effect on classroom behavior. A combination of ignoring inappropriate behavior and praising appropriate behavior was found to be very effective in achieving better classroom behavior.

Reducing disruptive behavior at the elementary level was also of interest to Whitley and Sulzer (1970), who attempted to help a fourth-grade teacher deal with the disruptive behavior of one male student. The student had difficulty staying seated and frequently spoke without permission. The teacher was instructed, through role-playing, to recognize the child only when he remained seated or raised his hand before speaking out. When inappropriate student behaviors were observed, the teacher was told to look the other way and ignore them. Whitley and Sulzer's (1970) findings revealed that the student's behavior improved substantially, showing a decrease in disruptive behavior along with an increase in desirable behavior. They also mentioned that their study has implications to elementary teachers because it provides them with a general procedure for dealing with other classroom problems.

Also supporting the procedure of contingency management in education were Thompson, Brassell, Persons, Tucker, and Rollins (1974) who trained 14 teachers to use a contingency management program. Emphasis was placed on reinforcement of appropriate classroom behaviors while ignoring disruptive behavior. Teachers were urged to praise the students immediately following any appropriate behaviors. Their data clearly showed that changes
occurred in the children's behavior. The children from the experimental
and control groups showed similar behaviors at the pretest; however, during
the posttest period, children in the experimental group were half as
disruptive as the control group and almost 50% more involved in assigned
tasks. All teachers in the experimental group reported on the posttest
that their classes were more manageable. Thompson et al. (1974) concluded
that contingency management works well for many teachers.

Related to the Thompson et al. (1974) study was an investigation by
Rollins, McCandless, Thompson, and Brassell (1974) undertaken in an inner-
city area. A total of 30 inner-city public school teachers were trained
to use positive behavior contingencies for an entire academic year with a
total of 730 Afro-American pupils from the first through the eighth grades.
In all of the classrooms, disruptive behavior dropped a significant amount
and task involvement increased. The results also indicated that 91% of
the children in the project improved in reading, whereas, only 72% of the
control children improved. Besides their conclusion that contingency
management works well for most inner-city teachers, there were also many
side benefits noted, such as higher teacher morale, few if any disciplinary
referrals by teachers to principals, and improved relations between school
personnel and the community.

Ryan (1976) implemented a school-wide behavior modification program
based on contingency management principles to reduce disruptive student
behavior. The subjects were predominantly black students in the first
through the sixth grades. The treatment consisted of behavior modification
through the use of positive reinforcers. Disruptive behaviors were
recorded daily and tabulated every 10th day to provide 17 observation
periods. An opinionnaire was administered to all school personnel at the
conclusion of the school year, which revealed agreement among staff members as to the success of the program, improvement of student behavior, and motivation of student behavior by the reward incentives. Increased peer support for positive student behavior, increased student respect for school personnel, and parent support for the program were also reported by Ryan (1976).

Barrish, Saunders, and Wolf (1973) investigated the effects of a classroom behavior management technique designed to reduce disruptive classroom behavior. Out-of-seat and talking-out behaviors were studied in a fourth-grade class that included several "problem children." The students were divided into two teams, and each out-of-seat and talking-out response by a child resulted in a mark being placed on the chalkboard, which meant a possible loss of privileges for every member of the student's team. The privileges were events which are available in almost every classroom, such as extra recess, first to line up for lunch, getting a drink of water, or stars and name tags. The game significantly modified the students' out-of-seat and talking-out behaviors. A similar study was successfully undertaken by McAllister, Stachowiak, Baer, and Conderman (1973) at the secondary school level.

The effects of loud and soft reprimands on disruptive children were of interest to O'Leary, Kaufman, Kass, and Drabman (1973). Two children in each of five classes were selected for a four-month study because of their high rates of disruptive behavior. Almost all reprimands by the teacher were found to be of a loud nature during collection of baseline data. A second phase of the study was undertaken, in which teachers were asked to use soft reprimands which could be heard only by the child being reprimanded. This was effective in decreasing the frequency of disruptive
behavior in most of the children. Then the teachers were asked to return to the loud reprimand, and a consequent increase in disruptive behavior was observed. The teachers were asked to again use soft reprimands, and again disruptive behavior decreased.

Young (1974) investigated the effect of reinforcement contingencies on behavior and skill acquisition of second-grade children in a physical education class. Placheck, an observation and recording of the appropriate behavior of a class at a specific time, was the recording technique used. During the study there were two interventions on behavior in the form of "behavior games." Students were divided into two teams within the class, and it was emphasized that both groups could win points each time a horn sounded and every member of the group was behaving appropriately. The team that won the most points was awarded an additional physical education period at the end of each week. Young (1974) found that appropriate behavior in the gymnasium was increased due to the reinforcement contingency.

**Student Influence on Teacher Behavior**

There have been a number of studies (Doenges, 1976; Gage, 1963; Klein, 1971; Pratt, 1975; Sherman & Cormier, 1974; Tuckman & Oliver, 1968) that have demonstrated that students do appear to influence teacher behavior. Teacher behavior can be influenced in a positive direction by training students systematically to behave in positive ways toward their teachers or through the use of students' written feedback to their teachers.

Gage (1963) and Tuckman and Oliver (1968) explored aspects of student influence on teachers by investigating the results of various types of students' written feedback to teachers. In Gage's (1963) study, pupils filled out an opinionnaire consisting of 12 items describing their actual
teacher and the same 12 items describing their "best imaginable" teacher. Only teachers in the experimental group received the feedback which consisted of their pupils' opinions of them as teachers. Results indicated that the teachers in the experimental group changed in the direction of pupils' "ideals" more than did those teachers in the control group. Tuckman and Oliver (1968) used student ratings to determine changes in teacher behavior and found that teachers changed their behavior positively according to suggestions received from their students.

Jenkins and Deno (1969) investigated how student classroom behaviors influenced teacher self-evaluations. Twenty teachers were randomly assigned to either a positive feedback condition group or a negative feedback condition group. In the positive group, students acted interested and enthused about the lesson. Students in the negative group acted apathetic and disinterested. At the conclusion of the lesson, teachers filled out a questionnaire concerning their effectiveness. Jenkins and Deno (1969) found that teachers receiving positive feedback thought teaching was more enjoyable and felt that they were more effective than did teachers receiving negative student feedback.

Sherman and Cormier (1974) selected an elementary school teacher with two problem behavior children from an upper socioeconomic area for their study to examine the effect student behavior had on teacher behavior. When the problem students stopped using inappropriate classroom behaviors (talking, leaving seat without permission, and not paying attention) and started using appropriate behaviors (following instructions and paying attention) the teacher's behavior toward the students changed accordingly. This study clearly shows evidence that students possess reinforcing properties for teachers and that students should be trained to be effective
The improvement by Pratt (1975) on Sherman and Cormier's (1974) study was threefold. First, the Sherman and Cormier (1974) study used only two students and one teacher, whereas, the Pratt (1975) study consisted of 42 students from the classrooms of 14 teachers. Seven additional teachers comprised the control group. Secondly, Sherman and Cormier (1974) chose subjects from an upper socioeconomic area as opposed to the low socioeconomic area chosen by Pratt (1975). And finally, Sherman and Cormier (1974) used tangible rewards which, when removed from a student, caused negative behaviors to increase. Pratt (1975) felt that it would be more practical to employ more natural reinforcement, such as praise and support from the teacher, since tangible rewards cannot be kept up indefinitely. In his study, Pratt (1975) attempted to determine whether it was possible to train children who had negative effects on their teacher's behavior in a constructive way. Students were trained to practice specific communication skills in an attempt to contribute positively to the classroom. Pratt (1975) was successful in demonstrating that these students influenced their teachers to behave more indirectly or positively. This evidence was further supported in a study conducted by Doenges (1976) who attempted to alter the "direct" behavior of elementary physical education teachers by training disruptive elementary age students in specific contingency management skills. A total of 60 elementary age students from 10 elementary schools in Ithaca, New York, were selected for Doenges' (1976) study. Both the control and treatment groups had three students from each of the 10 elementary schools. Students in the treatment group received 10 hours of training in specific contingency management skills. Doenges (1976) concluded that the students trained in the
contingency management skills influenced their teachers' "direct" behavior to a more indirect nature. CAFIAS was the observational tool used by both Doenges (1976) and Pratt (1975) to assess teacher behavior.

A different approach from the aforementioned studies was an experiment conducted by Klein (1971) in which, upon a given signal, graduate and undergraduate students from 24 college classrooms were instructed to behave either positively or negatively. Positive behaviors by the students included smiling, looking at the teacher attentively, and answering the teacher's questions quickly and correctly. Negative student behaviors included frowning, looking out the window, and talking with classmates. The teacher's verbal behaviors were tape recorded and the nonverbal behaviors were coded by student observers. The data revealed that teacher behavior was positive (indirect) when the students behaved positively and negative (direct) when the students behaved negatively.

**Interaction Analysis and Dyadic Interaction**

As indicated by Allard (1979), educational researchers have been investigating the interactions that occur between teachers and students in classrooms for almost 50 years. The process of interaction analysis describes what behaviors transpire between the teacher and the students through the utilization of a particular observational system.

According to Charles (1972), the most widely used interaction analysis system was developed by Flanders (1960). Flanders' Interaction Analysis System (FIAS) has been used in educational settings to observe and code the verbal interaction that occurs between a teacher and the students. The system divided teacher behavior into two categories, indirect and direct. Indirect teacher behavior (in the form of acceptance of student ideas, praise and encouragement, and questioning) encourages the student's
freedom by allowing for student creativity and initiative. Direct teacher behavior (in the form of lecturing, giving directions, or criticizing) restricts student behavior, and consequently, his/her freedom.

Cheffers (1979) believed FIAS to be impractical for use in physical education classes because of the three following major limitations: (a) it was only concerned with verbal behaviors, (b) it viewed the teacher as the sole teaching agent, and (c) it only allowed the coding of the class structure as one whole unit. Having the desire to describe physical education classes with a greater degree of sensitivity, Cheffers (1979) modified FIAS and developed his own system called Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS). It provided for the coding of both verbal and nonverbal dimensions of behavior, various teaching agencies, and various class structures (see Appendix A).

Going one step further were Martinek and Mancini (1978), who posed the question, "But what about the interaction of the teacher and a single student?" (p. 4). They contended that many of the interactions between the teacher and a particular student are overlooked, and that an important direction of teacher influence is behavior displayed toward individual students. This necessitated a further adaptation of CAFIAS, from which emerged the Dyadic Adaptation of CAFIAS (DAC). The coding procedures are basically the same as in CAFIAS, except that the only interaction that is coded is that which takes place between the teacher and a single student or a small group of no more than four students.

A number of researchers (Brophy & Good, 1970; Crowe, 1979; Martinek, 1979; Martinek & Johnson, 1979) have utilized dyadic interaction systems to investigate teacher expectation effects. These studies have their roots in the research of Rosenthal and Jacobson (1968), which illuminated
the self-fulfilling prophecy. The meaning of this prophecy is, basically, that if a teacher expects a particular student to perform well and begins acting toward that student in certain ways, the student may live up to the teacher's expectation and may actually fulfill the prophecy of being a high achiever. Likewise, if a teacher does not expect much out of a student, this influences the student's performance negatively. Stated simply, students tend to behave as they are expected to behave.

Few teachers attempt to familiarize themselves with current research findings within the area of teacher-student interactions because they fail to realize how it applies within their own teaching environment. Brophy and Good (1974b) suggested that one reason for this is that very little research has focused on the individual student. They were the pioneers of research describing and analyzing teacher behavior directed toward individual students within the regular classroom through the implementation of the Teacher-Child Dyadic Interaction System (Brophy & Good, 1974a).

In a discussion revealing the rationale and applications of their dyadic model (Brophy & Good, 1974a), Good and Brophy (1970) stated that many aspects of classroom interaction are more appropriately coded as dyadic interaction based on the premise that teachers do treat individual children differently. They believed that their dyadic system (Brophy & Good, 1974a) was useful to teachers because it can provide them with feedback concerning their differential treatment toward male and female students and minority groups. Another benefit discussed was that teachers can realize which students receive little or no recognition and which students receive primarily negative comments. Good and Brophy (1970) stated that a further advantage existed with a dyadic system in relation to the role of the supervisor. Many teachers reject supervisory feedback when presented
with stressful information. But a dyadic interaction system, according to Good and Brophy (1970), provides supervisors with information they can use in a positive approach to changing teacher behavior, because they can capitalize on the positive teacher behavior directed toward particular students and then suggest to the teacher to extend this positive support toward other students who do not normally receive it.

Brophy and Good (1970) employed the Teacher-Child Dyadic Interaction System to determine the relationship between teacher expectancies and pupil achievement. They found that teachers demanded better performance from those children for whom they had higher expectations and were more likely to praise them. In contrast, they were more likely to accept poor performance from low expectancy students and were less likely to praise good performance from these students when it occurred. Specifically, they found that when low expectation students could not answer a question, the teachers typically answered the question for them or called on someone else. However, when high expectation students could not answer a question, the teachers were more likely to repeat or rephrase the question for them. Brophy and Good (1970) emphasized that dyadic interaction must be studied if current educational practices are to be improved.

Martinek (1979) developed a research model to study expectation effects in the physical education setting. One of the tenets of his model was that teachers form expectations of their students from knowing them previously or by receiving information about the student's past performance. These expectations affect the teacher/student interactions which in turn influence the student's behavior. Martinek (1979) identified the three following major variables in his model: (a) the expectancy source variable (student's or teacher's sex, age, race, performance), (b) the interactive
variable (dyadic interaction), and (c) the expectancy outcome variable
(student's self-concept, physical performance, attitudes, etc.).

Allard (1979) saw a need for research into teacher interactions with
individual students in physical education classes. He believed that the
problem with observational systems is that their results are too general
to yield information about individual students. Allard (1979) stressed
that students differing in sex, race, and socioeconomic status exist within
classes, and the differential treatment that individual students receive
from their teachers may account for the differences in their behavior. This
necessitates instruments that record such differential treatment from
teachers directed toward individual students.

Allard (1979) also brought into perspective the misleading results
reported by FIAS, which further substantiates his contention of the need
to look at dyadic interactions. He pointed out that individual differences
are lost with FIAS when student talk is lumped into a single percentage,
since that percentage does not account for whether or not one or two
students did all of the talking. Likewise, in the category of teacher talk,
no account is made for the amount of time the teacher spent talking to or
giving feedback to one or two students.

As cited by Martinek (1979), few studies have looked at the effects
of expectations on dyadic interaction patterns in physical education.
However, three recent studies (Crowe, 1979; Martinek & Johnson, 1979;
Oien, 1979) have attempted to do this by modifying popular observational
systems and focusing on teacher behavior directed towards individual
students in the physical education classroom.

Crowe (1979) modified Rosenthal's (1974) four factor theory to
investigate teacher expectations and teacher-student dyadic interactions.
She investigated Rosenthal's (1974) four variables of climate, feedback, output, and input and added the variable touch as a fifth factor. Four different physical education classes consisting of high and low expectancy groups of junior high school students were observed by judges trained in the use of the Brophy and Good Interaction Analysis System (Brophy & Good, 1974a). Crowe (1979) found that high achievers were asked more questions, received more attention and more opportunities to respond, were given more praise, and were treated more warmly by their teachers than the low achievers. These findings indicated that students are treated differently according to their teacher's expectations of them.

The Dyadic Adaptation of CAFIAS was utilized by Martinek and Johnson (1979), who investigated the effects of teacher expectations on the self-concept of elementary age children in a physical education setting. Their results showed that the high expectancy group received more encouragement, acceptance of ideas, and analytic-type questions from their teachers. This last result suggests that some teachers will expect and encourage more intellectual responses from high achieving students than from low achieving students. The results also indicated that those students expected to be high achievers were significantly higher in self-concept than those students expected to be low achievers.

A study which employed a modification of both FIAS and CAFIAS to explore individualized teacher behavior based on student gender was undertaken by Oien (1979). The Individualized Teacher Behavior Analysis System, developed by Dr. George T. Lewis (University of Massachusetts), was used to collect the data on the individual students. Oien (1979) found that boys received more praise and encouragement, questions, directions, and criticism than did girls.
Allard (1979) purported that studying dyadic interactions has educational implications for the large segment of the population that is so concerned with providing equal opportunities for all students, because teachers can be provided with objective data relating how much time they are spending with one student in comparison with another. He urged that further investigations of this type be conducted because "... individual patterns of interaction are an important factor to consider when analyzing the performance of any group" (Allard, 1979, p. 15).

Problems in Self-Concept Measurement

The fact that the self-concept cannot be seen presents problems in objectively measuring it. Although we cannot see the self-concept, according to LaBenne and Greene (1969) we can infer about the nature of it from observable behavior.

Most of the problems stem from a lack of an agreed-upon definition of self-concept. In addition, different researchers (Anderson, 1965; Coopersmith, 1967; Crowne & Stephens, 1961; Kaplan, 1975; Tippett & Silber, 1965) use different words to refer to feelings about the self. One example is evident in the writings of Anderson (1965), who used the terms "self-image" and "self-concept" interchangeably:

Everyone has an image or a concept of himself as a unique person or self, different from every other self. This concept pertains to one's self both as a physical person and as a psychological person--i.e., each one has a physical self-image and a psychological self-image. (p. 2)

Kaplan (1975) referred to both the self-concept and self-perception as the individual's cognitive responses to him/herself. He defined the self-esteem motive as "the need of the person to maximize the experience of
positive self-feelings and to minimize the experience of negative self-feelings" (p. 4). Kaplan (1975) referred to the self-feelings as the emotional responses of an individual to him/herself.

To Coopersmith (1967), the self-esteem is the evaluation which the individual makes and customarily maintains with regard to himself: it expresses an attitude of approval or disapproval, and indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy. In short, self-esteem is a personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself. (p. 4)

This definition is somewhat parallel in meaning to English and English's (1974) definition of self-acceptance: "An attitude toward one's own self and one's personal qualities that finds them of unique worth" (p. 485). To English and English (1974), the self-image is, "The self one thinks oneself to be" (p. 487), and the self-concept is, "A person's view of himself or the fullest description of himself of which a person is capable at any given time" (p. 486). From the definitions provided by English and English (1974), it is evident that self-acceptance, self-esteem, and self-image are all a part of and contribute to the makeup of an individual's self-concept.

Shavelson, Hubner, and Stanton (1976) indicated that definitions of self-concept are imprecise, causing variations across studies. Another difficulty that they pointed out was that many researchers develop their own instruments for their own particular problem causing a lack of equivalence among self-concept measurements. This makes it impossible to generalize across studies using different instruments because of the
differences in data. Shavelson et al. (1976) devised their own approach to the dilemma by developing a definition of self-concept from pre-existing definitions, reviewing the steps in data validity, and then applying these steps to five widely-used self-concept instruments. They urged that advances be made in methods of construct validation or data on students' self-concepts will continue to be ambiguous.

According to Coopersmith (1959), a definition of what is meant by self-esteem is essential. He believed that self-esteem is difficult to deal with empirically because it is such a transient concept. The self-esteem behavior that an individual displays, according to Coopersmith (1959), is based upon his/her prior positive and negative experiences. He suggested that the "real" self-esteem can only be inferred from evaluation reports and that it varies with the demands of different situations. He then proposed that a combination of subjective and objective evaluations be put into effect for determining the self-esteem.

The stability of the child's self-concept presents another difficulty in obtaining an accurate measure of the self. Evidence that young children have relatively unstable self-concepts has been supported by LaBenne and Greene (1969), Piers (1969), and Tippett and Silber (1965). Tippett and Silber (1965) reported that a person's self-image may change across different interpersonal relationships, e.g., people may see themselves differently when in the presence of their father, their mother, or their peers. They also stated that a person's self-image and ideal self may interchange or one may remain stable while the other may fluctuate.

LaBenne and Greene (1969) and Piers (1969) stressed that results on a self-concept test may be affected by mood fluctuations or by conditions at the time and place of the testing. The occurrence of unforeseen
circumstances during a child's school day will cause discrepancies in scores, especially if the child is administered a self-concept measure directly following a stressful situation, such as a fist-fight on the playground or a poor performance on a quiz or test.

Researchers (Cronbach, 1970; LaBenne & Greene, 1969; Piers, 1969; Wylie, 1974) have found that many children are unwilling to report their honest feelings about themselves, and they may "fake" their responses on purpose. Cronbach (1970) suggested further that students may select responses they know to be socially desirable rather than responses that assess the true self.

Crowne and Stephens (1961) indicated that one of the problems in self-concept measurement lies in the tests themselves. They mentioned that tests of self-acceptance require evaluative and interpretive-type thinking before responding. This results in incongruent scores because individuals will interpret and evaluate questions in different ways.

According to Bryant (1974), Coopersmith (1959), and Creelman (1955), children in the lower elementary grades encounter difficulty when asked to make responses along a continuum, e.g., a Likert scale. A younger child will do much better when choosing between "yes-no" rather than attempting to distinguish between "always, most of the time, sometimes, never."

Phillips (1963) reported that age is also a factor in the accuracy of self-perceptions. His study supported the hypothesis that the self-perceptions of older children would be more accurate than the self-perceptions of younger children. He tested third and sixth graders and found that third graders greatly overestimated their subsequent performance on a psychomotor task, while sixth graders were consistently more accurate in estimating theirs. Phillips (1963) concluded that the accuracy of
self-estimates increases with age.

Although older children may be more accurate in their self-estimates than younger children, this does not mean they have more positive self-perceptions. Martinek (1976) found, through the use of the MZSCS, that the self-concept appears to be negatively affected as a child progresses from the second grade on up through his/her elementary years. Morse (1964) used the Self-Esteem Inventory to evaluate the self-concepts of 600 pupils, grades 3 through 11. He found that many of the items showed a decrease in self-esteem with age. For example, to the statement "I'm pretty sure of myself," 12% of the third graders said "unlike me," while 34% of the 11th graders answered that way. Over 40% of the pupils reported they became discouraged in school, and this discouragement increased with age. From Morse's (1964) findings, it appears that the school-self gradually grows less positive with time. This study shows a need for teachers to become aware of the impact they have on the self-concepts of their students. Morse (1964) urged, "We need to do much work to communicate a sense of success and achievement" (p. 195).

Self-Concept Measures for Children

As cited by Shavelson et al. (1976), there are almost as many self-concept instruments as there are studies done on the self-concept because so many researchers develop their own instruments for their own particular problem.

The Michigan State Self-Concept of Ability Scale was developed by Brookover, Thomas, and Patterson (1964) and is a measure of self-concept of academic ability. The scale consists of eight items selected to differentiate students on achievement. The items are self-evaluative questions about academic ability such as "What kinds of grades do you think
you are capable of getting in the following subjects?" For each of the four subjects (math, English, social studies, and science), there are five response alternatives ranging from "Mostly A's" to "Mostly F's."

According to Coopersmith (1967), the Self-Esteem Inventory (SEI) has been used as a measure of general self-concept. It consists of 50 items concerned with the child's perceptions in four areas: peers, parents, school, and self. The 50 items are simple, self-descriptive statements such as "I give in very easily," followed by two response alternatives: "like me" or "unlike me."

The Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1964) is one of the most widely used self-concept instruments (Wylie, 1974). It is composed of 80 items, which are simple declarative statements, such as "I am a happy person," with a yes/no response. These items were selected to discriminate between students with extremely low and high total scores. Piers and Harris (1964) believed the self-concept to be multifaceted and labeled the factors as behavior, intellectual and school status, physical appearance and attributes, anxiety, popularity, happiness, and satisfaction. The authors claimed that the scale can be useful in clinical and counseling settings as well as in classrooms for psychological referral.

Sears (1971) developed the Self-Concept Inventory (SCI), which provides for a measure of 10 facets of the self-concept. The original form contained 100 items, 10 items for each of the 10 facets of self-concept: physical ability; mental ability; school relations with the same sex, opposite sex, teacher; work habits; social virtues; happy qualities; and school subjects. The revised form has 48 items representing 9 facets, most of which correspond to the original scale. It was revised by dividing mental ability into divergent and convergent mental ability, dropping school
relations with the opposite sex, and reducing the number of items in the school subjects subscale.

The Adjective Check List was developed by Davidson and Lang (1965) to measure children's perceptions of their teacher's attitudes towards them and children's perceptions of themselves. It consists of 35 trait names or adjectives, 18 being favorable and 17 being unfavorable. The children are instructed to decide how the teacher feels towards them with respect to each trait name and then rate it on a 3-point rating scale. The categories to choose from are "most of the time," "half of the time," or "seldom or almost never." Results have provided evidence that the scale has content and concurrent validity for upper elementary grade children and junior high school children.

The Children's Self-Conception Test (CSC) was constructed by Creelman (1955) and provides for four types of scores of a child's self-concept: self-acceptance score, self-rejection score, acceptance of social values, and rejection of social values. The test consists of 24 sets of pictures with eight pictures in each set, four of which show a boy doing something, with the other four pictures of a girl doing the same activity. The test is administered for three different purposes. The first time it is administered the children are asked to select the picture they like the best and dislike the most. Second, they are asked to choose the good and bad pictures within each set. Finally, they are asked to select the pictures that they feel are most like and most unlike them. Creelman (1955) claimed face validity for the test and supported it as a useful tool for investigating the adjustment and maladjustment of children.

Bills, Vance, and McLean (1951) developed a rating scale called the Elementary School Index of Adjustment and Values to determine the
self-concept of third- through fifth-grade children. It consisted of 19 descriptive statements of traits about the self and others to which the child responds either "yes," "no," or "don't care." The responses are classified by the following scores: a "Self Index" score, an "Others" score, and a score that indicates the agreement between "Self" scores and "Others" scores. It measures the discrepancy which exists between the concept of self and the concept of the ideal self, which Bills et al. (1951) defined as personal maladjustment.

Lipsitt (1958) also found a discrepancy score by subtracting the total self-concept score from the total ideal-self score. Lipsitt (1958) stated that the discrepancy score indicates the degree of unhappiness or self-dissatisfaction. Lipsitt's (1958) Self-Concept Scale for Children was a Likert-type self-rating scale for children in grades four through six. It consists of 22 trait-descriptive adjectives followed by a 5-point rating scale to which the child responds either "not at all," "not very often," "some of the time," "most of the time," or "all of the time."

The Faces Scale is a self-report inventory, which was developed by Frymier (1973) for children. It measures the self-concept in relation to school, social relationships, physical development, and home situations. The children respond to the question by checking a smiling face or a sad face, according to the way they feel toward the question. It is applicable for children ranging from 5 to 10 years of age.

Bolea, Felker, and Barnes (1971) designed the Pictorial Self-Concept Scale. A set of 50 cartoon-like picture cards is sorted by the children into three piles according to whether the child feels the figure is "like me," "sometimes like me," or "not like me at all." The scale does not require reading and is applicable for children in kindergarten through
fourth grade.

Martinek and Zaichkowsky (1977) developed a nonverbal, culture-free instrument designed to measure the global self-concept of first- through eighth-grade children. The Martinek-Zaichkowsky Self-Concept Scale (MZSCS) does not require reading ability or an understanding of the English language. It was designed to measure the self-concept of both females and males within a single scale. The present MZSCS consists of 25 pairs of cartoon pictures of a boy or girl doing certain things. The child being tested is asked to choose which picture would be most like him/her. The scale represents five factors of the self-concept: (1) satisfaction and happiness; (2) home and family relationships and circumstances; (3) ability in games, recreation, and sports; (4) personality traits and emotional tendencies; and (5) behavioral and social characteristics in school. The scale is considered to have sufficient internal consistency for elementary age populations, having an overall Hoyt estimate of reliability of .88 for grades one through four. The scores from the MZSCS were compared with those from the Piers-Harris Children's Self-Concept Scale, teachers' ratings, and Coopersmith's Self-Esteem Inventory to determine concurrent validity. A correlation of .49 was obtained with the Piers-Harris scores from a sample of 120 elementary age children, 6 through 10 years of age. Non-significant correlations were found with teacher rating scores. Martinek and Zaichkowsky (1977) defended this point by stating that teachers tend to rate a child's self-concept in terms of his/her behavior within the classroom, which is not a true indicator of his/her self-concept. A correlation of .56 was reported with the Coopersmith scores from a sample of 86 children, 7 through 10 years of age. Martinek and Zaichkowsky (1977) believed their scale to be beneficial to teachers, based on the premise
that teachers should have a reliable and valid self-concept instrument close at hand, so that those children having low self-concepts can be identified and given special consideration. They also contended that the scale may be useful for psychological and counselor referral.

Factors Influential in Self-Concept Development

There are many factors which influence the development of the self-concept. Of utmost importance to a positive development of a child's self-concept is a healthy home environment and stable interpersonal relationships among family members.

Martinek and Zaichkowsky (1977) stressed that the early experiences with other people that a child encounters are vital to the development of a healthy concept of self:

The family, school, and peer group relationships are means to the development of a positive self-concept. In reality, each one of those relationships should exist in the child's developing self-concept. If one is weak during the developmental years, it becomes increasingly difficult to form a realistic attitude of the self. (p. 3)

The influence of education may be a positive or negative effect on the development of a child's self-concept, depending on the teachers' provision of opportunities for children to become aware of and sensitive to their self-concepts. As children enter school their self-concepts are in the process of developing. Oftentimes children view themselves according to the manner in which teachers treat them. The importance of the school on the self-concept is best exemplified in the writings of Purkey (1970) when he stated, "Next to the home, the school is the single most important force in shaping the child's self-concept" (p. 40).
Not only do people have perceptions of themselves, but they also have an image of the kind of person they would like to become. This is referred to as the self-ideal. Havighurst, Robinson, and Dorr (1965) believe that the schools will influence the child's image concerning his/her ideal self, especially if they aim towards teaching about the lives of great people.

Staines (1965) contended that teachers are among the people most likely to be influential in determining the self-picture. He demonstrated that the teacher does have the potential to change students' concepts of themselves through the use of different comments made in reference to the self and varying teaching styles. This evidence was further supported by Perkins (1965) who stated that since children behave in terms of the way they see themselves, it is evident then that behavior changes with self-concept. The teacher is in a position to exert powerful influence over the formation and change of the child's self-concept because of the frequent opportunities to interact with the child. As further exemplified in the writings of Hughes (1964), "There can be no doubt that 12 years of school make a unique contribution to the development of the concept of self. During the 12 years, teacher behavior is a potent contributor to the final results" (p. 33).

People are seldom influenced by others whom they see as unimportant or insignificant. Moustakas (1956) declared that every teacher wants to be a significant force in the lives of his/her students, but in order to influence students it is necessary to become a "significant other" in their lives. LaBenne and Greene (1969) believed that "significant others" are the people who most intimately administer the "rewards" and "punishments" in a person's life. Certainly, the classroom teacher is in a position to do just this.
Purkey (1970) pointed out that before a teacher can consider building positive self-concepts in students, it is necessary to avoid instilling negative self-concepts. He stated further that low or negative self-concepts are often overlooked because teachers fail to take the effort required to be sensitive to how children see themselves.

Davidson and Lang (1965) examined how the self is influenced in classroom settings by determining the relationship between children's perception of their teacher's feelings toward them and the variables of self-perception, academic achievement, and classroom behavior. The Adjective Check List, consisting of 35 trait names, was administered twice to 203 fourth-, fifth-, and sixth-grade children to determine their own self-perceptions and how they perceived their teacher's feelings toward them. At the first administration, the children were instructed to respond to the 35 adjectives comprising the list in terms of "My teacher thinks I am," and at the second testing, in terms of "I think I am." Using a 4-point scale, 10 teachers rated each child on 10 personality characteristics and on academic achievement. Davidson and Lang (1965) found that those children with a more favorable self-perception also perceived their teachers' feelings toward them more favorably and were rated by their teachers as having higher academic achievement and more desirable classroom behavior. The children who were rated by their teachers as being disorderly perceived their teachers' feelings toward them as being less favorable than the children rated as being cooperative. These findings are somewhat consistent with the hypothesis that teachers' feelings toward students function as self-fulfilling prophecies, although Davidson and Lang (1965) added that their findings do not imply causality, but rather all reinforce each other and are interrelated.
Supplying further evidence of how the self is influenced by teachers were Martinek and Johnson (1979), who investigated the effects of teacher expectations on the self-concept of elementary age children. The Dyadic Adaptation of CAFIAS was the observational tool used to identify the teacher-student behaviors. Additionally, the Martinek-Zaichkowsky Self-Concept Scale for Children was used to determine whether there were self-concept differences between the high and low expectancy groups. Martinek and Johnson (1979) found that those students expected to be high achievers were significantly higher in self-concept than those students expected to be low achievers. The results also indicated that the high expectancy group received more encouragement, acceptance of ideas, and analytic-type questions from their teachers than the low expectancy group.

Another factor influential in self-concept development is the opportunities afforded to children within the school which contribute to the decision-making process. Children will make decisions most of their adult lives, decisions ranging from what kind of car to buy to what kind of career to pursue. Unfortunately, many of our school systems do not consider the importance of allowing the student a freedom of choice in the decision-making process. Yamamoto (1972) believed that an important building block of self-esteem is the opportunity for children to make their own decisions and be able to accept the consequences of their decisions. Purkey (1970) felt that it is difficult for the self-concept to develop positively in an environment where there is little or no freedom of choice.

Canfield and Wells (1976) believed that in order to enhance students' self-concepts, they should be involved from the beginning in creating the environment within the school. They believed that students should help in decision-making about the physical setting, for example, arranging the room
or planning bulletin boards. In addition, they felt that students should also be included in decisions concerning content and sequence of activities, and even methods of study.

Evidence that alternatives to traditional programs in physical education may produce positive changes in the self-concept found support in a study undertaken by Puretz (1973). She offered a modern educational dance program which allowed for experimentation and exploration to disadvantaged, inner-city elementary school girls for one school term. All students were given a pretest and a posttest on the Bills-Lipsitt Self-Concept Scale for Children. Results indicated significant positive changes for the experimental group.

Studies relating to the effect of two different decision-making models in physical education on the self-concept of elementary age children were undertaken by Martinek (1976) and Viglione (1977). The teacher made all the decisions during class in one model, as opposed to the child-decision-making approach in which the children were encouraged to share in the decisions. They found through the use of the Martinek-Zaichkowsky Self-Concept Scale that the latter model was beneficial to the self-concept of the children. Viglione (1977) stressed the importance of students' freedom of choice on enhancement of the self-concept:

If a teacher desires to enhance the self-concept of his/her students, it appears that affording the students opportunities to make meaningful decisions for themselves will facilitate this end better than a teacher-directed approach. (p. 71)

Summary

According to Rushall and Siedentop (1972), "Contingency management is a technique for controlling and altering behavior" (p. 175). As cited by
Darst (1979), contingency management learning systems appear to be effective tools for improving the teaching/learning process.

Several researchers (Becker et al., 1967; Madsen et al., 1968; Thompson et al., 1974; Whitley & Sulzer, 1970) were successful in reducing disruptive student behavior through training elementary classroom teachers in contingency management techniques. A combination of ignoring inappropriate behavior and praising appropriate behavior was found to be most effective in achieving desirable classroom behavior. A study by Rollins et al. (1974) was undertaken in an inner-city area, in which 30 public school teachers were trained to use positive behavior contingencies for an entire academic year with 730 Afro-American pupils. Not only did disruptive behavior drop a significant amount, but improved relations between and among students, school personnel, and the community also occurred. Similar results were found by Ryan (1976), who implemented a behavior modification program based on contingency management principles in an elementary school with a high percentage of black students. O'Leary et al. (1973) found that disruptive behavior decreased with soft reprimands. Barrish et al. (1973) successfully utilized a behavior game in a fourth-grade class to reduce students' out-of-seat and talking-out behaviors. Reinforcement contingencies in the form of behavior games successfully increased appropriate behavior in a study conducted by Young (1974) with a second-grade physical education class.

Not only can teachers be taught systematic procedures to gain more effective behaviors from their students (Madsen et al., 1968), but students can also be systematically trained to employ certain behaviors in the classroom which may influence their teacher's behavior positively (Pratt, 1975). The premise that teacher behavior can change positively according
to students' suggestions found support in the research of Gage (1963) and Tuckman and Oliver (1968). Evidence that students have the potential to influence their teacher's behavior has underlying support in the writings of Doenges (1976), Klein (1971), Pratt (1975), and Sherman and Cormier (1974). Klein (1971) found that teachers were more direct towards students who did not pay attention or looked out the window, and when students smiled and looked at the teacher, more indirect teaching patterns were observed. Doenges (1976) and Sherman and Cormier (1974) conducted their studies in an upper socioeconomic area while Pratt (1975) conducted his in a low socioeconomic area. Both Doenges (1976) and Pratt (1975) trained disruptive children in specific communication skills and found that through the training the children were successful in modifying their teachers' "direct" behavior to a more "indirect" manner.

Dyadic interaction, the interaction that transpires between the teacher and the individual student, has its roots in the work of Brophy and Good (1970), who developed the Teacher-Child Dyadic Interaction System (Brophy & Good, 1974a) to study teacher expectancies and pupil achievement within the regular classroom. They found that teachers demanded better performance from and were more likely to praise those children for whom they had high expectations. Allard (1979) and Good and Brophy (1970) advocated the need for studying dyadic interaction so that teachers can realize their differential treatment toward students differing in personality, temperament, sex, race, and socioeconomic status. Allard (1979) noted further that research into dyadic interaction is indispensable to the large portion of the population so bent on providing equal opportunities for all students. Crowe (1979), Martinek and Johnson (1979), and Óien (1979) modified popular observational systems to concentrate upon dyadic interaction in the
physical education classroom. Crowe (1979) and Martinek and Johnson (1979) found that those students expected to be high achievers received more encouragement, attention, and questions from their teachers than those students expected to be low achievers. Oien (1979) found that boys received more praise, questions, directions, and criticism than did girls.

The important impact of the school and teachers upon the child's self-concept found substantial support in the research of Davidson and Lang (1965), Havighurst et al. (1965), Hughes (1964), Martinek and Zaichkowsky (1977), and Purkey (1970). Perkins (1965) and Staines (1965) noted that teachers have the potential to change a child's self-concept. Moustakas (1956) pointed out that only when teachers become "significant others" in the lives of their students will they be able to influence their students. Davidson and Lang (1965) and Martinek and Johnson (1979) demonstrated how teachers actually do influence the student's self. Davidson and Lang (1965) found that those children with higher self-perceptions perceived their teacher's feelings toward them more favorably and had higher academic achievement and more desirable classroom behavior as rated by their teachers than those children with lower self-perceptions. Martinek and Johnson (1979) studied teacher expectation effects on the self-concept of children through dyadic interaction and found that the higher the teacher's expectations for a child, the higher was the child's self-concept. As indicated by Canfield and Wells (1976), Purkey (1970), and Yamamoto (1972), an environment which allows the students a greater amount of freedom of choice will enhance the student's self-concept. Martinek (1976), Poretz (1973), and Viglione (1977) found when students shared in the decision-making process in physical education, their self-concepts were affected positively.
There are numerous factors which present problems in measuring the self-concept. Foremost, imprecise definitions of the self-concept (Shavelson et al., 1976) increase the scope of problems associated with measuring it. Hence, the number of different words that are used by different writers (Anderson, 1965; Coopersmith, 1967; Crowne & Stephens, 1961; Kaplan, 1975; Tippett & Silber, 1965) to refer to the self increase, causing a lack of equivalent findings across studies. The stability of the child's self-concept has been questioned by LaBenne and Greene (1969), Piers (1969), and Tippett and Silber (1965). Cronbach (1970), LaBenne and Greene (1969), Piers (1969), and Wylie (1974) found that many children are hesitant in reporting their real feelings and may "fake" their responses intentionally. Evidence that another difficulty connected with measuring the self-concept lies in the tests themselves found support in the writings of Bryant (1974), Coopersmith (1959), Creelman (1955), and Crowne and Stephens (1961). They suggested that children are better able to comprehend tests with a dichotomous yes/no response rather than alternatives along a continuum, as in a Likert scale. The factor of age also presents problems in measuring the self-concept, based on the premise that the self varies over the years. Phillips (1963) reported that the accuracy of self-perceptions increases with age, although Martinek (1976) and Morse (1964) found that the self-concept is negatively affected as a child progresses through his/her elementary years.

The majority of self-concept instruments take the form of rating scales and self-report inventories. The scales developed by Bills et al. (1951) and Lipsitt (1958) both measured the discrepancy which exists between the self-concept score and the self-ideal score, which is an indicator of the child's degree of unhappiness. The Adjective Check List was developed
by Davidson and Lang (1965) to measure children's perceptions of their teacher's attitudes towards them and children's perceptions of themselves. Sears' (1971) SCI is verbal in nature and requires subject ratings along a continuum. Self-concept measures which consist of dichotomous responses to self-descriptive statements were developed by Coopersmith (1967) and Piers and Harris (1964). The self-concept scales constructed by Bolea et al. (1971), Creelman (1955), and Martinek and Zaichkowsky (1977) are nonverbal and pictorial in nature; in these scales children are asked to identify which picture they feel is most like them. Frymier's (1973) Faces Scale is a verbal, self-report inventory to which the child makes a dichotomous response to a happy or sad face. The scale developed by Brookover et al. (1964) asks the child to make self-evaluations along a continuum of academic ability.
Chapter 3

METHODS AND PROCEDURES

This chapter outlines the procedures and instruments used in gathering the data for this investigation. It is divided into seven different areas: (a) selection of subjects, (b) measuring instruments, (c) methods of data collection, (d) coder reliability, (e) scoring of data, (f) treatment of data, and (g) summary.

Selection of Subjects

The population which served for this investigation consisted of all of the second-, third-, and fourth-grade classes and their physical education teachers from four elementary schools in the Ithaca, New York area. All of the students chosen were identified as being disruptive by their respective physical education teachers. The criterion used for identifying them as disruptive was that their behavior was considered undesirable for effective learning to take place. A parent consent form, which appears in Appendix B, was sent out to the parents of the children who were identified by their physical education teachers as being disruptive. Those students whose parents did not give their consent did not participate in the study. The four physical education teachers were presented with an informed consent form to determine their agreement to participate in the study. A copy of the informed consent form appears in Appendix C. A total of 40 students and 4 physical education teachers were selected for this study. The students were randomly assigned to the treatment and control groups by the flip of a coin. The treatment group consisted of 20 students as did the control group. The treatment group met for 1 hour per week for 8
weeks on a small group basis with the investigator to receive instruction in specific contingency management skills (see Appendix D).

In order to control for the Hawthorne effect, the control group also met with the investigator for 1 hour per week for 8 weeks on a small group basis but did not receive any instruction in the specific contingency management skills.

**Measuring Instruments**

For the purposes of this investigation, two measuring instruments were used. The Martinek-Zaichkowsky Self-Concept Scale (MZSCS) (Martinek & Zaichkowsky, 1977), which measures the intellectual, behavioral, social, emotional, and physical components of a child's self-concept in grades one through eight, was the first instrument used. It consisted of 25 pictures depicting bipolar situations; the child being tested is asked to identify which picture he/she feels is most like him/her. One point is awarded for selection of the figure in the positive role, and no points are awarded for selection of the figure in the negative role.

The other measuring instrument used to assess the teaching behavior of the four teachers in this study was an adapted version of CAFIAS, called the Dyadic Adaptation of CAFIAS (DAC) (Martinek & Mancini, 1978). Teacher behavior directed at the entire class was not recorded; rather, the interaction of the teacher with a single student or a small group of no more than four students was recorded.

**Methods of Data Collection**

The 20 students who composed the treatment group met bi-weekly in small groups in a room separate from the classroom during a regularly scheduled period. They were taught each specific contingency management skill through verbal description by the instructor. A brief role-playing
demonstration followed which was videotaped and then observed by the students. At this time, students were given information concerning indirect teacher behavior, and it was discussed that proper usage of the communication skills would facilitate indirect behavior from their teachers. After each skill was successfully acquired, the students were encouraged to apply them with other teachers, friends, family members, but, most importantly, to direct them towards their physical education teachers within the physical education classroom (see Appendix E).

The 20 students who composed the control group did not receive any instruction in the contingency management skills but did participate in simple indoor games and craft activities with the investigator (Cox, 1962) for the same time period as the treatment group to control for the Hawthorne effect.

A pretest and posttest of the Martinek-Zaichkowsky Self-Concept Scale (MZSCS) (Martinek & Zaichkowsky, 1977) was administered to all subjects the 1st and the last weeks of the experiment. Data for assessment of teacher-student dyadic interaction patterns were gathered prior to the 1st week of the experiment and again on the week following the specific contingency management skills program through use of The Dyadic Adaptation of CAFIAS (DAC) (Martinek & Mancini, 1978). DAC necessitated the following specific procedures: (1) target students (subjects in this study) wore I.D. numbers on pinnies to be identified by the coder, (2) observers coded only the interaction that transpired between the teacher and the target students, (3) all behavior tallies were accompanied by a numbered subscript representing the individual student or small group of students to which the behavior was directed, and (4) behaviors were recorded at 3-second intervals as long as the interaction continued.
Physical education classes of all subjects were videotaped twice at the beginning of the study and twice at the end of the study. The classes were videotaped and coded at the beginning of the study for the purpose of verifying the "direct" behavior of the physical education teachers towards the target students. It was believed that videotaping each class twice at the conclusion of the experiment would enhance the reliability and validity measures of the study. These videotaped physical education class sessions were then coded by a trained expert through the use of DAC.

Coder Reliability

In order to determine the coder's reliability, one videotaped class session of each of the four physical education teachers in this study was randomly selected. These videotaped class sessions were coded and subjected to a repeated coding on a separate sitting by an expert trained in the use of DAC. The top 10 cells were ranked and the Spearman rank-order correlation was utilized for reliability (see Appendix F).

Scoring of Data

The data gathered from the coding of DAC were transferred to a recording sheet. A tally was simply placed in the appropriate cell across from the student's name and identification symbol. After all the data were transferred to the recording sheet, the data were scored for each individual student separately through the following sequence: (1) each cell total was summed and recorded by writing over the tallies, (2) each student received a total score for the total number of tallies, (3) each cell received a percentage by dividing each cell total by the student's total score, and (4) each percentage was combined under the verbal and nonverbal cells of each of the 20 CAFIAS behaviors, arriving at 10 percentages for each student. These percentages were then transposed onto
separate data cards for each student for computer analysis.

An individual total score on the MZSCS was determined by the awarding of 1 point for selection of the positive role and no point for selection of the negative role. In addition, each student received five subscale scores representing the five factors of the self-concept as measured by the MZSCS.

**Treatment of Data**

Multivariate analysis of covariance was used to determine if statistically significant differences existed between the treatment and control groups regarding the teacher and student behaviors at the conclusion of the experiment. A discriminant function analysis was used to determine the proportion of variance accounted for by each of the dependent DAC variables. A simple analysis of variance was performed on each DAC variable for the posttest scores to determine on which variables the groups differed significantly when each variable was considered by itself.

An analysis of covariance was run on the students' total scores on the MZSCS. Univariate ANCOVA's were performed on the five subscale scores from the MZSCS to determine which of the variables when analyzed separately showed significant differences between the two groups.

**Summary**

Subjects for this study were 40 students and their physical education teachers from four elementary schools in Ithaca, New York; 20 of the students were randomly assigned to a treatment group and 20 to a control group. All students had been identified by their respective physical education teachers as being disruptive. Only the students in the treatment group received instruction in the specific contingency management skills.

Two measuring instruments were used for the purposes of this
investigation. The Martinek-Zaichkowsky Self-Concept Scale (Martinek & Zaichkowsky, 1977) was used to determine the children's self-concept scores both before and after the treatment. Dyadic interaction patterns were assessed between the teacher and target students through use of the DAC system (Martinek & Mancini, 1978). Each physical education class was videotaped twice before and twice after the experiment. These videotapes were then coded by a trained expert through the use of the DAC system. Multivariate analysis of covariance was used to identify any statistically significant differences between the two groups for teacher and student behaviors, and an analysis of covariance was performed on the subjects' total scores from the MZSCS. In addition, univariate ANCOVA's were performed on each of the five factors of the self-concept from the MZSCS.
Chapter 4

ANALYSIS OF DATA

This chapter presents the results that were found when comparing the behaviors of the subjects between the treatment and control groups and when comparing the students' self-concept scores in the two groups. The Dyadic Adaptation of CAFIAS (DAC) was utilized to measure the behaviors of the teachers and students. All of the categories inherent in CAFIAS are the same for the DAC system (see Appendix A), and its variables will be referred to as DAC variables throughout this chapter. The Martinek-Zaichkowsky Self-Concept Scale (MZSCS) was utilized to measure the students' self-concepts. In addition, this chapter discusses the assessment of coder reliability for this investigation and concludes with a summary.

Coder Reliability

In order to determine the reliability of the coder for this investigation, four videotaped class sessions, one from each of the four physical education teachers, were randomly selected by the investigator. Each videotape was coded during two independent observation sessions. A Spearman rank-order correlation for the two independent observations was determined by comparing the top 10 cell concentrations (see Appendix F). The mean score of the correlation was .985 which was sufficient to indicate that the coder was reliable. Data from the comparison are illustrated in Table 1.

Analysis of Teachers' and Students' Behaviors

A multivariate analysis of covariance (MANCOVA) was performed on both groups' posttest scores of the 10 DAC variables initially with the pretest
### Table 1

**Coder Reliability**

<table>
<thead>
<tr>
<th>Physical Education Teacher</th>
<th>$r_s$</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>.978</td>
<td></td>
</tr>
<tr>
<td>Teacher 2</td>
<td>.981</td>
<td></td>
</tr>
<tr>
<td>Teacher 3</td>
<td>.984</td>
<td>.985</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>.996</td>
<td></td>
</tr>
</tbody>
</table>

*Coder reliability determined by a Spearman rho comparison of the coding of teaching behaviors for the two independent observations.*
scores as covariates to determine if it was important to account for the pretest scores. No significant covariate effect was found. Therefore, the pretest scores were disregarded, and a multivariate analysis of variance (MANOVA) was run on the posttest scores to determine if the treatment and control groups were significantly different. This analysis arrived at a greatest characteristic root value of 11.827. The overall difference between the treatment and control groups for all 10 DAC variables taken simultaneously was statistically significant, $\theta(1, 4, 13.5) = .922, p < .05$. Therefore, it can be concluded that the treatment and control groups were significantly different on the posttest scores of the 10 DAC variables. Hence, the null hypothesis which stated that there would be no significant differences on the "direct" behavior of the physical education teachers between the group that received instruction in the specific contingency management skills and the group that did not receive instruction in the specific contingency management skills was rejected.

Discriminant function analysis was used to determine the amount of contribution of each of the 10 DAC variables to the significant multivariate between groups difference. Table 2 indicates that the first three variables accounted for over 75% of that difference. Teacher questioning contributed 25.90% to the discriminant function, followed by teacher acceptance of students' ideas and actions which contributed 25.48%. Teacher praise was third, contributing 24.05%. The remaining seven variables contributed less than 25% to the discriminant function.

A simple follow-up analysis of variance (ANOVA) was performed on each DAC variable for only the posttest scores (since no significant covariate effects were found) to determine on which variables the groups differed significantly when each variable was considered by itself or independent
Table 2  
Discriminant Function Analysis of DAC Variables

<table>
<thead>
<tr>
<th>Ranked Variable</th>
<th>Standardized Discriminant Weights</th>
<th>$s^2%$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Questioning</td>
<td>.50894</td>
<td>25.90</td>
</tr>
<tr>
<td>Teacher Acceptance</td>
<td>.50476</td>
<td>25.48</td>
</tr>
<tr>
<td>Teacher Praise</td>
<td>.49040</td>
<td>24.05</td>
</tr>
<tr>
<td>Teacher Direction</td>
<td>.31074</td>
<td>9.66</td>
</tr>
<tr>
<td>Teacher Criticism</td>
<td>-.22659</td>
<td>5.13</td>
</tr>
<tr>
<td>Student Interpretive Response</td>
<td>.16300</td>
<td>2.66</td>
</tr>
<tr>
<td>Teacher Information Giving</td>
<td>.16015</td>
<td>2.56</td>
</tr>
<tr>
<td>Silence/Confusion</td>
<td>-.15057</td>
<td>2.27</td>
</tr>
<tr>
<td>Student Initiated Behavior</td>
<td>.11034</td>
<td>1.22</td>
</tr>
<tr>
<td>Student Predictable Response</td>
<td>-.10366</td>
<td>1.07</td>
</tr>
</tbody>
</table>
of the other nine variables. Table 3 indicates significant differences at the .05 level on 8 of the 10 DAC variables. Table 3 also contains the DAC variables' means and standard deviations of the treatment and control groups for both the pretest and posttest scores. Teacher praise, teacher acceptance of students' ideas and actions, teacher questioning, and student interpretive response showed significant differences in favor of the treatment group. Teacher direction, teacher criticism, student predictable response and student initiated behavior revealed significant differences in favor of the control group.

The top 10 ranked cell frequencies of interaction patterns and their percentage of occurrence for both groups during the pretest period and posttest periods are provided in Tables 4 and 5, respectively. A description of each interaction pattern is given under each table. The density of tallies in the cells determined not only predominant teachers' and students' behaviors but also the sequence of those behaviors. The patterns for the treatment and control groups during the pretest period (see Table 4) were basically similar, dominated by teacher direction followed by student predictable response (6-8); student initiated behavior followed by teacher criticism, followed by teacher direction (9-7-6); teacher information giving followed by either student initiated behavior (5-9) or teacher direction (5-6); and extended student initiated behavior (9-9).

However, during the posttest period, obvious differences can be observed between the treatment and control groups (see Table 5). The treatment group was characterized by student interpretive response followed by either teacher acceptance of the students' ideas and action (8\-3), praise (8\-2), or extended student interpretive response (8\- 8\); teacher
<table>
<thead>
<tr>
<th>Variable</th>
<th>PRETEST</th>
<th>POSTTEST</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment</td>
<td>Control</td>
<td>Treatment</td>
<td>Control</td>
<td></td>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
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<td>SD</td>
<td>M</td>
<td>SD</td>
<td>F</td>
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</tr>
<tr>
<td>Teacher Praise</td>
<td>1.737</td>
<td>1.991</td>
<td>1.138</td>
<td>1.555</td>
<td>6.025</td>
<td>3.392</td>
<td>2.294</td>
<td>1.951</td>
<td>18.18*</td>
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</tr>
<tr>
<td>Teacher Acceptance</td>
<td>.427</td>
<td>.665</td>
<td>.255</td>
<td>.682</td>
<td>11.963</td>
<td>4.166</td>
<td>1.019</td>
<td>.989</td>
<td>130.67*</td>
<td></td>
</tr>
<tr>
<td>Teacher Question</td>
<td>1.484</td>
<td>1.335</td>
<td>2.133</td>
<td>1.778</td>
<td>5.582</td>
<td>2.164</td>
<td>2.822</td>
<td>2.187</td>
<td>16.09*</td>
<td></td>
</tr>
<tr>
<td>Teacher Criticism</td>
<td>12.967</td>
<td>5.685</td>
<td>9.306</td>
<td>4.725</td>
<td>2.095</td>
<td>2.167</td>
<td>9.495</td>
<td>3.324</td>
<td>69.58*</td>
<td></td>
</tr>
<tr>
<td>Student Interpretive Response</td>
<td>6.335</td>
<td>5.295</td>
<td>5.613</td>
<td>4.924</td>
<td>25.381</td>
<td>8.274</td>
<td>8.329</td>
<td>3.664</td>
<td>71.02*</td>
<td></td>
</tr>
<tr>
<td>Silence/Confusion</td>
<td>2.076</td>
<td>1.938</td>
<td>2.366</td>
<td>1.723</td>
<td>2.198</td>
<td>1.552</td>
<td>2.267</td>
<td>1.388</td>
<td>.02</td>
<td></td>
</tr>
</tbody>
</table>

*aSince no significant covariate effects were found from the MANCOVA, the pretest scores were disregarded and an ANOVA was run on the posttest scores only.

*F(1, 38) = 4.17, p < .05.
<table>
<thead>
<tr>
<th>Interaction Patterns</th>
<th>Percentage of Occurrence</th>
<th>Interaction Patterns</th>
<th>Percentage of Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8</td>
<td>15.79</td>
<td>6-8</td>
<td>20.87</td>
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<td>9-7</td>
<td>12.59</td>
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<td>9.85</td>
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<td>8-6</td>
<td>5.06</td>
<td>7-6</td>
<td>5.08</td>
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<td>5-9</td>
<td>4.44</td>
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<td>4.23</td>
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<td>5-6</td>
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<td>9-6</td>
<td>3.35</td>
<td>8-6</td>
<td>2.83</td>
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6-8  teacher directions followed by student predictable response
9-7  student initiated behavior followed by teacher use of criticism
7-6  teacher use of criticism followed by teacher directions
8-9  student predictable response followed by student initiated behavior
8-6  student predictable response followed by teacher directions
5-9  teacher information giving followed by student initiated behavior
9-9  extended student initiated behavior
5-6  teacher information giving followed by teacher directions
8-5  student predictable response followed by teacher information giving
9-6  student initiated behavior followed by teacher direction
8\-6  student interpretive response followed by teacher direction
Table 5
Summary of Most Frequent Posttest Interaction Patterns among the Top 10 Cells of Physical Education Teachers

<table>
<thead>
<tr>
<th>Interaction Patterns</th>
<th>Treatment Percentage of Occurrence</th>
<th>Interaction Patterns</th>
<th>Control Percentage of Occurrence</th>
</tr>
</thead>
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<tr>
<td>8-3</td>
<td>7.93</td>
<td>6-8</td>
<td>16.36</td>
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<tr>
<td>6-8</td>
<td>7.68</td>
<td>9-7</td>
<td>8.99</td>
</tr>
<tr>
<td>6-8\</td>
<td>6.29</td>
<td>8-6</td>
<td>5.99</td>
</tr>
<tr>
<td>4-8\</td>
<td>4.15</td>
<td>8-9</td>
<td>5.62</td>
</tr>
<tr>
<td>9-3</td>
<td>3.97</td>
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<td>4.69</td>
</tr>
<tr>
<td>5-8\</td>
<td>3.31</td>
<td>8-5</td>
<td>3.95</td>
</tr>
<tr>
<td>8-2</td>
<td>3.04</td>
<td>5-9</td>
<td>3.80</td>
</tr>
<tr>
<td>5-6</td>
<td>3.00</td>
<td>9-6</td>
<td>3.00</td>
</tr>
<tr>
<td>8-8\</td>
<td>3.00</td>
<td>9-9</td>
<td>3.00</td>
</tr>
<tr>
<td>3-5</td>
<td>2.85</td>
<td>9-5</td>
<td>2.76</td>
</tr>
</tbody>
</table>

8\-3 student interpretive response followed by teacher acceptance of students' ideas and actions
6-8 teacher directions followed by student predictable response
6-8\ teacher directions followed by student interpretive response
4-8\ teacher use of questions followed by student interpretive response
9-3 student initiated behavior followed by teacher acceptance of students' ideas and actions
5-8\ teacher information giving followed by student interpretive response
8\-2 student interpretive response followed by teacher use of praise
5-6 teacher information giving followed by teacher directions
8\-8\ extended student interpretive response
3-5 teacher acceptance of students' ideas and actions followed by teacher information giving
9-7 student initiated behavior followed by teacher use of criticism
8-6 student predictable response followed by teacher directions
8-9 student predictable response followed by student initiated behavior
8-5 student predictable response followed by teacher information giving
5-9 teacher information giving followed by student initiated behavior
9-6 student initiated behavior followed by teacher directions
9-9 extended student initiated behavior
9-5 student initiated behavior followed by teacher information giving
information giving and directions followed by student predictable and interpretive response (5-6-8-8); teacher questioning followed by student interpretive response (4-8); and student initiated behavior followed by teacher acceptance of the students' behavior, followed by teacher information giving, followed by student interpretive response and finally, teacher praise (9-3-5-8-2). This unique sequence of behaviors suggests that the teacher generally accepted the student initiated behavior (9-3) and then was more likely to give alternatives to the student which he/she had to interpret (5-8), resulting in the teacher being pleased with the student's response (8-2). The control group's interaction patterns during the posttest period were essentially consistent with those of the pretest patterns, being characterized by teacher information giving, direction and criticism along with student narrow dependence on the teacher.

Figures 1 and 2 further illustrate the behavioral differences between the pretest and posttest periods of this investigation. Mean percentages of the DAC variables in the treatment and control groups were compared on a bar graph. Figure 1 illustrates that the two groups had basically similar behavioral patterns during the pretest period. However, following the experiment, significant changes can be noted in the teachers' and students' behaviors (see Figure 2). Students in the treatment group during the posttest period elicited more praise, acceptance, questions and less information, directions and criticism from their teachers than those students in the control group. In addition, students in the treatment group had more interpretive responses and were not as dependent on the teacher as the students in the control group during the posttest period.
Figure 1. (continued)
Figure 2. Mean percentages for the DAC posttest variables.
Self-Concept Measurement

Each student was administered the Martinek-Zaichkowsky Self-Concept Scale (MZSCS) in separate groups before and after the experiment. Each student received a total score for the number of selections in the positive role, and five separate scores representing the five factors of the self-concept, as measured by the MZSCS. An analysis of covariance (ANCOVA) was performed on the students' total scores on the MZSCS (see Table 6). This table indicates that the covariates do make a difference, $F(1, 37) = 187.270$, $p < .05$, and that it is important to account for the pretest scores. Table 6 also indicates that the two groups are significantly different on their self-concept scores, $F(1, 37) = 5.352$, $p < .05$. Further, the amount of variance explained is significant, $F(1, 37) = 96.311$, $p < .05$.

Univariate ANCOVA's were run on each of the five factors of the self-concept, as measured by the MZSCS (see Appendix G). Factor 1, Satisfaction and Happiness, showed a significant difference between the groups on the posttest scores when the pretest scores were accounted for, $F(1, 37) = 6.589$, $p < .05$. Table 7 summarizes the means and standard deviations of the two groups for the pretest and posttest self-concept subscale scores, which do indicate an increase in the scores of the treatment group. These tests led to the rejection of the second null hypothesis which stated that there would be no significant differences between the self-concept scores of the treatment and control groups of students.

Summary

Coder reliability for this study was determined by randomly selecting one videotaped class session for each of the four physical education teachers and subjecting them to two independent observation coding sessions. A Spearman rank-order correlation was determined by comparing the top 10
Table 6
ANCORVA of Self-Concept Total Scores

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Explained</td>
<td>1058.310</td>
<td>2</td>
<td>529.155</td>
<td>96.311*</td>
</tr>
<tr>
<td>Main effect (Group)</td>
<td>29.406</td>
<td>1</td>
<td>29.406</td>
<td>5.352*</td>
</tr>
<tr>
<td>Covariate (Pretest)</td>
<td>1028.904</td>
<td>1</td>
<td>1028.904</td>
<td>187.270*</td>
</tr>
<tr>
<td>Residual</td>
<td>203.286</td>
<td>37</td>
<td>5.494</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1261.596</td>
<td>39</td>
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<td></td>
</tr>
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</table>

*p < .05.
Table 7
Means and Standard Deviations of Treatment and Control Groups' Pretest and Posttest
Self-Concept Subscale Scores

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pretest</th>
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<th></th>
<th>Posttest</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Treatment M</td>
<td>SD</td>
<td>Control M</td>
<td>SD</td>
<td>Treatment M</td>
</tr>
<tr>
<td>Satisfaction and Happiness</td>
<td>5.20 1.795</td>
<td></td>
<td>5.30 1.949</td>
<td></td>
<td>5.75 1.446</td>
</tr>
<tr>
<td>Home and Family Relationships and Circumstances</td>
<td>5.35 2.059</td>
<td></td>
<td>5.20 2.042</td>
<td></td>
<td>5.80 1.152</td>
</tr>
<tr>
<td>Ability in Games, Recreation, and Sports</td>
<td>5.20 1.642</td>
<td></td>
<td>5.40 1.603</td>
<td></td>
<td>5.80 2.016</td>
</tr>
<tr>
<td>Behavioral, Personal, and Social Characteristics in School</td>
<td>3.60 1.759</td>
<td></td>
<td>3.35 1.663</td>
<td></td>
<td>3.95 1.234</td>
</tr>
<tr>
<td>Personality Traits and Emotional Tendencies</td>
<td>4.70 1.838</td>
<td></td>
<td>4.55 2.416</td>
<td></td>
<td>5.25 1.743</td>
</tr>
</tbody>
</table>
cell concentrations for the two independent observations (see Appendix F). A mean correlation of .985 indicated that the coder in this investigation was reliable (see Table 1).

A multivariate analysis of covariance (MANCOVA) was performed on the posttest scores of the 10 DAC variables with the pretest scores as covariates. Since no significant covariate effects were found, the pretest scores were dropped and a multivariate analysis of variance (MANOVA) was run on the posttest scores to determine if the two groups were significantly different in teachers' and students' behaviors. The overall difference between the treatment and control groups for all 10 DAC variables taken simultaneously was statistically significant, \( F(1, 4, 13.5) = .922, p < .05 \).

Two follow-up tests were then conducted. The first was a discriminant function analysis (Table 2), which revealed that teacher questioning, teacher acceptance of students' ideas and actions, and teacher praise contributed over 75% to between group differences. The other follow-up test used was an analysis of variance on each DAC variable for just the posttest scores, since no significant covariate effects were found, to determine on what variables the groups differed significantly when each variable was considered independent of the other nine variables (Table 3). The results of this analysis showed significant differences on 8 of the 10 DAC variables at the .05 level of significance. Tables 4 and 5 show the top 10 interaction patterns of the two groups between the pretest and posttest periods to be different. The results of these tests led to the rejection of the first null hypothesis which stated that there would be no significant differences between the group of students who received instruction in the specific contingency management skills and the group
of students who did not receive instruction in the specific contingency management skills on the "direct" behavior of the physical education teachers.

Two scoring methods were used to assess the self-concepts of the students. One resulted in a total score obtained on the MZSCS, and the other method yielded five separate scores representing the five factors of the self-concept from the MZSCS. An analysis of covariance (ANCOVA) was run on the total scores (Table 6), which revealed significant differences between the two groups when the pretest scores were accounted for, $F(1, 37) = 5.352, p < .05$.

Univariate ANCOVA's were run on each of the five factors of the self-concept which showed a significant difference on Factor 1, Satisfaction and Happiness (see Appendix G), between the groups on the posttest scores when the pretest scores were accounted for. From Table 7, increases can be observed in the other self-concept subscale means in favor of the treatment group. The results of these tests led to the rejection of the second null hypothesis which stated that there would be no significant differences between the self-concepts of the two groups following the experiment.
Chapter 5
DISCUSSION OF RESULTS

This investigation was an extension of studies conducted by Doenges (1976) and Pratt (1975), in which students who received negative behaviors from their teachers were trained to reverse the process and have a positive effect on their teachers. This investigation was more closely related to Doenges' (1976) study in that both were undertaken in a physical education setting, and it was the physical education teacher who was the primary target of attempted behavioral change. Both Doenges (1976) and Pratt (1975) used CAFIAS as the observational tool to measure teacher and student behaviors. A unique aspect of the present study was the utilization of an adapted version of CAFIAS, called the Dyadic Adaptation of CAFIAS (DAC) (Martinek & Mancini, 1978), to determine if behavioral differences existed between the two groups. DAC was used for the purpose of obtaining a closer look at the disruptive behavior of individual students and the type of physical education teacher behavior associated with this disruptive student behavior. DAC has only been implemented in one study by Martinek and Johnson (1979) to determine teacher expectancy effects on the self-concept of elementary age children. This chapter will provide the reader with an overview of the statistical results associated with this study and a comparison of those results with other investigations related to it.

A multivariate analysis of covariance on the DAC variables, with the pretest scores as covariates, found no significant covariate effects, so the pretest scores were disregarded and a multivariate analysis of variance (MANOVA) was performed on the posttest scores. This resulted in
a significant difference between the treatment and control groups,  
$\theta(1, 4, 13.5) = .922, p < .05$, which led to the rejection of the first null hypothesis which stated that there would be no significant differences between the group of students who received instruction in the contingency management skills and the group of students who did not receive instruction in the contingency management skills on the direct behavior of the physical education teachers.

A discriminant function analysis was run following the MANOVA which found that teacher questioning, teacher acceptance, and teacher praise accounted for over 75% of between group differences (Table 2). Basically, this means that those three variables were the ones that really made the difference between the treatment and control groups. This was to be expected since the goal was to produce more indirect patterns of teacher behavior in the form of praise, acceptance, and questioning, through training the treatment group of disruptive students in contingency management skills. This finding is similar to Doenges (1976) who found that total teacher response ratio contributed 60% of the variance accounted for between the groups. The variable teacher response ratio in CAFIAS measures the amount of indirect behavior with which the teacher is responding. Thus, both the present study and Doneges' (1976) study found that the variables exemplifying indirect teacher behavior accounted for most of the difference between the treatment and control groups.

An analysis of variance (ANOVA) was also run following the MANOVA to determine on what variables the treatment and control groups differed significantly when each variable was considered by itself. The ANOVA resulted in a significant difference on 8 of the 10 DAC variables at the .05 level of significance (Table 3). Teacher praise, teacher acceptance,
teacher questioning, and student interpretive response revealed significant differences in favor of the treatment group. This shows that the students in the treatment group, upon learning and practicing the contingency management skills in the physical education classroom, stimulated positive or indirect behaviors from their teachers in the form of praise, acceptance, and questioning. Hence, the treatment group of students had a positive effect on their physical education teachers. This coincides with the results of Pratt's (1975) post-posttest observation which found that the teachers in the treatment groups exhibited a greater proportion of indirect behavior than the teachers in the control group. Doenges (1976) also stated that teachers in the treatment group in his study were significantly more indirect than those teachers in the control group. Further, the students comprising the treatment group in the present study responded with a significantly greater amount of interpretation than the students in the control group. This result can be linked with the significant difference in the teacher questioning category, i.e., the teacher became more interested in the student and offered the student more opportunities to respond. These responses required extended thought and interpretation on the part of the student. Another point which should not be ignored is the observation that when teachers offer students more opportunities to respond and follow up those responses with praise and acceptance, naturally those students will feel a greater amount of freedom and will not feel inhibited to ask more questions related to the activity initiated by the teacher. This interpretive type of student response is exemplified through the 8\ category of CAFIAS (see Appendix A). These findings concur with Pratt's (1975) contention that indirect teacher behaviors are associated with positive student development because
they promote and encourage a student's freedom to respond. Both Doenges (1976) and Pratt (1975) noted changes in the pupils' behaviors also, in that students in the treatment groups responded with a significantly greater amount of evaluation and interpretation than did students in the control group.

The remaining four variables which resulted in a significant difference from the ANOVA were teacher direction, teacher criticism, student predictable response, and student initiated behavior, all in favor of the control group. These behaviors seem logical when one considers the nature of disruptive student behavior and the type of teacher behavior associated with it. Generally, teachers attempt to curtail disruptive or off-task behavior in students by throwing orders and directions at them so that these students will fit into the mold of the majority of students in the class. This is evidenced by the significant difference in the variables teacher direction and student predictable response favoring the control group. Direct teacher behavior only allows for mechanical, predictable, and robot-like responses from the student. Consequently, the disruptive student unwillingly becomes narrowly dependent on the teacher, and this is where the rebellion occurs, manifested in the significant difference in the student initiated behavior and teacher criticism categories of the control group. The initiated behavior of the disruptive student is mainly off-task because he/she is attempting to resist this narrow dependence on the teacher. With this resistance comes criticism and direction from the teacher in an attempt to fit the student into more prevalent patterns of behavior resembling that of the rest of the students in the class. And so the vicious cycle continues, i.e., teacher direction, student predictable response, student initiated behavior,
teacher criticism, etc.

The top 10 ranked cell frequencies and their percentages of occurrence for the treatment and control groups during the pretest and posttest periods were determined. A comparison of the interaction patterns in Table 4 with those in Table 5 obviate the differences in behavior from pretest to posttest periods. During the pretest period, the interaction patterns of the treatment and control groups were essentially the same, being characterized by teacher information giving, teacher direction, teacher criticism, student mechanical response, and student initiated behavior (Table 4). These behaviors occurred because of reasons just previously mentioned. The initiated behavior of the students in both groups before the experiment began was primarily off-task as evidenced by the criticism of the teacher. The teacher was then inclined to give directions and orders to the disruptive students in an attempt to mold them into more widely accepted patterns of behavior.

However, during the posttest period, substantial behavioral changes can be noted in the treatment group while the patterns of the control group remained basically the same (Table 5). Specifically, the behavior of the teachers changed toward the treatment group of students who received instruction in the contingency management skills and remained basically the same toward the control group of students who did not receive instruction in the contingency management skills following the treatment period (refer to Table 5). During the posttest period, the interpretive responses of the students in the treatment group were praised (g-2) and accepted by the teacher (g-3) as was the initiated behavior of the student (g-2, 9-3). In contrast, there is an absence of student interpretive response in the control group during the posttest period.
The predominant behaviors of the students in the control group during the posttest period were student initiated behavior followed by teacher criticism (9-7), teacher direction (9-6), more initiated behavior (9-9), or teacher information giving (9-5) and student predictable responses followed by teacher direction (8-6), teacher information giving (8-5), or student initiated behavior (8-9). These results suggest that even though the disruptive students were getting attention from their teachers during both testing periods, it was definitely a more appropriate and positive type of attention toward the treatment group of students than toward the control group of students during the posttest period. It is interesting to note that the initiated behavior of the students in the treatment group during the posttest period was accepted by the teacher, whereas, the initiated behavior of the students in the control group during the posttest period was criticized and rejected by the teacher. Both Doenges (1976) and Pratt (1975) also concluded that students in their treatment groups initiated more positive behaviors and made greater contributions to the classroom than did the control group of students.

To expand upon this observation, it must be noted that the initiated behavior of the student can be either on- or off-task. As previously mentioned, the interaction patterns of CAFIAS provide not only the predominant teacher and student behaviors, but also the sequence of those behaviors. Thus, whether the student initiated behavior is on- or off-task is dependent upon the type of teacher behavior which follows it. In the present study, the initiated behavior of the students in the treatment group following the experiment was on-task, as evidenced by the acceptance and praise of the teacher which followed it (9-3, 9-2). In contrast, the initiated behavior of the students in the control group following the
experiment remained generally off-task, which manifested itself in the form of criticism from the teacher (9-7).

All of the aforementioned results make it apparent that the instruction in the contingency management skills had a positive effect on the students' behavior. It is also apparent, that since the physical education teachers' behavior changed toward the students in the treatment group who received instruction in the contingency management skills to a more indirect manner, those students successfully practiced and applied the skills on their physical education teachers in the physical education classroom. This study demonstrated that the behavior of both students and teachers can become more positive in nature. Disruptive elementary age children, who commonly elicit negative, direct behavior from their teachers, can be taught to reverse the process and bring about more indirect and positive behavior from their teachers through instruction and practice in contingency management skills.

The findings of the present study coincide with those of other studies of student influence on teacher behavior (Doenges, 1976; Klein, 1971; Pratt, 1975; Sherman & Cormier, 1974). Klein (1971) employed techniques (smiling, eye contact, attentiveness) that were similar to the contingency management skills used in the present study with college students. Klein (1971) found that the instillation of these positive behaviors in the students influenced the teacher to exhibit more indirect behavior.

Sherman and Cormier (1974) used artificial rewards to decrease the inappropriate behavior of two problem children from an upper socioeconomic area. The present study, Doenges (1976), and Pratt (1975) improved on Sherman and Cormier's (1974) study by employing natural reinforcement and dealing with a larger number of students. In addition, Pratt (1975)
conducted his study in a low socioeconomic area because he believed that disruptive students from this type of area had more obstacles to overcome with less support than students from higher socioeconomic areas. Pratt's (1975) study consisted of the utilization of CAFIAS immediately following completion of the treatment period and again 3 weeks following the initial assessment. Pratt (1975) designed both a posttest observation and a post-posttest observation to determine the immediate and long-range effects of his treatment. He found no significant differences between the two groups during the posttest observation. However, during the post-posttest observation, Pratt (1975) found that teachers of the treatment groups exhibited a significantly greater proportion of indirect verbal and nonverbal behavior than the control group of teachers. Pratt (1975) reasoned that this significant difference observed only during the post-posttest measure was due to the time it took for the students to incorporate the skills into their own behavioral patterns and for the teachers to notice the change and begin to treat the students in more indirect or positive ways by accepting and using student ideas and feelings and praising and encouraging the student.

The present study and the study conducted by Doenges (1976) resulted in findings congruent with those of Pratt (1975) in that all three studies found that disruptive students trained in specific contingency management skills functioned as effective change agents by increasing indirect or positive behavior from their teachers. These indirect teacher behaviors are identified through the categories of CAFIAS as teacher praise and encouragement, teacher acceptance of students' ideas, feelings, and actions, and teacher questioning. However, the data which found significant differences for the present study and Doenges' (1976) study were collected
on the week following the treatment period, in contrast to Pratt (1975) who did not find significant differences until a month later. This could be due to the different areas in which the studies were undertaken. The present study was undertaken in a high to middle socioeconomic area, whereas, Pratt (1975) conducted his study in a low socioeconomic area with a high percentage of minority students. Pratt (1975) even mentioned that a considerable amount of time and attention had to be devoted to reducing disruptive behavior, motivating the students, and emphasizing the value of the study for the students during the beginning phases of his investigation. Pratt (1975) also reported that it took some time for the students to overcome anxieties of viewing themselves on the videotape monitor. Such was not the case in the present study. Time did have to be spent in motivating the students and relating to them the benefits they could derive from participating in the project but it was only minimal. In addition, the majority of students were intrigued by observing themselves on the TV from the very beginning. It seems apparent from these speculations that the children in the present study did not take as long to incorporate the skills into their behavioral patterns, as did the large percentage of students in Pratt's (1975) study.

Another important point to take into consideration is the difference in statistical procedures between the studies. Pratt (1975) utilized a one-way ANOVA with the posttest data to determine the immediate effects of the treatment. When no significant differences were found, Pratt (1975) decided to combine the two treatment groups into a single group and utilize one-tailed t tests to determine both the immediate and long-range effects of the treatment. Doenges (1976) employed a MANOVA to determine statistically significant differences between the two groups, and the
The present study called for a MANCOVA initially to determine whether significant covariate effects existed in the pretest scores. When no significant covariate effects were found, a MANOVA was run on the posttest scores as in Doenges' (1976) study. Both Doenges (1976) and Pratt (1975) did not account for whether or not the two groups started out differently. They found differences between the two groups at the conclusion of their studies, but they had no way of knowing whether the two groups started out differently. The present investigator provided a check to this question, whereby both pretest and posttest measures of the teachers' behaviors were taken. Classes were videotaped and coded at the start of the study to verify the direct behavior of the teacher toward the students they identified as being disruptive. Table 4 justifies this direct teacher behavior during the pretest period. Classes were videotaped twice at the conclusion of the treatment period to enhance the reliability and validity measures of the investigation. Classes in Doenges' (1976) and Pratt's (1975) studies were observed and coded only at the conclusion of the training period, and no assessment was made of the teachers' behaviors prior to the treatment period.

Another point which distinguishes the present study from those it expanded upon (Doenges, 1976; Pratt, 1975) is in regard to the control group. The investigator met with the students in the control group for the same amount of time as with the students in the treatment group to control for the Hawthorne effect. The control group did not receive instruction in any of the contingency management skills. This control that was undertaken assured that any differences in the students' behaviors were due to the contingency management skills and not due to any influences the investigator had on the students.
Another control for which the investigator provided was in relation to the reliability of the coder in the use of DAC. One videotaped class session of each of the four physical education teachers was randomly selected by the investigator and subjected to two independent coding sessions through use of DAC. A Spearman rank-order correlation for the two independent observations was determined by comparing the top 10 cell concentrations (see Appendix F). A mean correlation of .985 enabled the investigator to conclude that the coder was reliable.

A further area in which this study differed was in relation to the grouping of subjects. Pratt (1975) used separate groups of teachers and students to serve as the subjects in the treatment and control groups, whereas, Doenges' (1976) and the present study utilized students under the same teacher within both the treatment and control groups. Simply stated, treatment and control groups of students were included under each of the physical education teachers. In this way, control was dictated for the possibility of certain teachers being naturally more direct or indirect in their behaviors than others. At the beginning of the present study, all four physical education teachers behaved in a direct manner toward the disorderly students (Table 4). However, during the posttest period, the same teachers changed positively toward the treatment students who received instruction in the specific contingency management skills but maintained similar direct behavior toward those students who did not receive instruction in the specific contingency management skills (Table 5). Pratt (1975) made no accounting for the possibility that the teachers in the treatment group were already naturally more indirect in their teaching than the teachers in the control group.

Doenges (1976) improved on Pratt's (1975) study in terms of the number
of students used. Doenges (1976) randomly selected six students from each of 10 different schools, a total of 60 students. The six students that were selected from each school were randomly divided into the treatment and control groups. The present study used four physical education teachers and a total of 40 students. An equal amount of students were not selected from each school as in Doenges' (1976) study. Pratt (1975) randomly assigned 21 teachers to three groups of seven each. One group functioned as the control group and received no treatment, with the remaining 14 teachers being randomly assigned to two different treatment groups of seven each. The first treatment group consisted of seven students, one from each teacher in that group and the second treatment group consisted of 35 students, five from each teacher in that group. Pratt (1975) did this to determine if five students from one class promoted more indirect teacher behavior than one student from each class. Although Pratt (1975) used a larger number of thachers (N=21), Doenges' (1976) study still outweighed Pratt's (1975) since a larger number of students was used, and these students were randomly divided into treatment and control groups under each of the 10 physical education teachers.

Another unique aspect of the present study which sets it apart from Doenges (1976) and Pratt (1975) was the decision of the investigator to include a pretest and posttest measure of the students' self-concepts, with the anticipation that the self-concepts of the students in the treatment group would be positively affected by the instruction and practice in the specific contingency management skills. The Martinek-Zaichkowsky Self-Concept Scale (MZSCS) (Martinek & Zaichkowsky, 1977) was the measuring instrument used to determine the students' self-concept. The MZSCS has been used as an effective measure of the child's self-concept by Martinek
(1976), Martinek and Johnson (1979), and Viglione (1977). Since the MZSCS measures areas of the self-concept in relation to characteristics in school, family relationships, and personality traits, it seems logical that the students' self-concepts would be favorably influenced because they were encouraged to practice the skills with other teachers, friends, and family members.

An analysis of covariance (ANCOVA) was performed on the total scores of the self-concept from the MZSCS to take into account and equalize any pretest differences. This analysis found a significant difference between the treatment and control groups on the students' total self-concept scores when the pretest scores were taken into account (Table 6), $F(1, 37) = 5.352, p < .05$. A visual inspection of the mean scores and standard deviations during the pretest and posttest periods provided in Table 7 does reveal a trend in the predicted direction in that the treatment group's mean scores were higher than the control group's. This led to the rejection of the second null hypothesis which stated that there would be no significant differences between the self-concepts of the group of students who received instruction in the contingency management skills and the group of students who did not receive instruction in the contingency management skills.

Univariate ANCOVA's were also run on each of the five factors of the self-concept, which found the scores of Factor 1, satisfaction and happiness, to be significantly different between the two groups in favor of the treatment group, $F(1, 37) = 6.589, p < .05$ (Appendix G). This is because the teachers changed their previously negative behavior toward the students in the treatment group to more positive indirect behavior which manifested itself in the form of praise, encouragement, acceptance of
students' ideas, feelings, and actions, and questioning. In contrast, Viglione (1977) found the same factor, satisfaction and happiness, to contribute only .02% to the discriminant function analysis, while behavioral, personal, and social characteristics in school contributed over 92%. This could possibly be the result of a high univariate correlation between the two factors of satisfaction and happiness and characteristics in school. Also mentioned by Viglione (1977) was that the factor satisfaction and happiness was the only variable in which the group predicted to score higher on the MZSCS (the child-decision-making approach group) actually scored lower than their teacher-decision-making approach group counterpart.

There are several factors to consider in regard to these contrary findings. One important point that cannot be overlooked is, of course, the fact that two entirely different programs were implemented to measure effects on the children's self-concepts. Martinek (1976) and Viglione (1977) wanted to determine the effects of two different decision-making models of teaching physical education, one a teacher-decision-making approach and the other a child-decision-making approach, upon the self-concept of elementary age children. They found that the opportunity for the children to share in the decision-making process was beneficial to their self-concepts. The present study aimed toward determining the effects of learning and practicing the contingency management skills on the child's self-concept. The physical education teacher was still responsible for making the decisions pertinent to class organization, execution, and evaluation, but as a result of the children practicing the skills with their physical education teacher in the physical education classroom, the teacher changed his/her behavior from a negative to a more
positive nature toward the children. This positive change in teacher behavior may have been what aided the children in becoming more satisfied and happier with themselves, since the literature revealed that teachers have an important impact on the child's self-concept (Davidson & Lang, 1965; Havighurst et al., 1965; Hughes, 1964; Martinek & Zaichkowsky, 1977; Perkins, 1965; Purkey, 1970; Staines, 1965).

When the MZSCS was developed, principal axis method 1 was used followed by the varimax rotation method of seven factors (Martinek & Zaichkowsky, 1977). The five out of the seven factors which were retained accounted for 47.6% of the variance. It was found that Factor 1, satisfaction and happiness, accounted for 24.6% of the variance. The remaining four factors combined accounted for only 23% of the variance.

To recapitulate, the scores of Factor 1, satisfaction and happiness, were the only scores in which the univariate ANCOVA's found a statistically significant difference between the two groups when the pretest scores were accounted for (Appendix G). In the factor analysis performed by Martinek and Zaichkowsky (1977), Factor 1 was found to have the greatest amount of variance. This means that Factor 1 was found to be the most important or outstanding part of the test when the MZSCS was developed. This can be considered a positive quality of the present study since this was the factor in which a significant difference was found between the two groups.

Another possible reason for differences found is the experimental designs of the two studies: Since Viglione (1977) did not administer the MZSCS before the treatment period, he simply performed a MANOVA to determine differences between the two groups. There was no way of knowing whether the self-concepts of the two groups were equivalent at the beginning. The experimental design of the present study necessitated the
running of an ANCOVA to equalize any pretest differences, since the investigator chose to measure the self-concept both before and after the treatment period, to be aware of where they started out.

The method of scoring the five factors of the self-concept from the MZSCS in this study also differed from the method employed by Viglione (1977). Viglione (1977) decided to include only test items 1, 5, 12, 17, and 24 in the scoring of the scale. Each of these five items was found to have the highest factor loadings in the validation data provided by Martinek and Zaichkowsky (1977), and each was considered representative of the five factors of the self-concept as measured by the MZSCS. The present investigator included all of the respective items of the five factors from the MZSCS in the method of scoring, however, no weightings were considered relative to each factor.

It was anticipated that the self-concepts of the students in the treatment group would be positively affected by the instruction and practice in the contingency management skills. The students in the treatment group, upon learning the skills and practicing them in the physical education classroom, received positive and indirect behaviors from their teachers which they were not used to experiencing. This had a positive effect on their self-concepts and also made them more satisfied and happier due to the differential treatment from their teachers. Davidson and Lang (1965), Havighurst et al. (1965), Hughes (1964), Martinek and Zaichkowsky (1977), and Purkey (1970) all emphasized the strong influence that teachers within the environment of the school have on the self-concept of students. Perkins (1965) and Staines (1965) noted that teachers have the potential to change the child's self-concept. Many teachers fail to realize this. The contention that freedom provided by
the teacher to the student aids in the development of a healthy self-concept found support in the writings of Canfield and Wells (1976), Martinek (1976), Purkey (1970), Viglione (1977), and Yamamoto (1972). To recapitulate, Pratt (1975) stated that indirect teacher behaviors are associated with positive student development. This is because the indirect teacher behaviors of praise, encouragement, acceptance, and questioning afford the student a feeling of freedom in responding. These behaviors were evident in the teachers and students in the treatment group during the posttest period in this study. The treatment group of students exhibited a greater amount of positive initiated behavior and responses which required extended thought and interpretation. This was because an environment of less inhibition and greater freedom was provided to the student. Thus, the students in the treatment group became less dependent on the teacher and contributed more positive behaviors to the classroom than did the students in the control group during the posttest period. Hence, not only are indirect teacher behaviors associated with positive student behaviors, but they are also associated with the development of a healthy self-concept for the student.

Summary

A MANCOVA was performed on the posttest scores of the 10 DAC variables with the pretest scores as covariates. No significant covariate effects were found so the pretest scores were disregarded, and a MANOVA was run on the posttest scores. Significant differences were found between the two groups, \( \theta(1, 4, 13.5) = .922, p < .05 \), which led to the rejection of the first null hypothesis which stated that there would be no significant differences between the group of students that received instruction in the contingency management skills and the group of students that did not receive
instruction in the contingency management skills on the direct behavior of the physical education teachers. A discriminant function analysis and an analysis of variance followed up the MANOVA. Teacher questioning, teacher acceptance of students' ideas and actions, and teacher praise, all indirect and positive teacher behaviors, contributed over 75% to the discriminant function analysis (Table 2). The ANOVA found significant differences on 8 of the 10 DAC variables at the .05 level of significance (Table 3). The only two variables which did not show a significant difference were teacher information giving and silence/confusion. Teacher praise, teacher acceptance, teacher questioning, and student interpretive response revealed a significant difference in favor of the treatment group; and teacher direction, teacher criticism, student predictable response, and student initiated behavior revealed a significant difference in favor of the control group.

Table 4 shows that the interaction patterns between the teachers and students were similar in nature during the pretest period, dominated by the direct teaching behaviors of direction and criticism. This in turn fostered narrow dependence of the student on the teacher, exhibited by the predominance in the category of student predictable response. Table 5 shows the behavioral differences which occurred during the posttest period. The control group maintained similar patterns, while the treatment group changed substantially toward indirect teacher behaviors in the form of praise, acceptance, and questioning. This in turn elicited interpretive responses from the students which required extended thought and some measure of evaluation and synthesis. Also, the initiated behavior of the students in the treatment group during the posttest period was more on-task and appropriate than that of the control group's initiated behavior, as
evidenced by the positive indirect teacher behaviors of praise and acceptance received by the treatment group of students.

These results are consistent with the findings of Doenges (1976) and Pratt (1975). Doenges (1976) found through a MANOVA on the CAFIAS variables that the teacher behavior did change to a more indirect manner of praising and encouraging more often, using student ideas and contributions, and accepting the feelings of the pupils. Pratt (1975) found, through one-tailed t tests, that the teachers in the treatment groups exhibited a significantly greater amount of indirect verbal and nonverbal behavior than the teachers in the control group during his post-posttest observation.

The present study differed from Doenges' (1976) and Pratt's (1975) in that the present investigator did not assume that the teachers behaved in a direct manner toward the disruptive students. A pretest observational measure was undertaken to provide for a check on the direct behavior of the physical education teachers before the treatment period began. Doenges (1976) and Pratt (1975) did not know whether the two groups behaved differently from the beginning. Classes were videotaped twice at the conclusion of the present study to raise its reliability and validity measures. Further, the investigator of the present study spent time with all students, although it was only the treatment group that received instruction in the contingency management skills. This was carried through to assure that any differences in the results were due to the treatment effects and not due to the fact that the investigator spent time with the students. The present study and Doenges' (1976) improved on Pratt's (1975) by randomly dividing treatment and control students under each teacher. Pratt (1975) used separate groups of teachers in his control and treatment groups, i.e., he used a control group of seven teachers, a treatment group.
of seven teachers, and another treatment group of seven teachers. Pratt (1975) found that the teachers in the treatment groups exhibited a greater proportion of indirect behavior than the control group of teachers, but he had no way of knowing whether those treatment groups of teachers were naturally more indirect in their behavior than the control group of teachers.

An analysis of covariance (ANCOVA) was performed on the total scores from the MZSCS which found a significant difference between the treatment and control groups when the pretest differences were taken into account (Table 6), $F(1, 37) = 5.352$, $p < .05$. This led to the rejection of the second null hypothesis which stated that there would be no significant differences between the self-concept scores of the two groups during the posttest period. Univariate ANCOVA's were also run on each of the five factors of the self-concept from the MZSCS, which found a significant difference between the two groups on the first factor, satisfaction and happiness, when the pretest scores were accounted for (Appendix G), $F(1, 37) = 6.589$, $p < .05$. When the MZSCS was developed, this was the factor found to be the most important because in the factor analysis it had the highest factor loading, accounting for 24.6% of the variance while the remaining four factors combined accounted for only 23% of the variance.

A visual inspection of the mean scores during the posttest period (Table 7) does reveal a trend in the predicted direction in that the scores of the treatment group are higher than the control group's.

It is difficult to generalize and compare the results of this study in regards to the self-concept when no other studies existed which measured the self-concept in conjunction with a contingency management skills program. However, it is possible to speculate some of the reasons why differences existed in the results between studies. Viglione (1977) did not administer
the MZSCS before he began his treatment, so he had no way of knowing the nature of the children's self-concepts from the start. This allowed him to run a MANOVA on their scores, leading to a significant difference between the groups. The investigator of the present study administered the scale both before and after the treatment to account for any differences in their self-concepts from the beginning. This contributed to the conviction that any improvement in the self-concept across time was due to the treatment. The experimental design of this study made it important to take into account the pretest scores, which called for an ANCOVA to be run to equalize any pretest differences. In the scoring, Viglione (1977) included only the five items which had the highest factor loadings to be representative of each of the five factors. This investigator included all of the items in the scoring.

As the teacher's negative, direct behavior changed toward the students in the treatment group to a more positive, indirect nature, the students' self-concepts were favorably influenced, perhaps because they felt they had pleased their teachers. It seems logical that they would feel this way due to the verbal and nonverbal praise, encouragement, acceptance, and questioning they received from their teachers which was something new to them. Further, they must have liked this new way of being treated, as evidenced by the significant difference between the two groups in the first factor, satisfaction and happiness, in favor of the treatment group.

This study has demonstrated that teachers must become aware of and sensitive to the strong influence they may have on their students' self-concepts. Indirect teacher behavior does promote positive student development, and not only in terms of that student's observable behavior, but also, and perhaps more importantly, in terms of the student's hidden concept of self.
Chapter 6
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

It was the purpose of this study to determine if disruptive elementary age students who were taught specific contingency management skills could alter their respective physical education teacher's "direct" behavior. It was also the intent of this study to determine the effects of the learning of the contingency management skills on the disruptive child's self-concept. All of the students chosen were identified as being disruptive by their respective physical education teachers and had their parents' consent to participate. A total of 40 elementary age students and four physical education teachers from four schools in the Ithaca, New York, area participated in the study. The students were randomly assigned, 20 in the treatment group and 20 in the control group. The students in the treatment group received 8 hours of instruction in specific contingency management skills from the investigator. The students in the control group participated in simple indoor games and craft activities with the investigator for 8 hours to control for the Hawthorne effect.

Data were collected before and after the experiment through use of the Dyadic Adaptation of CAFIAS to assess teacher-student interaction and through use of the Martinek-Zaichkowsky Self-Concept Scale to measure the students' self-concepts. A multivariate analysis of covariance was run on the posttest scores of the 10 DAC variables with the pretest scores as covariates. Since no significant covariate effects were found, the pretest scores were disregarded, and a multivariate analysis of variance was used...
to determine significant differences in teaching behaviors between the treatment and control groups. This analysis found significant differences between the two groups which led to the rejection of the first null hypothesis that there would be no significant differences on the direct behavior of the physical education teachers between the group of students who received instruction in the specific contingency management skills and the group of students who did not receive instruction in the specific contingency management skills.

A discriminant function analysis revealed that teacher questioning, teacher acceptance of students' ideas, feelings, and actions, and teacher praise contributed over 75% to between groups differences. An analysis of variance showed significant differences on 8 of the 10 DAC variables at the .05 level of significance, with teacher praise, teacher acceptance, teacher questioning, student's interpretive response showing a significant difference in favor of the treatment group, teacher direction, teacher criticism, student predictable response, and student initiated behavior showing a significant difference in favor of the control group.

An analysis of covariance was performed on the students' total self-concept scores from the MZSCS. This analysis found a significant difference between the treatment and control groups when the pretest scores were taken into account. This led to the rejection of the second null hypothesis which stated that no significant differences would exist between the self-concept scores of the treatment and control groups. Univariate ANCOVA's were run on each of the five factors of the self-concept from the MZSCS. This analysis found a significant difference on the first factor, satisfaction and happiness, in favor of the treatment group when the pretest scores were accounted for.
Conclusions

The results of this study yielded the following conclusions regarding the sample of second, third, and fourth graders and their physical education teachers in the Ithaca, New York area:

1. Teaching students who were identified as being disruptive by their respective physical education teachers in specific contingency management skills was successful in altering physical education teachers' direct behavior to more indirect behavior.

2. The students pleased their teachers as they practiced the contingency management skills, which was evidenced by the indirect behavior which emerged in the teachers in the form of praise, acceptance, and questioning.

3. The students in the treatment group became more independent, initiated more positive behaviors, and responded with more interpretation due to their teachers treating them more indirectly.

4. The self-concepts of the students were favorably influenced through learning and practicing the contingency management skills.

5. The children in the treatment group scored significantly higher than the control group on Factor 1 from the MZSCS, satisfaction and happiness.

Recommendations for Further Study

1. Conduct a similar study comparing different grades at the elementary level to determine at what age level applying the specific contingency management skills is most effective.

2. Further replication of the present study could be undertaken at the junior or senior high level.

3. Determine the long-range effects of the instruction of specific
contingency management skills by examining both teacher behavior and the student self-concept one to two months after instruction.

4. Some children behave differently in different settings, i.e., art, music, physical education. Compare the behavior of different teachers of different subjects or discover if there are certain subjects in school an individual child is more disruptive in than others.

5. Compare the self-concepts of boys and girls in conjunction with a contingency management skills program.

6. A similar investigation in the coaching setting could be implemented in regard to "problem athletes" and their self-concepts.

7. Investigate the self-concepts of teachers who are more direct in their teaching with those of teachers who are more indirect in their teaching.

8. A further replication of the present study could be undertaken comparing the self-concepts of minority students from a low socioeconomic level with that of students from a middle to upper socioeconomic level and then determine which group is more effective in altering direct teacher behavior.

9. Through use of the MZSCS or another self-concept instrument, test a program to determine whether students who have been identified as low in a specific factor of the self-concept can in fact improve in that area.

10. Conduct a similar study utilizing a third group of students who would have no contact with the investigator, to assure that any improvement was due to the treatment and not just to the fact that the investigator was spending time with the students.
<table>
<thead>
<tr>
<th>Categories 2-17 Teacher Behaviors</th>
<th>Categories 8-19 Student Behaviors</th>
<th>Relevant Behaviors</th>
<th>Nonverbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-12 (A positive value assessment)</td>
<td>2 (Confusion)</td>
<td>Smiles, nods with smile, (energetic) winks, laughs.</td>
<td>Pats on shoulder, head, etc., wrings student's hand, embraces joyfully, laughs to encourage.</td>
</tr>
<tr>
<td>Praises, commends, jokes, encourages.</td>
<td>10 (Silence)</td>
<td>Applause through clapping hands, congratulatory posture.</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix A (continued)

#### Relevant Behaviors

<table>
<thead>
<tr>
<th>Categories</th>
<th>Verbal</th>
<th>Nonverbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-13</td>
<td>(No value implied)</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(Elevates student performance onto a par with teacher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>performance)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepts, clarifies, uses, and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>develops suggestions and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>feelings by the learner.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N.B. Flanders' category one which refers to teacher</td>
<td></td>
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<tr>
<td></td>
<td>acceptance of student feelings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and emotions is included in this category. Coders are reminded to use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 and 11 on the tally sheets. These behaviors are tallied separately</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for analysis purposes and included for parameter purposes in the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>matrix as 3's and 13's.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Face: Nods without smiling, tilts head in empathetic reflection,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sighs empathetically.</td>
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<td></td>
<td>Posture: Shakes hands, embraces sympathetically, places arm</td>
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</tr>
<tr>
<td></td>
<td>around shoulder or waist, catches an implement thrown by student,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>accepts facilitation from students, takes part in game with students,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>supports child during activity, spotting in gymnastics.</td>
<td></td>
</tr>
<tr>
<td>Categories</td>
<td>Verbal</td>
<td>Nonverbal</td>
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<tr>
<td>------------</td>
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<td>-----------</td>
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<tr>
<td>4-14</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Asks questions requiring student answer.</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>5-15</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Gives facts, opinions, expresses ideas or asks rhetorical questions.</td>
<td>Face: Whispers words inaudibly, sings or whistles. Posture: Gesticulates, draws, writes, demonstrates activities, paints, points to board.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A (continued)

Relevant Behaviors

<table>
<thead>
<tr>
<th>Categories</th>
<th>Verbal</th>
<th>Nonverbal</th>
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</thead>
<tbody>
<tr>
<td>6-16</td>
<td>6</td>
<td>16</td>
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<tr>
<td>7-17</td>
<td>7</td>
<td>17</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal</th>
<th>Nonverbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives directions or orders which will result in immediate observable student response.</td>
<td>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.</td>
</tr>
<tr>
<td>(A negative value assessment.) Criticism, expresses anger or distrust, sarcastic or extreme self-reference.</td>
<td>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 in disgust, bangs table, damages equipment, throws things down.</td>
</tr>
</tbody>
</table>
### Appendix A (continued)

#### Relevant Behaviors

<table>
<thead>
<tr>
<th>Categories</th>
<th>Verbal</th>
<th>Nonverbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-18</td>
<td>8</td>
<td>18</td>
</tr>
</tbody>
</table>

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

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

Posture: Moves mechanically to question or directions, responds to any action with minimal nervous activity, robot-like, practices drills, awaits in line, etc., student responds by putting hand up in answering to teacher direction.
### Appendix A (continued)

#### Relevant Behaviors

<table>
<thead>
<tr>
<th>Categories</th>
<th>Verbal</th>
<th>Nonverbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-18\</td>
<td>Eine (8)</td>
<td>Eineteen (18)</td>
</tr>
<tr>
<td>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.</td>
<td>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.</td>
<td>Student puts hands in air in order to give answer to teacher question.</td>
</tr>
<tr>
<td>Categories</td>
<td>Verbal</td>
<td>Nonverbal</td>
</tr>
<tr>
<td>------------</td>
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<td>-----------</td>
</tr>
<tr>
<td>9-19</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Pupil-initiated talk that is purely the result of their own initiative and which could not be predicted, (either positive or negative behavior).</td>
<td>Face: Makes interrupting sounds, gasps, sighs.</td>
<td>Posture: Puts hands up in air to ask (unsolicited) question of teacher, 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.</td>
</tr>
<tr>
<td>10-20</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Stands for confusion, chaos, disorder, noise.</td>
<td>Face: Silence, children sitting doing nothing, noiselessly awaiting teacher just prior to teacher entry, etc.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

PARENT CONSENT FORM

Dear Parent:

From time to time you are called upon by Cornell University, Ithaca College, or some other agency interested in the education of young people, to participate cooperatively in research activity involving students attending the Ithaca Schools. In keeping with your Board of Education policy only those students whose parents or guardians have given permission will be allowed to participate in such projects.

Your child, ________________________, is being considered for participation in a research project being conducted by Gretchen Lynn Devlin, a graduate student in physical education at Ithaca College. Instruction will be given in social practice skills and they will be administered a self-concept scale before and after the instruction. Your child will be encouraged to apply these skills in the physical education classroom, on other teachers, friends, and at home. All names will be kept strictly confidential.

If for some reason you do not want your child to participate in this study please notify me or the school principal within one week of receipt of this letter. If you have any further questions concerning the scope of this study, do not hesitate to contact me. Your approval will be deeply appreciated.

Researcher- Ithaca College Graduate School

Principal
Appendix C

INFORMED CONSENT FORM

The study you are being asked to participate in deals with the self-concept of "disruptive" elementary school children before and after instruction in social practice skills. Data will be collected through their scores on the Martinek-Zaichowsky Self-Concept Scale, which is used to measure the intellectual, behavioral, social, emotional, and physical components of a child's self-concept, grades one through eight, and through videotaping procedures of your physical education classes, once at the beginning of the study and once at the end. The videotaping should interfere as little as possible with your teaching. You will be asked to wear a microphone during these taping sessions. The videotapes will be subjected to a widely used interaction analysis system. This interaction analysis system consists of 20 categories designed to describe the verbal and nonverbal behaviors which occur between teachers and learners.

All names and information in this study will be kept confidential. If you do not have any questions and agree to take part in this study, please sign your name in the space provided below.

NAME __________________________

Physical Education Teacher
Appendix D

CONTINGENCY MANAGEMENT SKILLS

The following behavioral skills and common courtesy practices were introduced and practiced:

1. **Attentive Posture** - The student sits or stands in a relaxed but alert posture facing the teacher.

2. **Eye Contact** - The student looks at the teacher frequently. For example, when the teacher is talking the student makes frequent eye contact with the teacher in a natural manner.

3. **Head Nod** - An up and down movement of the head, indicating that the student is directing his attention to the teacher and expressing interest or approval.

4. **Smiling** - The student smiles when appropriate to show acceptance and approval of the teacher.

5. **Perception Check** - The student verbally checks out his interpretation of the teacher's message with the teacher by asking for clarification.

6. **Verbal Compliment** - The student compliments the teacher on desirable behaviors and qualities. For example, a student may tell his teacher that he likes the teacher's new sport coat, or what he likes about a certain class.

7. **Offer Assistance** - The student offers to help or assist the teacher in carrying out certain tasks, such as washing the chalkboard or carrying a movie projector.

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2Cited from Pratt (1975).
Appendix E

DETAILS OF TEACHING SEQUENCE WITH LESSON PLAN OUTLINE (8) HOURS

Details of Teaching Sequence

For the 8-week instructional period, the 20 students in the treatment group met with the investigator on a small group basis in a room separate from the regular classroom during a regularly scheduled period for 30 minutes, twice per week. They were taught how to identify indirect teacher behavior and practiced the proper usage of the contingency management skills to produce and reinforce this type of behavior from their teachers. Each skill was defined by the investigator and situations were discussed regarding the appropriate time and place to apply each skill. A brief role-playing demonstration followed which was videotaped. Next, students reviewed the demonstration and feedback was given to the students concerning their effectiveness in performing each skill. The beginning of each lesson was devoted to reviewing the skill or skills learned from the previous lesson. After each skill was acquired, the students were encouraged to apply them in the physical education classroom, on other teachers, friends, and family members.

Lesson Plan Outlines

Lesson One

The first lesson was devoted primarily to a discussion concerning the value of the program and the benefits that the students could derive from participating in it. Its main objective was to motivate the students and aid them in looking forward to what would be ensuing for the next 8 weeks. A discussion also took place regarding their physical education classes, their likes and dislikes within this class, and their relationship with their physical education teacher. The students were also introduced
Appendix E (continued)

to the videotape equipment by gaining practice with operating the camera and then watching themselves on the TV.

Lesson Two

The skills, attentive posture and eye contact, from Pratt (1975) were defined and demonstrated by the investigator. This was followed by a brief role-playing videotaped demonstration in which both the students and the investigator took part. As the students reviewed the demonstration on the TV, they were given feedback regarding the effectiveness of their performance in the execution of each skill. The students were encouraged to apply the skills, attentive posture and eye contact, in the physical education classroom, on other teachers, friends, and family members.

Lesson Three

The skills, attentive posture and eye contact, were reviewed. This consisted of a brief role-playing demonstration which was videotaped and then viewed by the students. The skill, head nod, was then introduced, which consisted of a clear, concise explanation and demonstration by the investigator. The students then practiced the skill for 5 minutes during which time they were videotaped. Following this practice, the tape was played back and viewed by the students. The students were videotaped again while practicing the first three skills, attentive posture, eye contact, and head nod, harmoniously. The students were instructed to use them in the physical education classroom, the regular classroom, throughout the school day and when they went home.

Lesson Four

The lesson started out with a review session which consisted of an emphasis on the skill, head nod, in conjunction with attentive posture and
Appendix E (continued)

eye contact. This review entailed a videotaped role-playing demonstration in which the students and the investigator participated. Next, the skill of smiling was presented. The students practiced this skill during a videotaped role-playing demonstration. The tape was played back and then viewed by the students. Another role-playing demonstration followed which involved an implementation of the first four skills learned, i.e., attentive posture, eye contact, head nod, and smiling. This was played back and viewed by the students. Strong and weak points were brought into perspective at this time. The students were encouraged to practice the aforementioned skills with anyone that they encountered during the week, e.g., their parents, brothers or sisters, teachers, friends, nurses, janitors, librarians, bus drivers, secretaries, cafeteria workers, etc.

Lesson Five

The first four skills, attentive posture, eye contact, head nod, and smiling, were all reviewed, although the skill of smiling was mainly stressed. This review session involved the normal procedure of a videotaped role-playing demonstration which was played back and reviewed by the students. Next, the investigator clearly and concisely defined the skill, perception check, to the students. Examples of situations were presented to the children so that they were aware of the proper time and place to execute this skill. A videotaped role-playing demonstration followed which was played back and viewed by the students. Inappropriate and appropriate points were then discussed regarding the type of questions they asked and the manner in which they asked them.

Lesson Six

The skills, attentive posture, eye contact, head nod, smiling, and
Appendix E (continued)

perception check, were reviewed. The skill, perception check, was emphasized during this particular review, although the students were encouraged to perform all five. The review session consisted of a role-playing demonstration which was videotaped and then viewed by the students. The skill, verbal compliment, was then introduced through examples given by the investigator. The children were encouraged to compliment each other when they deserved it and to show their appreciation to their teachers through polite words without interrupting. This discussion led to a role-playing presentation by the students which was videotaped and then viewed by the students. Then, all of the previous skills that had been learned were practiced in conjunction with the newly acquired skill, verbal compliment. The children were encouraged to apply these skills with their physical education teachers, classroom teachers, friends, family members, and other members of the school staff.

Lesson Seven

This lesson started out with a refining of the skills previously learned, attentive posture, eye contact, head nod, smiling, perception check, with an emphasis on the most newly acquired skill, verbal compliment. A role-playing videotaped demonstration incorporated all of the above skills into a review session. The seventh and final skill, offering help, was introduced to the students. They were given examples of situations during physical education class in which to effectively implement this skill. They were also advised as to the proper time and manner in which to offer help to their teachers. This skill was then practiced for 5 minutes by the students during which time they were videotaped. Following this practice, the tape was played back and viewed by the students. The students
were videotaped again while practicing all seven skills in harmony with each other.

Lesson Eight

The final lesson was devoted to a refinement and development of all seven skills previously presented. The students were encouraged to perform all seven skills during a videotaped role-playing demonstration. Following this practice, the tape was played back and viewed by the students. This sequence of events continued until it was evident to the investigator that each student knew the proper time, place, and manner to effectively implement each skill in his/her physical education classroom. The students were urged to practice all seven skills with their physical education teachers in the ensuing week. They were also encouraged to practice the skills throughout the school day when they encountered their friends, other teachers, brothers or sisters, and their parents when they went home.
Appendix F

CODER'S RELIABILITY FOR SELECTED SUBJECTS USING SPEARMAN'S $r_s$

Teacher 1*

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$r_s = .978$.

Top 10 cells listed refer to the order of coder's numerical frequency.

Rank observation one and observation two refer to the origin of the coding.

$d$ refers to the differences between the ranks of each cell for observation one and observation two.

$d^2$ refers to the $d$ column squared.
Appendix F (continued)

CODER'S RELIABILITY FOR SELECTED SUBJECTS USING SPEARMAN'S $r_s$

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$d^2$ refers to the $d$ column squared.
Appendix F (continued)

CODER’S RELIABILITY FOR SELECTED SUBJECTS USING SPEARMAN’S \( r_s \)

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\( d^2 \) refers to the \( d \) column squared.
## CODER'S RELIABILITY FOR SELECTED SUBJECTS USING SPEARMAN'S $r_s$

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* $r_s = .996$.

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Appendix G

UNIVARIATE ANCOVA'S FOR THE FIVE FACTORS OF THE SELF-CONCEPT

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*p < .05.
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