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STUDENT EXPECTATIONS AND DYADIC INTERACTIONS WITH PHYSICAL EDUCATION TEACHERS OF THIRD-GRADE CHILDREN

The University of North Carolina at Greensboro ED.D. 1982

STUDENT EXPECTATIONS AND DYADIC INTERACTIONS WITH PHYSICAL EDUCATION TEACHERS OF THIRD-GRADE CHILDREN

by

Susan B. Johnson

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1982

Approved by

Kate R. Barrett
Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser Kate P. Barney

Committee Members

October 26, 1982
Date of Acceptance by Committee

October 26, 1982
Date of Final Oral Examination

JOHNSON, SUSAN BUCHWALD. Student Expectations and Dyadic Interactions with Physical Education Teachers of Third-Grade Children. (1982) Directed by: Dr. Kate R. Barrett, Pp. 192.

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. Student expectations of 140 third-grade children enrolled in two different schools in Guilford County, North Carolina, were measured by the Johnson Motor Performance Expectancy Scale for Children (JMPES). A pretest and posttest of the JMPES were administered during the first and last weeks of a nine-week instructional period. The upper and lower thirds of the JMPES scores were used to identify high and low expectancy groups.

Teacher-student dyadic interactions of two female physical education teachers, each at a different school, and individual third-grade students in their classes were measured by the Dyadic Adaptation of CAFIAS (DAC). Teacher-student dyadic interactions were observed and recorded by two trained coders on 18 randomly selected occasions during the nine-week period.

A preliminary t-test indicated a significant pretest to posttest change in JMPES scores; therefore, the two data sets were viewed as separate variables and analyzed independently. Two 2 x 2 x 2 analyses of variance (ANOVAs) were used to analyze the three independent variables, student expectations, student sex, and teachers, with respect to the dependent measure of total dyadic contacts. ANOVAs were computed by using the Statistical Package for the Social Sciences (SPSS).

In addition, two 2 x 2 x 2 multivariate analyses of variance (MANOVAs) used to analyze the three independent variables with respect to the

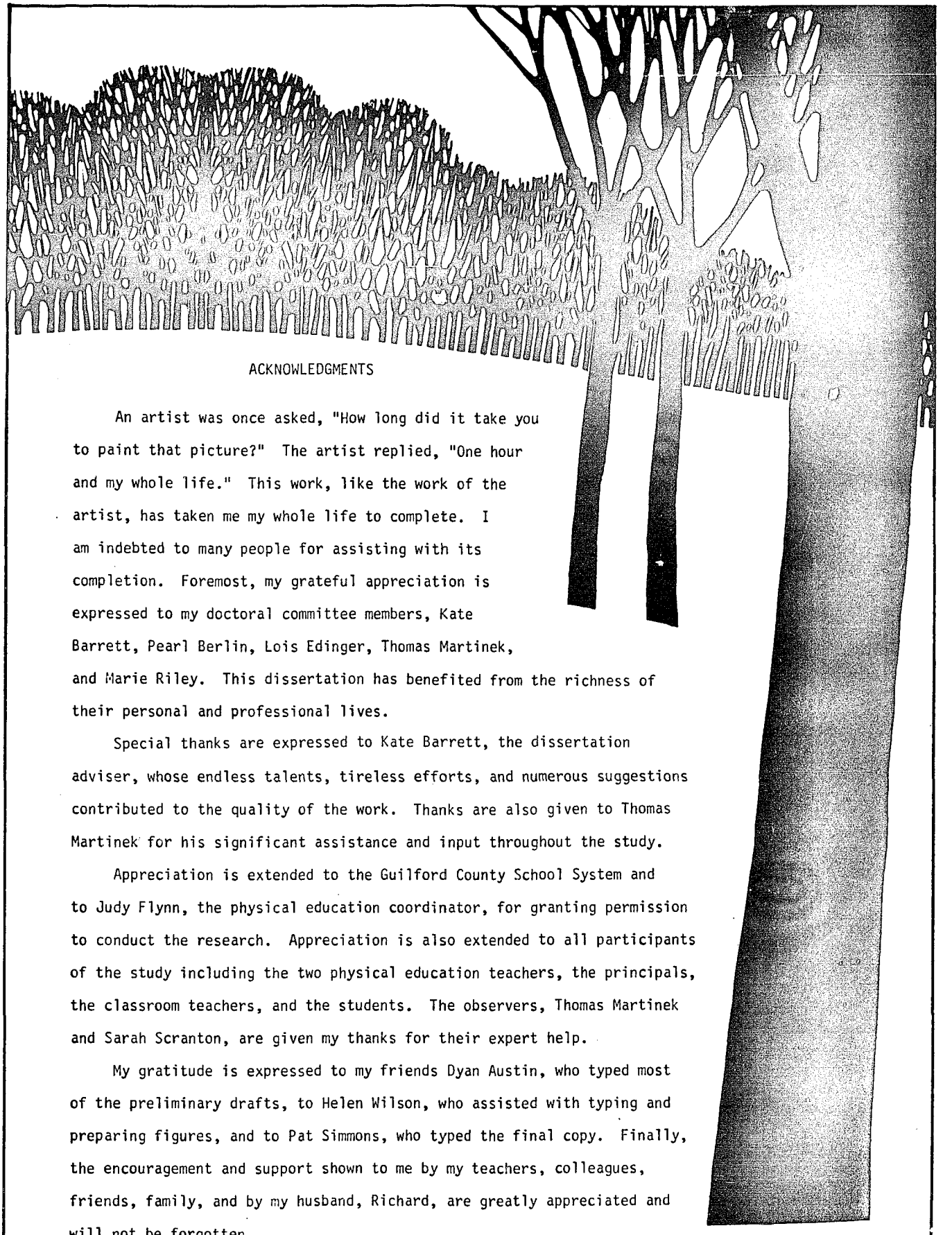
dependent variables measured by the DAC process categories. MANOVAs were computed by using the Statistical Analysis System (SAS). The following results were obtained:

1. No statistically significant differences were found between high- and low-expextancy groups for number or type of teacher-student dyadic contacts.

2. Males received more total dyadic contacts with teachers than did females.

3. Teacher B had more total dyadic contacts with students than did Teacher A.

4. Teacher B used more Teacher Praise/Encouragement, Teacher Questions, and Teacher Acceptance/Use of Ideas than did Teacher A.



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An artist was once asked, "How long did it take you to paint that picture?" The artist replied, "One hour and my whole life." This work, like the work of the artist, has taken me my whole life to complete. I am indebted to many people for assisting with its completion. Foremost, my grateful appreciation is expressed to my doctoral committee members, Kate Barrett, Pearl Berlin, Lois Edinger, Thomas Martinek, and Marie Riley. This dissertation has benefited from the richness of their personal and professional lives.

Special thanks are expressed to Kate Barrett, the dissertation adviser, whose endless talents, tireless efforts, and numerous suggestions contributed to the quality of the work. Thanks are also given to Thomas Martinek for his significant assistance and input throughout the study.

Appreciation is extended to the Guilford County School System and to Judy Flynn, the physical education coordinator, for granting permission to conduct the research. Appreciation is also extended to all participants of the study including the two physical education teachers, the principals, the classroom teachers, and the students. The observers, Thomas Martinek and Sarah Scranton, are given my thanks for their expert help.

My gratitude is expressed to my friends Dyan Austin, who typed most of the preliminary drafts, to Helen Wilson, who assisted with typing and preparing figures, and to Pat Simmons, who typed the final copy. Finally, the encouragement and support shown to me by my teachers, colleagues, friends, family, and by my husband, Richard, are greatly appreciated and will not be forgotten.

DEDICATION

This work is dedicated to all teachers who have, in my opinion, the most profound and challenging work of our society.

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CHAPTER I

INTRODUCTION

The fable of "The Mouse and Henry Carson" (Lowry, 1961) begins to unfold when a mouse runs into the office of the Educational Testing Service and accidentally triggers a critical point in the apparatus just as the College Entrance Examination Board's data is being scored on one Henry Carson. What emerged from the computer (thanks to the mouse) were amazing scores of 800 in both the verbal and quantitative areas. This is hardly what one would expect from an average high school student, generally unsure of himself and his abilities!

> When the scores reached Henry's school, the word of his giftedness spread like wildfire. Teachers began to re-evaluate their gross underestimation of this fine lad, counselors trembled at the thought of neglecting such talent, and even college admissions' officers began to recruit Henry for their schools.
>
> New worlds opened for Henry; and as they opened, he started to grow as a person and as a student. Once he became aware of his potentialities and began to be treated differently by the significant people in his life, a form of self-fulfilling prophecy took place. Henry gained in confidence and began to "put his mind in the way of great things." (p. 2)

Lowry ends the story by saying that Henry became one of the best men of his generation.

This story illustrates two important premises, and these premises have been well documented by many researchers over several years. First, the attitudes and expectations which individuals have for themselves and their abilities are primary forces in their achievement and

performance in school (Bledsoe, 1967; Brookover, 1969; Fink, 1962; Gill, 1969; Purkey, 1970, 1978). Students learn to see themselves as responsible, capable, and valuable or as irresponsible, incapable, and worthless. These intrapersonal ideas about the self, as Felice (1975) and Goffman (1959) have reported, are basic ingredients in student success or failure. The second premise is that the ways in which individuals perceive themselves and their abilities are products of how significant people in their lives perceive them and relate to them (Helper, 1958; Kelley, 1973; Purkey, 1970, 1978; Sunby, 1971; Webster & Sobieszek, 1974). Thus, intrapersonal attitudes and expectations are developed and perpetuated through interpersonal means. Next to the home environment, the school setting probably exerts the single greatest influence on how students perceive themselves and their abilities. According to Patterson (1973), "The concepts which the teacher has of the children become the concepts which the children come to have of themselves" (p. 125).

The fable of "The Mouse and Henry Carson" describes a process referred to as a self-fulfilling prophecy. A self-fulfilling prophecy is an expectation or prediction which initiates a series of events that cause the original expectation or prediction to become true. Numerous investigators using a variety of methods over the past several years have established that expectations can and do function as self-fulfilling prophecies (Brophy & Good, 1974; Jones, 1977). Recent findings also seem to indicate that expectancy effects are present not only in the classroom but in the gymnasium as well (Burnham, 1968; Crowe, 1977; Martinek, 1980; Martinek & Johnson, 1979).

The self-fulfilling prophecy is based upon the assumption that people will behave as they believe they are expected to behave (Rosenthal, 1974). Furthermore, this behavior may be manifested in a positive or negative direction. For example, expectancy effects may affect one individual in a positive way to become a skilled swimmer and affect another in a negative way to be afraid of the water.

Expectancy effects operating in the classroom are mediated through communicative messages during teacher-student interaction. Messages continuously transmitted take a myriad of forms in the classroom: verbal, nonverbal, formal, informal, subtle, and overt. These messages are often indirect and can be so imperceptible that teachers and students are unaware of their effects. Nevertheless, each smile, frown, glance, or pause transmits a message from teacher to student and student to teacher.

Figure 1 depicts how communication between the teacher and student may first filter through and be affected by attitudes and expectations. Both intrapersonal and interpersonal attitudes and expectations may range from positive to negative and, likewise, the interactive events between the teacher and student may range from positive to negative.

For certain students, teacher-student dyadic interactions falling within the positive range on this model might include behavior patterns such as more interactions with their teachers for longer periods of time (Brown, 1979), more attention given to their comments (Willis, 1970), more warmth demonstrated toward them (Jose & Cody, 1971), more acceptance and use of their ideas (Martinek & Johnson, 1979), more praise directed toward them (Jones, 1971), and more instruction given to

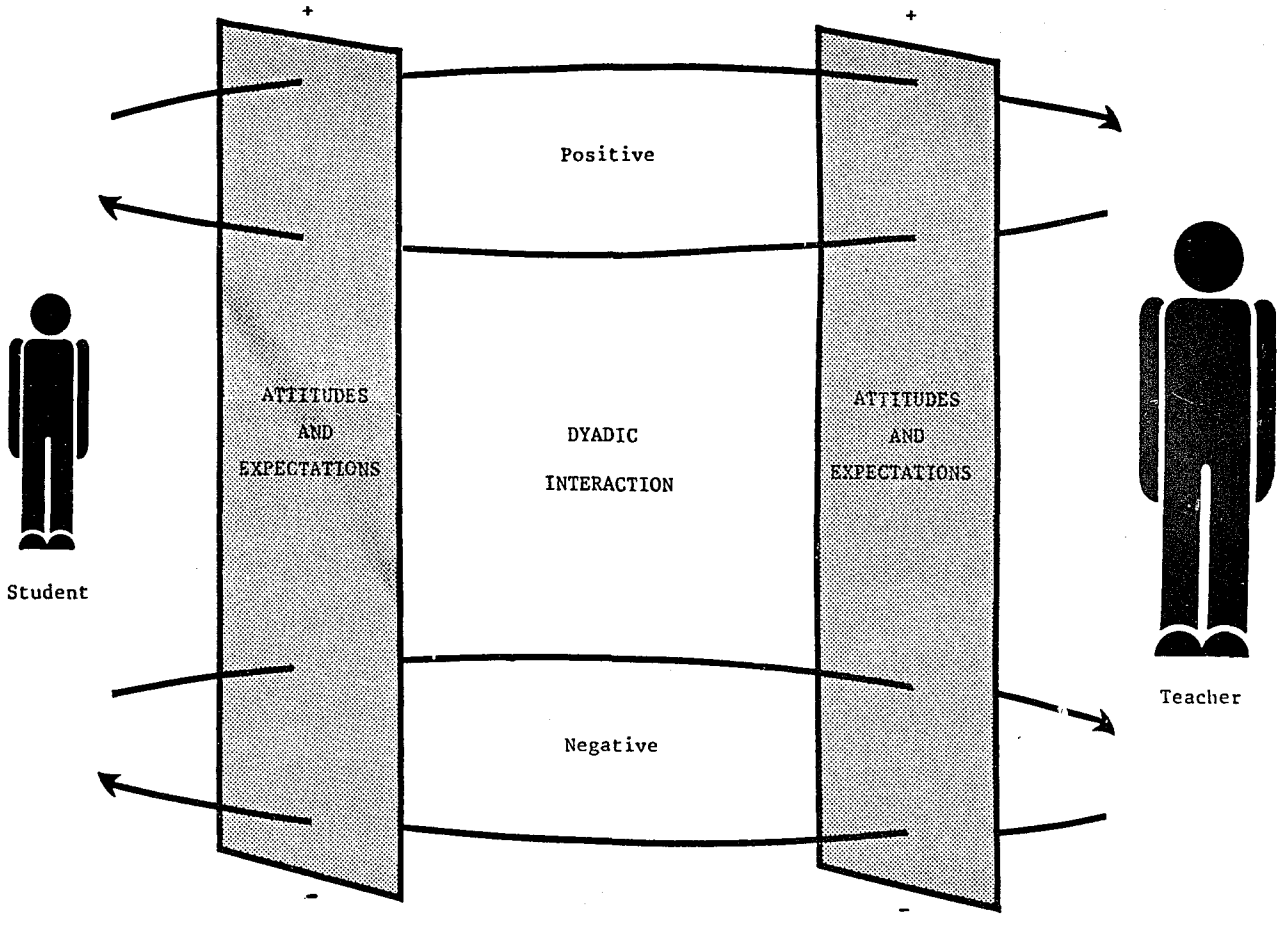

Figure 1. Teacher-student dyadic interactions influenced by attitudes and expectations.

them (Rist, 1970). Habitual patterns of positive transactions such as these will serve, for both students and teachers, to reinforce previously held positive attitudes and expectations and develop new ones.

For other students, teacher-student dyadic interactions falling within the negative range on this model might include behavior patterns such as fewer contracts with their teachers (Crowe, 1977), less attention given to their comments (Willis, 1970), less warmth demonstrated toward them (Evertson, Brophy, & Good, 1973), less acceptance and use of their ideas (Chaikin, Sigler, & Derlega, 1972), less praise and more criticism directed toward them (Oien, 1979), and less instruction and more disciplinary actions given to them (Rist, 1970). Frequent interchanges such as these may reinforce and develop negative attitudes and expectations for and about the student. Thus, communication between teacher and student that is consistently exchanged in either the positive or negative range on this model may serve to mediate the self-fulfilling prophecy and gradually increase the relative differences among students over time (Brophy & Good, 1974).

Expectancy effects operating during instruction can best be understood by recognizing student attitudes and expectations, teacher attitudes and expectations, and the resultant teacher-student dyadic interaction patterns as interrelated and interdependent components of a whole process. This study focused directly upon the students' expectations, "which may be the most important part of the Pygmalion effect" (Entwisle & Webster, 1974, p. 304).

Statement of Purpose

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. Specific questions that provided the framework for this research are as follows:

1. How many dyadic contacts occur between teachers and students of high- and low-expectancy groups?

2. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to dyadic contacts?

3. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to dyadic contacts?

4. What are teachers' specific behaviors toward students in high- and low-expectancy groups?

5. What are specific responses of students in high- and low-expectancy groups?

6. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

7. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

Definition of Terms

Terms used in this investigation were operationally defined as follows:

Student expectations. Self-perceptions of students relative to anticipated motor performance as measured by the Johnson Motor Performance Expectancy Scale for Children (JMPES) (Johnson, 1978).

High and low expectancy groups. Groups of students who were dichotomized according to their ranked JMPES scores in the upper and lower thirds of the students at their school.

Teacher expectations. Expectations held by teachers for students' behavior and achievement.

Teacher-student interaction. Verbal and/or nonverbal interchange of messages between teachers and students during the teaching/learning process.

Teacher-student dyadic interaction. Teacher-student interaction which occurred between a teacher and a single student as measured by the Dyadic Adaptation of Cheffers Adaptation of Flanders Interaction Analysis System (DAC) (Martinek & Mancini, 1979).

Assumptions

The following assumptions were acknowledged to underlie this research:

1. The ways in which students view themselves and their world are products of how others see them and primary forces in their achievement in school (Purkey, 1970).

2. A person who holds an expectation for another's behavior will communicate this expectancy to the person, thereby influencing that individual to respond in accordance with the expectation (Rosenthal, 1974). Behavior influenced by expectations can be manifested in either a positive or negative direction.

3. Specific behaviors which communicate expectations can be recorded and described by an observational instrument designed to analyze patterns of teacher-student interactions.

4. Students' self-beliefs relating to expectations of motor performance in physical education are salient enough to be measured by research tools.

5. Student subjects are representative of third graders in physical education in the Guilford County School System in North Carolina.

6. The teachers, the students, and the trained coders participating in this study were unbiased in their actions because high and low expectancy students remained anonymous.

Scope of the Study

The scope of this investigation was delimited as follows:

1. Two female elementary physical education specialists of the Guilford County School System in North Carolina served as the adult subjects of the study. Three randomly selected third-grade classes, N=140, taught by each specialist comprised the student subjects. From information gathered on the total sample, the data collected from the

two adult subjects and from 92 student subjects were statistically analyzed.

2. Physical education classes took place naturalistically. No experimental treatment was manipulated.

3. Differences among student expectations, student sex, and teachers were investigated with regard to amount and type of teacher-student dyadic interactions.

4. Instrumentation included one tool designed to gather data about student expectations of motor performance (JMPES) and another to gather data about dyadic interactions between teacher and student in physical education (DAC).

5. Data collection extended over a nine-week grading period beginning in January and ending in April. Pretest and posttest measures of student expectations were taken during the first and last weeks of the grading period, and teacher-student dyadic interaction measures were taken on 18 randomly selected occasions throughout the grading period.

6. Dyadic interactions between the teacher and an individual student constituted the type of interchange that was recorded for data analysis.

Significance of the Study

After generations of study, researchers are still seeking a comprehensive, systematic way of describing the events of communication between teachers and students that result in learning. Despite determined efforts to specify the nature of "good teaching," there is much

difference of opinion (Brophy & Evertson, 1976; Ellena, Stevenson, & Webb, 1961; Stevenson, 1972). A growing body of research, however, indicates that the teacher operates in the classroom as the primary force in influencing students' perceptions of themselves as learners (Purkey, 1978). Teacher expectations, encouragements, attitudes, attentiveness, and evaluations increase or decrease the probability of student learning (Braun, 1976; Mendels & Flanders, 1973; Rist, 1970). Thus, it appears that further investigation into social and psychological constructs that affect teaching and learning is warranted.

Macdonald (1969) characterized the teaching/learning environment as complex and multidimensional. He suggested that schooling possesses a powerful potential to influence students by way of implicit messages communicated in the classroom. A learning environment, carefully constructed, could serve as a filter for undesirable messages that are transmitted in a chance learning environment. There is widespread support advocating the careful construction of the teaching/learning environment (Anderson, 1971; Dreeben, 1967), and it has been suggested that unless a learning environment is deliberately regulated, desirable outcomes will be a function of chance (Dewey, 1916).

There is an obvious need for educational researchers to investigate the ongoing interactions between teachers and students in the effort to determine conditions for effective teaching and effective learning. A greater understanding of these conditions would provide a basis upon which to carefully plan and construct environments in schools that optimize student learning. Furthermore, a greater understanding of these conditions would provide a basis upon which to

carefully plan and conduct preservice and inservice training programs for teachers. This research has the potential for producing information that contributes to the understanding of the affective dynamics of teaching and learning.

There is also an obvious need to conduct more research in naturalistic, "real-world" school settings. Dunkin and Biddle (1974) and Rosenshine (1971) convincingly argue that the complexities of classroom life can be profitably investigated only in realistic educational settings. Brophy and Good (1974) concur with the belief that research needs to be conducted in ordinary classrooms, and additionally, they state that focus on the individual student is sorely needed.

This research studied student expectations and dyadic interactions with physical education teachers of third-grade children. It was conducted in a naturalistic environment and observations were focused on the teacher and individual students. It is hoped that this research will serve to define some of the complexities of teaching and learning and enhance both the practical and theoretical contributions of future research.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. Student expectations operating in the teaching/learning environment can best be examined from both intrapersonal and interpersonal vantage points. This chapter is divided into two major sections. The first section presents student attitudes and expectations from an intrapersonal perspective and includes related literature under the headings of self-concept and student expectations. An interpersonal perspective is the focus of the second section and literature is reviewed under the headings of teacher expectations and the self-fulfilling prophecy, and student differences affecting teacher attitudes and expectations.

Intrapersonal Attitudes and Expectations

Self-Concept

The constructing of a self-concept is a lifetime project, cumulative and developmental in nature. The developmental aspect of self-concept has been described by many researchers (Allport, 1937; Felker, 1974; Wyne, White & Coop, 1974). Continuous accommodations, assimilations, and adaptations of the individual's self-awareness occur through countless daily experiences and countless interactions with

others. Individuals learn to identify themselves with certain categories such as child, female, Italian, Catholic, and American and with attributes such as good, bad, competent, incompetent, valuable, and worthless. The whole or global self-concept, then, is made up of subparts or subselves that represent beliefs which one holds about oneself. Collectively, the ideas, images, pictures, beliefs, evaluations, and expectations for the self and all of its parts merge to form the individual's overall self-concept.

Not all beliefs about oneself and one's abilities are equally important and significant to the individual. Some beliefs seem to occupy a central location in the personality of the individual whereas others seem to be less central. Lowe (1961) has reasoned that some parts of the self-concept are "peripheral to the core of the self and are variable," while other parts are "central to the self and are highly resistant to change" (p. 325). This tendency of the self toward organization and stability appears to be a characteristic feature of the human personality (Ableson, Aronson, McGuire, Newcombe, Rosenburg & Tannenbaum, 1968; Lewin, 1935).

Self-concept as a guide for behavior. The ways in which individuals behave must appear to them to be consistent with their perceived selves. People study their own successful or unsuccessful experiences concerning their abilities, and they study the reactions of significant others to their behavior. Based upon the outcomes of these personal studies, individuals acquire expectations about which new ideas and experiences are congruent with their existing self-concept system. If

a new experience is consistent with past experiences already incorporated into the systematized view of the self, then the new experience is easily accepted and assimilated. If the new experience is inconsistent with those already present, however, the person will probably reject it. Jersild (1952) explained the process: "A person accepts and incorporates that which is congenial to the self-system already established, but he seeks to reject or avoid experiences or meanings of experiences which are uncongenial" (p. 14).

This tendency toward internal consistency provides the individual with an internal harmony, a feeling of stability and a sense of guidance. Studies by Aronson and Carlsmith (1962) and Aronson and Mills (1959) have shown that children in school who did poorly but expected to do so were more satisfied and contented than even those who did well but had not expected to do so. Students who found themselves doing unexpectedly well experienced anxiety and tended to bring their performance into agreement with their expectations of performance. Individuals are generally unwilling to accept evidence that is contrary to the ways they perceive themselves. Purkey (1978) stated, "Whether a self-perception is psychologically healthy or unhealthy, educationally productive or counterproductive, students cling to their own self-perceptions and act accordingly" (p. 31).

Self-concept as a primary force in school performance. Children possess a collection of ideas about themselves and their abilities. They have internalized concepts relative to their worth as human beings and their competence to cope successfully with their environment.

Purkey (1970) suggested that these self-ideas and conceptions are like "invisible price tags," going wherever the child goes, influencing whatever the child does.

> For some children, the tag reads: "Damaged goods." For others, it may read "A fine value," or "An excellent buy," or even "Top value, one of a kind." Unfortunately, many read "Soiled, marked down" or "Close out, half price." Each of these tags is a social product given to children by the significant people in their lives. (p. 37)

These "invisible price tags" can equip children with predispositions toward successful or unsuccessful performance in school. In other words, the ways in which students perceive themselves and their abilities are primary forces in their achievement and performance (Bledsoe, 1967; Brookover, 1969; Gill, 1969; Purkey, 1970, 1978).

Several investigators studied the guidance function of students' self-concepts (Shavelson, Hubner, & Stanton, 1976; Spears & Deese, 1973) and found that beliefs and ideas that students have about themselves do, in fact, guide the nature and direction of future behaviors. Jourard (1974) stated the following:

> When a person forms a self-concept, thereby defining himself, his is not so much describing his nature as he is making a pledge that he will continue to be the kind of person he believes he is now and has been. One's self-concept is not so much descriptive of experience and action as it is prescriptive. The self-concept is a commitment. (p. 153)

Zimmerman and Allebrand (1965) demonstrated that students lacking a sense of personal worth and adequacy actively avoided achievement. For the underachievers in their research, to study hard and still fail would provide undeniable proof of their inadequacy. To avoid such proof, many students deliberately chose to evade putting forth the

necessary effort to learn. Their defense against failure was "secretly to accept themselves as failures! . . . From their internal vantage point, it is better not to try than to be embarrassed or humiliated by trying" (p. 30). Thus, the self-concept operates as a reference point for one's behavior. Once individuals acquire ideas and beliefs about themselves, these serve to filter all incoming information and to influence future behavior (Lamy, 1965; Wattenburg & Clifford, 1964).

A composite picture of successful students indicated that they have relatively high opinions of themselves and are optimistic about future performance (Ringness, 1961); they have confidence in their general ability (Taylor, 1964) and in their ability as students (Brookover, 1969). They need fewer favorable evaluations from others (Dittes, 1959), and they feel that they work hard, are liked by other students, and are generally polite and honest (Davidson & Greenberg, 1967). Successful students can generally be characterized as having positive self-concepts and sensing their value and worth as individuals.

The composite picture of unsuccessful students is in sharp contrast to that of succcessful students. Unsuccessful students are self-derogatory, have depressed attitudes toward themselves, have feelings of inadequacy, and tend to have strong inferiority feelings (Taylor, 1964). They perceive themselves as less able to fulfill required tasks, less eager to learn, less confident, and less ambitious (Goldberg, 1960). They have feelings of being less acceptable to others (Combs, 1963); they are more withdrawing and tend to lack

self-confidence, a sense of personal worth, and a feeling of belonging (Durr & Schmatz, 1964). Students with negative self-images of ability rarely perform well in school (Brookover, Erickson, & Joiner, 1967) or expect to perform well (Aronson & Carlsmith, 1962; Aronson & Mills, 1959).

The ways in which positive and negative attitudes about the self affect a person's experience are described by Calhoun and Acocella (1978):

> Positive self-concept leads to positive experience leads to positive self-concept leads to positive experience and so on, endlessly. The same is true if you substitute negative for positive in that sentence. Our self-concept and our experience interlock to form a closed circle, vicious or benign. However we judge ourselves, other people are prone to judge us in the same way. What we expect from life, life tends to give us. What we believe about ourselves, we are likely to become. (p. 77)

Self-concept and physical education. A substantial body of research indicated that self-concept affects all phases of the student's world, not merely academic learning. For example, Cary (1963), Gourley (1969), Lewis (1972), Martinek and Zaichkowsky (1977), and Zaichkowsky (1973) found relationships between self-concept and performance in physical education. Students form images of the way they perceive their physical bodies and physical abilities. Fisher and Cleveland (1968) wrote that these images may be distorted or realistic, but regardless of what they are like, they will strongly influence behavior and performance.

Significantly higher self-concepts were found for children who participated in a physical activity program when compared to those who

did not participate (Zaichkowsky, Zaichkowsky, & Martinek, 1975). In another study, motor development and self-concept scores were significantly higher for the group who participated in the physical activity program than for the control group who did not (Martinek, Cheffers, & Zaichkowsky, 1978). By contrast, Nelson (1966) and Sakers (1968) found no improvement in self-concept after participation in a physical education program.

A positive relationship was found between the effects of a perceptual motor program and the development of self-concept (Roach & Kephart, 1966). The program was designed to develop and assess children's physical, social, intellectual, and emotional aspects. Runyan (1973) studied the effects of a perceptual motor program on self-concept of elementary school children and found that although overall self-concepts of subjects were not improved by participation in the program, positive feelings toward physical activity were manifested in the children.

Watson (1973) found that low academic achievers who received support and approval from both peers and teachers in non-academic areas, such as physical education, developed and maintained more positive self-concepts. Changes in self-concept were observed by Lewis (1972) when children were allowed freedom to work on various gymnastic tasks. Not only did the children who participated improve in self-concept, but also their level of fear regarding physical activity was reduced.

The effects of teacher expectations on the development of students' self-concept were examined by Martinek and Johnson (1979). In

three of the five classes participating in the study, students perceived by teachers to be high achievers scored significantly higher in self-concept than low achievers. These results, in part, indicate support for the ideas of other researchers who contend that differential teacher behavior can have a positive or negative effect on a child's self-concept (Purkey, 1970; Sears, 1972).

Student Expectations

Rogers (1959) said, "At the same time that we have a set of notions as to what we are, we have another set of notions as to what we could be" (p. 32). In other words, not only do individuals develop self-concepts concerning their abilities but also they develop expectations for performance. Student expectations have been found to be "related to and presumably affected by the students' self-concept" (Martinek, 1980, p. 559) and have been found to effect student performance (Entwisle & Webster, 1972).

Berger and Snell (1961) proposed an expectation theory which assumed that in task situations positive expectations were communicated by a source (evaluator) who gave positive or negative evaluations of performance. Another assumption was that the person receiving the evaluations came to hold an expectation state that was in accordance with those evaluations. Furthermore, the researchers stated that if one received a large number of positive evaluations (experimental subject) while a second person did not receive any evaluations (control subject), then the first person was more likely to accept an action opportunity than the second person. The increased acceptance of

action opportunities would be considered as an improved state of self-expectation.

This self-expectation theory was operationalized by Entwisle and Webster (1972) in an experiment designed to raise children's expectations for their own performance. In their study the experimenter gave consistent positive evaluations (words spoken) of performance in a task (storytelling) in which all children could participate regardless of intellectual ability. Results suggested that the experimental procedure led to changes in rates of volunteering (hand raising) by the students. The researchers considered these changes to be representative of positive changes in self-expectation states and in support of the expectation theory proposed by Berger and Snell (1961).

Other studies have reported that student expectations were increased after social reinforcement by an adult, but were unchanged when an adult maintained a neutral role. (Crandall, 1972; Crandall, Good, & Crandall, 1964). Additional support for this idea was found in a study by Hill and Dusek (1969) in which the adult responded with "That's good. Fine. Very-good. You're doing well." (p. 547) in the positive reinforcement condition and was neutral and nonresponsive in the nonresponsive condition. Their results indicated that student expectations were increased in the positive reinforcement condition and unchanged in the nonresponsive condition. Still other studies (Maehr, Mensing, & Nafzger, 1962; Videbeck, 1960) showed that if individuals get approving reactions from others with respect to specified attributes, then they will improve in their self-ratings and expectations

for those attributes.

A study was conducted to determine the effects of induced student expectations on the learning of a gross motor skill (Johnson, 1973). Student expectations were induced by positive verbal suggestions being provided on an audio cassette previous to the students' trials on the motor skill. One group listened to the cassette under hypnosis and another group listened in the waking state. The third group was the control group and heard no positive verbal suggestions. Results indicated that student expectations, whether induced under hypnosis or in the waking state, produced statistically significant effects on learning a gross motor skill when compared to no attempt to induce student expectations.

Level of aspiration. Most research in physical education studied student expectations as a part of the level of aspiration construct. Sage (1971) defined level of aspiration as the goal level an individual sets on a particular task. He further stated that it is the belief a person has concerning his or her potential for performance and that the aspiration serves as an incentive to performance. Cratty (1967) suggested that level of aspiration is a concept which refers to a persons's expectations or projected goals relative to future performance. Vernon (1969) felt that level of aspiration may reflect a particular motivational level which is related to perception of the self and one's capabilities. Finally, Singer (1968) viewed level of aspiration as being connected with a student's attitude and approach to learning. He stated that level of aspiration "can imply the goal expected, the goal hoped for, or the standard that will be minimally accepted" (p. 420).

Cofer and Appley (1964) proposed generalizations about level of aspiration that are generally accepted: (a) aspiration level is affected by past experience; (b) successful performance tends to lead to an increase in the level of aspiration, or standard of excellence; (c) failure tends to lead to a decrease in aspiration level; and (d) persons with high aspirations perform at high levels. These generalizations have been confirmed with subjects on a wide variety of motor tasks (Caskey, 1973; Clark & Clark, 1961; Price, 1960; Willis, 1971).

Schiltz and Levitt (1968) demonstrated with elementary school children that prior success in motor skills resulted in higher than expected levels of aspiration on new motor skills. In addition, Clarke and Clarke (1961) found that children who expressed high positive aspirations were significantly more successful on fitness tests than were those who expressed low aspirations. Locke (1965), also interested in task success, concluded on the basis of four studies, that there was a strong relationship between degree of success and degree of liking and satisfaction with the task.

Failure was demonstrated to have a significant effect on lowering the level of aspiration in children of grades three, four, and five when performing a throwing task (Caskey, 1973). Schiltz and Levitt (1968) also noticed that failure caused both high- and low-skilled groups to lower their levels of aspiration in each subsequent trial of a simple motor task. Lewin (1958) cautioned researchers, however, to be aware that failure does not necessarily lower the aspiration level. He explained that failure may lead individuals to decide to avoid a

situation where their expected level of performance would have to be lowered.

In a study by Hilgard (1949), repeated failure was found to cause children to set unrealistically high or low goals for performance. Also, Atkinson, Bastian, Earl, and Litwin (1960) studied level of aspiration and found that subjects with a high need to achieve and low test anxiety had realistically high levels of aspiration and superior performance, and subjects with a low need to achieve and high test anxiety had unrealistically high or low levels of aspiration and inferior performance on a ring toss game.

A well-known study by Sears (1940) investigated levels of aspiration in three groups of children aged 9 through 12. One group was selected on the basis of their prior success in school, the second group consistently failed, and the third group was a combination (successful in reading and unsuccessful in math). Level of aspiration scores were determined for the success group, the failure group, and the combination group. Sears found that the successful students set realistic goals, as was expected; the failure group showed great diversity with either high or very low scores; and the combination group set very realistic goals in reading, but had math scores widely scattered ranging from very high to very low. He concluded that level of aspiration was an important determinant of expected and actual performance outcomes.

Interpersonal Attitudes and Expectations

Individuals receive information that molds their self-concepts, their expectations, and their self-evaluations from two sources--from themselves and, more important, from their interactions with other people. The first modern thinker to propose this idea was Cooley (1922), who introduced the notion of the "looking glass self." According to Cooley, people use other people as mirrors to show them who they are. Individuals imagine how they appear to others and how they are judged, and this inferred appearance and judgment become the picture they hold of themselves. Cooley's idea was later expanded by Mead (1934) who proposed that the self developed in two stages. First, people internalize other people's attitudes toward them, and second, they internalize the standards of society. In other words, the self is a social creation, the product of relationships with others.

An interesting example of this internalization process was reported in Jahoda's (1954) study of the Ashanti tribe of West Africa. The Ashanti believed that children's personalities were largely determined by the weekday on which they were born, and furthermore, they tended to name their children according to that day. Thus, boys born on Monday were usually named Kwadwo and were expected to be quiet, peace-loving types, and boys born on Wednesdays were usually named Kwaku and were expected to be rough, aggressive troublemakers. The local police files on crimes of violence overflowed with accounts of misdeeds perpetrated by Kwakus, whereas Kwadwos had an unusually low delinquency. Many researchers have studied how individuals internalize

their sex roles. They contend that societal expectations for boys and girls and consequent shaping of behavior is more decisive than biology in creating sexual differences. An article in Newsweek magazine, devoted to the differences in males and females, cited the classic "blue, pink, yellow" experiments of biologist Lewontin (1981).

> When a group of observers was asked to describe newborn infants dressed in blue diapers, they were characterized as "very active." The same babies dressed in pink diapers evoked descriptions of gentleness. When the babies were wearing yellow, says Lewontin, observers "really got upset." They started to peak inside their diapers to see their sex." (p. 83)

Collectively, research on the development of self-concept indicated that beliefs about the self are basically the products of how individuals perceive that significant people in their lives see them and relate to them (Kelley, 1973; Purkey, 1970; Sunby, 1971; Webster & Sobieszek, 1974). These studies suggested that beginning early in life infants receive a diversity of messages as to their worth as perceived by the significant others in their world. Parents communicate these messages as they interact with the infant through facial expressions, gestures, eye contact, total body movements, and manner of speaking. The interactions with significant others in the home provide the first foundations for the emerging self-concept of the individual. As children enter school, their circle of significant others dramatically increases. Purkey's (1978) statement is a generally accepted notion: "Next to the home, schools probably exert the single greatest influence of how students see themselves and their abilities" (p. 28). Patterson (1973) also referred to the influential power of teachers: "The concepts which the teacher has of the children become the concepts which

the children come to have of themselves" (p. 125).

Teacher Expectations and the Self-fulfilling Prophecy

Expectancy effects in the classroom. The premise that the "concepts which the teacher has" of students in school "become the concepts which the children come to have of themselves" suggests a "self-fulfilling prophecy." A self-fulfilling prophecy is an expectation or prediction, which initiates a series of events that cause the original expectation or prediction to become true. As Brophy and Good (1974) concluded from their extensive research on this phenomenon, "When teachers had higher expectations for students, they actually produced higher achievement in those students than in students for whom they had lower expectations" (p. 80).

The self-fulfilling process operating in classrooms is summarized by Good and Brophy (1973):

> 1. The teacher expects specific behavior and achievement from particular students.
>
> 2. Because of these different expectations, the teacher behaves differently toward the different students.
>
> 3. This teacher treatment tells each student what behavior and achievement the teacher expects from him and affects his self-concept, achievement motivation, and level of aspiration.
>
> 4. If this teacher treatment is consistent over time, and if the student does not actively resist or change it in some way, it will tend to shape his achievement and behavior. High expectation students will be led to achieve at high levels, while the achievement of low expectation students will decline.
>
> 5. With time, the student's achievement and behavior will conform more and more closely to that originally expected of him. (p. 75)

Perhaps the best known study on teacher expectancy effects operating in the classroom is that of Rosenthal and Jacobsen (1968), who reported their findings in Pygmalion in the Classroom. Their book described research in which a deliberate attempt was made to manipulate teachers' expectations for their students' achievement to determine whether these expectations would be fulfilled. Their study involved several classes in each of the first six grades of school.

Teacher expectations were created by the researchers claiming that a test had been developed to identify "late intellectual bloomers." The teachers were told that this test would select children who were about to bloom intellectually and, therefore, could be expected to show unusually large achievement gains during the coming school year. A few children, randomly selected from each classroom, were identified to the teachers as late bloomers. Thus, teachers' expectations were induced, but there was no factual basis for expecting unusual gains from these children.

Achievement test data examined at the end of the school year offered some evidence that the children identified as the late intellectual bloomers did show better performance. Rosenthal and Jacobsen explained their results in terms of the self-fulfilling prophecy effects of teacher expectations. They reasoned that the expectations they created about these special children caused the teachers to treat them differently, which resulted in the children's better performance by the end of the year. While Rosenthal and Jacobson's research received criticism for its methodology (Snow, 1969; Taylor, 1970; Thorndike, 1968), critics have not argued its basic

assumption that teachers' attitudes and expectations influence student performance.

Expectancy effects in physical education. Even though few studies have been conducted specifically in the area of physical education (Brown, 1979; Burnham, 1968; Crowe, 1977; Martinek, 1980; Martinek & Johnson, 1979), findings seem to indicate that expectancy effects are present not only in the classroom but in the gymnasium as well. These studies as well as others are presented in Pygmalion in the Gym: Causes and Effects of Expectations in Teaching and Coaching (Martinek, Crowe, & Rejeski, 1982).

Burnham (1968) studied expectancy effects operating in a summer camp for disadvantaged boys and girls ranging from 7 to 14 years of age. The children had no prior swimming skills. The researcher led the camp staff to believe that certain children possessed an unusual potential for learning to swim judged by their scores on a battery of psychological tests. In reality, half of the children were randomly assigned to a high potential group. At the end of the camp session, all the children were tested by the Standard Red Cross Beginner's Test. The results indicated that the subjects identified as "high potential" learners demonstrated greater improvement in swimming ability than did the others who were not expected to show increased improvement.

Martinek (1980) conducted a study to examine the differential influence that a teacher's expectations had on students' expectations of motor task performance. Teacher expectations were determined by the teacher rating her students on a prepared form according to how she expected each to perform in physical education. Student expectations

were determined by third- and fourth-grade students completing the Johnson Motor Performance Expectancy Scale for Children (JMPES). Results showed that teacher expectations were a significant contributor to the variability of motor performance expectancy scores of students in both grades.

In another study, the effects of physical attractiveness on teacher expectations and specific teacher-student interactions in physical education were described (Martinek, 1979). High- and low-attractive groups were determined by photograph ratings judged by a panel of 30, and teacher expectations were determined by teacher ratings. The data analysis showed that high-attractive students were expected to do better in physical performance and to be more socially integrative with peers than low-attractive groups. It was also found that high-attractive sixth-grade students received more acceptance of their ideas from their teachers.

Martinek and Johnson (1979) described the effects of teacher expectations on specific teacher-student behaviors occurring during physical education instruction. High- and low-expectancy groups were identified according to teacher ratings, and patterns of interaction between the teacher and individual students were recorded by the Dyadic Adaptation of CAFIAS (DAC). The results indicated that the high-expectancy group of children received more teacher encouragement, teacher acceptance of students' ideas, teacher directions, and analytical questions from their teachers than did the low-expectancy group. This investigation suggested that teachers approach expected high achievers more frequently than they do low achievers thus giving

high achievers more opportunity to interact with the teacher.

Crowe (1977) conducted an observational study of teachers' expectancy effects and their mediating mechanisms on students in four physical education activity classes. The teachers were asked to rank the students in their class in order of their physical achievement or skill potential. Based upon the teachers' ratings, one group was designated as expected high achievers and the other as expected low achievers. The Brophy and Good Interaction Analysis System was used as the observational instrument to collect data on teacher-student interaction. The results of the data yielded significant differences between the high and low groups. It was found that those designated as high achievers were given more opportunities to respond, received more attention, and were asked more questions by the teachers than were those designated as low achievers. High achievers were also treated more warmly by their teachers than were low achievers. In addition, there was a significant difference in the amount of affirmation and praise given indicating that teachers directed more evaluative comments to high achievers.

Brown (1979) described the number, length, and type of dyadic student/teacher interaction in physical education activity classes. Findings related to the teacher-perceived skill level of the student indicated that the highly skilled student interacted more often and for longer periods of time than did the student perceived as average or low in skill. The findings of Brown's study, combined with the findings of Martinek and Johnson (1979) and Crowe (1977), suggested that teacher-perceived high achievers receive more attention and opportunities

to interact with teachers than do low achievers.

Student Differences Affecting Teacher Attitudes and Expectations

Past research has been focused on teacher expectations and the mechanisms by which these expectations come to function as self-fulfilling prophecies. Extensive investigations (Brophy & Good, 1974) indicated, however, that teacher expectations were just one part of a larger network of influences that shape teacher-student interaction. For example, teacher attitudes as well as teacher expectations have been found to have predictable effects upon interaction patterns. Teacher attitudes are primarily affective reactions toward the student and teacher expectations are primarily cognitive judgments inferred about the probable future achievement and behavior of the student. Attitudes and expectations are closely related and typically in interaction with each other. Also, studies have shown that group differences in students, such as race and sex, and individual differences, such as student achievement and student personality, were important predicators of teacher-student interaction patterns. This section identifies some of the major differences and attributes of students which lead teachers to form different attitudes and expectations for their students.

Group differences in students.

1. Socioeconomic status (SES). The influence of social class was clearly demonstrated in a study by Rist (1970) who periodically made observations of ghetto children, starting as they entered kindergarten and continuing through second grade. Basically, placement of students

into one of three groups was done according to SES. The children of higher status were seated closer to the teacher and were quickly labeled "fast learners." The children soon developed a feeling of superiority over the others as an apparent result of the teacher interacting with them more frequently and more positively. The differences initiated by grouping the kindergarten children became more distinctive as the children went through the first and second grades. Similar findings were reported by Mackler (1969) who examined the effects of a tracking system used in a school in Harlem. Again, the tracking was started in kindergarten. Once placed in a track few children moved out of it, and the grouping affected the attitudes of both the teachers and the students. In another study, Friedman and Friedman (1973) found that significantly more total reinforcements, and especially nonverbal reinforcements, were given to middle-class children than to lower-class children.

2. Race. Rubovits and Maehr (1973) found indications that white teachers probably have a tendency to behave inappropriately toward black students, at least in integrated situations. Their data showed that teachers gave less attention to blacks, requested fewer statements from them, encouraged blacks to continue with an idea less often, ignored a greater percentage of their statements, and praised them less and criticized them more. Findings by Datta, Shaefer, and Davis (1968) suggested that teachers have more negative attitudes toward black than white students. In general, blacks were described as low in task orientation and less likely to be helpful, cheerful, and gregarious. The researchers noted that some of the general race differences,

however, were confounded by SES differences, since the whites were generally of higher SES than the blacks in their study. Race, SES, and sex were found by Katz (1973) to be significantly related to the frequency of verbal initiation in integrated classrooms. She reported that whites initiated interactions much more frequently than blacks, and teachers apparently either passively accepted or actively reinforced this trend rather than compensated for it.

Kleinfield (1972) conducted a series of studies about Indian and Eskimo students who attended elementary schools in their own villages, but entered predominantly white urban high schools. Some of the teachers and students at the high schools showed open hostility and negativism toward these minorities. Most teachers reacted to the students inappropriately by treating them with some combination of apathy and hostility or with a sense of pity, which included favorable attitudes but low expectations for performance. The teachers who were most successful with the Indian and Eskimo students were those who communicated warmth and acceptance to them and also had high expectations and demanded good performance from them.

3. Sex. A common finding that emerged from studies examining sex differences in classroom interaction patterns was that boys tend to have more interactions of all kinds with their teachers than girls. A study by Oien (1979) reported that boys received more praise and encouragement, questions, lectures, directions, and criticisms than girls in physical education. In another study, Brown (1979) found that male students had more interaction time with their teachers in physical education than did female students. Maccoby (1966) suggested that boys

have more interactions with their teachers probably because boys tend to be more active and assertive than girls.

Another finding which has been repeatedly substantiated is that boys get much more teacher disapproval and criticism than girls (Jackson & Lahadern, 1967; Lippitt & Gold, 1959). Teachers were found to deliver criticism to boys often in a harsh or angry tone, while criticism directed to girls was usually delivered in a more conversational tone (Spaulding, 1963). Good, Sikes, and Brophy (1972) reported that teachers criticized boys as a group more than they criticized girls as a group, but closer examination of the data showed that a very large portion of the criticism directed toward boys went to the low-achieving boys. Teachers were also shown to praise boys more than girls, but the praise went to the high-achieving boys. Based on the results of this study and similar work, the researchers suggested that it made sense to speak of low-achieving boys and high-achieving boys as separate groups rather than to speak of boys as a single group.

Other studies have shown that female teachers or student teachers view girls and female qualities more favorably than boys and male qualities (Arnold, 1968; Jackson, Silberman, & Wolfson, 1969). In a study to determine student teachers' preferences for student qualities, Feshbach (1969) found that the teachers preferred rigid, conforming, orderly, dependent, passive, and acquiescent children over flexible, nonconforming, untidy, independent, active, and assertive children. The preferred characteristics were considered more female than male, and the nonpreferred characteristics were considered more male than female.

Girls were found to outperform boys in the early elementary grades, especially in reading and verbal skills, even though no sex differences in general IQ or ability existed (Gates, 1961; Maccoby, 1966). These findings may be related to the findings of other researchers (Brophy & Laosa, 1971; Kellogg, 1969) who suggested that both sexes associate school and school-related activities, especially reading, with the feminine sex role. In a physical education setting males were found to outperform females over all grades and groups. (Zaichkowsky, Zaichkowsky, & Martinek, 1976).

Individual differences in students.

1. Student Achievement. Researchers found that teachers expecting children to be brighter or to learn more do treat those special children more warmly than students who are not as bright or who are not expected to learn more. These results were found in a physical education setting (Crowe, 1977) and in a classroom setting (Jose & Cody, 1971). Another study indicated that teachers interacted more frequently with high-achieving than low-achieving students in physical education (Martinek & Johnson, 1979). Also, interaction of teachers with high achievers was more positive and facilitative than their interactions with low achievers in the classroom (Kranz, Weber, & Fishell, 1970).

2. Student Personality. Kelly (1958) found that teachers gave higher grades to students perceived as conforming, compulsive, rigid, and insecure, in spite of the fact that these students had lower aptitude and scores on achievement tests than students who received lower marks. Thus, students possessing personalities favored by their

teachers seemed to be better liked and, consequently, often received higher grades than their objective performance indicated.

3. Physical Attractiveness. Dion, Berscheid, and Walster (1972) found strong evidence that physical attractiveness breeds positive expectations. Clifford and Walster (1971) found that teachers in their study assumed that the more attractive boys and girls had higher IQs and were more likely to go to college. In a study by Algozzine (1977), the students perceived by teachers as being attractive received more contacts than other students and these were of a positive nature. In a similar study, Appleford (1976) found the low-attractive child received more disciplinary contacts than the high-attractive child. In a physical education study, Martinek (1979) found that high attractive students were expected by their teachers to do better in physical performance and to be more socially integrated with peers than low-attractive groups.

4. Names. Significant relationships were found between names and attitudes toward the names (Buchanan & Bruning, 1971; Lawson, 1971). Teachers were found to give higher marks to children's essays when they were signed with "desirable" names such as Karen, Lisa, David, and Michael, than when they were signed by "undesirable" names such as Elmer, Bertha, and Hubert (Garwood, 1976; Harari & McDavid, 1973). Additionally, teachers regarded children named Jonathan, James, John, Patrick, Craig, Thomas, Gregory, Richard, and Jeffrey as being better adjusted and likely to do better in school than children named Bernard, Curtis, Darrel, Donald, Gerald, Horace, Maurice, Jerome, Roderick and Samuel, (McDavid & Harari, 1966).

5. Physical Proximity. Research by Rist (1970) and by Brophy and Good (1974) showed that the highest achieving students tended to be closest in physical proximity to the teacher, while the lowest achievers were farthest away. Adams and Biddle (1970) referred to "action zones" in classrooms and indicated that teachers spend most of their time in these zones. Students seated in "action zones" received a large proportion of the teachers' individual attention, and were much more active in classroom activities.

6. Writing Characteristics. Chase (1968) reported that students with neat handwriting were more likely to receive higher marks on essay tests than students with messy handwriting. This was true even when the content of the essay was the same.

7. Speech Characteristics. Studies have shown that students with speech characteristics judged by their teachers to be inferior to the speech of other students were rated more negatively on other characteristics also (Naremore, 1970; Seligman, Tucker, & Lambert, 1972).

Summary

Expectancy effects operating in the classroom are mediated through intrapersonal and interpersonal means. Intrapersonal refers to the attitudes and expectations which students have for themselves and their abilities. Interpersonal refers to the attitudes and expectations that teachers hold for students and ways that they relate to students.

Literature related to self-concept was discussed to elaborate the intrapersonal perspective of expectancy effects occurring in schools. The works of authors and researchers recognized that self-concept of

students is a primary force in school performance and that it functions as a guide to future performance. Furthermore, the works of several physical educators were included to demonstrate that self-concept operates similarly in the classroom and the gymnasium.

This review included research about student expectations and a related construct, level of aspiration, to further expand the understanding of the intrapersonal component of expectancy effects. Studies indicated that student expectations tend to influence individuals to respond in accordance with their expectations. Another consistent notion that emerged from the literature was that student expectations and aspiration levels tend to increase with success and encouragement and tend to decrease with failure and discouragement.

Interpersonal attitudes and expectations were discussed as they related to teacher expectations and the self-fulfilling prophecy. Pygmalion in the Classroom (Rosenthal & Jacobson, 1968), Pygmalion in the Gym (Martinek, Crowe, & Rejeski, 1982), and other works indicated that the self-fulfilling prophecy can and does function in classrooms and gymnasiums. Also described was research which pointed out that the amount and type of teacher-student interactions were different for students who have different attributes.

CHAPTER III

PROCEDURES

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. This chapter explains the procedures followed in gathering data about student expectations and teacher-student dyadic interactions. Procedures are described as preliminary preparation, data collection, and treatment of the data.

Preliminary Preparation

The preliminary preparation for this study involved six steps: (a) development of the Johnson Motor Performance Expectancy Scale for children (JMPES), (b) selection and adaptation of an observation system for use in the inquiry, (c) training of the coders, (d) selection of subjects, (e) determination of time specifications for data collection and related details, and (f) solicitation of approval for the conduct of research.

Development of the JMPES

An instrument designed to assess a child's overall level of expected motor performance in physical education needed to be located

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This author acknowledges the significant contributions of Dr. Thomas Martinek in the development of the JMPES.

or developed. A review of the literature revealed that most research concerning student expectations in physical education involved assessing the accuracy of a subject's estimated time or distance scores on a performance test. Since the primary interest of this study was to assess the expectation attitude itself, it was necessary to develop and validate a scale which measured student expectations in physical education.

Selection of scale items for JMPES. According to Jersild (1952), Mancini (1974), Muller and Leonetti (1974), and Woolner (1966), there are limitations to the self-report attitude scales used with children. Most are verbal in nature and require verbal understanding, reading skills, writing or reporting aptitudes, lengthy testing sessions, and undivided attention by young children. To overcome these limitations, the JMPES was designed as a nonverbal instrument consisting of photographs.

Several photographs contained in the Ready? Set...Go! television series manuals, Level I (Logsdon & Barrett, 1969) and Level II (Logsdon & Barrett, 1970), were considered appropriate and suitable for the JMPES scale items. These manuals were prepared by professional educators to assist teachers to use an educational television series especially designed for physical education instruction. The photographs in the manuals depicted children in different movement situations typically observed in elementary physical education class. Permission to use the photographs in the development of JMPES was obtained from the publishers, The Agency for Instructional Television

(formerly called NIT, National Instructional Television) (see Appendix A).

Several criteria were used in selecting the initial set of photographs from the Ready? Set...Go! manuals. Individual photographs were selected on the basis of (a) the photographic quality, (b) the clarity of meaning as determined by the investigator, (c) the number of people pictured (preferably one person), and (d) the appropriateness of the skill level for third- and fourth-grade children. The whole set of photographs were then reviewed to insure a variety of movement responses and a balance of figures according to race and sex. The selection process generated a set of 41 photographs.

A total of 61 third and fourth-grade children from Raleigh, Jamestown, and Sparta, all in North Carolina, were selected to review the 41 photographs to determine whether they interpreted the photographs in accordance with predetermined and intended meanings. The third-grade children had just completed the second grade and the fourth-grade children had just completed the third grade. Ages of the third and fourth graders reviewing the photographs ranged from 7 to 9 years. This age group was the targeted age group for the present research.

The children were shown the set of pictures and asked to describe what they thought the children in the photographs were doing. The following directions were provided:

> You are about to look at several pictures of children doing things in physical education. I would like for you to tell me what you think they are doing. There are no right or wrong answers. I just want you to describe in your own words what you see.

Each child described every photograph and his or her responses were recorded on a tally sheet. Typical descriptions were as follows: (a) "She is jumping into that hoop and the boy is holding it for her;" (b) "He's standing on his head on top of that box;" and (c) "He is on his hands and feet, you know, like a crab walk." If the child's description matched the intended meaning of the photograph, then a mark was recorded in the CLEAR column on the tally sheet. If the child seemed confused by the photograph, gave an inaccurate description, or gave a "don't know" response, then a mark was recorded in the UNCLEAR column. The CLEAR column indicated that the meaning of the photograph was clear to the child and the UNCLEAR column indicated that the meaning was unclear.

Photographs which were interpreted in accordance with their intended meanings by at least 93% of the children were retained. Martinek and Zaichkowsky (1977) suggested that 92% or higher concurrence between individuals' interpretations of photographs and their intended meanings was acceptable. Of the original set of 41 photographs, 28 were retained and 13 were discarded.

Construction and printing of the JMPES. The JMPES was designed to measure student expectations by having a child look at a set of photographs and make one of three choices regarding his or her expected ability to do what was being done in each photograph. The three choices were represented nonverbally by cartoon faces: I think I can

do what the person in the photograph is doing (smiling face ); I don't know if I can do what the person in the photograph is doing (neutral face ); and I don't think I can do what the person in the photograph is doing (frowning face ). This technique was used effectively with elementary school children by Mancini (1974).

After the scale items and the cartoon faces were selected as the essential components of the JMPES, a booklet was constructed with the following features (see Appendix A):

1. A cover indicated the title of the scale; a place for the name, sex, and school of the child; and a place for scoring the booklet.

2. Standardized instructions were provided for the administration of the scale.

3. One of the items from the set of 28 photographs was used as a sample item.

4. The remaining 27 items were placed with one item on each numbered page.

5. Three choices represented by a smiling, a frowning, and a neutral cartoon face were placed beneath each photograph. The order of the three faces was randomly assigned to avoid the possibility of all smiles being marked because they were in the same position.

6. Arrows were provided when more than one person was pictured and it was judged necessary to indicate the central figure.

The lay-out work and the photography work was done at Chamblees Printers in Raleigh, North Carolina. The duplicating and collating process was done by a private firm, also in Raleigh.

Test reliability. Reliability refers to the consistency of measurement or the ability to measure the same things on two different occasions (Safrit, 1973). Two types of reliability described by the American Psychological Association (1954) were determined for the JMPES. These were the "coefficient of stability' or test-retest reliability, and the "coefficient of internal consistency." Guilford (1965) reported that reliability coefficients were expected to be in the upper brackets, usually .70 to .98; Safrit (1973) indicated that .82 was a "high positive relationship;" and Nelson (1974) suggested that .70 or above was acceptable. For determining reliability of the JMPES, reliability coefficients of .70 or above were established as the criterion level of acceptance.

1. Test-retest reliability. Children completing the JMPES for reliability testing were 150 third and fourth graders attending Henry Adams Elementary School in Raleigh, North Carolina. Ages of the children ranged from 7 to 9 years. The JMPES was administered at the beginning of the school year by an examiner following the same procedures and reading standardized directions to each group of the children. The booklets required approximately 10-15 minutes to complete. The administration of the scale was repeated after six weeks to obtain a second measure on the JMPES to determine test-retest reliability.

The Pearson product-moment correlation was the statistical technique used to determine reliability coefficients. Table 1 provides a summary of the reliability coefficients by grade. Coefficients of .77 and .81 were found for the third and fourth grade, respectively, and

.79 was found for an overall reliability coefficient, $p<.001$. These data indicated that the test-retest scores of the JMPES were stable over a six-week period.

Table 1

Test-Retest Reliability Coefficients by Grade

Grade	N	df	Pearson r Coefficient
3	22		.77*
4	16		.81*
Total	38	36	.79*

* Significant at the .001 level

2. Internal consistency. The internal consistency of a test indicates the stability and consistency with which an individual performs from one item to another within a test (Klein, 1965). Internal consistency for the JMPES was determined by an item analysis using the Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). A criterion correlation of .2 and above was established as the standard for retaining scale items. This criterion was suggested by Nelson (1974) and Martinek and Mancini (1979) as acceptable.

Statistical analysis provided an intra-item correlation matrix, scale means, scale variance, and an overall Cronbach's Alpha Reliability coefficient. The first item analysis was determined for all 28 scale items. The partial correlation of the specific scale items to

total scale items ranged from -.06 to .47. Of the 28 scale items, 4 items failed to meet the .2 criterion. These were item 2 (.06), item 5 (.09), item 6 (-.06), and item 24 (.05). Although item 21 (.19) was considered to be a borderline item, it was retained as a filler item because of its high interpretation score (97%). Thus, 4 of the scale items were eliminated and 24 were retained from the set of 28 scale items.

The second item analysis included the 24 retained items. Table 2 summarizes the results of this item analysis by grade. The Cronbach's

Table 2

Results of the Item Analysis on 24 Scale Items by Grade

Grade	N	Variance	SD	Means	Cronbach's Alpha Coefficient
3	67	30.68	5.54	64.33	.81
4	50	31.23	5.59	65.10	.81
Total	117	30.80	5.55	64.66	.81

Alpha Reliability coefficient was .81 for the third grade, .81 for the fourth grade, and .81 for the overall reliability coefficient. Since reliability coefficients fell within the .70 and above criterion level of acceptance, it was concluded that the 24 scale items had good internal consistency.

Test validity. Validity was defined by Safrit (1973) as the degree to which a test measures that which it is intended to measure.

Three types of validity described by the American Psychological Association (1966) were determined for the JMPES. These were content validity, criterion-related validity (concurrent), and construct validity.

1. Content validity. The content validity of a test refers to the degree to which the test items adequately sample the universe which it represents (Safrit, 1973). Although no validity coefficient can be computed as an estimate of content validity, the test developer is obligated to describe the "logical procedures" that have been carried out in validating the measure (Guion, 1977). The procedures to insure that JMPES scale items adequately sampled student expectations included asking the children who interpreted the photographs for intended meanings: (a) to describe actions and movements that were shown in the pictures, (b) to describe actions and movements that they expected to be able to do if they were in the same situation shown in the picture, and (c) to point to one of three cartoon faces representing their own level of expectation relative to each picture.

This was done in a one-to-one situation (examiner/child). According to the observations, it was concluded that the children understood the meaning of what was being asked of them. They mentally weighed each photograph and responded according to their feelings about what they expected to be able to do. Some children spontaneously followed their stated expectations by physically simulating the movements in the photograph to test the accuracy of their estimations. An interesting observation was that the children often ignored the sex of the student in the photograph. Sometimes they used the pronoun "she" when a boy was pictured or used "he" when a girl was pictured. Thus, it was

reasoned by the examiner that the sex of the child in the photograph was not a factor that influenced the child's expectations regarding his or her abilities.

2. Criterion-related validity (concurrent). Criterion-related or concurrent validity is demonstrated by comparing the test scores with one or more variables that are considered direct measures of the characteristic or behavior under investigation (Safrit, 1973). A strong correlation between student expectations and teacher expectations for student performance has been previously established by Davidson and Lang (1960), Morrison and McIntyre (1969), and Veldman (1973). It was reasoned that a measure of teacher expectations (teacher ratings) statistically compared to a measure of student expectations (student JMPES scores) would yield an indicator of concurrent validity.

Teacher expectations for student performance were determined by using a teacher-ratings form (see Appendix A). The teacher completed a form for each class during the same week that the children completed the JMPES. The teacher had the advantage of working at the same school the previous year and was familiar with the students and their past performance in physical education. This previous contact gave the teacher a basis upon which to complete the ratings.

The instrument itself was a scale with weighted values ranging from 7 (very high achievement) to 1 (very low achievement). All members of the class were listed on the left margin of the sheet, and the teacher was asked to assign to each student a number that most appropriately reflected the teacher's expectation for the student's

achievement in physical education.

The standard directions printed on the instrument were as follows:

> By placing an "X" under the appropriate number, indicate on the following pages how you expect each child in your class to perform on physical skills during the instructional phases of your program. In rating your children, try to be as truthful as possible. Remember: Rate each student according to your expected level of achievement for that particular student.

The Pearson product-moment correlation between scores of third and fourth graders was used as the statistical technique to determine concurrent validity. Table 3 shows a correlation coefficient of .38,

Table 3

Correlation Coefficient for JMPES Scores and Teacher Expectancy Ratings for Third- and Fourth-Grade Children

Grades	N	df	Pearson r Coefficient
3 and 4	121	119	.38*

* Significant at .01 level

$p<.01$, between JMPES scores and teacher expectancy ratings of third- and fourth-grade children. This finding indicated that there was a statistically significant relationship between what the student expected and what the teacher expected about the student's performance in physical education.

3. Construct validity. Construct validity is implied when one evaluates a test or other set of operations in light of the specified construct (American Psychological Association, 1974). In this study, a measure of self-attitudes representing student expectations was evaluated in light of a measure of overall self-attitudes or global self-concept.

The Martinek-Zaichkowsky Self-concept Scale for Children (MZSCS) (Martinek & Zaichkowsky, 1977) was used to measure global self-concept of the children by grade and by sex. The MZSCS consists of 25 items is nonverbal, requires no reading ability, and is considered multiethnic. The items measure attributes such as appropriate behavior, and intellectual, social, and physical aspects of the child's self-concept.

The overall internal consistency coefficient for grades 1-4 was determined by using the Hoyt estimate of reliability (Nelson, 1974) and was reported as .88. Concurrent validity was determined by comparing MZSCS scores with scores from the Piers-Harris Children's Self-concept Scale (Piers, 1969), the Coppersmith Self-esteem Inventory (Coppersmith, 1967), and with teachers' ratings of the students' self-concept. Correlations of .49, $p<.001$, and .56, $p<.001$, were obtained with the Piers-Harris and Coppersmith scores, respectively. Correlations with teachers' rating scores were nonsignificant.

The Pearson product-moment correlation was used as the statistical technique to compare JMPES scores with MZSCS scores of third- and fourth-grade children. Table 4 shows correlation coefficients of .27,

$p<.05$, for the third grade, .05 for the fourth grade, and .16 for an overall coefficient. These findings indicated that there was a statistically significant relationship between student expectations of

Table 4

Correlation Coefficients of JMPES Scores and MZSCS Scores for Third- and Fourth-Grade Children

Grades	N	df	Pearson r Coefficient
3	64	62	.27*
4	50	48	.05
Total	114	110	.16

* Significant at the .05 level

third-grade children and global self-concept. This relationship was not found for the fourth-grade children. It is possible that as children grow older student expectations for motor performance do not correlate highly with global self-concept.

Table 5 shows the results of the comparison of the JMPES scores with the MZSCS scores by sex. Correlation coefficients of .11 and .18 were found for males and females, respectively. An overall correlation coefficient of .15 indicated that no statistically significant

relationship was found between the JMPES and MZSCS scores for males and females.

Table 5

Correlation Coefficients of the JMPES Scores and MZSCS Scores for Males and Females

Sex	N	df	Pearson r Coefficient
Males	51	49	.11
Females	63	61	.18
Total	114	110	.15

Summary of Test Reliability and Validity

Findings for test reliability and test validity of the JMPES were as follows:

1. The test-retest reliability coefficient of .79 suggested that the JMPES items were stable over a six-week period.

2. The item analysis (N=24) resulted in a Cronbach's Alpha reliability coefficient of .81, indicating that the JMPES had good internal consistency.

3. There was a statistically significant correlation, $p<.01$, between the students' perceptions and the teacher's perceptions regarding expected motor performance for students.

4. There was a statistically significant correlation, $p<.05$, between student expectations for motor performance and global

self-concept for third-grade children. The correlation for the fourth-grade children was not significant.

5. There was no statistically significant correlation between the JMPES and MZSCS scores of males and females in the third and fourth grade.

Based on the results of the statistical analyses, it was concluded that the JMPES was a reliable and valid instrument to measure student expectations of motor performance of the third-grade children in the present study. Such a conclusion was reached based on the strength of the first four points delineated above.

Selection and Adaptation of an Observational System

An observational system was needed for the purposes of this study to objectively record interactive events between teachers and students. Primary consideration was given to Flanders Interaction Analysis System (FIAS) (Flanders, 1970), an observational system which has been used successfully in educational research for several years.

FIAS. FIAS is an observational system designed to minimize observer bias, to permit a systematic record of ongoing behaviors, and to study the dynamics of instruction by taking into account each bit of interaction between the teacher and learners. This system yields information about the interaction among individuals based on verbal behaviors. The verbal behaviors are classified according to teacher-talk and student-talk categories (see Appendix B).

The FIAS system is limited, however, in settings such as the gymnasium where much of the interaction is nonverbal. Since verbal

and nonverbal interaction patterns were an important concern of this study, the Cheffers Adaptation of Flanders Interaction Analysis System (CAFIAS) (Cheffers, Amidon, & Rodgers, 1974) was considered more appropriate than FIAS. The concurrent validity of CAFIAS, when compared to FIAS, was reported at $p<.05$ using the blind-live interpretation method (Cheffers, 1972; Cheffers et al., 1974).

CAFIAS. CAFIAS, like FIAS, is an observational system used to identify predominant interaction patterns and behavior or process categories between teachers and students. One difference in CAFIAS and FIAS, however, is that CAFIAS process categories include a nonverbal dimension for each verbal behavior categorized by FIAS. Another difference is that category 1 from FIAS was eliminated in CAFIAS because that particular behavior was an extremely low-incidence behavior between teachers and students (Acceptance of Student Feelings). In addition, categories eine (8/) and eineteen (18/) were added by Cheffers to provide a means of measuring analytical student response (see Appendix B).

CAFIAS was designed to record and analyze teacher-student interaction with all students of the class being treated as a whole unit. The needs of the present research required collecting quantitative data (number of contacts) and qualitative data (specific form of contacts according to the process categories) on interactions between the teacher and individual students (dyadic contacts). Therefore, the Dyadic Adaptation of Cheffers Adaptation of Flanders Interaction Analysis System (DAC) (Martinek & Mancini, 1979) was selected as the observational system to be used in this study. It provided a method

that allowed the CAFIAS process categories to be recorded as well as the total number of dyadic contacts between the teacher and a single student. This method was used successfully by this investigator in previous research (Martinek & Johnson, 1979).

DAC. The use of the DAC system in this research included the following procedures:

1. The students wore pinnies with identification numbers showing on their fronts and backs. The same assigned numbers were worn during each observation.

2. The observer coded only the interaction that transpired between the teacher and a single student. Behavior was recorded whenever the teacher or the student initiated the interaction. The observer did not code when the teacher directed behaviors toward the entire class or to selected groups of students.

3. All behavior tallies were placed on a prepared coding sheet (see Appendix B). The general coding procedures of CAFIAS were followed with the exception that behavior tallies were accompanied by a numbered subscript. The subscript number was the number on the pinnie worn by the student to or from whom the behavior was displayed. For example, $\underline{6}_{13}$; $\underline{18}_{13}$, indicated that the teacher gave a verbal direction to the student wearing pinnie number 13 and that the same student responded with movement in a predictable manner in accordance with the direction given.

4. Two additional process categories, not included in CAFIAS, were recorded and analyzed by DAC. These were category one (1) and category eleven (11). In a sense, these categories were reinstated from

the original FIAS tool. The original tool included category 1 as the type of teacher behavior which was empathetic, understanding, and accepting of students' feelings. Category 11 was used during coding as the nonverbal counterpart of the teacher's verbal empathetic expressions.

5. Behavior was recorded on the average of three-second intervals as long as the interaction continued. If the behavior changed during a three-second interval, the new behavior was also recorded. Coding continued for the entire class period.

Training of the Coders

An instructor and a graduate student from the University of North Carolina at Greensboro served as coders for this study. The instructor was considered expert in the use of CAFIAS and DAC. His training consisted of extensive hours of experience including study, practice, and instruction in the use of these tools for both classroom and research use. The graduate student was enrolled in a class which involved both the study and use of these instruments. Thus, the coders selected for this research were acquainted with DAC before the training and practice in the use of the observational system actually began.

Training of the coders consisted of (a) study of two CAFIAS manuals describing and detailing the observational system, (b) discussions about CAFIAS and its dyadic version (DAC), (c) practice with DAC on audio and videotape recordings, and (d) practice with DAC during live observations in physical education classes. One of the live observation training sessions recorded by the coders was also videotaped. Comparison of the recordings by the coders with the events on

the videotape afforded in-depth discussion of the DAC process categories, its ground rules, and the coders' recording skills. In sum, over 24 hours of training and practice during a six-week period were spent by the coders becoming adept in the use of the DAC system. In addition, the graduate student observed and recorded university classes and public school classes for extra practice.

Based on the recommendation of Cheffers, Amidon, and Rodgers (1974), intercoder reliability was estimated for observers using CAFIAS, the parent tool of DAC. Intercoder reliability refers to the ability of different observers to code the same behavior responses with consistency. The standard for intercoder reliability for this study was set at .80. This standard was consistent with recommendations of other researchers (Fishman & Anderson, 1971; Herbert & Attridge, 1975).

Two different occasions were used to estimate intercoder reliability for the coders. The first was in a university physical education activity class and the second in a public school physical education class. The coders concurrently, but independently, observed and recorded interaction between teachers and individual students using the DAC system on both occasions. The raw categorical data were placed in matrix cells, and the Spearman Coefficient of rank correlations was used to compare their top 10 matrix cells to determine intercoder reliability scores (see Appendix B). The intercoder reliability scores of the two coders using the DAC system were .97 on the first measure and .99 on the second (see Appendix B).

Selection of Subjects

Subjects. Two female elementary physical education specialists of the Guilford County School System in North Carolina were selected as the adult subjects for this research. Beginning in January, 1980, one teacher was assigned to Gibsonville Elementary School and another to Jamestown Elementary School. Student subjects were six randomly selected third-grade classes (three classes from each school) taught by the specialists (N=140). Table 6 shows the composition of the student sample by school, by class, and by sex.

Factors for selection. Factors influencing the selection of subjects from the Guilford County School System included the following:

1. Elementary physical education was taught by two certified physical education specialists. The use of these qualified physical educators as subjects was preferred over the use of classroom teachers.

2. The physical education specialists were itinerant teachers who worked at a different elementary school in Guilford County every nine weeks. This situation made it possible to conduct research from the initial contacts between the teachers and students. Thus, student expectations in physical education would not be influenced by previous contact with the specialists during that school year. This would also, in part, control somewhat for teacher bias.

3. The physical education coordinator and the specialists jointly developed a standardized curriculum plan, thereby providing some consistency and control over what was being taught.

4. The third-grade population taught by the physical education specialists totaled over 170. The preference to study third graders

Table 6

Composition of Sample by Class and by Sex

N = 140

Third-Grade Classes	Gibsonville	Jamestown
	Teacher A	Teacher B
Class 1		
Male	17	13
Female	6	12
Class 2		
Male	14	13
Female	7	11
Class 3		
Male	17	14
Female	6	10
Total School		
Male	48	40
Female	19	33

was based upon the notion that self-attitudes of children around the second and third grade are beginning to gain stability (Felker, 1974; Martinek & Zaichkowsky 1977; Piers, 1969).

5. The teaching situation allowed for randomization in the study at two points. Third-grade classes from each school were randomly selected to serve as subjects, and observation dates were randomly selected for data collection purposes.

6. Students at both schools were classified by Guilford County Schools as having demographic similarities. These similarities would contribute to eliminating differences in results due to socioeconomic and cultural variables.

7. The Guilford County School System granted permission to conduct the investigation.

8. The specialists were willing to be a part of the study.

Determination of the Time Specifications for Data Collection

Time boundaries. The nine-week instructional period scheduled for the physical education specialists at Gibsonville and Jamestown represented a natural grading block structured by the local school system. Physical education instruction by the specialists was conducted for 30-minute periods every other day during this time. An instructional block of this length is assumed by many educators to be sufficient time to observe and evaluate student progress and change. Therefore, the time period from January 23, 1980 to April 1, 1980 was accepted as the data collection boundaries of the study.

The first week of the grading period was designated for collecting the pretest JMPES data on student expectations. Observation data were collected randomly thereafter. The posttest JMPES data were designated to be collected during the last week of the nine-week period after all observation dates had been observed.

DAC observational data. Time sampling is the selection of behavioral units for observation at different points in time (Kerlinger, 1973). A review of the literature revealed a variety of time samples used for behavioral observation. In this study the method of selecting time samples (selection from a table of random numbers), the number of time samples (9 for each teacher), and the length of the time samples (30-minute classes) was considered to be consistent with time sampling techniques used in other research (Brophy & Good, 1974; Nygaard, 1975; Oien, 1979).

A teaching schedule of the third-grade physical education classes involved in the study was secured. Of the total teaching contacts within the time boundaries set for the study, three observation dates for each of the six classes were randomly selected. Table 7 shows the times and dates of the third-grade physical education classes scheduled to be observed and recorded using DAC.

Approval for the Conduct of Research

School of HPERD Review Committee. A project outline form was filled out and submitted to the School of HPERD Review Committee at the University of North Carolina at Greensboro for approval to conduct the research (see Appendix C). The members of the committee judged that

Table 7

Schedule of Randomly Selected Observation Dates by Class

Third-Grade Classes	Gibsonville Teacher A	Jamestown Teacher B
Class 1	Boone	Blackwell
	Feb. 21 March 14 March 26	Feb. 13 Feb. 27 March 7
	(12:45-1:15)	(1:45-2:15)
Class 2	Brookshire	Whitted
	Feb. 22 March 3 March 11	Feb. 13 Feb. 27 March 7
	(1:15-1:45)	(9:00-9:30)
Class 3	Mills	Wright
	Feb. 21 March 14 March 26	Feb. 13 Feb. 27 March 7
	(10:30-11:00)	(10:30-11:00)

the plans for the investigation guaranteed the rights of the human subjects involved. A letter was sent stating that approval was granted pending a simplication in wording on the student/parental consent form (see Appendix C).

Guilford County School System Research Council. An initial meeting with the physical education coordinator of Guilford County Schools resulted in her verbal support for the proposed research. A letter requesting to do the study was then sent to the director of the Division of Research, Planning, and Evaluation accompanied by five copies of the proposed study. These packets of information were prepared according to the Conduct of Research form (see Appendix C).

The Research Council accepted and approved the proposal contingent upon three requirements: (a) that the study be carried out "in accordance with the approved proposal and the system's procedures for the conduct of research", (b) that a copy of the results of the study be provided to the Research Council, and (c) that inservice training (based upon insights gained during the research) be provided to the specialists and other classroom teachers. The conditions were agreed upon and the letter of authorization was sent (see Appendix C).

Informed consent from the specialists, the principals, and the students. A meeting was scheduled with the two elementary physical education specialists of the Guilford County School System to explain the purpose of the study and their role in the data collection phase. The teachers were told that a coder would be present during their classes to observe students' behavior in terms of student expectations in physical education. It was emphasized that the observations were to

describe relevant behavior and not to assess the students' level of achievement or the specialists' teaching effectiveness. The teachers were not told that their behavior interacting with students would also be recorded. The teachers were instructed to teach their classes as if the observer were not present and as if the research were not being conducted. They were assured that there would be no attempt to design, structure, or alter their normal physical education instruction.

A brief question-and-answer interchange followed. The physical education specialists were then asked to sign consent forms indicating their permission to be involved in the study as outlined in the discussion. The Informed Consent Form adopted from Locke and Spirduso (1976) was completed by the two teachers (see Appendix C). The teachers were informed of the scheduled dates when they were to be visited and observed, but no specific details or consequent discussions transpired about the nature of the study. This was done to preserve the highest possible degree of normalcy throughout the study.

A similar orientation meeting was held with the principals of the schools where the data would be collected. Their support was given and the consent forms signed. The forms were the same as those signed by the specialists.

The final orientation meetings were held at the two schools with the students to be involved in the study. They were told about the JMPES to which they would respond. They were also informed that they would be asked to wear numbered pinnies in their physical education classes. The students were asked to act normally in physical education classes even when the visitor was present. Permission forms were

distributed to the students to be taken home and signed by their parents or guardians (see Appendix C). Prior to the JMPES pretest, all permission forms were signed, returned, and collected.

Data Collection on Student Expectations (JMPES) and Teacher-Student Dyadic Interactions (DAC)

Two sets of data were collected during the nine-week instructional block designated as the data collection period. The JMPES was administered to gather information on student expectations, and the DAC system was used to gather information on teacher-student dyadic interactions. This section describes information pertinent to the data collection procedures employed in this study.

Description of the Educational Setting

Both teachers conducted their physical education classes in the gymnasium at their respective schools. The classroom teacher for each third-grade class accompanied her students to the gymnasium during the 30-minute physical education class. The physical education specialists followed a general curriculum plan designed by them in cooperation with the physical education coordinator of Guilford County Schools. The curriculum plan was based on activities included in the Guilford County School System Physical Education Handbook for Grades K-6 (1980). The plan included the following activities: (a) fundamental locomotor and nonlocomotor movements; (b) manipulative skills involving parachutes, jump ropes, and hoops; (c) ball skills with playground balls, volleyballs, and softballs; (d) games; (e) tumbling; and (f) physical fitness

testing. Classes were conducted as usual with the specialists providing instruction and the students responding.

Administration of the JMPES

The JMPES pretest was group administered to the third-grade subjects in their regular classroom setting during the first week of the nine-week instructional period. A short introduction was given by the examiner explaining that it was not a "real test," but simply a way to find out what a person expects he or she can do in physical education. The students were told that the results of the scale would not affect their school grades and that filling out the booklet would probably be enjoyable to them. The following sequence of events then took place:

1. The JMPES booklets were distributed.

2. The front of the booklet was filled out with identification number, grade, sex, and school.

3. The children were asked to listen carefully while the standardized directions were read.

4. The sample item was marked by the children for practice.

5. Questions were called for and answered.

6. The children were asked to begin marking the items on their own.

7. Children having questions after the group started raised their hands and the examiner went to them.

8. The children raised the closed booklets over their heads when they finished for the examiner to collect them.

9. All the booklets had been gathered at the end of approximately

10-15 minutes.

10. The booklets were bound with rubber bands and labeled with the classroom teacher's name.

The administration of the posttest JMPES was conducted during the last week of the nine-week instructional period by the same examiner using the procedures followed during the pretest.

Collection of DAC Observational Data

Data about teacher-student dyadic interactions as they naturally transpired in physical education class were gathered by trained observers using the DAC system. Two trained coders observed and recorded the subjects' behavior for a total of 18 times (three codings apiece for six classes). The observation periods were randomly selected from the total teaching contacts during the nine-week period, excluding the first and last weeks. A set of observation procedures was followed by the coders to give organization to the observation process and to provide consistency over the 18 data collection periods (see Appendix B).

At the beginning of each observation period students put numbered pinnies over their regular physical education clothing. The teacher kept a list of names and numbers available in case any child forgot his or her assigned number. With the exception of asking the students to wear pinnies, neither the teachers nor the children were asked to do anything different or special after instruction began.

On selected occasions, a small portable wireless microphone was worn by the teacher. The receiver, equipped with an earplug, was worn

by the observer. The decision to use the equipment was dictated by the nature of the activity, the location of the activity, the movement patterns of the teacher, and the manner in which space was being used. In light of these factors, a judgment was made whether the observer could see and hear better with or without the use of the equipment. When the audio aids were not used, the coder occasionally changed observation positions to increase the ability to see and hear adequately. This was done in an inconspicuous manner to avoid interrupting the teachers and students during instruction.

Twice the selected dates for observation had to be changed. On one occasion the Guilford County Schools were closed because of snow; on the other, the physical education classes did not meet because of a special program at school. The next appropriate classes that followed those exceptional days were selected as the substitute observation dates. The decision was made before the study began that the benefits of conducting research in a genuine school setting outweighed any unpredictable events, such as the ones experienced, that often arise in "real world" settings.

Preparation of Raw Data for Computer Analyses

Four main steps were followed to prepare the raw JMPES data and DAC data for computer analyses: (a) scoring the JMPES booklets, (b) identification of high- and low-expectancy groups, (c) preparation of DAC data for computer cards, and (d) preparation of computer cards.

Scoring the JMPES booklets. The JMPES booklet consisted of 24 pictorial items, each item having three choices (see sample in

Appendix A). The choices were a smiling face ("I think I can.") a neutral face ("I don't know if I can."), and a frowning face ("I don't think I can."). The children marked an "X" on the face which best represented their expectations for doing what was being shown in the picture.

The weighted value for the smile was three points, for the plain face was two points, and for the frown was one point. The test booklet was scored by adding together all the point values for the faces marked. Space was provided on the front of the booklet to write the score for the child who completed the test (see Appendix A).

Pretest and posttest JMPES measures for each third-grade subject were taken approximately eight weeks apart. Both sets of booklets were scored independently. The pretest and posttest JMPES scores were recorded beside each child's identification number on a master list. The information on this list was transferred to IBM System/360 Assembler Coding Forms from which computer cards were prepared (see Appendix D).

Identification of high- and low-expectancy groups. High- and low-expectancy groups were determined by high and low JMPES scores. Specifically, students having JMPES scores in the upper and lower thirds at their schools were identified as the high and low groups, respectively. Dividing students into upper, middle, and lower thirds has been a common research practice (Brophy & Good, 1974).

The identification process was accomplished by ranking JMPES scores in ascending order from the lowest to the highest. The scores for each school were ranked independently. At Gibsonville, the number

of students having JMPES scores in upper and lower thirds equaled 22 in each group, and at Jamestown the number equaled 24. The entire ranking and selection procedure was done separately for the pretest and posttest. Table 8 presents the composition of the sample by school, by group, and by sex after the selection of the high- and low-expectancy groups for the pretest and posttest.

Preparation of DAC data for computer cards. Teacher-student dyadic interactions of 2 adult subjects and 140 third-grade subjects were recorded on coding sheets by 2 trained coders using the DAC observational system. The raw data from the coding sheets were then transferred to matrices (see Appendix D). This was accomplished by placing dots, which represented behavior, in the appropriate process category cells across from the students' identification numbers. When all the raw data had been included in the matrices, the tally dots were counted for each cell and the total number was written directly on the tally dots within the cell. These totals were transferred to the appropriate column on assembler coding forms.

Preparation of computer cards. All descriptive information and all data collected on the subjects were placed on assembler coding forms before computer cards were prepared (see Appendix D). The following information was coded on the forms: columns 1-3 = identification number of student; column 4 = sex of student (M = 1, F = 2); column 5 = physical education teacher of student (Teacher A = 1, Teacher B = 2); column 6 = classroom teacher of student (Boone = 1, Brookshire = 2, Mills = 3, Blackwell = 4, Whitted = 5, Wright = 6); columns 7-8 = pretest JMPES score; columns 9-10 = posttest JMPES score; columns 11-54 =

Table 8

Composition of Sample After Selection of High- and Low-Expectancy Groups for Both Prestest and Posttest

N = 92

Expectancy Groups	Gibsonville Teacher A	Jamestown Teacher B
High-Expectancy Group	22	24
Males	pre 17	17
	post 18	16
Females	pre 5	7
	post 4	8
Low-Expectancy Group	22	24
Males	pre 12	14
	post 13	11
Females	pre 10	10
	post 9	13
Total School	44	48

number of teacher-student dyadic interactions placed in the appropriate process category cells, and column 55 = expectancy group (low = 1, high = 2). The numbers on the forms were then keypunched onto computer cards.

Statistical Methods Used for Computer Analyses

Statistical methods used in this study included three procedures: (a) a preliminary *t*-test between pretest and posttest JMPES scores, (b) analyses of variance (ANOVAs), and (c) multivariate analyses of variance (MANOVAs). The significance level of .05 was set as the standard of acceptance for all statistical analyses. The computer work was completed at the University of North Carolina at Greensboro Computer Center.

Preliminary t-test. The statistical design of this study involved a preliminary *t*-test to determine whether significant changes in JMPES scores occurred from the pretest to posttest. If no change were evident, only pretest data would be used in subsequent statistical analyses. It was reasoned that initial expectations would be more critical in such a case. If a significant change were evident, the statistical strategy would be to analyze pretest and posttest data separately.

The *t*-test was computed by pairing the pretest JMPES scores with the posttest scores. Computer cards for all 140 student subjects were included to determine if a shifting of students occurred among the high-, middle-, and low-expectancy groups. The SPSS was used to compute the *t*-test.

The results of the t-test are shown in Table 9. The t-value was found to be significant at the .001 level of confidence, indicating that a statistically significant change in JMPES scores from pretest to posttest did occur. The mean for the pretest scores was 61.08 and for the posttest scores was 63.79. This finding was analyzed according to class, distribution, and rank as a preliminary step to the calculation of ANOVAs and MANOVAs. The results of the analysis are presented in the text that follows immediately.

1. Class. A summary of pretest to posttest changes in JMPES scores by class is shown in Table 10. The number of students of Teacher A showing change in a positive direction was 41 or 61%, in a negative direction was 16 or 24%, and no change was 10 or 15%. The average number of points changed in a positive direction was 4.8 and in a negative direction was 4.9. The number of students of Teacher B showing change in a positive direction was 52 or 73%, in a negative direction was 10 or 14%, and no change was 9 or 13%. The average number of points changed in a positive direction was 5.5 and in a negative direction was 3.1.

Of all students in the study showing change from pretest to posttest, 67% scored higher, 19% scored lower, and 14% scored the same. With the exception of Class 1 taught by Teacher A, the majority of students across classes showed pretest to posttest changes in a positive direction. The average number of points changed in a positive direction was 5.2 and in a negative direction was 4.2. Pretest to posttest changes in JMPES scores by individuals are included in Appendix E.

Table 9

T-test on Pretest and Posttest JMPES Scores

Variable	N	Difference Mean	SD	Standard Error	Df	T Value
Pretest (M=61.08)						
	140	-2.71	5.52	0.47	139	-5.82***
Posttest (M=63.79)						

***Significant at the .001 level

Table 10

Summary of Pretest to Posttest Changes

in JMPES Scores by Class

	Class	Direction of Change (+=positive, -=negative, 0=no change)	Number of Students Showing Change	% of Students Showing Change	Total Points for Students Showing Change	Average Number of Points Changed
Teacher A	1	+	11	48	44	4
		-	5	22	38	7.6
		0	7	30	0	0
	2	+	15	71	75	5
		-	5	24	10	2
		0	1	5	0	0
	3	+	15	65	78	5.2
		-	6	26	31	5.2
		0	2	9	0	0
	Totals Teacher A	+	41	61	197	4.8
		-	16	24	79	4.9
		0	10	15	0	0
Teacher B	1	+	14	58	78	5.6
		-	5	21	9	1.8
		0	5	21	0	0
	2	+	17	74	86	5.1
		-	4	17	20	4
		0	2	9	0	0
	3	+	21	88	123	5.9
		-	1	4	2	2
		0	2	8	0	0
	Totals Teacher B	+	52	73	287	5.5
		-	10	14	31	3.1
		0	9	13	0	0
	Totals Both Teachers	+	93	67	484	5.2
		-	26	19	110	4.2
		0	19	14	0	0

2. Distribution. The distribution of students in each class showing pretest to posttest changes in JMPES scores is presented in Table 11. The distribution is organized according to number of points changed. Of the students showing either positive or negative change on the posttest, 9% changed more than 10 points, 91% changed 10 points or less, and 66% changed 5 points or less.

3. Rank. Most students experiencing change in JMPES scores from pretest to posttest maintained their relative rank with classmates. For example, a female student--number 19, Teacher A, Class 3--scored 52 on the JMPES pretest (see Appendix E). This score placed her in the lower third of students at her school and, consequently, in the low-expectancy group. She scored six points higher on the posttest with a score of 58. This score maintained her rank in the lower third of students at her school and in the low-expectancy group. Maintaining relative rank with classmates occurred for the majority of both high and low-expectancy groups. This finding gave support to the work of Felker (1974) who suggested that the appearance of stability in self-attitudes occurred at approximately 7 years of age, and to the work of Purkey (1978) and Jersild (1952) who suggested these attitudes are resistant to change.

ANOVAs. Two 2 x 2 x 2 analyses of variance were used to analyze the three independent variables of student expectations, student sex, and teachers with respect to the dependent measure of total dyadic contacts. Total dyadic contacts were derived from the sum total of all the teacher behaviors directed toward students. The teacher behaviors included the DAC process categories 1-17. The SPSS was used to compute

Table 11

Distribution of Students Showing Pretest to Posttest JMPES Score Changes

Number of Points Changed	Direction of Change	Teacher A			Teacher B			Total Number of Students Showing Change	% of Students Showing Change		
		Class 1	Class 2	Class 3	Class 1	Class 2	Class 3				
0-5	+	8	10	8	9	11	10	78	66	66% changed 5 points or less	91% changed 10 points or less
	-	3	5	5	5	3	1				
6-10	+	2	4	5	4	5	10	30	25		
	-										
11-15	+	1		2		1		6	5		9% changed more than 10 points
	-	1				1					
16-20	+		1					2	2		
	-			1							
21-25	+							1	1		
	-	1									
26-30	+				1			1	1		
	-										

the ANOVAs separately for the pretest and posttest data.

MANOVAs. Two 2 x 2 x 2 multivariate analyses of variance were used to analyze the three independent variables of student expectations, student sex, and teachers with respect to the dependent variables measured by the DAC process categories. The dependent variables included the following: Teacher Acceptance of Feelings, Teacher Praise/Encouragement, Teacher Acceptance of Ideas, Teacher Questions, Teacher Lecture/Information Giving, Teacher Directions, Teacher Criticism, Student Predictable Response, Student Analytic Response, Student Initiated Response, and Student Silence/Confusion. The verbal and nonverbal dimensions for these teacher and student behaviors were combined for the statistical analyses. The Statistical Analysis System (SAS) (Barr, Goodnight, Sall, & Helwig, 1976) was used to compute the MANOVAs separately for the pretest and posttest data. The next chapter presents and discusses the findings.

CHAPTER IV

THE DATA AND ANALYSIS

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. Seven questions gave structure to this research:

1. How many dyadic contacts occur between teachers and students of high- and low-expectancy groups?

2. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to total dyadic contacts?

3. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to total dyadic contacts?

4. What are teachers' specific behaviors toward students in high- and low expectancy groups?

5. What are specific responses of students in high- and low-expectancy groups?

6. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

7. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

Student expectations of 140 third-grade children enrolled in two different schools in Guilford County, North Carolina, were measured by

the Johnson Motor Performance Expectancy Scale for Children (JMPES). A pretest and posttest of the JMPES were administered during the first and last weeks of a nine-week instructional period. The JMPES scores were used to identify high- and low-expectancy groups. The students scoring in the upper third at their school were classified as the high-expectancy group and those scoring in the lower third as the low-expectancy group. The high and low groups were determined independently for each school.

Teacher-student dyadic interactions of two female physical education teachers, each at a different school, and individual third-grade students in their classes were measured by the Dyadic Adaptation of CAFIAS (DAC). The physical education teachers met with their students every other day for 30 minutes of physical education instruction. Teacher-student dyadic interactions were observed and recorded by two trained coders on 18 randomly selected occasions during the nine-week period.

Using JMPES data from all student subjects, a preliminary t-test was calculated to determine if significant changes in scores occurred from pretesting to posttesting of the scale. This procedure was done to examine the stability of student expectations over time. Because a significant change was evident, $p<.001$, the statistical strategy to analyze the pretest and posttest data separately was adopted. The two data sets were viewed as independent variables.

Two 2 x 2 x 2 analyses of variance (ANOVAs) were used to analyze the three independent variables, student expectations, student sex, and

teachers, with respect to the dependent measure of total dyadic contacts. Total dyadic contacts were derived from the sum total of all the teacher behaviors directed toward students. The teacher behaviors were identified by the DAC process categories 1-17. These categories included verbal and nonverbal teacher behavior. One ANOVA was calculated using the pretest data and the other using the posttest data. ANOVAs were computed by using the Statistical Package for the Social Sciences (SPSS). Additionally, two 2 x 2 x 2 multivariate analyses of variance (MANOVAs) were used to analyze the three independent variables, student expectations, student sex, and teachers, with respect to the dependent variables measured by the DAC process categories. One MANOVA was calculated using the pretest data and the other using the posttest data. MANOVAs were computed by using the Statistical Analysis System (SAS).

The purpose of this chapter is to present and discuss the statistical results. The findings of the ANOVAs and MANOVAs are organized and presented according to the framing questions of this study. Responses to each question are presented using first the data from the pretest and then, secondly, from the posttest. Those effects which show statistical significance are graphically presented. The last section of the chapter discusses and interprets the findings of the statistical analyses.

Question One: How Many Dyadic Contacts Occur Between Teachers and Students of High- and Low-Expectancy Groups?

Total dyadic contacts were derived from the sum total of all the teacher behaviors directed toward high- and low-expectancy students. The teacher behaviors were identified by the DAC process categories 1-17. Table 12 shows that with regard to the pretest data, the high and low groups had 1,075 and 971 total dyadic interactions, respectively. The combined totals equaled 2,046. From this number percentages were derived indicating that the high group experienced 53% of the total dyadic contacts and the low group 47%. With regard to the posttest data, the high and low groups had 1,038 and 963, respectively. The combined totals equaled 2,001 indicating that the high group experienced 52% of the total dyadic contacts and the low group 48%.

Means obtained for total dyadic contacts were used to determine the average number of interactions for the high- and low-expectancy groups (SPSS-ANOVA). (Complete tables of means derived from the analyses of variance are reported in Appendix F.) The high and low groups averaged 14.63 and 13.83 dyadic contacts, respectively, in relation to the pretest and 15.24 and 14.63 dyadic contacts, respectively, using the posttest scores.

Table 12

Number of Dyadic Contacts Between Teachers and Students of High- and Low-Expectancy Groups for Both Pretest and Posttest Data

	Expectancy Group	Total Interactions		%	Average Number of Interactions
Teacher A	High	Pre	492	57	11.91
		Post	460	56	12.77
	Low	Pre	364	43	9.64
		Post	361	44	9.59
Teacher B	High	Pre	583	49	17.13
		Post	578	49	17.50
	Low	Pre	607	51	17.67
		Post	602	51	19.25
Total Both Teachers	High	Pre	1,075	53	14.63
		Post	1,038	52	15.24
	Low	Pre	971	47	13.83
		Post	963	48	14.63

Note. Pretest and posttest data were analyzed separately.

Question Two: Are There Significant Differences Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Total Dyadic Contacts?

Means obtained for total dyadic contacts were used to test for significant differences among high- and low-expectancy groups, student sex, and teachers (SPSS-ANOVA). The results are presented in a summary of analyses of variance of total dyadic contacts in Table 13. Significant *F*s for the main effects of expectancy groups, student sex, and teachers were indicated using the pretest data, F (3,84)=6.50, $p<.001$, and also with the posttest data, F (3,84)=7.17, $p< .001$. Significant differences were found for student sex and for teachers with respect to total dyadic contacts for both the pretest and posttest data sets. No significant differences were found for expectancy groups. Means for student sex and teachers were presented in Figures 2 and 3.

Student Sex

Males and females differed in the number of dyadic contacts that they had with their teachers according to the pretest, F (1,84)=4.25, $p<.05$, and according to the posttest, F (1,84)=6.00, $p<.05$. Males and females generated means of 15.22 and 12.53, respectively, using pretest data; means for males and females were 16.55 and 11.91, respectively, using posttest data (Figure 2).

Teachers

There were significant differences indicated by the pretest data, F (1,84)=17.15, $p<.001$, and by the posttest data, F (1,84)=15.66,

Table 13

Summary of Analyses of Variance of Total Dyadic Contacts

by Student Sex X Teacher X Expectancy Group for Both Pretest and Posttest Data

Source of Variation		Sum of Squares	Df	Mean Squares	F	Significance of F
Main Effects						
Sex	pre	285.42	1	285.42	4.25	0.04*
	post	463.29	1	463.30	6.00	0.02*
Teacher	pre	1150.50	1	1150.50	17.15	0.00***
	post	1208.65	1	1208.65	15.66	0.00
Group	pre	0.01	1	0.01	0.00	0.99
	post	1.12	1	1.12	0.02	0.90
Total	pre	1307.30	3	435.77	6.50	0.00***
	post	1659.63	3	553.21	7.17	0.00***
Two-Way Interactions						
Sex X Teacher	pre	117.61	1	117.61	1.75	0.19
	post	86.76	1	86.76	1.12	0.29
Sex X Group	pre	24.41	1	24.41	0.36	0.55
	post	67.43	1	67.43	0.87	0.35
Teacher X Group	pre	64.65	1	64.65	0.96	0.33
	post	145.25	1	145.25	1.88	0.17
Three-Way Interactions						
Sex X Teacher X Group	pre	2.51	1	2.51	0.04	0.85
	post	5.17	1	5.17	0.07	0.80

Note. Pretest and posttest data were analyzed separately.
*Significant at the .05 level
**Significant at the .01 level
***Significant at the .001 level

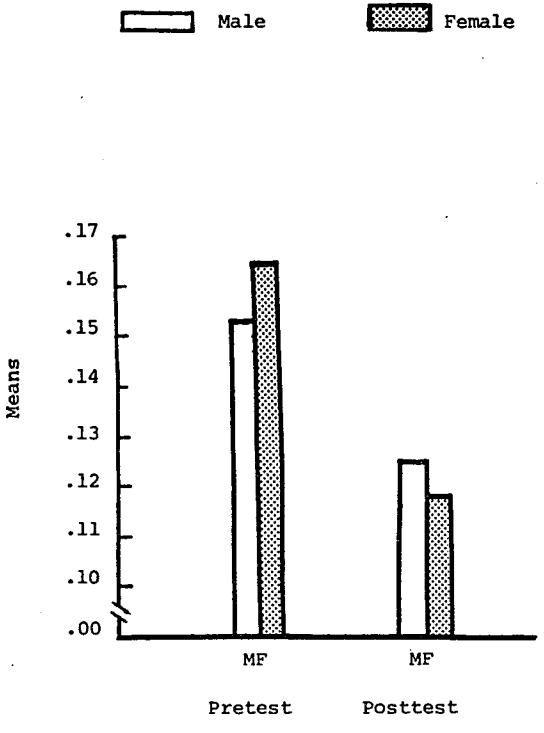

Figure 2. Means of student sex on total dyadic contacts plotted for both pretest and posttest.

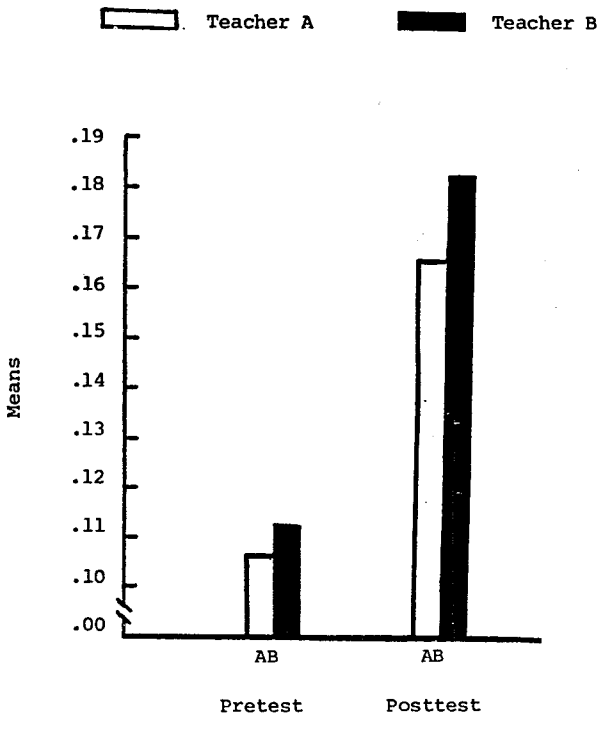

Figure 3. Means of teachers on total dyadic contacts plotted for both pretest and posttest.

$p<.001$, for the teachers with regard to total number of dyadic contacts with their students. Pretest data indicated that Teacher A and Teacher B had respective means of 10.77 and 17.40, and posttest data indicated that Teacher A and Teacher B had respective means of 11.18 and 18.38 (Figure 3).

Question Three: Are There Interaction Effects Among High- and Low-Expectancy Groups, Student Sex and Teachers With Respect to Total Dyadic Contacts?

The summary of the analyses of variance presented in Table 13 indicated that there were no statistically significant two-way or three-way interaction effects among the independent variables, high- and low-expectancy groups, student sex, and teachers, with respect to total dyadic contacts.

Question Four: What Are Teachers' Specific Behaviors Toward Students in High- and Low-Expectancy Groups?

Means obtained for seven DAC process categories were used to determine the teachers' specific behaviors toward students in high- and low-expectancy groups (SAS-MANOVA). These process categories included the verbal and nonverbal dimensions of the following: (a) Teacher Acceptance of Feelings, (b) Teacher Praise/Encouragement, (c) Teacher Acceptance/Use of Ideas, (d) Teacher Questions, (e) Teacher Lecture/Information Giving, (f) Teacher Directions, and (g) Teacher

Criticism. The means for teacher behaviors directed toward students in high- and low-expectancy groups for both pretest and posttest data are presented in Table 14. As indicated, patterns of teacher behaviors directed toward high- and low-expectancy groups were similar. (The complete tables of means for teacher behaviors derived from the multi-analyses of variance are presented in Appendix G.)

For both expectancy groups, Teacher Directions was the most frequently used behavior as indicated by pretest means of 5.26 and 4.63 for the high and low groups, respectively, and posttest means of 4.96 and 4.30 for the high and low groups, respectively. The teacher behavior ranked second was Teacher Praise/Encouragement for the high and low groups with respective means of 3.54 and 3.20 according to the pretest and 3.13 and 3.15 according to the posttest, and third was Teacher Criticism for the high and low groups with respective means of 2.78 and 2.87 according to the pretest and 2.61 and 2.61 according to the posttest.

Ranked fourth and fifth for the high-expectancy group were Teacher Questions with a pretest mean of 1.39 and Teacher Lecture/Information Giving with a pretest mean of 1.37. The rank order for the high-expectancy group for these two teacher behaviors was reversed using posttest data indicating that Teacher Lecture/Information Giving had a posttest mean of 1.91 and Teacher Questions had a posttest mean of 1.26. Ranked fourth and fifth for the low-expectancy group were Teacher Lecture/Information Giving with pretest and posttest means of 2.37 and 2.11, respectively, and Teacher Questions with pretest and posttest

Table 14

Means of Teacher Behaviors Toward Students in High- and Low-Expectancy Groups for Both Pretest and Posttest Data

Variable		High-Expectancy Group N	High-Expectancy Group Mean	High-Expectancy Group Ranking	Low-Expectancy Group N	Low-Expectancy Group Mean	Low-Expectancy Group Ranking
Teacher Acceptance of Feelings	pre	46	.35	7	46	.26	7
	post	46	.26	7	46	.22	7
Teacher Praise/Encouragement	pre	46	3.54	2	46	3.20	2
	post	46	3.13	2	46	3.15	2
Teacher Acceptance/Use of Ideas	pre	46	.54	6	46	.33	6
	post	46	.50	6	46	.39	6
Teacher Questions	pre	46	1.39	4	46	.98	5
	post	46	1.26	5	46	1.04	5
Teacher Lecture/Information Giving	pre	46	1.37	5	46	2.37	4
	post	46	1.91	4	46	2.11	4
Teacher Directions	pre	46	5.26	1	46	4.63	1
	post	46	4.96	1	46	4.30	1
Teacher Criticism	pre	46	2.78	3	46	2.87	3
	post	46	2.61	3	46	2.61	3

Note. Pretest and posttest data were analyzed separately.

means of 1.04 and .98, respectively.

The two behaviors used less frequently in both groups according to the pretest were Teacher Acceptance/Use of Ideas and Teacher Acceptance of Feelings. Respective means of .54 and .33 for the high and low groups of the former were derived from the data. The latter behavior revealed means of .35 and .26 for the high and low groups, respectively. This was also the case for the posttest. Teacher Acceptance/Use of Ideas indicated respective means of .50 and .39 for the high and low groups; Teacher Acceptance of Feelings revealed respective means of .26 and .22 for the high and low groups.

Question Five: What Are Specific Responses of Students in High- and Low-Expectancy Groups?

Means obtained for four DAC process categories were used to determine specific responses of students in high- and low-expectancy groups (SAS-MANOVA). These process categories included verbal and nonverbal dimensions of the following: (a) Student Predictable Response, (b) Student Analytic Response, (c) Student Initiated Response, and (d) Student Silence/Confusion. The means for student responses by high- and low-expectancy groups are presented in Table 15. As indicated, patterns of student responses of the high- and low-expectancy groups were similar. (The complete tables of means for student behaviors derived from the multivariate analyses of variance are presented in Appendix G.)

For both high- and low-expectancy groups, Student Predictable Response was the most frequently used student behavior as indicated by pretest means of 6.07 and 5.72 for the high and low groups, respectively, and posttest means of 5.98 and 5.48 for the high and low groups,

Table 15

Means of Student Responses by High- and Low-Expectancy Groups

for Both Pretest and Posttest Data

Variable		High-Expectancy Group			Low-Expectancy Group		
		N	Mean	Ranking	N	Mean	Ranking
Student Predictable Response	pre	46	6.07	1	46	5.72	1
	post	46	5.98	1	46	5.48	1
Student Analytic Response	pre	46	.50	3	46	.11	3
	post	46	.41	3	46	.15	3
Student Initiated Response	pre	46	1.57	2	46	1.63	2
	post	46	1.59	2	46	1.48	2
Student Silence/ Confusion	pre	46	.04	4	46	.07	4
	post	46	.02	4	46	.04	4

Note. Pretest and posttest data were analyzed separately.

respectively. Ranked second was Student Initiated Response for the high and low groups with respective means of 1.57 and 1.63 according to pretest and with respective means of 1.59 and 1.48 according to the posttest.

Next, for both groups, was Student Analytic Response with pretest means of .50 and .11 for the high and low groups, respectively, and posttest means of .41 and .15 for the high and low groups, respectively. The least used student behavior was Student Silence/Confusion with respective means of .04 and .07 for the high and low groups according to the pretest and with respective means of .02 and .04 for the high and low groups according to the posttest.

Question Six: Are There Significant Differences Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Teacher-Student Dyadic Interactions?

When all the variables were analyzed in a multivariate framework, significant multivariate Fs were found for teachers, F (11,74)=7.05, $p<.001$, using pretest data and for teachers, F (11,74)=7.75, using posttest data (SAS-MANOVA). No significant multivariate Fs were found for the other variables in question. Table 16 provides a summary of the multivariate analyses of teacher-student dyadic interactions. (Complete MANOVA summaries are reported in Appendix G.)

Multivariate procedures are considered appropriate statistics when investigating group differences and multiple dependent measures. MANOVA procedures not only facilitate univariate analysis with each

Table 16

Summary of Multivariate Analyses of Teacher-Student Dyadic Interactions

for Both Pretest and Posttest Data

DAC Process Categories	F (Multivariate) Teacher	Student Sex	High/Low Expectancy Group	Teacher X Sex	Sex X Group	Teacher X Group	Teacher X Sex X Group
Multivariate F (pretest)	7.05***	1.16	1.02	1.75	1.32	0.69	0.66
Multivariate F (posttest)	7.75***	1.15	0.67	1.84	1.31	0.65	0.84

Note. Pretest and posttest data were analyzed separately.
*Significant at the .05 level
**Significant at the .01 level
***Significant at the .001 level

dependent variable, but also provide a test of significance to determine whether the means, when considered simultaneously, are equal (Kerlinger & Pedhazur, 1973). Table 17 provides a summary of the univariate analyses of teacher-student dyadic interactions which suggests where the significant multivariate Fs for teachers were located in the specific DAC process categories. In addition, the univariate analyses show 16 significant differences and interaction effects according to pretest and posttest data in 8 different DAC process categories. These univariate differences and interaction effects, however, may be due to inflation. This is indicated especially when the total multivariate F is nonsignificant. Therefore, only those univariate differences relating to teachers and corresponding to a significant multivariate F are presented and discussed in the following text.

The multivariate procedures resulted in significant differences for teachers being located in the univariate analyses in three teacher behavior DAC categories. Significant differences were found according to both the pretest and posttest data for Teacher Praise/Encouragement and Teacher Questions and according to posttest data for Teacher Acceptance/Use of Ideas. Means are graphically presented in Figures 4-6.

Teacher Praise/Encouragement

A significant F (1,84)=21.76, $p<.001$, for the pretest, and F (1,84)=35.73, $p<.001$, for the posttest, indicated that teachers gave different amounts of praise and encouragement to their students. The

Table 17

Summary of Univariate Analyses of Teacher-Student Dyadic Interactions

of Both Pretest and Posttest Data

DAC Process Categories		F (Univariate) Teacher	Student Sex	High/Low Expectancy Group	Teacher X Sex	Sex X Group	Teacher X Group	Teacher X Sex X Group
Teacher Acceptance of Feelings	pre	0.77	0.01	0.16	0.21	0.32	1.24	0.68
	post	0.33	0.42	0.26	0.68	1.06	0.92	5.13*
Teacher Praise/ Encouragement	pre	21.76***	1.84	0.16	3.80*	0.09	0.89	0.13
	post	35.73***	0.33	0.00	2.07	0.43	1.57	0.99
Teacher Acceptance/Use of Ideas	pre	3.52	2.66	0.18	1.94	6.98**	0.04	0.08
	post	4.11*	1.45	0.00	1.15	1.74	0.56	0.32
Teacher Questions	pre	8.64**	2.77	1.37	1.98	0.13	0.03	0.01
	post	11.00***	3.00	0.25	6.11*	0.33	0.81	0.88
Teacher Lecture/ Information Giving	pre	2.86	0.36	3.88*	0.00	0.96	3.03	0.07
	post	1.13	0.93	0.58	0.02	1.25	0.14	0.05
Teacher Directions	pre	2.68	4.20*	0.00	0.02	1.18	0.11	0.00
	post	2.41	2.53	0.00	0.20	1.17	0.01	0.02
Teacher Criticism	pre	0.09	2.85	0.01	0.14	0.77	1.12	1.86
	post	0.03	1.15	0.07	0.81	1.84	2.08	0.43
Student Predictable Response	pre	1.75	3.58	0.09	0.92	0.25	0.59	1.96
	post	1.60	2.29	0.10	2.29	0.03	1.67	0.04
Student Analytic Response	pre	1.23	0.92	5.60*	3.46	0.98	1.30	0.85
	post	0.78	3.47	6.24**	8.30**	4.09*	2.02	2.63
Student Initiated Response	pre	0.24	1.51	0.82	3.80*	3.15	1.70	0.18
	post	0.69	0.88	0.09	2.18	1.93	0.34	0.10
Student Silence and/or Confusion	pre	0.04	0.59	0.36	1.35	0.13	0.04	1.35
	post	0.21	1.90	0.40	0.21	0.40	0.08	0.08

Note. Pretest and posttest data were analyzed separately.
*Significant at the .05 level
**Significant at the .01 level
***Significant at the .001 level

respective pretest means for Teacher A and Teacher B were 1.81 and 4.79, and the respective posttest means for Teacher A and Teacher B were 1.48 and 4.67 (Figure 4).

Teacher Questions

The number of questions asked by each teacher differed significantly using pretest data, F (1,84)=8.64, $p<.01$, and using posttest data, F (1,84)=11.00, $p<.001$. The pretest means for Teacher A and Teacher B were .70 and 1.63, respectively, and the posttest means for Teacher A and Teacher B were .64 and 1.63, respectively (Figure 5).

Teacher Acceptance/Use of Ideas

The posttest data indicated that teachers differed in their acceptance/use of student ideas, F (1,84)=4.11, $p<.05$. The means for Teacher A and Teacher B were .27 and .60, respectively (Figure 6).

Question Seven: Are There Interaction Effects Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Teacher-Student Dyadic Interactions?

The summary of the multivariate analyses of variance presented in Table 16 indicated that there were no statistically significant two-way or three-way interaction effects among the independent variables, high- and low-expectancy groups, student sex, and teachers, with respect to teacher-student dyadic interactions.

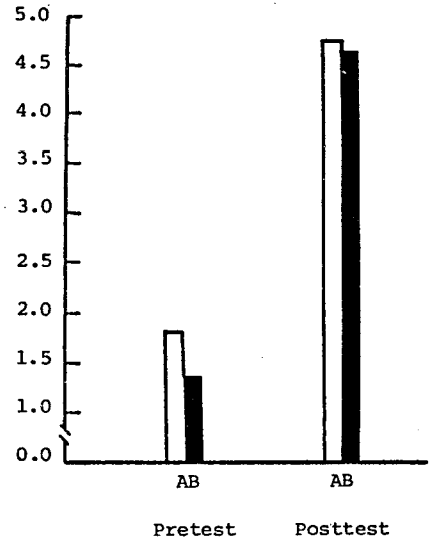

Figure 4. Means of teachers for Teacher Praise/Encouragement plotted for both pretest and posttest.

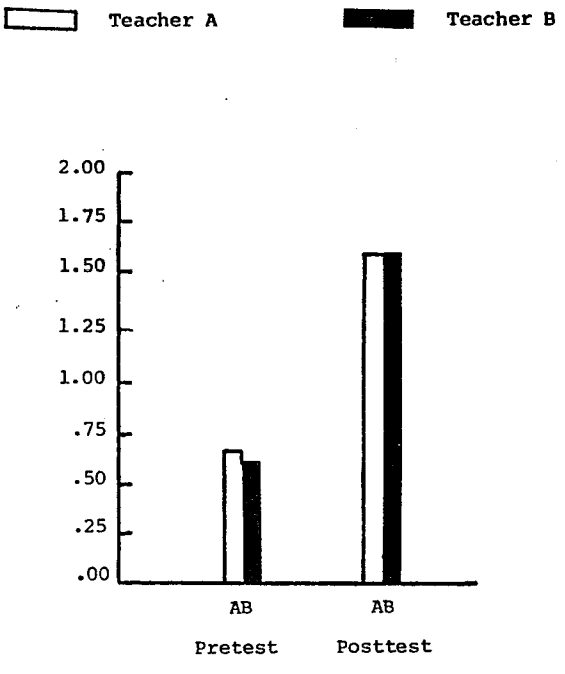

Figure 5. Means of teachers for Teacher Questions plotted for both pretest and posttest.

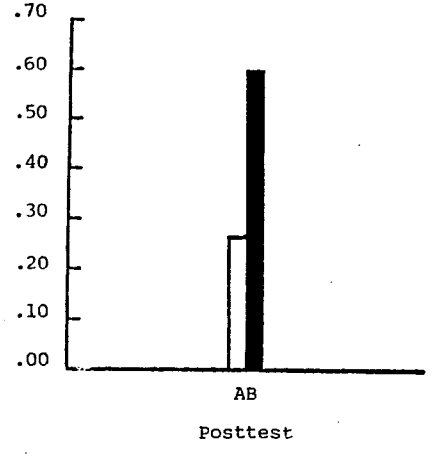

Figure 6. Means of teachers for Teacher Acceptance/Use of Ideas plotted for posttest.

Discussion

Researchers have recognized that data concerning expectancy effects operating in classrooms and gymnasiums cannot be analyzed and interpreted appropriately without considering the potential influence of both teacher and student (Brophy & Good, 1974; Crowe, 1977; Martinek & Johnson, 1979). Schlechty (1976) referred to the interactive influence of teacher and student attitudes and expectations as "reciprocity of influence." Similarly, Brophy and Good (1974) suggested that ". . . students shape teacher behavior at the same time that their own behavior is being influenced by the teacher" (p. viii).

This study focused directly upon the student's expectations, "which may be the most important part of the Pygmalion effect" (Entwisle & Webster, 1974, p. 304). A child builds performance expectations on the basis of responses supplied by significant others; these expectations then persist as part of an "ability self-concept." The researcher has long been interested in how children actually form expectations about their own abilities to perform in physical education and how these expectations shift as a consequence of the actions and behaviors of others, especially teachers. It was anticipated that the present study would reveal insights which relate to children's expectations for their own performance. For purposes of discussion, the findings are organized and discussed according to the independent variables: (a) high- and low-expectancy groups, (b) student sex, and (c) teachers.

High- and Low-Expectancy Groups

Young children in the third grade were used in this research. According to Felker (1974), Martinek and Zaichkowsky (1977), and Piers (1969), self-attitudes begin to stabilize around the second or third grade. It was reasoned that self-attitudes relating to high- and low-student expectations in physical education may be internalized by third graders to the extent that the expectations might differentially affect patterns of teacher-student dyadic interactions. Yet, the data of this investigation indicated that there were no significant differences between high- and low-expectancy groups in number or type of teacher-student dyadic interactions. This was true when the teachers were considered individually and together.

These results, however, should not be generalized to all age groups. It is possible that teacher-student dyadic interactions for high- and low-expectancy students are affected over time similar to the longitudinal effects reported by Horn (1914) who studied high- and low-achieving students. He found that the inequity of response opportunities between high- and low-achieving students increased with age. The difference was relatively small for young children in the early grades, but by high school the response opportunities of the top group were almost twice that of the low group. In a more recent study, Brophy, Evertson, Harris, and Good (1973) found that in early grades the number of contacts was equalized by grouping practices of the teacher. The same researchers also pointed out that some studies showed that equalizing efforts by teachers were often overcome by the behavior of high achievers in seeking response opportunities and in coming to the

teachers to discuss their work.

An idea related to the age effect is the polarization hypothesis proposed by Brophy and Good (1974) which suggests that gradually over time the relative differences among students increase. As these differences increase, so do the differences in the quantity and quality of teacher-student interactions. Perhaps a combination of intellectual, performance, and personality differences among students accounts for any polarization that occurs.

This speculation finds some support in a study by Power (1971). He identified "success syndrome" students who scored well on measures of knowledge and ability, had high student expectations, participated successfully and actively in class, had positive attitudes toward the class, and enjoyed high status among their peers. This group of high-expectancy students was the only group out of three in his study to avoid simple factual questions and take "calculated cognitive risks" by tackling the more difficult and higher-level questions that the teachers asked. In another study, Brophy and Good (1974) discovered that most classrooms contain a small group of high-achieving students who dominate the public interaction with the teacher and another group of low-achieving students who seldom or even never participate.

It is possible that over time expectations of the young children in this study would result in specific and differential patterns in both number and type of teacher-student dyadic interactions. A follow-up study using the same children to determine if and in what ways a "polarization" occurred would be interesting and important.

Student Sex

Males in this investigation differed significantly from females in the number of total dyadic contacts with their teachers. According to pretest data, males averaged 15.22 contacts and females averaged 12.53 contacts with their teachers, and according to posttest data, males and females averaged 16.55 and 11.91 contacts, respectively. This finding concurs with other studies that indicated males receive more contacts and more attention than females (Cherry, 1975; Good & Brophy, 1973). Brown (1979) did not find significant differences between males and females on total number of teacher-student dyadic contacts, but did find significant differences between males and females with regard to length of interaction time. The average total time per male student in her study was 120.45 seconds, and the average total time per female student was 79.88 seconds.

A generally accepted explanation for the quantitative advantage of males over females in interacting with their teachers is that people in our society are taught to believe that boys are aggressive, physically active, and interested in the manipulation of physical objects. On the other hand, girls are viewed as quieter, more conforming, and more interested in verbal and symbolic activities. Maccoby (1966) suggested that these sex-related characteristics are accurate to some degree since data on childrens' behavior and interests support these stereotypes.

Historically in our society, physical and athletic activities have been considered behavior more masculine than feminine. Apparently, what students perceive as appropriate for their own sex has the

potential to influence their attitudes, their expectations, and their performance. Stein, Pohly, and Mueller (1969) investigated the reactions of sixth-grade males and females to tasks that had been labeled as either masculine or feminine. Masculine tasks included mechanical, mathematical, and athletic activities, and feminine tasks included reading, artistic, and social activities. The researchers found that male and female children thought that it was more important to do better on tasks designated as appropriate for their sex, and that they expected to do better on these tasks. Furthermore, these expectations carried over into performance for males, who actually did better on the tasks labeled as masculine. Based on these findings, one might speculate that males, more so than females, might place a greater value on physical activity, have higher student expectations, demonstrate higher levels of skilled movement, and perhaps experience teacher-student dyadic interactions which are quantitatively and qualitatively different from females.

Striking quantitative and qualitative differences favoring males were reported by Jones (1971) for direct questions, open questions, call-outs, student-initiated procedural contacts, teacher-initiated work contacts, and total positive contacts. In Oien's (1979) study males received more praise/encouragement, questions, lecture/information giving, directions, and criticism than did females. In another study of second graders by Evertson, Brophy, and Good (1973), males exceeded females on measures of teacher-initiated work interactions, teacher-initiated procedural interactions, and recitation opportunities. Males also received significantly more praise for their

work and their behavior than females and significantly more criticism for their misbehavior.

Teachers

Number of teacher-student dyadic interactions. The two female elementary physical education specialists in this research differed significantly, $p<.001$, on quantitative measures for total dyadic contacts. Other studies (Martinek & Johnson, 1979; Oien, 1979) have reported teacher differences and concluded that it would be inaccurate to generalize their results because teacher differences may be attributed to unique personalities of teachers. Hamachek (1972) contended that a chosen style of teaching is, in essence, an extension of the teacher's own personality. Naturally, some teachers are extroverted, others introverted; some are proactive, others reactive; and some are friendly, others unpleasant. The point is that teachers are people, and people have different personalities. It is logical to assume that personality differences in teachers might affect the number of teacher-student dyadic interactions during the teacher/learning process.

In addition, a variety of student attitudes (such as student expectations, motivations, class behavior, personality characteristics, and self-concept) and student attributes (such as race, sex, intelligence, socioeconomic status, and physical attractiveness) may have influenced patterns of interactions among teachers and students in this study. Several researchers have reported evidence to support the influential nature of student attitudes and attributes on teacher-student interactions (Brophy & Good, 1974; Jones, 1977; Martinek, Crowe, &

Rejeski, 1982).

Another factor which might have contributed to the significant teacher differences in the number of dyadic contacts was the instructional methodology employed by each teacher. Obvious differences in the teachers' instructional methodology were observed informally during visits to the school by the researcher. These retrospective observations became important considerations during the attempt to interpret statistically significant differences found between the teachers.

Both teachers were working with their students on ball skills in accordance with the Guilford County curriculum plan. Instruction by Teacher A was characterized by a high degree of structure which was initiated and directed by the teacher. Instruction by Teacher B was characterized by a high degree of openness with teacher and students sharing decisions. Specifically, the teachers differed in their own use of space, in their organization of students, and in their design of the learning experiences for students. For example, Teacher A was stationed at the volleyball net, and Teacher B walked among her students; Teacher A organized her students into two teams by placing them on courts on either side of the volleyball net, and Teacher B organized her students to work individually by using a scattered formation about the gym; additionally, Teacher A served as referee while students engaged in a modified volleyball game with predetermined rules, and Teacher B guided the discovery of ball-handling skills by asking movement questions to students who then responded with movement using playground balls. The methodology employed by Teacher B not only afforded some degree of self-directed learning for students, but also afforded some degree of

freedom for the teacher. This freedom gave Teacher B the opportunity to make individual contacts with her students.

Several researchers supported the need for teachers to have more frequent small-group and dyadic contacts with students. Good, Biddle, and Brophy (1975) stated: "Teachers who work with smaller groups tend to get better results than teachers who spend most or all of their time working with the class as a whole" (p. 67). Sears' (1972) research substantiated this notion by demonstrating that students' achievements were greater when the teacher directed attention more often to individual students than to groups or to the whole class. Also, Spaulding (1963) found that self-concept improved with high degrees of private or semi-private communication between the teacher and child.

This research was limited to ascertaining the number of teacher-student dyadic contacts of each teacher and discovering differences between the teachers. It was not designed to determine the effects of those contacts upon student learning. This question was raised by the research: Did the students of Teacher B learn or gain more than students of Teacher A because of the greater number of teacher-student dyadic contacts? Future physical education research should be designed to answer such a question.

Type of teacher-student dyadic interactions. Significant differences for teachers were found for three of the DAC process categories: Teacher Praise/Encouragement, Teacher Questions, and Teacher Acceptance/Use of Ideas. Teacher B had statistically significant higher means than Teacher A for all three teacher behaviors. These

teacher behaviors are classified by Flanders (1970) as "indirect." The Flanders System of Interaction Analysis (FIAS), from which the DAC system was derived, classified all teacher statements as direct or indirect. These terms refer to the amount of freedom that the teacher grants to the student. Thus, when teachers are direct, they minimize the freedom of students to respond, or when teachers are indirect, they maximize the freedom of students to respond.

A number of studies investigated the relationship of direct and indirect patterns of teacher behavior to student achievement. Significant positive relationships were found between the indirect style and student achievement in the following areas: written language tests (Nelson, 1966), reading comprehension which persisted after formal classes had ended (Soar, 1966), creativity scores (Weber, 1967), elementary school science tests (Schantz, 1963), math tests (Weber, 1967), and self-concept measures in physical education class (Martinek, 1976).

An important point that should be emphasized here is that flexibility or variability in the use of teaching behaviors was found by Amidon & Flanders (1971) to be more predictive of teacher success than were direct-indirect patterns. In a series of their studies, teachers of classes in which student achievement was above average had the capacity to demonstrate teaching behavior appropriate to the immediate situation. The better teachers showed a variety of teaching patterns; the poorer teachers showed the same teaching pattern.

Three explanations are offered to account for the teacher differences in the three indirect teacher behavior categories. The first two

explanations have been previously mentioned as possible influences with regard to amount of dyadic contact between teachers and students. These were the unique personality make-up of the teachers and student attitudes and attributes. It was reasoned that these variables might also influence the type of teacher-student dyadic interactions.

The third explanation is that prior professional and educational experiences of the teachers may have influenced them to interact in certain ways with their students. It is possible that the teachers' personalities, the students' attitudes and attributes, and the teachers' prior professional and educational experiences worked in concert to produce significant teacher differences.

Information about the professional and educational experiences of the teachers was obtained during informal interviews. Teacher A received her undergraduate degree in physical education in 1965 and taught junior high school physical education in Hawaii and Pennsylvania until securing her present position as elementary physical education specialist in Guilford County in 1974. Teacher B received her undergraduate degree in physical education in 1956 and taught junior high and elementary school physical education in High Point, North Carolina, until 1966. She was then hired by the Guilford County System as an elementary physical education specialist in 1974.

At the time of the study, Teacher B was enrolled in a graduate school program which emphasized teaching physical education consistent with philosophical beliefs espoused by Barrett (1976). These focused on the following: (a) helping children become more aware of themselves through the medium of movement, (b) helping children understand

movement and the potential role it can and does have in their lives, (c) developing versatility and dexterity in movement as it is meaningful to the individual child, (d) viewing children as individuals with different rates of development and styles of learning, (e) helping children believe that they have something to offer that can make a difference, (f) designing learning experiences that are meaningful and personal to each child, (g) helping children learn how to learn (inquire/wonder/explore/search/create), (h) helping children take responsibility for their own behavior, (i) seeing children as experimenters and decision-makers, and (j) respecting the human dignity of each child.

It is hypothesized that the philosophical orientation and corresponding instructional methodology being studied in graduate school by Teacher B was manifested in her teaching behaviors in physical education class with third-grade children. Specifically, an increased use of Teacher Praise/Encouragement might have been related to ideas of providing supportive feedback and creating an atmosphere of success; an increased use of Teacher Questions might have been related to helping students explore, search, create, and make decisions through the problem-solving technique; and an increased use of Teacher Acceptance/Use of Ideas might have been related to helping children believe that they have something to offer that can make a difference.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate the differences among student expectations, student sex, and teachers with respect to teacher-student dyadic interactions of third-grade children. Seven questions gave structure to this research:

1. How many dyadic contacts occur between teachers and students of high- and low-expectancy groups?

2. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to total dyadic contacts?

3. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to total dyadic contacts?

4. What are teachers' specific behaviors toward students in high- and low-expectancy groups?

5. What are specific responses of students in high- and low-expectancy groups?

6. Are there significant differences among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

7. Are there interaction effects among high- and low-expectancy groups, student sex, and teachers with respect to teacher-student dyadic interactions?

Student expectations of 140 third-grade children enrolled in two different schools in Guilford County, North Carolina, were measured by the Johnson Motor Performance Expectancy Scale for Children (JMPES). A pretest and posttest of the JMPES were administered during the first and last weeks of a nine-week instructional period. The JMPES scores were used to identify high- and low-expectancy groups. The students scoring in the upper third at their school were classified as the high-expectancy group and those scoring in the lower third as the low-expectancy group. The high and low groups were determined independently for each school.

Teacher-student dyadic interactions of two female physical education teachers, each at a different school, and individual third-grade students in their classes were measured by the Dyadic Adaptation of CAFIAS (DAC). The physical education teachers met with their students every other day for 30 minutes of physical education instruction. Teacher-student dyadic interactions were observed and recorded by two trained coders on 18 randomly selected occasions during the nine-week period.

Using JMPES data from all student subjects, a preliminary t-test was calculated to determine if significant changes in scores occurred from pretesting to posttesting of the scale. This procedure was done to examine the stability of student expectations over time. Because a significant change was evident, $p<.001$, the statistical strategy to analyze the pretest and posttest data separately was adopted. The two data sets were viewed as independent variables.

Two 2 x 2 x 2 analyses of variance (ANOVAs) were used to analyze the three independent variables, student expectations, student sex, and

teachers, with respect to the dependent measure of total dyadic contacts. Total dyadic contacts were derived from the sum total of all the teacher behaviors directed toward students. The teacher behaviors included the DAC process categories 1-17. These categories included verbal and nonverbal teacher behaviors. One ANOVA was calculated using the pretest data and the other using the posttest data. ANOVAs were computed by using the Statistical Package for the Social Sciences (SPSS). Additionally, two 2 x 2 x 2 multivariate analyses of variance were used to analyze the three independent variables, student expectations, student sex, and teachers, with respect to the dependent variables measured by the DAC process categories. One MANOVA was calculated using the pretest data and the other using the posttest data. MANOVAs were computed by using the Statistical Analysis System (SAS).

Conclusions

The following conclusions were based upon the data and its analysis and are offered within the limitations of this research. They are organized as responses to the questions framing this investigation.

Question One: How Many Dyadic Contacts Occur Between Teachers and Students of High- and Low-Expectancy Groups?

The numbers of total dyadic contacts for the high- and low-expectancy groups, respectively, were 1,075 (53%) and 971 (47%) (pretest) and 1,038 (52%) and 963 (48%) (posttest).

Question Two: Are There Significant Differences Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect To Total Dyadic Contacts?

Significant Fs were found for the main effect of student sex with respect to total dyadic contacts. Males received more total dyadic contacts with teachers than did females (pretest and posttest, $p<.05$). Also, significant Fs were found for the main effect of teacher with respect to total dyadic contacts. Teacher B had more total dyadic contacts with students than did Teacher A (pretest and posttest, $p<.001$). No significant Fs were found for the main effect of expectancy groups with respect to total dyadic contacts. High- and low-expectancy students had approximately the same number of total dyadic contacts with their teachers.

Question Three: Are There Interaction Effects Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Total Dyadic Contacts?

There were no statistically significant two-way or three-way interaction effects among the independent variables, high- and low-expectancy groups, student sex, and teachers, with respect to total dyadic contacts.

Question Four: What Are Teachers' Specific Behaviors Toward Students In High- and Low-Expectancy Groups?

Teacher behaviors, ranging from most-used to least-used, were ranked in almost identical order for both teachers (pretest and posttest).

Question Five: What Are Specific Responses of Students in High- and Low-Expectancy Groups?

Student behaviors, ranging from most-used to least-used, were ranked in identical order for students of both teachers (pretest and posttest).

Question Six: Are There Significant Differences Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Teacher-Student Dyadic Interactions?

Significant multivariate Fs were found for teachers with respect to teacher-student dyadic interactions (pretest and posttest, $p<.001$). The univariate analyses located the significant differences as follows: (a) Teacher B used more Teacher Praise/Encouragement with students than did Teacher A (pretest and posttest, $p<.001$), (b) Teacher B used more Teacher Questions with students than did Teacher A (pretest, $p<.01$, and posttest, $p<.001$), and (c) Teacher B used more Teacher Acceptance/Use of Ideas than did Teacher A (posttest, $p<.05$). No significant multivariate Fs were found for expectancy groups or for student sex with respect to teacher-student dyadic interactions (pretest and posttest).

Question Seven: Are There Interaction Effects Among High- and Low-Expectancy Groups, Student Sex, and Teachers With Respect to Teacher-Student Dyadic Interactions?

There were no statistically significant two-way or three-way interaction effects among the independent variables, high- and low-expectancy groups, student sex, and teachers, with respect to teacher-student dyadic interactions.

Recommendations

Based on the findings of this study and on knowledges and insights gained during the investigation, the following recommendations for further research are offered for consideration:

1. Replicate this study in different physical education settings. For example, use different schools, use students with different social and cultural backgrounds, use teachers with different numbers of years of teaching experience, or use different geographical locations.

2. Refine the methodology of this research to include the following: (a) collect qualitative information which may prove useful in the elaboration and interpretation of statistical findings, (b) use the extremes (upper and lower 5%) on the normal curve as standards by which to identify high- and low-expectancy students, and (c) design methods to establish intracoder reliability for observers using the DAC system.

3. Expand the study in various ways: (a) include other age-grade groups; (b) use a larger teacher sample; (c) extend the data collection period; (d) include additional student variables such as race, intelligence, physical attractiveness, self-concept, locus of control, on and off-task behaviors, "middle" expectancy students, and experimentally induced student expectations; (e) include additional teacher variables such as race, sex, personality, teacher expectations, tactile behaviors, and amount of time spent talking with individual students.

4. Develop and validate appropriate tools to measure student expectations in physical education for all grade levels.

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APPENDICES

APPENDIX A

Materials Related to the Johnson Motor Performance Expectancy Scale for Children

November 29, 1978

DEC 4 1978

Ms. Susan Johnson
State Department of Public
Instruction
Raleigh, North Carolina 27611

Dear Susan:

I was told of your request regarding the use of *Ready? Set...Go!* pictures for inclusion in your dissertation concerning "expectation scale for physical achievement for elementary school children."

We are pleased to give you permission to use such materials. We would, however, request that you indicate the source of the materials somewhere in your credits and/or acknowledgements.

Take care.

Sincerely,

Bob Fox

Robert W. Fox
Associate Executive Director

RWF/lj

cc: Elsie Brumback

NAME _____

GRADE _____

SEX _____

SCHOOL _____

THE JOHNSON MOTOR PERFORMANCE

EXPECTANCY SCALE FOR CHILDREN

SUB-SCORES _____

_____

_____

TOTAL SCORE _____

INSTRUCTIONS FOR ADMINISTERING THE SCALE

1. Please have the children fill out the personal information on the front page of the booklet: name, grade, sex and school.

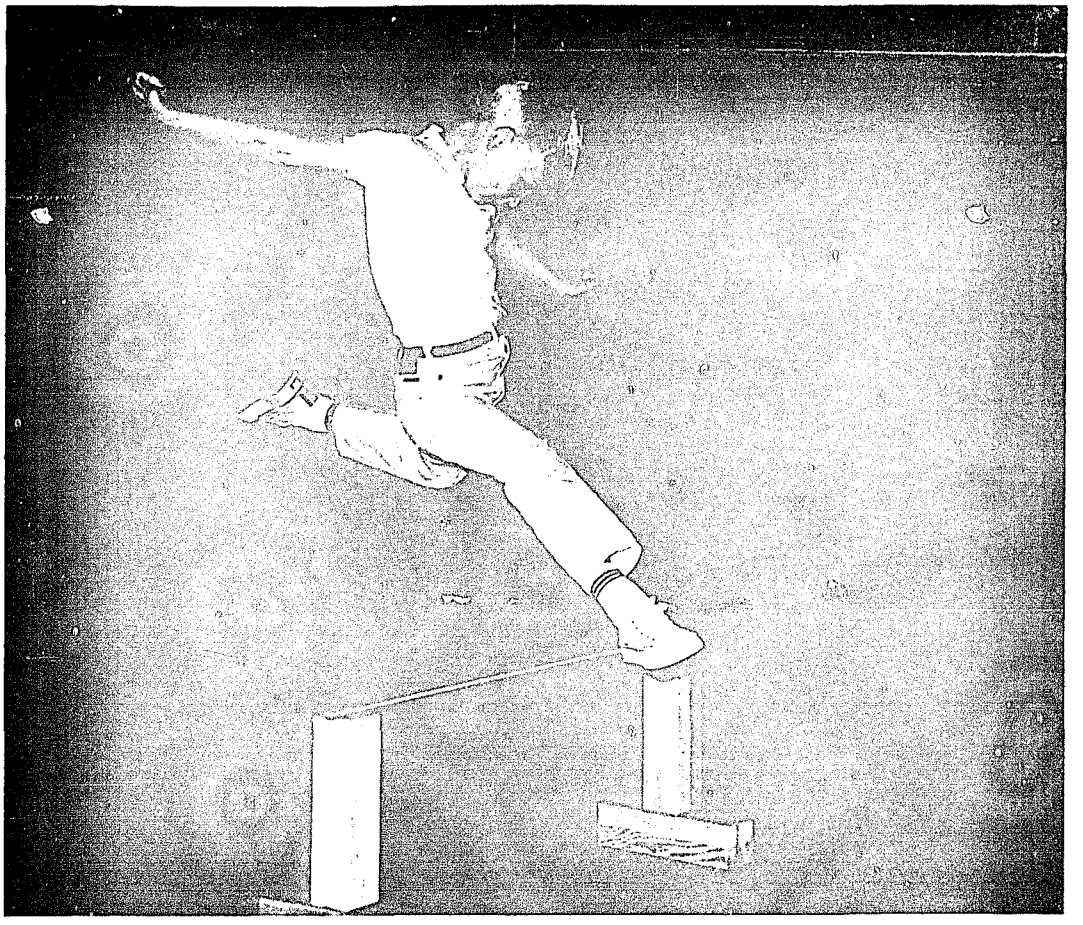
2. Ask the children to keep their booklets closed until the directions are read. Read aloud:

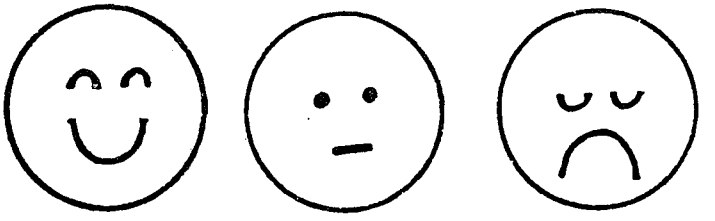
   This is not a test with right or wrong answers. You will see several pictures of children doing things in physical education. Please mark each answer according to what you think you can do. If the child is doing something that you think you can do--mark an "X" on the smiling face; if the child is doing something that you think you cannot do--mark an "X" on the frowning face; if you do not know--mark an "X" on the plain face.

   Only one "X" should be marked on each page. Usually, if more than one person is in the picture, an arrow points to the child you are to look at. Remember, there are no wrong answers and this will not be graded for school. Mark the face that honestly shows what you think you can do.

   Now, let us try one together. Open your booklet to the first page. The boy is leaping over the hurdle. If you think you can leap over a hurdle, mark an "X" on the smiling face. If you do not think you can, mark on the frowning face and if you do not know, mark on the plain face. Are there any questions?

   If you have any questions after you get started, raise your hand and I will come to you. After you finish marking every page, raise your hand and I will pick up the booklet. There is no need to rush; take the time you need. Please turn to page 1 and begin.





Sample

EXPECTED LEVELS OF STUDENT ACHIEVEMENT INVENTORY

Teacher:

_____

School:

_____

Grade:

_____

TEACHERS EXPECTED LEVELS OF STUDENT ACHIEVEMENT INVENTORY

Instruction Sheet

Indicate on the following pages how you expect each child in your class to perform on the physical skills during the instructional phases of your program. In rating your children the following procedures and considerations should be followed:

1. Be sure to have the information on the cover sheet filled out.

2. Please indicate next to each student's name his/her grade (3,4) and sex (M,F).

3. Place an 'X' beneath the numerical rating of achievement for each of your students.

4. Please try to be as truthful as possible when rating each of your students. REMEMBER - Rate each student according to your expected levels of achievement for that particular student.

5. The teacher will retain a copy of the ratings with the student's name and number for his/her records. A copy will also be retained by the researchers with only the numbers of each student given. This is to ensure confidentiality for the students.

EXPECTED LEVELS OF STUDENT ACHIEVEMENT
IN PHYSICAL EDUCATION

Directions: For each child in your class, place an 'X' in the appropriate column

Name of Student	Sex	Grade	Very High 7	High 6	Somewhat High 5	Moderate 4	Somewhat Low 3	Low 2	Very Low 1
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									

Name of Student	Sex	Grade	Very High 7	High 6	Somewhat High 5	Moderate 4	Somewhat Low 3	Low 2	Very Low 1
14.									
15.									
16.									
17.									
18.									
19.									
20.									
21.									
22.									
23.									
24.									
25.									
26.									
27.									
28.									
29.									

APPENDIX B

Materials Related to the DAC Observation System

SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS
(Amidon & Flanders, 1971, p. 14)

TEACHER TALK	INDIRECT INFLUENCE	1. * ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included. 2. * PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included. 3. * ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5. 4. * ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5. * LECTURING: giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions. 6. * GIVING DIRECTIONS: directions, commands, or orders with which a student is expected to comply. 7. * CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8. * STUDENT TALK - RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement. 9. * STUDENT TALK - INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. * SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

THE CATEGORIES OF CHEFFERS ADAPTATION OF
FLANDERS' INTERACTION ANALYSIS SYSTEM
(Cheffers, Amidon, & Rodgers, 1974, pp. 15-17)

Categories	Verbal	Relevant Behaviors	Nonverbal
2-12	2		12
	Praises, commends, jokes, encourages	Face:	Smiles, nods with smile, (Energetic) winks, laughs
		Posture:	Claps hands, pats on shoulder, places hand on head of student, wrings student's hand, embraces joyfully, laughs to encourage, spots in gymnastics, helps child over obstacles
3-13	3		13
	Accepts, clarifies, uses, and develops suggestion and feelings by the learner	Face:	Nods without smiling, tilts head in empathatic reflection, sighs empathetically
		Posture:	Shakes hands, embraces sympathetically, places hand on shoulder, puts arm around shoulder or waist, catches an implement thrown by student, accepts facilities
4-14	4		14
	Ask questions requiring student answer	Face:	Wrinkles brow, opens mouth, turns head with quizzical look
		Posture:	Places hands in air, waves finger to and fro anticipating answer, states awaiting answer, scratches head, cups hand to ear, stands still half turned towards person, awaits answer
5-15	5		15
	Gives facts, opinions, expresses ideas, or asks rhetorical questions	Face:	Whispers words inaudibly, sings, or whistles
		Posture:	Gesticulates, draws, writes, demonstrates activities, points
6-16	6		16
	Gives directions or orders	Face:	Points with head, beckons with head, yells at
		Posture:	Points finger, blows whistle, holds body erect while barking commands, pushes child through a movement, pushes a child in a given direction

Categories	Verbal	Relevant Behaviors	Nonverbal
7-17	7		17
	Criticizes, expresses anger or distrust, sarcastic or extreme self-reference	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
8-18	8		18
	Student response that is entirely predictable, such as obedience to orders, and responses not requiring thinking beyond the comprehension phase or knowledge (after Bloom)	Face:	Poker face response, nod, shake, gives small grunts, quick smile
		Posture:	Moves mechanically to questions or directions, responds to any action with minimal nervous activity, robot like
	EINE (8/)		EINETEEN (18/)
eine (8/) & eineteen (18/)	Predictable student responses requiring some measure of evaluation and synthesis from the student, but must remain within the province of predictability. The initial behavior was in response to teacher initiation	Face:	A "What's more, Sir" look, eyes sparkling
		Posutre:	Adds movements to those given or expected, tries to show some arrangement requiring additional thinking; e.g., works on gymnastic routine, dribbles basketball, all game playing
9-19	9		19
	Pupil-initiated talk that is purely the result of their own initiative and that could not be predicted	Face:	Interrupting sounds, gasps, sighs
		Posture:	Puts hands up to ask questions, gets up and walks around without provocation, begins creative movement education, makes up own games, makes up own movements, shows initiative in supportive movement, introduces new movements into games not predictable in the rules of the games
10-20	10		20
	Stands for confusion, chaos, disorder, noise, much noise	Face:	Silence, children sitting doing nothing, noiselessly awaiting teacher just prior to teacher entry, etc.

SAMPLE RECORDING SHEET
FOR DAC

School: Jamestown Grade: 3

Teacher: Blackwell No. in Class: 27

Class: Ball handling

1 4 25	24 2 8	47 2 18	70 18 18	93 9 6	116 3 3	139 18 14	162 (5) 8	185 2 8
2 8 25	25 2 17	48 4 18	71 9 18	94 7 6	117 7 17	140 7 8	163 (6) 8	186 4 14
3 5 25	26 3 17	49 8 18	72 7 18	95 4 6	118 18 17	141 7 14	164 18 8	187 18 14
4 4 3	27 3 24	50 18 18	73 (6) 18	96 8 6	119 13 8	142 6 8	165 7 8	188 1 14
5 8 3	28 2 7	51 2 9	74 18 18	97 2 6	120 6 8	143 4 8	166 18 8	189 6 25
6 2 3	29 7 25	52 2 22	75 7 15	98 7 21	121 8 8	144 8 8	167 7 8	190 18 25
7 4 3	30 (6) 25	53 3 22	76 6 10	99 18 21	122 9 8	145 5 8	168 7 8	191 7 5
8 8 27	31 18 25	54 7 18	77 18 10	100 2 23	123 (6) 4	146 7 8	169 (6) 8	192 9 5
9 3 27	32 (6) 25	55 18 18	78 2 10	101 (6) 23	124 18 4	147 18 8	170 18 8	193 (5) 5
10 (6) 5	33 18 25	56 2 18	79 3 10	102 (6) 23	125 7 14	148 2 4	171 2 8	194 (6) 5
11 18 5	34 4 15	57 7 10	80 7 15	103 18 23	126 18 14	149 3 8	172 7 4	195 18 5
12 12 5	35 18 15	58 (5) 15	81 2 21	104 2 23	127 (5) 14	150 4 25	173 18 4	196 (5) 5
13 7 8	36 2 15	59 2 15	82 4 23	105 (6) 1	128 (6) 14	151 8 25	174 (6) 25	197 4 5
14 18 8	37 4 10	60 6 15	83 8 23	106 18 1	129 18 14	152 7 4	175 18 25	198 8 6
15 (5) 8	38 18 10	61 18 15	84 (6) 23	107 2 2	130 2 14	153 18 4	176 9 25	199 5 5
16 7 4	39 2 15	62 2 9	85 18 23	108 6 2	131 7 8	154 9 8	177 5 25	200 4 5
17 18 4	40 (6) 15	63 2 22	86 7 6	109 7 27	132 18 8	155 5 8	178 9 25	
18 2 4	41 18 15	64 7 10	87 (6) 6	110 18 27	133 (6) 14	156 12 8	179 2 25	
19 (6) 8	42 2 15	65 12 9	88 18 6	111 2 27	134 18 26	157 2 8	180 (5) 25	
20 18 8	43 2 15	66 2 22	89 (6) 6	112 2 3	135 12 8	158 (6) 8	181 9 8	
21 (5) 8	44 (6) 10	67 2 22	90 18 6	113 4 12	136 2 4	159 18 8	182 (5) 8	
22 2 8	45 18 10	68 7 18	91 (5) 6	114 8 12	137 6 14	160 (5) 8	183 (5) 8	
23 7 8	46 6 10	69 (6) 18	92 (5) 6	115 2 3	138 20 14	161 7 8	184 9 8	

First Measure of Interobserver Reliability for Coders A and B Using Spearman's Rho with Tied Ranks

Top 10 Cells I.D.# - Category	Coder A Rank	Coder B Rank	d	d^2
1 - 6	1	1	0	0
1 - 18	2	2	0	0
2 - 18	3	3.5	.5	.25
4 - 18	4.5	3.5	1	1
3 - 18	4.5	6	1.5	2.25
1 - 2	6	6	0	0
2 - 6	7	6	1	1
3 - 6	8	8	0	0
3 - 7	9.5	9.5	0	0
1 - 7	9.5	9.5	0	0
Total				4.50

Spearman's Rho Formula: $$r = 1 - \frac{6 \times d^2}{n (n^2 - 1)}$$

$$r = 1 - .0273$$

$$r = .9727$$

MATRIX FOR DAC DATA

First Observation
Observer A

PROCESS
CATEGORIES

Student I.D. #	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	8/	18/	9	19	10	20
1			13	2			1		8	4	30		8			28		1	1			
2					1		1				10		5			16	1					
3			7								9		8			14						
4			6								7		5			14						
5	1		1	4			1		3	2	7		1			6						
6											1		1			1						
7							1			1	1		1		1	1			1			
8			6	1			1		7	5	2				1	2			5			
9			2	2					1		4	1	5	1		5	1	1	1			
10																			3			

MATRIX FOR DAC DATA

First Observation
Observer B

PROCESS
CATEGORIES

Student I.D. #	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	8/	18/	9	19	10	20
1			12				3		1		39		9			26	1					
2			6	3							10					12						
3			6	6							9		7			11						
4			5								11		5			11			1			
5	1		1	4			1		4	2	6		2			6	1		1			
6											3		2			2			1			
7	2						2		1		1		1		1	3			2			
8			1				2		9	8						1	1		3			
9			2	2					5		4	2	4			5	1	1				
10																			3			

Second Measure of Interobserver Reliability for Coders A and B Using Spearman's Rho with Tied Ranks

Top 10 Cells I.D.# - Category	Coder A Rank	Coder B Rank	d	d^2
1 - 18	1	1	0	0
4 - 18	2	3	1	1
4 - 6	3	3	0	0
1 - 6	4	4	0	0
3 - 18	5	5	0	0
5 - 18	6	6	0	0
6 - 6	7	7	0	0
3 - 6	9.25	9.25	0	0
5 - 6	9.25	9.25	0	0
6 - 18	9.25	9.25	0	0
Total				1

Spearman's Rho Formula: $$r = 1 - \frac{6 \times d^2}{n\,(n^2 - 1)}$$

$$r = 1 - .0060$$

$$r = .9940$$

MATRIX FOR DAC DATA

Second Observation
Observer A

PROCESS
CATEGORIES

Student I.L. #	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	8/	18/	9	19	10	20
1			3	10					1		17	3	1	1		22			1			
2			1						1	1	10	1				7			2			
3			5	2	2		1	1			11	2				15						
4			6	6					4	4	18	3				19						
5	1		3	11			4	2	7	6	11					13			1			
6			4	2	1		1		1		12				1	11			2			
7			2	8					1		8	1	1			9						
8			5	9						1	8	1	1			5						
9			3	6							4		1			6						
10			4	6	1						5	1			1	6						

MATRIX FOR DAC DATA

Second Observation
Observer B

PROCESS CATEGORIES

Student I.D. #	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	8/	18/	9	19	10	20
1			4	4							15					14			3	1		
2									7		6	1				10						
3			5	4	2						10	1	1			11			1			
4			5	5					4	4	15					16						
5	5	3	1	9			3		4		10	1	3	1		13						
6			5	5					2		12					10			3			
7			1	2							6					2						
8			3	6					1	1	9					9						
9			1	8							7					7			1			
10			3	6							8	2				7			2			

OBSERVATION PROCEDURES

A set of observation procedures was followed by the two coders to give organization to the observation process and to provide consistency over the 18 data collection sessions. Procedures included the following:

1. Arrive approximately 10 minutes prior to the beginning of class to prepare for the observation session.

2. Consult with the physical education teacher to discuss information, questions, or concerns and to determine the necessity of using the wireless microphone.

3. Place at least two or three recording sheets on a clipboard and fill in the appropriate information relative to: school, teacher, class, grade, activity, and date.

4. Lay out pinnies on the bleachers in numerical order for easy distribution. The children have already been assigned their identification numbers according to class roll.

5. Hook up and test wireless microphone and receiver, if applicable.

6. Determine the most advantageous location within hearing/seeing range to begin the observation. If the audio equipment is not being used, travel as the occasion arises.

7. Begin observing and recording teacher and student behavior at the onset of class utilizing the coding procedures and ground rules governing DAC.

8. Sign the coding sheet and collect the pinnies at the conclusion of the observation session.

APPENDIX C

Materials Related to Prior Approval for the Conduct of Research

THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
SCHOOL OF HEALTH, PHYSICAL EDUCATION & RECREATION

SCHOOL REVIEW COMMITTEE

PRINCIPAL INVESTIGATOR'S PROJECT OUTLINE FORM

Name of Principal Investigator Susan Johnson

Division within HPER Physical Education

Title of Proposed Project Student Expectations and Dyadic Interactions with Physical Education Teachers of Third Grade Children

Proposed Starting Date Week of January 21-25,1980 **Duration** 9-week grading period

Estimated Number of Human Subjects Involved in Project 146 (2 adults, 144 children)

I. Characteristics of Subjects (check as many boxes as appropriate).

___ Minors	___ Mentally Retarted	___ University Students
_X_ Adults	___ Pregnant Women	___ Secondary School Pupils
___ Prisoners	___ Legally Incompetent	_X_ Elementary School Pupils

___ Others (Specify) _____.

II. Consent and Withdrawal Procedures

A. Consent obtained from: Individual _X_, Institution _X_, Parent or Legal Guardian _X_, Other (Specify) _____

B. Type of Consent: Written (attach copy of consent statement) _X_ Oral _____ (explain reason for not using written form and attach a verbatim statement of the oral request to the subject).

C. Subjects are informed of withdrawal privileges (attach copy of statement).

Use the back of this page and additional sheets, as necessary, to respond to the remaining portions of this form.

III. Risks: Briefly describe the risks (physical, psychological, social) to the subjects, and indicate the degree of risk involved in each case.

IV. Benefits: Briefly describe the benefits (physical, psychological, social) to the subjects and/or humankind in general.

V. Methodology/Procedures

A. Briefly describe the methods used for selection of subjects/ participants.

B. Briefly describe all other procedures to be followed in carrying out the project.

C. Attach a copy of the proposal you are filing (Graduate School, Agency, etc.) and a copy of orientation information to subjects. Include questionnaires, interview questions, tests, and other similar materials.

VI. Agreements: By signing this form, the principal investigator agrees to the following:

A. To conform to the policies, principles, procedures and guidelines established by the HPER School Review Committee (SRC).

B. To supply the SRC with documentation of selection procedures and informed consent procedures.

C. To inform the SRC of any changes in procedures which involve human subjects, giving sufficient time to review such changes before they are implemented.

D. To provide the SRC with any progress reports it may request.

Date _____ Signature _____

The University of North Carolina
at Greensboro
School of Health, Physical Education
and Recreation
Coleman Building
Greensboro, North Carolina 27412
21 December 2 1979

Ms/ Susan B. Johnson
4705 Bernie Place
Raleigh,
North Carolina 27604

Dear Susan:

The purpose of this communication is to indicate the results of the review made by the Human Subjects Review Committee of your proposed project

Student Expectations and Dyadic Interactions with Physical Education Teachers of Third Grade Children

The evaluators have judged your plans which guarantee the rights of human subjects to be

[ ] Approved as proposed

[X] Approved conditionally pending -- revision of second paragraph of letter to parents. Simplify the language in order to clarify for "lay-persons."

File revised letter with School Review Committee after correction

[ ] Not approved. Please contact the School Human Subject Chair, for further information.

We appreciate your compliance with School/University regulations in this important matter. Please remember your commitment to notify the Committee in the event of any change(s) in your procedure.

Best wishes in your continued scholarly efforts.

Sincerely,
Pearl Berlin
Pearl Berlin
Chair, School of HPER
Human Subjects Review Committee

Copy: Graduate Coordinator file
Advisor

Sue, this means you may proceed with your plans. Just change the letter as suggested.

CONDUCT OF RESEARCH

The following procedures apply to any person wishing to conduct research within the Guilford County School System:

1. Five copies of the proposed study must be submitted by persons outside the school system to the Office of Research, Planning, and Evaluation by August 1 for research to be conducted during first semester and by December 1 for second semester. Research proposed by individuals within the Guilford County School System may be submitted at any time.

   Proposals that are contingent on outside funding and require indications of willingness to cooperate may be submitted at any time. Commitments to these proposals are limited to one year but may be renewed.

   The proposal should include the following information:

   a. purpose of the study,
   b. description of the study and its methodology,
   c. population to be studied,
   d. estimated cost in time, space, and money for students and staff,
   e. description of anticipated value to the Guilford County School System and the participants,
   f. description of plan for guaranteeing the due process rights as required by law and recommended by the APA guidelines for participants in such studies, and

g. description of plans to furnish results of the study to the Guilford County School System and the participants.

2. The proposed study will be reviewed by a standing committee composed of the Director of the Office of Research; Planning and Evaluation; the Assistant for Research; one member of the Pupil Support Services Staff; one member of the Central Office Instructional Staff; and one principal. Additional opinions will be solicited from appropriate Central Office and School Personnel as needed. Within two weeks from an established deadline, the committee will present a recommendation to the Office of Research, Planning, and Evaluation that the proposed study be approved or disapproved.

3. Within one week, the investigator will be notified in writing of the committee's decision. If the proposal is approved, the investigator should contact the Director of Research, Planning, and Evaluation for further information on initiating the study.

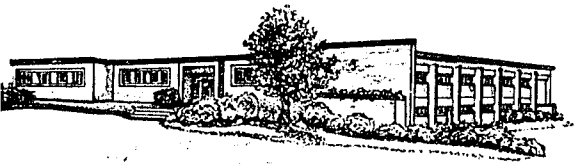
4. Once a proposed study is approved, the investigator assumes the responsibility for insuring that the study conforms to the submitted plan in all respects. Any modification of this plan requires additional review by the research committee for approval by the Director.

5. During the conduct of the study, the Office of Research, Planning, and Evaluation will monitor the impact on the school system. If undesirable consequences result from the

study, it may be terminated at the request of the Director of the Office of Research, Planning, and Evaluation.

6. At the conclusion of the study, the investigator will inform the Guilford County School System and all participants of the results as outlined in the approved research proposal.

7. Prior to preparation of the proposal, any researcher may contact the Office of Research, Planning, and Evaluation for an initial discussion of the feasibility of the study. Any person from within the Guilford County School System who wishes to conduct a study will be granted appropriate assistance in planning and writing the proposal by the Office of Research, Planning, and Evaluation.



GUILFORD COUNTY SCHOOL SYSTEM

120 FRANKLIN BOULEVARD 161
P.O. DRAWER B-2
GREENSBORO, NC 27402

DR. DOUGLAS P. MAGANN III, SUPERINTENDENT
272-0191 882-1822

January 10, 1980

JAN 1 [illegible]

Ms. Susan B. Johnson
Consultant, Physical Education
Department of Public Instruction
State of North Carolina
Raleigh, North Carolina

Dear Ms. Johnson:

Thank you for considering the Guilford County School System as a site for the conduct of research on interaction patterns of third grade students with physical education teachers. The school system is pleased to authorize you to conduct the study in accordance with the approved proposal and the system's procedures for the conduct of research.

It is my understanding that the study will be conducted at Jamestown and Gibsonville Elementary Schools during the months of January, February, March, and April, 1980. Also, you will work under the direction of the principal at each school and Ms. Judy Flynn, Physical Education Supervisor.

I trust that your effort will be fruitful. I am looking forward to reading your final report.

Sincerely,

Michael D. Priddy
Director of Research, Planning, and Evaluation

cc: C. Howard Cross
Wendell Owen
Olin Jackson
Judy Flynn

D5

THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
SCHOOL OF HEALTH, PHYSICAL EDUCATION & RECREATION

SCHOOL REVIEW COMMITTEE

INFORMED CONSENT FORM *

I understand that the purpose of this study/project is

_____

_____

_____

I confirm that my participation is entirely voluntary. No coercion of any kind has been used to obtain my cooperation.

I understand that I may withdraw my consent and terminate my participation at any time during the project.

I have been informed of the procedures that will be used in the project and understand what will be required of me as a subject.

I understand that all of my responses, written/oral/task, will remain completely anonymous.

I understand that a summary of the results of the project will be made available to me at the completion of the study if I so request.

I wish to give my voluntary cooperation as a participant.

_____
Signature

_____
Address

_____

_____
Date

*Adopted from L.F. Locke and W.W. Spirduso. Proposals that work. New York: Teachers College, Columbia University, 1976, p. 237.

Approved 3/78

MEMORANDUM

TO: Parents or Guardians

FROM: _____ School

RE: Physical Education Project

The third grade physical education classes at _____ School will be involved in a research project for a nine-week period. This will involve the students' completion of a pictorial booklet, The Motor Performance Expectancy Scale for Children. The booklet shows children doing activities in physical education and requires 10-15 minutes to complete. This instrument is designed to determine attitudes in physical education. In addition, on three occasions an individual will record teacher-student interaction.

Participation in this project is voluntary and the student may withdraw at any time. Identification numbers will be used instead of students' names. This project is in no way associated with the grades that your child will receive in physical education. A summary of the results of this project will be made available upon request.

I give permission for my child to participate in the physical education project:

Signed: _____

Date: _____

APPENDIX D

IBM Coding Sheet for All Data, Matrix for DAC Data

IBM

IBM System/360 Assembler Coding Form

GX28-6503-6 U/M 050*
Printed in U.S.A.

PROGRAM		PUNCHING INSTRUCTIONS	GRAPHIC									PAGE OF
PROGRAMMER	DATE		PUNCH									CARD ELECTRO NUMBER

STATEMENT

Name (1–8)	Operation (10–14)	Operand (16–71)	Identification-Sequence (73–80)
00522569	69	05 01 01 040403 05 2	
00622564	660101	04 02 02 01 0201 01 0203 0101	
01322569	64	02 0201 0201 01 0201 01 2	
00922566	69	06 01 0102 010101 01 2	
01822561	6101	04 02 01 010102 0101	
00822558	65	03 01 01 0101 01 01 1	
00222561	6502	05 01 01 01 0101	
02222565	5401	02 02 030303 0104 01	
01512659	61	070102 03 03 060404010208010204 01	
02412658	60	0604 02 01 02 04 0205 1	
00312656	65	04 010103 01 1	
01412666	69	0201 02 04 010104 0301 03 2	

* A standard card form, IBM electro 6509, is available for punching source statements from this form. Instructions for using this form are in any IBM System/360 assembler language reference manual. Address comments concerning this form to IBM Nordic Laboratory, Publications Development, Box 962, S-181 09 Lidingö 9, Sweden.

* No of forms per pad may vary slightly.

MATRIX FOR DAC DATA

TEACHER Wright

GRADE 3

DEMOGRAPHIC IDENTITY 2-6

PROCESS CATEGORIES

Student I.D. #	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	8/	18/	9	19	10	20	Total	Percentage
1			10	1	1	1	3		2	3	4		4		3	5		2		1				
2			3			1					1	1	2	2		3								
3			4								1	1	3			1								
4			3						1		2	1	2			4								
5			8	1			3		5	2	5	3	2		2	6			2		1			
6				1			2		2		1		2		1	1			3					
7	2		9	1			3		1		4	5	3		1	7		1	3					
8	2		4			1	5		4	1	4	4	2		4	6	1		2					
9			7				3		1	2	2		2	1	1	2		2	2					
Totals																								
Percent																								

APPENDIX E

Pretest and Posttest JMPES Scores by Individuals

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER A, CLASS 1)

Sex	I.D. No.	Pre	Post	Change
F	1	63	65	+ 2
F	2	52	57	+ 5
F	3	46	60	+ 14
F	4	65	65	same
F	5	69	69	same
F	6	57	63	+ 6
M	7	61	61	same
M	8	68	51	- 17
M	9	60	67	+ 7
M	10	69	66	- 3
M	11	66	67	+ 1
M	12	67	68	+ 1
M	13	66	67	+ 1
M	14	59	44	- 15
M	15	62	62	same
M	16	63	65	+ 2
M	17	67	67	same
M	18	57	56	- 1
M	19	67	65	- 2
M	20	65	68	+ 3
M	21	69	69	same
M	22	63	63	same
M	23	67	69	+ 2

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER A, CLASS 2)

Sex	I.D. No.	Pre	Post	Change
M	1	66	68	+ 2
F	2	63	64	+ 1
F	3	51	50	- 1
M	4	64	66	+ 2
F	5	69	66	- 3
M	6	49	51	+ 2
M	7	53	62	+ 9
M	8	65	69	+ 4
M	9	66	69	+ 3
F	10	61	60	- 1
M	11	57	64	+ 7
M	12	64	68	+ 4
M	13	67	65	- 2
F	14	50	57	+ 7
M	15	54	61	+ 7
F	16	41	61	+ 20
M	17	63	62	same
M	18	65	69	+ 4
M	19	68	65	- 3
M	20	62	63	+ 1
F	21	66	68	+ 2

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER A, CLASS 3)

Sex	I.D. No.	Pre	Post	Change
F	1	68	68	same
M	2	56	69	+ 13
M	3	67	62	- 2
M	4	60	68	+ 8
M	5	65	66	+ 1
F	6	58	58	same
M	7	53	67	+ 14
M	8	64	65	+ 1
F	9	68	69	+ 1
F	10	58	64	+ 6
M	11	67	69	+ 2
M	12	67	69	+ 2
M	13	59	60	+ 1
M	14	66	63	- 3
M	15	59	67	+ 8
M	16	66	68	+ 2
M	17	58	64	+ 6
F	18	58	66	+ 8
F	19	52	58	+ 6
M	20	68	51	- 17
M	21	59	63	- 4
M	22	63	61	- 2
M	23	45	42	- 3

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER B, CLASS 1)

Sex	I.D. No.	Pre	Post	Change
F	1	66	65	- 1
F	2	63	63	same
M	3	69	69	same
M	4	40	67	+ 27
F	5	57	58	+ 1
F	6	56	63	+ 7
M	7	63	66	+ 3
M	8	57	65	+ 8
F	9	62	64	+ 2
M	10	67	69	+ 2
F	11	68	68	same
M	12	57	56	- 1
F (withdrew)	13	-	-	-
F	14	56	63	+ 7
M	15	67	65	- 2
F	16	64	66	+ 2
M	17	69	69	same
F	18	59	68	+ 9
M	19	64	65	+ 1
F	20	64	61	- 3
M	21	69	67	- 2
F	22	62	62	same
F	23	64	69	+ 5
M	24	68	69	+ 1
M	25	60	63	+ 3

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER B, CLASS 2)

Sex	I.D. No.	Pre	Post	Change
M	1	65	67	+ 2
F	2	61	65	+ 4
M	3	60	65	+ 5
F	4	45	43	- 2
F	5	69	69	same
M	7	49	53	+ 4
F	8	58	65	+ 7
F	9	66	69	+ 3
M	10	68	69	+ 1
M	11	65	69	+ 4
M	12	67	69	+ 2
F	13	69	64	- 5
M	14	40	49	+ 9
M	15	53	60	+ 7
M	16	58	69	+ 11
F	17	58	56	- 2
F	18	61	61	same
M	19	59	66	+ 7
M	20	51	61	+ 10
M	21	65	69	+ 4
F	22	65	54	- 11
M	23	67	69	+ 2
F	24	62	64	+ 2

CHANGES IN JMPES SCORES FROM PRETEST TO POSTTEST
(TEACHER B, CLASS 3)

Sex	I.D. No.	Pre	Post	Change
F	1	60	65	+ 5
F	2	58	67	+ 9
M	3	56	65	+ 9
F	4	65	68	+ 3
M	5	55	57	+ 2
M	6	60	69	+ 9
M	7	58	67	+ 9
M	8	58	68	+ 10
F	9	59	67	+ 8
M	10	65	63	- 2
F	11	60	66	+ 6
F	12	55	55	same
M	13	67	69	+ 2
M	14	66	69	+ 3
M	15	59	61	+ 2
F	16	63	67	+ 4
M	17	69	69	same
M	18	53	65	+ 12
M	19	58	63	+ 5
F	20	59	65	+ 6
F	21	52	59	+ 7
F	22	51	59	+ 8
M	23	67	69	+ 2
M	24	58	60	+ 2

APPENDIX F

ANOVA Tables of Means Calculated with Respect to Total Dyadic Contacts

MEANS DERIVED FROM SPSS FOR ANOVA MAIN EFFECTS
FOR BOTH PRETEST AND POSTTEST DATA

Source		N	Means
		Pretest	
Sex	Male	58	15.22
	Female	34	12.53
Teacher	A	44	10.77
	B	48	17.40
Expectancy Group	Low	46	13.83
	High	46	14.63
		Posttest	
Sex	Male	60	16.55
	Female	32	11.91
Teacher	A	44	11.18
	B	48	18.38
Expectancy Group	Low	46	14.63
	High	46	15.24

MEANS DERIVED FROM SPSS FOR ANOVA TWO-WAY INTERACTIONS
FOR BOTH PRETEST AND POSTTEST DATA

Pretest

Source		N	Means
Teacher A	Male	31	11.19
	Female	13	9.77
Teacher B	Male	27	19.85
	Female	21	14.24
Low Expectancy Group	Male	24	14.54
	Female	22	13.05
High Expectancy Group	Male	34	15.71
	Female	12	11.58
Teacher A	Low	22	9.64
	High	22	11.91
Teacher B	Low	24	17.67
	High	24	17.13

Posttest

Teacher A	Male	29	12.21
	Female	15	9.20
Teacher B	Male	31	20.61
	Female	17	14.29
Low Expectancy Group	Male	26	16.08
	Female	20	12.75
High Expectancy Group	Male	34	16.91
	Female	12	10.50
Teacher A	Low	22	9.59
	High	22	12.77
Teacher B	Low	24	19.25
	High	24	17.50

MEANS DERIVED FROM SPSS FOR ANOVA THREE-WAY INTERACTIONS FOR BOTH PRETEST AND POSTTEST DATA

Pretest

Source			N	Means
Teacher A	Males	Low	13	9.77
		High	18	12.22
Teacher A	Females	Low	9	9.44
		High	4	10.50
Teacher B	Males	Low	11	20.18
		High	16	19.63
Teacher B	Males	Low	13	15.54
		High	8	12.13

Posttest

Teacher A	Males	Low	12	10.17
		High	17	13.65
Teacher A	Females	Low	10	8.90
		High	5	9.80
Teacher B	Males	Low	14	21.14
		High	17	20.18
Teacher B	Females	Low	10	16.60
		High	7	11.00

APPENDIX G

MANOVA Tables of Means and MANOVA Summary Tables Calculated with Respect to Teacher-Student Dyadic Interactions

MEANS DERIVED FROM SAS FOR MANOVA MAIN EFFECT OF EXPECTANCY GROUP FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	High N	High Means	Low N	Low Means
B1-11	46	.35	46	.26
B2-12	46	3.54	46	3.20
B3-13	46	.54	46	.33
B4-14	46	1.39	46	.98
B5-15	46	1.37	46	2.37
B6-16	46	5.26	46	4.63
B7-17	46	2.78	46	2.87
B8-18	46	6.07	46	5.72
B8/-18/	46	.50	46	.11
B9-19	46	1.57	46	1.63
B10-20	46	.04	46	.07

Posttest

CAFIAS Variable	High N	High Means	Low N	Low Means
B1-11	46	.26	46	.22
B2-12	46	3.13	46	3.15
B3-13	46	.50	46	.39
B4-14	46	1.26	46	1.04
B5-15	46	1.91	46	2.11
B6-16	46	4.96	46	4.30
B7-17	46	2.61	46	2.61
B8-18	46	5.98	46	5.48
B8/-18/	46	.41	46	.15
B9-19	46	1.59	46	1.48
B10-20	46	.02	46	.04

MEANS DERIVED FROM SAS FOR MANOVA MAIN EFFECT OF STUDENT SEX FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	Male N	Male Means	Female N	Female Means
B1-11	60	.32	32	.28
B2-12	60	3.67	32	2.81
B3-13	60	.52	32	.28
B4-14	60	1.37	32	.84
B5-15	60	1.92	32	1.78
B6-16	60	5.57	32	3.78
B7-17	60	3.20	32	2.13
B8-18	60	6.53	32	4.69
B8/-18/	60	.28	32	.34
B9-19	60	1.77	32	1.28
B10-20	60	.07	32	.03

Posttest

CAFIAS Variable	Male N	Male Means	Female N	Female Means
B1-11	58	.30	34	.29
B2-12	58	3.10	34	3.21
B3-13	58	.50	34	.35
B4-14	58	1.29	34	.91
B5-15	58	2.14	34	1.79
B6-16	58	5.09	34	3.85
B7-17	58	2.90	34	2.12
B8-18	58	6.41	34	4.56
B8/-18/	58	.22	34	.38
B9-19	58	1.64	34	1.35
B10-20	58	.05	34	.00

MEANS DERIVED FROM SAS FOR MANOVA MAIN EFFECT OF TEACHERS
FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	Teacher A N	Teacher A Means	Teacher B N	Teacher B Means
B1-11	44	.20	48	.40
B2-12	44	1.82	48	4.79
B3-13	44	.27	48	.58
B4-14	44	.70	48	1.63
B5-15	44	1.36	48	2.33
B6-16	44	4.20	48	5.63
B7-17	44	2.61	48	3.02
B8-18	44	6.25	48	5.56
B8/-18/	44	.34	48	.27
B9-19	44	1.63	48	1.56
B10-20	44	.05	48	.06

Posttest

CAFIAS Variable	Teacher A N	Teacher A Means	Teacher B N	Teacher B Means
B1-11	44	.14	48	.33
B2-12	44	1.48	48	4.67
B3-13	44	.27	48	.60
B4-14	44	.64	48	1.63
B5-15	44	1.70	48	2.29
B6-16	44	3.95	48	5.25
B7-17	44	2.59	48	2.63
B8-18	44	6.25	48	5.25
B8/-18/	44	.23	48	.33
B9-19	44	1.43	48	1.63
B10-20	44	.02	48	.04

MEANS DERIVED FROM SAS FOR MANOVA TWO-WAY INTERACTION OF EXPECTANCY GROUPS X STUDENT SEX FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	Male High N	Male High Means	Male Low N	Male Low Means	Female High N	Female High Means	Female Low N	Female Low Means
B1-11	34	.38	26	.23	12	.25	20	.30
B2-12	34	3.76	26	3.54	12	2.92	20	2.75
B3-13	34	.71	26	.27	12	.08	20	.40
B4-14	34	1.53	26	1.15	12	1.00	20	.75
B5-15	34	1.62	26	2.31	12	.67	20	2.45
B6-16	34	5.97	26	5.04	12	3.25	20	4.10
B7-17	34	2.94	26	3.54	12	2.33	20	2.00
B8-18	34	6.47	26	6.12	12	4.92	20	4.55
B8/-18/	34	.41	26	.12	12	.75	20	.10
B9-19	34	1.97	26	1.50	12	.42	20	1.80
B10-20	34	.06	26	.08	12	.00	20	.05

Posttest

CAFIAS Variable	Male High N	Male High Means	Male Low N	Male Low Means	Female High N	Female High Means	Female Low N	Female Low Means
B1-11	34	.29	24	.08	12	.17	22	.36
B2-12	34	3.00	24	3.25	12	3.50	22	3.05
B3-13	34	.59	24	.38	12	.25	22	.41
B4-14	34	1.41	24	1.13	12	.83	22	.95
B5-15	34	2.24	24	2.00	12	1.00	22	2.23
B6-16	34	5.53	24	4.46	12	3.33	22	4.14
B7-17	34	1.91	24	3.25	12	2.50	22	1.91
B8-18	34	6.50	24	6.29	12	4.50	22	4.59
B8/-18/	34	.26	24	.17	12	.83	22	.14
B9-19	34	1.88	24	1.29	12	.75	22	1.68
B10-20	34	.03	24	.08	12	.00	22	.00

MEANS DERIVED FROM SAS FOR MANOVA TWO-WAY INTERACTION OF TEACHERS X EXPECTANCY GROUPS FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	Teacher A High N	Teacher A High Means	Teacher A Low N	Teacher A Low Means	Teacher B High N	Teacher B High Means	Teacher B Low N	Teacher B Low Means
B1-11	22	.32	22	.09	24	.38	24	.42
B2-12	22	2.23	22	1.41	24	4.75	24	4.83
B3-13	22	.36	22	.18	24	.71	24	.46
B4-14	22	.91	22	.50	24	1.83	24	1.42
B5-15	22	1.45	22	1.27	24	1.29	24	3.38
B6-16	22	4.73	22	3.68	24	5.75	24	5.50
B7-17	22	2.77	22	2.45	24	2.79	24	3.25
B8-18	22	6.55	22	5.95	24	5.63	24	5.50
B8/-18/	22	.59	22	.09	24	.42	24	.13
B9-19	22	2.05	22	1.23	24	1.13	24	2.00
B10-20	22	.05	22	.05	24	.04	24	.08

Posttest

CAFIAS Variable	Teacher A High N	Teacher A High Means	Teacher A Low N	Teacher A Low Means	Teacher B High N	Teacher B High Means	Teacher B Low M	Teacher B Low Means
B1-11	22	.18	22	.09	24	.33	24	.33
B2-12	22	1.77	22	1.18	24	4.38	24	4.96
B3-13	22	.27	22	.27	24	.71	24	.50
B4-14	22	.77	22	.50	24	1.71	24	1.54
B5-15	22	1.77	22	1.64	24	2.04	24	2.54
B6-16	22	4.27	22	3.64	24	5.58	24	4.92
B7-17	22	2.86	22	2.32	24	2.38	24	2.88
B8-18	22	6.95	22	5.55	24	5.08	24	5.42
B8/-18/	22	.36	22	.09	24	.46	24	.21
B9-19	22	1.77	22	1.09	24	1.42	24	1.83
B10-20	22	.00	22	.05	24	.04	24	.04

MEANS DERIVED FROM SAS FROM MANOVA TWO-WAY INTERACTION OF TEACHERS X STUDENT SEX FOR BOTH PRETEST AND POSTTEST DATA

Pretest

CAFIAS Variable	Teacher A				Teacher B			
	Male		Female		Male		Female	
	N	Means	N	Means	N	Means	N	Means
B1-11	29	.21	15	.20	31	.42	17	.35
B2-12	29	1.76	15	1.93	31	5.45	17	3.59
B3-13	29	.28	15	.27	31	.74	17	.29
B4-14	29	.76	15	.60	31	1.94	17	1.06
B5-15	29	1.45	15	1.20	31	2.35	17	2.29
B6-16	29	4.79	15	3.07	31	6.29	17	4.41
B7-17	29	2.97	15	1.93	31	3.42	17	2.29
B8-18	29	6.66	15	5.47	31	6.42	17	4.00
B8/-18/	29	.21	15	.60	31	.35	17	.12
B9-19	29	2.21	15	.53	31	1.35	17	1.94
B10-20	29	.03	15	.07	31	.10	17	.00

Posttest

CAFIAS Variable	Teacher A				Teacher B			
	Male		Female		Male		Female	
	N	Means	N	Means	N	Means	N	Means
B1-11	31	.09	13	.23	27	.33	21	.33
B2-12	31	1.39	13	1.69	27	5.07	21	4.14
B3-13	31	.26	13	.31	27	.78	21	.38
B4-14	31	.61	13	.69	27	2.07	21	1.05
B5-15	31	1.87	13	1.31	27	2.44	21	2.10
B6-16	31	4.23	13	3.31	27	6.07	21	4.19
B7-17	31	2.74	13	2.23	27	3.07	21	2.05
B8-18	31	6.39	13	5.92	27	6.44	21	3.71
B8/-18/	31	.03	13	.69	27	.44	21	.19
B9-19	31	1.81	13	.54	27	1.44	21	1.86
B10-20	31	.03	13	.00	27	.07	21	.00

MEANS DERIVED FROM SAS FOR MANOVA THREE-WAY INTERACTION OF TEACHERS X STUDENT SEX X EXPECTANCY GROUPS FOR PRETEST DATA

Pretest

CAFIAS Variable	Teacher A, Males				Teacher A, Females				Teacher B, Males				Teacher B, Females			
	High		Low		High		Low		High		Low		High		Low	
	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means
B1-11	17	.29	12	.08	5	.40	10	.10	17	.47	14	.36	7	.14	10	.50
B2-12	17	2.24	12	1.08	5	2.20	10	1.80	17	5.29	14	5.64	7	3.43	10	3.70
B3-13	17	.47	12	.00	5	.00	10	.40	17	.94	14	.50	7	.14	10	.40
B4-14	17	.94	12	.50	5	.80	10	.50	17	2.12	14	1.71	7	1.14	10	1.00
B5-15	17	1.71	12	1.08	5	.60	10	1.50	17	1.53	14	3.36	7	.71	10	3.40
B6-16	17	5.35	12	4.00	5	2.60	10	3.30	17	6.59	14	5.93	7	3.71	10	4.90
B7-17	17	2.65	12	3.42	5	3.20	10	1.30	17	3.24	14	3.64	7	1.71	10	2.70
B8-18	17	6.35	12	7.08	5	7.20	10	4.60	17	6.59	14	6.21	7	3.29	10	4.50
B8/-18/	17	.35	12	.00	5	1.40	10	.20	17	.47	14	.21	7	.29	10	.00
B9-19	17	2.59	12	1.67	5	.20	10	.70	17	1.35	15	1.36	7	.57	10	2.90
B10-20	17	.06	12	.00	5	.00	10	.10	17	.06	14	.14	7	.00	10	.00

MEANS DERIVED FROM SAS FOR MANOVA THREE-WAY INTERACTION OF TEACHERS X STUDENT SEX X EXPECTANCY GROUPS FOR POSTTEST DATA

Posttest

CAFIAS Variable	Teacher A, Males				Teacher A, Females				Teacher B, Males				Teacher B, Females			
	High		Low		High		Low		High		Low		High		Low	
	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means	N	Means
B1-11	18	.11	13	.08	4	.50	9	.11	16	.50	11	.09	8	.00	13	.54
B2-12	18	1.72	13	.92	4	2.00	9	1.56	16	4.44	11	6.00	8	4.25	13	4.08
B3-13	18	.33	13	.15	4	.00	9	.44	16	.88	11	.64	8	.38	13	.38
B4-14	18	.72	13	.46	4	1.00	9	.56	16	2.19	11	1.91	8	.75	13	1.23
B5-15	18	2.00	13	1.69	4	.75	9	1.56	16	2.50	11	2.36	8	1.13	13	2.69
B6-16	18	4.67	13	3.62	4	2.50	9	3.67	16	6.50	11	5.45	8	3.75	13	4.46
B7-17	18	2.67	13	2.85	4	3.75	9	1.56	16	2.63	11	3.73	8	1.88	13	2.15
B8-18	18	6.89	13	5.69	4	7.25	9	5.33	16	6.06	11	7.00	8	3.13	13	4.08
B8/-18/	18	.06	13	.00	4	1.75	9	.22	16	.50	11	.36	8	.38	13	.08
B9-19	18	2.11	13	1.38	4	.25	9	.67	16	1.63	11	1.18	8	1.00	13	2.38
B10-20	18	.00	13	.08	4	.00	9	.00	16	.06	11	.09	8	.00	13	.00

MANOVA SUMMARY TABLE FOR TEACHERS (T), STUDENT SEX (SX), AND HIGH AND LOW EXPECTANCY GROUPS (H/L) WITH RESPECT TO DAC VARIABLES FOR PRETEST DATA

Pretest

Variable	Source	SS	Df	Ms	F
Teacher Acceptance of Feeling (1-11)		2.125	7	.304	.54
	T	.431	1		.77
	Sx	.005	1		.01
	T X Sx	.116	1		.21
	H/L	.087	1		.16
	Sx X H/L	.178	1		.32
	T X H/L	.698	1		1.24
	T X 5x X H/L	.348	1		.68
Teacher Praise/ Encouragement (2-12)		252.501	7	36.072	5.54***
	T	141.667	1		21.76***
	Sx	11.994	1		1.84
	T X Sx	24.726	1		3.80*
	H/L	1.065	1		.16
	Sx X H/L	.558	1		.09
	T X H/L	5.787	1		.89
	T X Sx X H/L	.844	1		.13
Teacher Acceptance/ Use of Ideas (3-13)		8.275	7	1.182	2.73
	T	1.521	1		3.52
	Sx	1.152	1		2.66
	T X Sx	.840	1		1.94
	H/L	.080	1		.18
	Sx X H/L	3.020	1		6.98**
	T X H/L	.016	1		.04
	T X Sx X H/L	.036	1		.08

TABLE (Continued)

Variable	Source	SS	Df	Ms	F
Teacher Questions (4-14)		31.139	7	4.448	3.00**
	T	12.826	1		8.64**
	Sx	4.109	1		2.77
	T X Sx	2.939	1		1.98
	H/L	2.033	1		1.37
	Sx X H/L	.198	1		.13
	T X H/L	.047	1		.03
	T X Sx X H/L	.017	1		.01
Teacher Lecture/ Information Giving (5-15)		83.011	7	11.859	1.63
	T	20.736	1		2.86
	Sx	2.620	1		.36
	T X Sx	.008	1		.00
	H/L	28.154	1		3.88*
	Sx X H/L	6.951	1		.96
	T X H/L	22.010	1		3.03
	T X Sx X H/L	.542	1		.07
Teacher Directions (6-16)		138.171	7	19.739	1.25
	T	42.382	1		2.68
	Sx	66.362	1		4.20*
	T X Sx	.248	1		.02
	H/L	.020	1		.00
	Sx X H/L	18.640	1		1.18
	T X H/L	1.705	1		.11
	T X Sx X H/L	.053	1		.00
Teacher Criticism (7-17)		49.717	7	7.102	1.02
	T	.651	1		.09
	Sx	19.900	1		2.85
	T X Sx	.994	1		.14
	H/L	.085	1		.01
	Sx X H/L	5.370	1		.77
	T X H/L	7.812	1		1.12
	T X Sx X H/L	12.938	1		1.86

TABLE (Continued)

Variable	Source	SS	Df	Ms	F
Student Predictable Response (8-18)		122.511	7	17.502	1.15
	T	26.500	1		1.75
	Sx	54.293	1		3.58
	T X Sx	14.018	1		.92
	H/L	1.299	1		.09
	Sx X H/L	3.723	1		.25
	T X H/L	9.008	1		.59
	T X Sx X H/L	29.675	1		1.96
Student Analytic Response (8/-18/)		8.775	7	1.254	1.30
	T	1.184	1		1.23
	Sx	.882	1		.92
	T X Sx	3.324	1		3.46
	H/L	5.383	1		5.60*
	Sx X H/L	.942	1		.98
	T X H/L	1.254	1		1.30
	T X Sx X H/L	.820	1		.85
Student Initiated Response (9-19)		60.724	7	8.675	1.59
	T	1.293	1		.24
	Sx	8.251	1		1.51
	T X Sx	20.783	1		3.80*
	H/L	4.480	1		.82
	Sx X H/L	17.212	1		3.15
	T X H/L	9.305	1		1.70
	T X Sx X H/L	.100	1		.18
Student Silence/ Confusion (10-20)		.232	7	.033	.62
	T	.002	1		.04
	Sx	.032	1		.05
	T X Sx	.072	1		1.35
	H/L	.019	1		.36
	Sx X H/L	.007	1		.13
	T X H/L	.002	1		.04
	T X Sx X H/L	.072	1		1.35

*Significance at the .05 level
**Significance at the .01 level
***Significance at the .001 level

MANOVA SUMMARY TABLE FOR TEACHERS (T), STUDENT SEX (SX), AND HIGH AND LOW EXPECTANCY GROUPS (H/L) WITH RESPECT TO DAC VARIABLES FOR POSTTEST DATA

Posttest

Variable	Source	SS	Df	Ms	F
Teacher Acceptance of Feelings (1-11)		4.010	7	.573	1.47
	T	.128	1		.33
	Sx	.162	1		.42
	T X Sx	.266	1		.68
	H/L	.102	1		.26
	Sx X H/L	.414	1		1.06
	T X H/L	.360	1		.92
	T X Sx X H/L	1.100	1		5.13*
Teacher Praise/ Encouragement (2-12)		266.046	7	38.007	7.30***
	T	185.934	1		35.73***
	Sx	1.700	1		.33
	T X Sx	10.749	1		2.07
	H/L	.025	1		.00
	Sx X H/L	2.246	1		.43
	T X H/L	8.167	1		1.57
	T X Sx X H/L	5.147	1		.99
Teacher Acceptance/ Use of Ideas (3-13)		5.566	7	.795	1.55
	T	2.113	1		4.11*
	Sx	.744	1		1.45
	T X Sx	.592	1		1.15
	H/L	.002	1		.00
	Sx X H/L	.896	1		1.74
	T X H/L	.287	1		.56
	T X Sx X H/L	.166	1		.32

TABLE (Continued)

Variable	Source	SS	Df	Ms	F
Teacher Questions (4-14)		37.651	7	5.379	4.51***
	T	13.126	1		11.00***
	Sx	3.583	1		3.00
	T X Sx	7.290	1		6.11*
	H/L	.298	1		.25
	Sx X H/L	.390	1		.33
	T X H/L	.970	1		.81
	T X Sx X H/L	1.047	1		.88
Teacher Lecture/ Information Giving (5-15)		27.058	7	3.865	.52
	T	8.480	1		1.13
	Sx	6.974	1		.93
	T X Sx	.137	1		.02
	H/L	4.382	1		.58
	Sx X H/L	9.347	1		1.25
	T X H/L	1.026	1		.14
	T X Sx X H/L	.411	1		.05
Teacher Directions (6-16)		109.900	7	15.700	.98
	T	38.506	1		2.41
	Sx	40.429	1		2.53
	T X Sx	3.121	1		.20
	H/L	.056	1		.00
	Sx X H/L	18.612	1		1.17
	T X H/L	.238	1		.01
	T X Sx X H/L	.250	1		.02
Teacher Criticism (7-17)		36.749	7	5.250	.80
	T	.225	1		.03
	Sx	7.544	1		1.15
	T X Sx	5.275	1		.81
	H/L	.043	1		.07
	Sx X H/L	12.042	1		1.84
	T X H/L	13.586	1		2.08
	T X Sx X H/L	2.832	1		.43

TABLE (Continued)

Variable	Source	SS	Df	Ms	F
Student Predictable Response (8-18)		144.174	7	20.596	1.17
	T	28.284	1		1.60
	Sx	40.429	1		2.29
	T X Sx	40.488	1		2.29
	H/L	1.764	1		.10
	Sx X H/L	.587	1		.03
	T X H/L	29.481	1		1.67
	T X Sx X H/L	.636	1		.04
Student Analytic Response (8/-18/)		12.059	7	1.723	2.24*
	T	.598	1		.78
	Sx	2.668	1		3.47
	T X Sx	6.386	1		8.30**
	H/L	4.796	1		6.24**
	Sx X H/L	3.145	1		4.09*
	T X H/L	1.555	1		2.02
	T X Sx X H/L	2.023	1		2.63
Student Initiated Response (9-19)		32.834	7	4.691	.87
	T	3.728	1		.69
	Sx	4.718	1		.88
	T X Sx	11.739	1		2.18
	H/L	.470	1		.09
	Sx X H/L	10.397	1		1.93
	T X H/L	1.844	1		.34
	T X Sx X H/L	.552	1		.10
Student Silence/ Confusion (10-20)		.133	7	.019	.57
	T	.007	1		.21
	Sx	.062	1		1.90
	T X Sx	.007	1		.21
	H/L	.013	1		.40
	Sx X H/L	.013	1		.40
	T X H/L	.003	1		.08
	T X Sx X H/L	.003	1		.08

*Significance at the .05 level
**Significance at the .01 level
***Significance at the .001 level