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# The relationship of student teachers and their cooperating teachers and its influence on students' Academic Learning Time-Physical Education (ALT-PE)

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THE RELATIONSHIP OF STUDENT TEACHERS AND THEIR  
COOPERATING TEACHERS AND ITS INFLUENCE ON  
STUDENTS' ACADEMIC LEARNING TIME-  
PHYSICAL EDUCATION (ALT-PE)

by

Randalin L. Patterson

An Abstract

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

May 1988

Thesis Advisor: Dr. Victor H. Mancini

## ABSTRACT

Student teaching is an important time of growth and change in the preparation of a teaching professional. It allows the student teacher to use the theory learned as an undergraduate for practice in the profession of teaching. The cooperating teacher and the student teacher work closely together and it might be assumed that the cooperating teacher influences everything from the behaviors to the attitudes of his or her student teacher. In recent years, researchers have shown the variable Academic Learning Time-Physical Education (ALT-PE) to be an indicator of teacher effectiveness and student achievement. The purpose of this investigation was to examine the effectiveness of the student teacher and how it changes during the course of the teaching experience and to examine the extent, if any, to which the cooperating teacher influences the student teacher. Subjects included 13 secondary school physical education student teachers with their cooperating teachers as well as 39 randomly selected students in their classes. Both the cooperating teachers and the student teachers were videotaped for two class periods, cooperating teachers prior to the arrival of the student teachers and the student teachers once during the first 2 weeks of student teaching and again in the last 2 weeks. The videotapes were coded using the revised ALT-PE instrument. The same students were observed throughout the investigation. Intraobserver agreement, calculated using the scored-interval method,

ranged from 92% to 100%. Multivariate analysis of variance (MANOVA) procedures were used to identify where significant ( $p < .05$ ) differences occurred. Student teachers changed significantly over the 7-week period at the context level ( $F[9,30] = 10.27$ ), but no significant changes were found at the learner involvement level ( $F[7,30] = 2.05$ ). Through the use of univariate ANOVA it was determined the warm-up, rules, and skill practice all decreased while scrimmage increased significantly. Motor appropriate behavior (ALT-PE) increased significantly at the learner involvement level. Throughout the 7-week period, student teachers' students were significantly different from cooperating teachers' students at both the context level (pretest  $F[9,30] = 15.85$ ; posttest  $F[9,30] = 19.33$ ) and at the learner involvement level (pretest  $F[7,32] = 27.14$ ; posttest  $F[7,32] = 62.67$ ). Univariate ANOVA resulted in differences in both pretest and posttest values for the same variables. Cooperating teachers' students were significantly higher on transition, management, technique, waiting, and off-task behavior, while student teachers' students were significantly higher on technique, strategy, rules, scrimmage, and motor appropriate behavior (ALT-PE). The findings revealed that the student teachers' emphasis on content-related activities changed during the student teaching experience. Differences in the cooperating teachers' and the student teachers' behaviors were evident. Student teachers spent more time on content-related

activities and their student accrued more ALT-PE, while the cooperating teachers' students spent more time on organizational activities and had more off-task behaviors and waiting in their classes.

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PHYSICAL EDUCATION (ALT-PE)

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

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

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by  
Randalin L. Patterson  
May 1988

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

CERTIFICATE OF APPROVAL

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MASTER OF SCIENCE THESIS

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This is to certify that the Master of Science Thesis of

Randalin L. Patterson

submitted in partial fulfillment of the requirements  
for the degree of Master of Science in the School of  
Health, Physical Education, and Recreation at Ithaca  
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## Chapter 1

### INTRODUCTION

Education for teacher certification involves two very distinct phases in the formal education process. The first phase focuses on education in theory and concept. This phase is responsible for the majority of time spent as an undergraduate. The second phase, which is thought to be the most important experience of the educational process, is that of student teaching. This is the culmination of the undergraduate professional preparation. It is a time of transition from emphasis on theory and concept to practical application in the classroom setting. As a student teacher, the undergraduate student is presented with the opportunity to become the director of the learning process instead of the student-learner.

The student teaching experience often begins with the student teacher observing the cooperating teacher. This time allows the student teacher to become familiar with the responsibilities of a teacher. The student teacher observes how the cooperating teacher performs managerial tasks, plans for classes, and teaches various lessons. Following the observational period, the student teacher begins to work directly with the cooperating teacher who can become a very influential factor in the success of the student teaching experience. Researchers have questioned the extent the

cooperating teacher affects the student teacher's behavior. Researchers have indicated that philosophies and behaviors of the student teacher are influenced both positively and negatively by the cooperating teacher.

The majority of research on the influence of the cooperating teacher on the student teacher has focused on teaching behavior. In recent years researchers have used systematic observational instruments, such as Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972), to study teacher behavior. In the physical education setting, Goss (1982) used CAFIAS to examine the behavioral patterns of cooperating teachers and student teachers to determine if the cooperating teacher influenced the verbal and nonverbal behavioral patterns of his/her student teacher. Data from 13 cooperating teachers and 13 student teachers were analyzed. Results indicated that the behavioral patterns of the student teachers changed during their student teaching experience, but the cooperating teacher failed to significantly influence the behavioral patterns of the student teacher.

Over the past 5 years, researchers have become increasingly interested in the concept of determining teacher effectiveness through student responses. Researchers have sought to describe the effects of teachers' behaviors on student learning and to assess teacher effectiveness indirectly through student achievement. The

Beginning Teacher Evaluation Studies (BTES) (Fisher, Berliner, Filby, Marliave, Cahen, Dishaw, & Moore, 1978) were designed to identify teacher and student behaviors that related to student achievement in elementary mathematics and reading. Four variables were identified as influencing student achievement: (a) the time allocated by the teacher for instruction, (b) the time the students were actively engaged with instructional material, (c) the relevance of the task to the instructional goal, and (d) the success of the students in performing the engaged task. The amount of time a student was successfully engaged in a relevant task was termed Academic Learning Time (ALT) by the researchers who offered strong support for ALT as an indicator of student achievement as well as teacher effectiveness.

Finally, the researchers developed a systematic observation instrument to describe the amount of ALT accrued by students during instruction. The teacher could use the information from the ALT instrument to determine where class design could be improved in order to maximize the amount of ALT in the classroom.

The ALT instrument was later modified for use in the physical education setting by Siedentop, Birdwell, and Metzler (1979). This modification was called Academic Learning Time-Physical Education (ALT-PE) and was defined as the amount of academic learning time accrued by the student while engaged in the physical education setting (Metzler,

entire class periods prior to the arrival of the student teachers. The student teachers were videotaped for two entire class periods, one in the beginning of the 7-week period and one at the end of the 7-week period. All tapes were coded using the ALT-PE observational system (Siedentop et al., 1982).

### Statement of Problem

The purpose of this investigation was to examine the influence of the cooperating teacher on the student teacher's effectiveness through the use of the ALT-PE instrument and to determine if the student teachers' effectiveness changes throughout the student teaching experience. Two specific subproblems were examined:

1. Does the effectiveness of the student teacher change during the student teaching period?
2. If so, does the effectiveness tend to approximate that of the cooperating teacher more at the end of the student teaching period than at the beginning?

### Null Hypotheses

There will be no significant difference in the ALT-PE of students in the classes taught by the student teacher at the start of the student teaching experience compared to the classes taught at the end of the student teaching experience. Also, there will be no significant difference in the ALT-PE of students in classes taught by the

cooperating teacher compared to those taught by the student teacher at the end of the student teaching experience.

#### Assumptions of Study

The following assumptions were made relative to this study:

1. The student teaching assignments were made according to the normal procedure established by the School of Health, Physical Education, and Recreation at Ithaca College, Ithaca, New York.

2. The interval recording format of the ALT-PE observational instrument provided a representative sample of behavior, which would have been gained from continuous observation.

3. The coding of three randomly selected students from each class and two classes each for the cooperating teacher and the student teacher using ALT-PE was adequate to yield valid data on the students' behavior during these classes.

4. The coder was reliable in the use of the ALT-PE system.

5. Videotaping did not alter the natural environment of the classes and the student teachers' behavior; therefore, a representative sample of this behavior was gained.

#### Definition of Terms

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

1. Academic Learning Time (ALT) is the amount of time a student spends in relevant academic tasks at a high rate of success (Marllave, 1976).

2. Academic Learning Time-Physical Education (ALT-PE) is the amount of time accrued by a student while participating in physical education setting performing relevant motor tasks with a high degree of success (Metzler, 1980).

3. Student Teacher was a senior student involved in the practice teaching phase of his or her teaching certification option. In this study the student teachers were placed in the secondary setting of the public schools.

4. Cooperating Teacher was a public school teacher who taught students daily and also supervised student teachers. This study used cooperating teachers from the secondary physical education setting.

#### Delimitations of Study

The following were the delimitations of the study:

1. The study involved 13 student teachers and their cooperating teachers from the secondary setting of the public schools. All student teachers were enrolled at Ithaca College, Ithaca, New York, during the 1980 spring semester.

2. ALT-PE was the only observational system used to record student behavior.

3. Only three students in each class were observed.

4. The student teachers were videotaped for two entire classes, one at the beginning and one at the end of the 7-week teaching experience. The cooperating teachers were videotaped for two entire classes prior to the arrival of the student teachers.

#### Limitations of Study

The following were the limitations of the study:

1. The results related to the student teacher involvement and teacher effectiveness may only be valid for comparison when ALT-PE is used as the observational tool.

2. The results may only apply to student teachers who received their undergraduate training at Ithaca College and who graduated in 1980.

3. The results may only be valid for comparison to the extent that the three randomly selected students are representative of the students in the class.

## Chapter 2

### REVIEW OF RELATED LITERATURE

The review of literature for this study will focus on the following areas: (a) the cooperating teacher's influence on the student teacher and (b) studies involving Academic Learning Time-Physical Education. A summary is also provided.

#### Cooperating Teacher's Influence on the Student Teacher

It has been commonly acknowledged by many practitioners and teacher educators that student teaching is the most important part of the teacher education process. Teacher training institutions have accepted this concept on "faith" solely because experienced teachers have often rated it the most meaningful experience in the preservice periods of their education. McAuley (1960) observed that this experience was vital, and student teachers appeared to be greatly influenced by their cooperating teachers in many areas. These areas included teaching methods, teaching techniques, and classroom housekeeping. The student teachers also changed their relationships with their students to become more like the relationships their cooperating teachers held with their students. For this review of literature, the influence of the cooperating teacher on the student teacher in a variety of academic areas will be included due to the lack of research in the physical education setting.

The relationship of the cooperating teacher and the student teacher can be explained through a dyadic relationship with the student teacher being influenced through observation and imitation of his or her cooperating teacher (Bandura, 1967). Through observation and subsequently imitation student teachers acquire behaviors similar to the cooperating teachers; these are reinforced through the practice of the skills. The performance of these skills are reinforced in part by the grade given by the cooperating teacher for the student teacher's performance.

One of the earlier studies which examined changes in the behaviors of student teachers through the use of an observational system was performed by Price (1961). Sander's Observational Schedule and the Minnesota Teacher Attitude Inventory (MTAI) were used by Price in the classroom setting to describe changes in student teachers' attitudes. Price found that the attitudes of student teachers changed considerably after the student teaching experience, and these changes tended to be in the direction of the attitudes held by the cooperating teachers with whom they worked. Price concluded that the student teachers acquired many of the teaching practices of their cooperating teachers during the student teaching experience.

The MTAI was later used by Yee (1969) to investigate congruent and incongruent influences of the elementary

school and secondary school cooperating teachers on student teachers. His study indicated that cooperating teachers exerted a strong congruent influence over the student teachers on both the elementary and secondary levels. He also found that most secondary student teachers tended to shift their attitudes in a positive direction to become more like their cooperating teachers while there was no change noted for the elementary student teachers. In a similar study, Jansen (1971) investigated the changes of student teachers', cooperating teachers', and university supervisors' educational values' perceptions. The pretest scores showed vast differences among all groups involved. Posttest scores indicated that the greatest congruence occurred between the cooperating teachers and the student teachers. Dissonance was shown between the student teachers and the university supervisors.

The variable of dogmatism or openmindedness was investigated by Johnson (1969). Student teachers' dogmatism was measured by the Rokeach Dogmatism Scale, Form A. A change in the dogmatism scores would demonstrate the influence of the interaction between the student teachers and their cooperating teachers. A significant shift in the student teachers' mean score towards the cooperating teachers' scores was found. This finding supported the findings of studies by Price (1961) and Yee (1969) in which

the student teachers' personality changed in response to the influence of the cooperating teachers.

Personality compatibility was also studied by Smith (1976). The interrelationships among student teachers' perceived cooperating teacher/student teacher compatibility and student learning outcomes of overall satisfaction, learning, and modeling were investigated. The subjects consisted of 51 physical education student teachers from four colleges. Questionnaires and psychological inventories as well as the Broverman' Sex Role Self-Concept Inventory were administered. Student teacher outcomes were measured by The Outcome: Satisfaction Rating Form. Results indicated that cooperating teacher/student teacher compatibility related positively to instructional competence, learning, and modeling outcomes.

Underhill (1968) examined another variable. He used the Affective Sensitivity Scale to study the relationship between the cooperating teachers' empathy and the shift in the student teachers' empathy level. He concluded that in the classroom setting there was a shift in empathy level of the student teacher to become more like the empathy level of the cooperating teacher.

Copeland (1979) and Zevin (1974) suggested the cooperating teacher was the primary force influencing student teacher's teaching skills in the classroom. Copeland suggested a strong relationship existed between the

cooperating teacher's behavior and the student teacher's use of specific "target" skills. In Zevin's investigation the cooperating teacher served as a replacement in the classroom for 5 minutes when the student teacher failed to use sufficient praise. During this time the student teacher observed the cooperating teacher's use of the skill. At the conclusion of the study the student teacher had become as effective as the cooperating teacher in using praise. Zevin's findings supported Copeland's contention that there was a relationship between the cooperating teacher's behavior and the student teacher's utilization of specific teaching skills. Zevin suggested that effective modeling was an important factor in improving the student teacher's teaching strategies and skills.

Davis (1980) investigated the effects of receiving feedback from the cooperating teacher on selected teacher behaviors exhibited by the student teacher. The subjects consisted of 10 student teachers placed at the elementary level. The cooperating teacher served as a role model for the student teachers in the study. The cooperating teacher instructed the student teacher on how to increase percentages of positive statements or praise, decrease the percentage of negative statements, and increase the percentage of specific content information statements as compared to the number of total statements. A baseline rate was collected for the behaviors at the onset of the study,

and data again were collected at the completion of the study. It was found that the student teachers changed consistently in the desired direction for the selected teacher behaviors.

The overall teaching patterns of classroom student teachers were studied by Mathews (1966) and Moskowitz (1967). The Flanders' Interaction Analysis System was used to determine teaching patterns common to the cooperating teacher and the student teacher. Pretest and posttest scores were gathered in both studies. Both studies concluded that the student teacher's teaching patterns were influenced by the cooperating teacher. Mathews further concluded that there was a more pronounced change in the first 4 weeks of the student teaching experience than during the second half of the experience.

The influence of the cooperating teacher upon the student teacher's verbal behavior has been investigated by a number of researchers. Flint (1965) used the Observational Schedule and Record Format to examine verbal behaviors. Results showed a strong relationship between the verbal behaviors of the student teachers and their cooperating teachers. It was also noted that student teachers' verbal behavior changed during the student teaching experience. A similar study by Serperson and Joyce (1971) used the Conceptual Systems Manual to study the changes that occur in verbal behaviors of student teachers during the student

teaching experience, the extent of changes, and the relationship between the pattern of verbal behaviors of the student teachers and the verbal patterns manifested by the cooperating teacher. Findings revealed negative relationships between student teachers and their cooperating teachers for the eight parameters of teaching style prior to the onset of the teaching experience. These relationships were identified as positive after the end of the teaching program.

One of the most recent variables investigated has been the change in student teacher's self-image or self-actualization. Benham (1978) used six student teachers on the elementary level; he placed three into a control group and three into an integrated core program. The integrated core program consisted of reflective writing about teaching experiences. The reflective writing allowed the group to record their feelings both good and bad about their teaching performances in the classroom. Results indicated that student teachers involved in the reflective writing adapted less to the attitudes of their cooperating teachers. There was still a significant change, however, towards acceptance of the attitudes of the cooperating teacher. Benham concluded that the student teaching situation provided the student teacher with a maximum opportunity for a change in attitudes due to the reinforcement of such change by the cooperating teacher.

Several researchers (Farrow, 1964; Goss, 1982; Halley, 1974; Levine, 1980; Nerenz, 1979; Terwillinger, 1975; Webb, 1979) have refuted the cooperating teachers' significant influence on the teaching behaviors of student teachers in the classroom and physical education setting. Halley (1974) studied 17 student teachers and 17 cooperating teachers' behaviors through the use of Flanders' Interaction Analysis System. Data were collected for a 2-month period. Results showed that there was no significant change ( $p > .01$ ) in the student teachers' verbal behavior. She also concluded that student teachers' verbal behaviors did not uniformly change towards the verbal behavior of the cooperating teacher. Close to 50% of the student teachers' verbal behaviors were more similar to the cooperating teachers' verbal behaviors at the onset of the student teaching experience. As the experience progressed, the verbal behaviors shared by both groups became less. Farrow (1964) and Terwillinger (1975) also supported this conclusion. Webb (1979) administered questionnaires to 130 elementary student teachers to determine their perception of the cooperating teachers' influence. These questionnaires were given out before and several times during the teaching experience. Student teachers reported that the cooperating teachers were the major source of conflict and that their influence dropped after the initial week of teaching. Conflict with the

cooperating teachers arose often in the area of classroom management.

Levine's (1980) findings were similar to those of Webb (1979). Levine administered the TATSO Questionnaire, a semantic differential scale, to student teachers at the beginning and at the end of the student teaching experience. The same scale was administered to the cooperating teachers at the beginning and at the end of the student teachers' experience. Data were factor analyzed resulting in extraction of 10 factors relating to the concept "Myself as Teacher." The student teachers were more like the cooperating teachers at the beginning of the study than they were at the end of the study.

Goss (1982) examined the behavioral patterns of cooperating teachers and student teachers in the physical education setting to determine if the cooperating teachers influenced the verbal and nonverbal behavioral patterns of student teachers. Data from 13 student teachers and 13 cooperating teachers were analyzed using the Cheffers' Adaptation of the Flanders' Interaction Analysis System (CAFIAS) (Cheffers, 1972). Results indicated that the behavioral patterns of student teachers changed during their student teaching experience, but cooperating teachers failed to significantly influence the behavioral patterns of the student teachers. Nerenz (1979) further suggested that it was the student teacher who influenced the attitudes of the

cooperating teacher during the course of the student teaching experience.

#### Studies Involving Academic Learning Time-Physical Education

Researchers in the general area of teacher effectiveness have been increasingly interested in studying the effects of teacher behaviors on student learning. The Beginning Teacher Evaluation Study (BTES) was a result of this increased interest in student behaviors. The BTES researchers concluded that student achievement may be inferred from students' time-on-task (Berliner, 1979). This time-on-task concept became known as Academic Learning Time (ALT) and was defined as the amount of time a student spends engaged in a relevant learning task with a high degree of success (Marliave, 1976). The ALT model consisted of two time variables: engaged time and allocated time. Allocated time was defined as the time the teacher allocates to a certain task. Engaged time was defined as the time the student pays attention to the activity being taught. ALT was also composed of two nontime variables: task relevancy and student success. Student understanding was reflected by a high, medium, or low success rate. Extensive research using ALT was conducted in the areas of elementary math and reading (Fisher, Berliner, Filby, Marliave, Cahen, Dishaw, & Moore, 1978). Results from this research led to the conclusion that student learning can be inferred from the amount of time students successfully are engaged in relevant

activity. The BTES researchers also designed a systematic observation instrument, ALT, to gather information about the four ALT variables in the classroom setting.

A modification of the ALT instrument by Siedentop, Birdwell, and Metzler (1979) allowed the development of an instrument that would permit coding in the physical activity setting. This modification, Academic Learning Time-Physical Education (ALT-PE), was defined as the amount of ALT accrued by a student while in the physical education setting (Metzler, 1980). The ALT-PE instrument was used as an indicator of the effectiveness of an instructor in the physical education setting and provided information about student achievement. This system consisted of four major decision levels: setting, content, learner moves, task difficulty, and 25 further categories. The 25 further categories provided a means to describe how students spend their time in class. A category ALT-PE (M) was included in the system and was defined as any observed interval in which a target student was coded as being motor engaged in a relevant task with an easy level of difficulty (Metzler, 1980).

Metzler (1980) used the ALT-PE instrument (1979) in a variety of physical education settings to determine the amount of ALT-PE accrued by the students. Twenty-one physical educators teaching at the elementary, junior high, and senior high schools served as the subjects. A total of

32 classes were observed, encompassing 13 different activities. Two or three randomly selected students were observed in each class. Descriptive statistics showed that students were involved in physical education related activities (PE-content) 73.6% of the total class time. Students were actively engaged in ALT-PE (M) 7.5% of all class time. ALT-PE occurred 26.8% of all class intervals.

Metzler (1980) examined 13 different physical education activities to determine the amounts of total ALT-PE and ALT-PE(M) accrued by students in those activities. Results indicated that students engaged in team activities accrued more ALT-PE but less ALT-PE(M) than students involved in individual-type activities. The highest mean percentage of ALT-PE was recorded in volleyball (59.4%); the lowest was found in gymnastics (12.3%). Metzler suggested that team activities require different teaching strategies than do individual activities. It was also found that throughout the 32 classes observed, ALT-PE and ALT-PE(M) did not increase from the beginning to the end of the unit.

A descriptive study using 30 elementary and 31 secondary school physical educators was conducted by Godbout, Brunelle, and Tousignant (1983). These subjects were observed twice within a 2-month period. Results showed that PE-content activity accounted for 65.7% of the class time on the elementary level while PE-content accounted for 81.1% of class time at the secondary level. At the

elementary level ALT-PE constituted 31.3% of the class time, while it accounted for 36.4% of class time on the secondary level. Both studies (Godbout et al., 1983; Metzler, 1980) found that, at the elementary level, students spent more time engaged in activity than not engaged. At the secondary level students spent equal time in both non-engaged activity and in engaged activity.

The ALT-PE instrument has been used to examine the learning differences of handicapped and nonhandicapped students as well as students of different skill levels and sexes. Aufderheide, Olson, and Templin (1981) conducted a study to determine if mainstreamed handicapped students received the same opportunity to learn as regular students. The subjects were four teachers and 34 junior high school students. A mainstreamed handicapped and a nonhandicapped student were coded in each of the 17 classes. The results revealed no significant differences in the ALT-PE of mainstreamed handicapped and nonhandicapped students. Similar amounts of engaged time were found for both groups. The ALT-PE(M) recorded for both groups was about 9%. Mainstreamed handicapped students and nonhandicapped students also served as subjects in a later study by Aufderheide, McKenzie, and Knowles (1982). Teachers were grouped as users or non-users of individualized instruction. One nonhandicapped student and one handicapped student were observed alternately during each of the 60 classes. A

significant difference was found; the non-handicapped students spent more time on motor activities that had an easy level of difficulty. Total engaged and non-engaged times were not significantly different. Results also indicated that the students engaged in classes taught by teachers using individualized instruction were engaged 57.2% of all class time as compared to 48.94% for students of nonusers of individualized instruction.

Placek, Silverman, Shute, Dodds, and Rife (1983) examined the amount of ALT-PE accrued by students of different sexes and abilities and also compared the ALT-PE of special needs and nonspecial needs students. Students were 53 first, third, and fifth-graders taught by the same physical education instructor. High-skilled students accrued 15% ALT-PE compared to 9% for medium-skilled and 8% for the low-skilled group. No differences were found in the ALT-PE accrued by male and female students. Results indicated that nonspecial needs students were engaged in motor response at an an easy level of difficulty 13% of the time as compared to 6% for special needs group students. Overall, equal learning opportunities existed for all three groups.

To allow comparison to be made with classes at the college level, Metzler (1981) measured the amount of ALT-PE accrued by students in eight different college activity courses. Results from this study showed that 45% of all

class time was spent in ALT-PE, and of the 18.5% was accounted for by ALT-PE(M). Metzler found that these figures were double the figures found at the elementary and secondary levels.

Many studies have been conducted to determine the effects of feedback and intervention on teacher effectiveness. A study conducted by Birdwell (1980) used three inservice teachers who received daily feedback and instruction in an effort to increase their ALT-PE. Results showed that ALT-PE increased from 34.7% to 57.3% on the average while ALT-PE(M) increased from 17.5% to 37.7%.

A similiar study was conducted by Whaley (1980). Subjects consisted of 12 students from four different schools. They were observed daily in their physical education classes for 7 weeks. Intervention began half-way through the 7-week period. Teachers were told that more motor responses and increased engaged time were desirable. They were not informed as to how to reach this goal. The second intervention informed the students of the desirable outcomes. Daily feedback was given to both the students and the teachers. The feedback and monitoring had no significant effects on the students' ALT-PE or the teachers' behavior.

Beamer (1983) attempted to increase the ALT-PE of nine physical education students at the middle school level as well as the effectiveness of their two teachers. Teachers

were requested to increase the feedback to the low-skilled students, increase large group monitoring, and decrease management time. Results showed the PE-content averaged 68% and the ALT-PE 15% of class time. Intervention was successful at one of the two schools. Beamer concluded that the activity itself, time available, and the use of the time all significantly affected ALT-PE.

The effects of various instructional strategies have also been examined by researchers. An instructional strategy has been defined by Paese (1982) as the vehicle or delivery system by which ordered information is imparted to the learner by the instructor or some other informational source. Six instructional strategies were examined by McKenzie, Clark, and McKenzie (1982). Subjects consisted of college-age students in a fencing class. The six strategies used were teacher-paced drilling, machine-paced drilling, student-paced drilling, task cards, sparring, and bouting. The same instructor was observed using ALT-PE and the Teacher Behavior Observational System for 56 classes. ALT-PE(M) rates during active learning periods ranged from 26.9% for bouting to 97.9% for machine-paced drilling. Feedback ranged from 18.7% for teacher-paced drilling compared to 54.8% for student-paced drilling.

Wurzer (1982) used ALT-PE to measure the effect of three instructional packages on teacher behavior. The packages were designed to change management, feedback, and

student non-engaged time during volleyball classes taught by three university physical educators. Three student were observed in each class for 15 weeks. The results showed that the self-directed feedback delivered before each class was very successful in promoting the desirable behaviors.

The ALT-PE instrument was revised by Siedentop, Tousignant, and Parker (1982) to make it easier to use. The revised ALT-PE system (1982) consisted of two major decision levels, context and learner involvement, and 21 further categories. The reader should be aware that subject matter knowledge and subject matter motor in the revised system contained almost identical categories as the PE-content subdivision in the original system. The categories contained under the general content subdivision are similar in both systems, with the exception that warm-up in the revised system replaces waiting in the original system and the revised system includes the cognitive category, which was defined as engaged in the original system. The motor engaged categories in the revised system are similar to the engaged motor category in the original system. ALT-PE in the revised system consists of only motor appropriate activity; whereas, ALT-PE in the original system consists of both easy motor activity, indirect activity, and cognitive activity. ALT-PE in the revised system is similar to ALT-PE(M) in the original system. The 6-second observe,

6-second record format remained the same as in the original system.

This revised system was used to study the effects of teacher burnout on the ALT-PE of students by Mancini, Wuest, Clark, and Ridosh (1982). Scores obtained from the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981) placed 30 teachers into either the high-burnout group or the low-burnout group. Each teacher was videotaped three times while teaching his/her regularly scheduled physical education classes. One hundred and eighty students were observed. Results indicated that more ALT-PE occurred for students in the low-burnout teachers' classes. Mancini, Wuest, Vantine, and Clark (1983) investigated the effects of instruction and supervision in CAFIAS on the students' ALT-PE in classes taught by burned-out teachers. Six burned-out physical educators, as identified by the MBI, were randomly placed into either a control group or a treatment group. Phase I of the study consisted of baseline data collection. Phase II consisted of application of treatment. The control group received supervisory feedback while observing videotapes of their own teaching, and the treatment group received instruction, supervision, and feedback in CAFIAS while observing their videotapes. Phase III consisted of the posttest data collection and the teachers retaking the MBI. Results showed that the subjects receiving instruction and supervision in CAFIAS increased

their ALT-PE from 27% to 46% as compared to an increase in the control group from 21% to 26%. There was also a decrease in the treatment group teachers' level of burnout.

ALT-PE has also been used to examine different aspects of the student teaching experience. Paese (1982) studied the effects of feedback on ALT-PE and ALT-PE(M) on two student teachers at the secondary level. Both teachers received verbal and written feedback of the classes that they had just taught. They were also instructed on how they could decrease undesirable management time and increase desirable student motor responses. The use of this feedback led to a desirable increase in motor engagement time from an average of 18.5% during baseline to 43% after feedback. ALT-PE also increased from 7.5% to 19%.

Metzler (1981) also investigated the value of intervention and feedback on student teachers. During an archery unit, one student teacher and three students were observed. The beginning baseline measurements showed low percentages of motor engagement, ALT-PE(M), and motor responding. From this same baseline assessment, high percentages of not-engaged waiting and interim behaviors were revealed. The teacher was instructed to move the targets farther apart and to provide an additional amount of arrows. This allowed two students to shoot at the same target. Through this instructional adjustment the ALT-PE(M) was increased favorably.

The lasting effects of instruction and supervision in interaction analysis was investigated by Grecic (1983). Subjects were 26 physical educators in their first 3 years of teaching and 156 students. Teachers were placed into one of two groups. The control group received conventional supervisory feedback during their undergraduate preparation while the treatment group received the same feedback plus instruction and supervision in interaction analysis. Results showed that the treatment group spent 16.4% of the time involved in managerial activities while the control group spent 29.5% of the class time on these same tasks. Minimizing management time allowed more motor engagement time for the treatment group. The treatment group students also accrued almost twice as much ALT-PE as did the control group. It was concluded that receiving instruction and supervision in interaction analysis during undergraduate training had a lasting effect.

#### Summary

A review of literature reflects conflicting results as to whether or not the cooperating teacher influences the student teacher. Studies that support the contention that student teachers are influenced by their cooperating teachers were presented by Benham (1978), Copeland (1979), Davis (1980), Flint (1965), Jansen (1971), Johnson (1969), Mathews (1966), McAuley (1960), Moskowitz (1967), Price

(1961), Serperson and Joyce (1971), Smith (1976), Underhill (1968), and Zevin (1974).

Benham (1978), Flint (1965), Jansen (1971), Johnson (1969), Price (1961), and Underhill (1968) all concluded that student teachers' attitudes, dogmatism, empathy, and educational values all changed to become more like those of the cooperating teachers'.

Personality compatibility was shown to be a major key for effective modeling for the student teacher according to Smith (1976) and Underhill (1968). They concluded that student teachers' teaching strategies and skills changed as a result of this compatibility.

Overall teaching patterns were researched by Copeland (1979), Mathews (1966), Moskowitz (1967), and Zevin (1974). Mathews (1966) and Moskowitz (1967) used FIAS to conclude that the student teachers' teaching patterns become more like the cooperating teachers' teaching patterns. Copeland (1979) and Zevin (1974) researched specific teaching skills of the student teacher to conclude that they become more like the behaviors of the cooperating teacher. Davis (1980) supported these findings adding that the use of feedback from the cooperating teacher served as an effective model for the use of positive statements.

Verbal behaviors were researched by Flint (1965) and Serperson and Joyce (1971). Using the Conceptual Systems Manual and OScAR respectively, it was concluded that the

behaviors of the student teachers' became more like the behaviors of the cooperating teachers.

Many researchers reported that cooperating teachers did not influence their student teachers. They included Farrow (1964), Goss (1982), Halley (1974), Levine (1980), Nerenz (1979), Terwilliger (1975), and Webb (1979).

Verbal behaviors of student teachers were found not to be significantly influenced by the cooperating teacher by Farrow (1964) and Terwilliger (1975). Halley (1974) supported the previous findings through the use of FIAS. Webb (1979) added that often cooperating teachers are a major source of conflict for the student teacher.

Levine (1980) used the TATSO Questionnaire to conclude that student teachers were more like their cooperating teachers at the start of the teaching experience than they were at the end.

Goss (1982) examined the behavioral patterns of cooperating teachers and the student teachers in the physical education setting. She concluded that cooperating teachers do not significantly influence the behavioral patterns of the student teachers.

In recent years research studies have focused on the concept of time-on-task (Berliner, 1979) as a means to measure teacher effectiveness. This concept became known as ALT-PE. Marliave (1976) and Fisher et al. (1979) concluded that the time a student is actually engaged in an activity

is related to student learning. This instrument was later modified to ALT-PE by Siedentop et al. (1979) to be used in the physical education setting. Metzler (1980) further defined ALT-PE as the amount of ALT accrued by the student in the physical education setting.

ALT-PE has been used by Aufderheide et al. (1981), Aufderheide et al. (1982), and Placek et al. (1983) to conclude that handicapped, nonhandicapped, special needs students, and students of both sexes all received the same opportunity to accrue ALT-PE.

The use of feedback and instruction to increase students' ALT-PE was studied by Beamer (1983), Birdwell (1980), McKenzie et al. (1982), Paese (1982), and Wurzer (1982). All concluded that feedback and instruction increased the amount of ALT-PE accrued.

Siedentop et al. (1982) revised the instrument to make it easier to use. The revised system was used by Mancini et al. (1982) and Mancini et al. (1983) to study teacher burnout. Results indicated that students in low-burnout teachers' classes and those in the high-burnout group that received instruction allowed their students to accrue more ALT-PE. Grecic (1983) added that instruction in interaction analysis had a lasting effect on teachers' effectiveness.

## Chapter 3

### METHODS AND PROCEDURES

This chapter describes the methods and procedures used for this study. It includes the selection of subjects, testing instrument, intraobserver agreement procedures, scoring of data, treatment of data, and a summarization of the procedures used in this study.

#### Selection of Subjects

The subjects in this study were the 1980 spring semester secondary physical education student teachers, their cooperating teachers, and students in their classes. The group consisted of 26 subjects with 13 being student teachers and the remaining 13 being cooperating teachers. The teaching assignments were made according to the normal placement procedures at Ithaca College in the School of Health, Physical Education, and Recreation. Prior to participation, both the cooperating teachers and the student teachers were required to sign an informed consent form. A copy of these forms may be found in Appendix A. The students were randomly selected from the classes taught by the cooperating teachers; 39 students were selected, 3 each from each cooperating teacher's class.

#### Testing Instrument

The testing instrument used to code the amount of students' academic learning time-physical education (ALT-PE) was the revised ALT-PE observational instrument by

Siedentop, Tousignant, and Parker (1982). This instrument consisted of two decision levels: the context level and the learner involvement. The context level was further divided into general content, subject matter knowledge, and subject matter motor subdivisions. These three subdivisions contained 13 categories which described the nature of the classroom activities performed by the students. The learner involvement level contained two major subdivisions--not motor engaged and motor engaged--and was further broken down into eight categories which explained the involvement of students within the class.

#### Method of Data Collection

Data were collected from the videotapes of the cooperating teachers and the student teachers. Three randomly selected students in each class were coded by Dr. Victor H. Mancini using the ALT-PE instrument.

#### Scoring of Data

Data collected from the coding of the videotapes using ALT-PE were manually calculated and compiled into percentages for the 21 ALT-PE variables.

#### Treatment of Data

Descriptive statistics were calculated and visual comparisons were used to determine whether differences in student behavior, as identified by ALT-PE, existed in classes taught by cooperating teachers compared to classes taught by student teachers. Visual comparisons were also

made between the percentages accrued by students in classes taught by student teachers at the beginning of the 8-week period compared to the end of the student teaching experience. The context level and learner involvement categories were treated as discrete data sets. For each level, MANOVA, discriminant function, and univariate ANOVAs were performed. This study used the 6-second observe, 6-second record format.

#### Intraobserver Agreement

For this study assessment of intraobserver agreement (IOA) was performed according to the scored-interval agreement method (Hawkins & Dotson, 1975). Four randomly selected videotapes, two of a cooperating teacher and two of a student teacher, were coded by Dr. Victor H. Mancini, an expert coder, during two independent settings. The student teachers' tapes consisted of one from the beginning of the experience and one from the end of the teaching experience. The data obtained from the two independent codings were compared, and the IOA calculated on an interval-by-interval basis. IOA was computed by dividing the number of intervals on which there was agreement by the number of agreements and disagreements and multiplying the results by 100 (Herson & Barlow, 1976). The formula is given below:

Agreements

Agreements + Disagreements x 100=% of agreements or IOA.

### Procedures

All subjects were videotaped teaching two regularly scheduled physical education classes. The cooperating teachers were videotaped prior to the arrival of the student teachers. The student teachers were videotaped for one class within the first 2 weeks of their student teaching assignment. Three students were randomly selected from the initial class which had been observed taught by the cooperating teacher; 39 students were observed. The same target students were observed during the course of the study. They were observed alternately, and their behavior coded using the ALT-PE instrument by an expert coder, Dr. Victor H. Mancini. The observer followed the 6-second observe, 6-second record coding format and used a programmed audio cassette to provide cues to observe and to record.

### Summary

Spring semester secondary physical education students ( $n = 13$ ) from Ithaca College and their cooperating teachers ( $n = 13$ ) served as subjects. Cooperating teachers were videotaped for two entire class periods prior to the arrival of the student teachers. Student teachers were videotaped for one class period the first 2 weeks of the student teaching experience and for one class period within the last 2 weeks of the teaching experience. Three randomly selected students in each class were observed alternately, and their behaviors were coded by an expert coder using the revised

ALT-PE instrument (Siedentop et al., 1982). A 6-second observe, 6-second record format was followed. IOA was calculated according to the scored-interval method (Hawkins & Dotson, 1975).

Data were compiled for the 21 variables, and percentages were formulated for each ALT-PE category. The data were visually compared to determine whether differences existed in classes taught by cooperating teachers compared to classes taught by student teachers. Comparisons were also made between classes taught by student teachers at the beginning of the student teaching experience compared to the classes taught at the end of the experience.

## Chapter 4

### ANALYSIS OF DATA

The spring semester secondary school physical education student teachers at Ithaca College, Ithaca, New York and their cooperating teachers were studied through the use of Academic Learning Time-Physical Education (ALT-PE) to determine if student teachers become more effective over the course of their teaching and whether their behaviors become more like their cooperating teachers' behaviors.

This chapter presents the results of the statistical analysis of the data in the following four sections: (a) intraobserver agreement, (b) differences in student teachers' behaviors, (c) relationship in behavior of student teachers' students and cooperating teachers' students, and (d) summary.

#### Intraobserver Agreement

Intraobserver agreement (IOA) scores were computed using the scored-interval method (Hawkins & Dotson, 1975). Four randomly selected videotapes, two from the cooperating teacher group and two from the student teacher group, were coded during two independent coding sessions by Dr. Victor H. Mancini, an expert in descriptive-analytic studies. To determine reliability for each of the categories of the ALT-PE recording instrument, the number of agreements was divided by the number of agreements plus disagreements and

multiplied by 100 (Herson & Barlow, 1976). IOA scores ranged from 92% to 100%, which were sufficient to indicate the coder was reliable.

#### Differences in Student Teachers' Behaviors

In order to assess the change in behavioral patterns of student teachers, multivariate analysis of variance (MANOVA) was performed on nine selected context level variables and seven learner involvement level variables identified through the ALT-PE instrument. The MANOVA procedure, run on the codings of student teachers' tapes at the start and the end of their student teaching experience, resulted in a value of  $F(9,30) = 10.27$  on the context level, which was significant at the .05 level. The finding of this significant difference on the context level led to the rejection of the first hypothesis that there would be no significant change in the student teachers' behavioral patterns over the course of the teaching experience. Student teachers' students showed no significant multivariate change at the learner involvement level ( $F[7,30] = 2.05$ ). The results for the student teachers' students over time are shown in Table 1 and Table 2.

Univariate analysis of variance (ANOVA) was performed on all context level and learner involvement level variables. The ANOVA revealed significant decreases in warm-up ( $F[1,38] = 5.10$ ), rules ( $F[1,38] = 6.65$ ), and skill practice ( $F[1,38] = 9.16$ ). Students were shown to increase

Table 1

Student Teacher Change Over Time On Context Level Variables

Variables	<u>MS</u> <sub>time</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sup>a</sup>
All	_____	_____	9,30	10.27*
Transition	16.62	5.95	1,38	2.79
Management	2.17	2.07	1,38	1.05
Warm-up	61.93	12.15	1,38	5.10*
Technique	41.95	23.89	1,38	1.76
Strategy	.04	9.24	1,38	.00
Rules	19.50	2.93	1,38	6.65*
Practice	1921.11	209.80	1,38	9.16*
Scrimmage	1287.51	166.82	1,38	7.72*
Game	225.76	607.54	1,38	.38

<sup>a</sup>For multivariate situations, this is an approximate value.

\*p < .05.

Table 2

Student Teacher Change Over Time On Learner Involvement  
Level Variables

Variable(s)	<u>MS</u> <sub>time</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sup>a</sup>
All	-----	-----	7,32	2.05
Waiting	1.52	26.18	1,38	.81
Off-Task	1.02	1.53	1,38	.66
On-Task	21.45	66.31	1,38	.32
Cognitive	21.13	19.90	1,38	1.06
Motor				
Appropriate	201.61	18.01	1,38	11.19*
Motor				
Inappropriate	60.33	21.76	1,38	2.77
Motor Supporting	4.06	3.03	1,38	1.34

<sup>a</sup> For multivariate situations, this is an approximate F value.

\*p < .05.

significantly in scrimmage ( $F[1,38] = 7.72$ ). At the learner involvement level, univariate ANOVA on motor appropriate behavior resulted in a value of  $F(1,38) = 11.19$ , which was significant at the .05 level.

#### Relationship of Cooperating and Student Teachers'

##### Behavioral Patterns

In order to assess the relationship between the cooperating teachers' and student teachers' behavioral patterns, the canonical correlation technique was used on all ALT-PE variables. Table 3 shows the pretest values on the canonical correlation between the cooperating teachers' and student teachers' students. Table 4 shows the posttest values of the canonical correlation of both the student teachers' and cooperating teachers' students. As shown in Table 3 and Table 4, canonical correlations between the cooperating teachers' and student teachers' students behaviors were significantly different at both levels throughout the 7-week experience.

MANOVA was performed on the context level and learner involvement variables of cooperating and student teachers both at the beginning and at the end of the student teaching experience to assess differences between these groups. Tables 5 and 6 show the context level pretest value was  $F(9,30) = 15.85$ , while the posttest value was  $F(9,30) = 19.33$ . Tables 7 and 8 show the learner involvement level

Table 3  
 Pretest Canonical Correlation Of Student Teacher And  
 Cooperating Teacher On All Variables

Variables	Eigenvalue	R	df	$\chi^2$
1	.984	.992	256	9999.00*
2	.975	.988	225	354.50*
3	.966	.983	196	274.91*
4	.870	.930	169	202.53*
5	.853	.923	144	158.63
6	.771	.878	121	117.44
7	.705	.840	100	85.74
8	.589	.768	81	59.49
9	.495	.703	64	40.35
10	.380	.617	49	25.68
11	.305	.554	36	15.39
12	.227	.467	25	7.52
13	.065	.256	16	1.99
14	.019	.139	9	.53
15	.004	.066	4	.11
16	.001	.031	1	.02

\* $p < .05$ .

Table 4

Posttest Canonical Correlation Of Student Teacher And  
Cooperating Teacher On All Variables

Variables	Eigenvalue	R	df	x <sup>2</sup>
1	.993	.997	256	9999.00*
2	.967	.983	225	320.48*
3	.936	.968	196	247.10*
4	.910	.954	169	187.89
5	.741	.861	144	136.18
6	.711	.843	121	107.16
7	.618	.786	100	80.44
8	.580	.761	81	59.75
9	.476	.690	64	41.12
10	.360	.600	49	27.21
11	.256	.506	36	17.62
12	.204	.451	25	11.26
13	.164	.405	16	6.36
14	.086	.293	9	2.51
15	.016	.236	4	.58
16	.011	.104	1	.23

\*p < .05.

Table 5  
 Student Teacher-Cooperating Teacher Differences On Pretest  
 Context Level Variables

Variables	<u>MS</u> <sub>diff</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sup>a</sup>
All	—	—	9,30	15.85*
Transition	1699.60	91.11	1,38	18.65*
Management	1011.60	114.21	1,38	8.86*
Warm-up	3.20	56.61	1,38	.06
Technique	68.88	13.22	1,38	5.21*
Strategy	75.82	10.94	1,38	6.93*
Rules	59.28	3.43	1,38	17.26*
Practice	185.85	452.78	1,38	.41
Scrimmage	2163.55	128.52	1,38	16.83*
Game	498.56	785.64	1,38	.63

<sup>a</sup>For multivariate situations, this is an approximate F value.

\*p < .05.

Table 6

Student Teacher-Cooperating Teacher Differences On Posttest  
Context Level Variables

Variables	<u>MS</u> <sub>diff</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sub>a</sub>
All	_____	_____	9,30	19.33*
Transition	2052.31	85.09	1,38	24.12*
Management	920.13	117.71	1,38	7.82*
Warm-up	93.28	40.26	1,38	2.32
Technique	218.34	10.64	1,38	20.52*
Strategy	79.20	3.42	1,38	23.19*
Rules	10.78	1.62	1,38	6.64*
Practice	911.91	314.79	1,38	2.90
Scrimmage	6789.07	71.41	1,38	95.08*
Game	53.34	373.95	1,38	.14

<sup>a</sup>For multivariate situations, this is an approximate F value.

\*p < .05

Table 7

Student Teacher-Cooperating Teacher Differences On Pretest  
Learner Involvement Variables

Variables	<u>MS</u> <sub>diff</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sup>a</sup>
All	_____	_____	7,32	27.14*
Waiting	4512.88	56.16	1,38	80.36*
Off-task	15.89	2.65	1,38	5.98*
On-task	134.70	69.85	1,38	1.93
Cognitive	59.63	61.42	1,38	.97
Motor				
Appropriate	5266.06	32.66	1,38	161.24
Motor				
Inappropriate	119.39	45.89	1,38	2.60
Supporting	.35	11.60	1,38	.03

<sup>a</sup>For multivariate situations, this is an approximate F value.

\*p < .05.

Table 8  
 Student Teacher-Cooperating Teacher Differences On Posttest  
 Learner Involvement Level Variables

Variables	<u>MS</u> <sub>diff</sub>	<u>MS</u> <sub>error</sub>	<u>df</u>	<u>F</u> <sup>a</sup>
All	_____	_____	7,32	62.67*
Waiting	4348.59	53.64	1,38	122.02*
Off-task	24.93	2.67	1,38	9.34
On-task	263.64	106.20	1,38	2.48
Cognitive	9.77	40.00	1,38	.24
Motor				
Appropriate	7528.41	22.86	1,38	329.28*
Motor				
Inappropriate	9.98	40.01	1,38	.25
Supporting	2.04	12.20	1,38	.17

<sup>a</sup>For multivariate situations, this is an approximate F value.

\*p < .05.

pretest value was  $F(7,32) = 27.14$  while the posttest value was  $F(7,32) = 62.67$  for all variables.

ANOVA was performed on all variables of cooperating teachers' and student teachers' students both at the beginning and the end of the student teaching to assess the differences between the groups. The ANOVA on all variables in the context level pretest is presented in Table 5. The ANOVA identified the variables that independently contributed to the significant between-group difference. In the context level, transition, management, technique, strategy, rules, and scrimmage all were variables that independently contributed to the between-group difference. All six variables indicated significant differences between the cooperating teacher and the student teacher at the start of the teaching experience. The cooperating teachers' students were significantly higher on transition, management, and technique. The student teachers' students were significantly higher on strategy, rules, and scrimmage.

Table 6 shows the posttest values of the variables in the context level between the student teachers' and the cooperating teachers' students. The posttest scores revealed the same six variables contributing independently to the significant between group difference. Again, cooperating teachers' students were significantly higher on transition, management, and technique. Student teachers'

students were significantly higher on strategy, rules, and scrimmage.

At the learner involvement level pretest scores for the cooperating teachers' and the student teachers' students are shown on Table 7. Significant differences were shown in the categories of waiting, off-task, and motor appropriate at the start of the student teaching experience. At the end of the teaching experience the categories of waiting, off-task, and motor appropriate were significantly different to influence the between-group difference. Cooperating teachers' students spent more of their time on waiting and off-task behaviors. Student teachers' students spent significantly more time engaged in motor appropriate behaviors (ALT-PE).

The hypothesis that there would be no significant difference in the relationships between students of the cooperating teachers and the student teachers was rejected due to the (a) univariate analysis of variance, which found more individual differences between the cooperating teachers' and the student teachers' students at the end of the teaching experience than were present in the beginning, (b) the significance of the MANOVAs performed on all variables of the cooperating and student teachers' students for pretest and posttest values, and (c) the high canonical correlations between the cooperating teachers' and student teachers' students.

### Summary

IOA was established by the scored-interval method using four randomly selected class videotapes, two from the cooperating teachers and two from the student teachers, which were coded at two different viewings. The IOA ranged from 92% to 100%.

A MANOVA was performed on all variables in the ALT-PE system to assess the change in behavioral patterns of the student teachers' students. The findings were significant at the .05 level, and the first hypothesis that student teachers' students would not change over the course of the teaching experience was rejected. Student teachers' students changed significantly over the 7-week period at the context level ( $F[9,30] = 10.27$ ). The greatest change during the student teaching experience occurred in the context level behavior. There was no significant multivariate change over time at the learner involvement level.

The ANOVA identified the variables that independently contributed to the significant difference in the pre-post data. Univariate ANOVA indicated that the variables that decreased significantly were warm-up, rules, and skill practice. Scrimmage increased significantly during the teaching experience. Although MANOVA revealed there was no significant change over time at the learner involvement level, an ANOVA was performed on the categories. This analysis indicated a significant increase in motor

appropriate behavior or ALT-PE during the student teaching experience.

The canonical correlation technique was used to assess the relationship between cooperating teachers' and student teachers' students. Significant correlations were determined for the cooperating teachers' and the student teachers' students at the beginning of the student teaching experience and again at the conclusion. Four significant correlations were found in the beginning of the teaching experience and three at the end of the experience. In order to determine whether the specific amounts of the behaviors were alike or different, a MANOVA was performed. The findings that the student teacher was becoming less like the cooperating teacher was substantiated by the different tests (MANOVAs) between the cooperating teachers and the student teachers at both the beginning and the end of the teaching experience.

At both the pretest and the posttest, student teachers and cooperating teachers were significantly different at both the context level and the learner involvement level. Univariate ANOVAs revealed the differences occurred in the same variables in the context and learner involvement levels. At the context level cooperating teachers' students were significantly higher in transition, management, waiting, technique, and off-task behaviors. The student

teachers' students were significantly higher on strategy, rules, scrimmage, and motor appropriate behavior (ALT-PE).

The hypothesis that there would be no significant differences in the relationship between the cooperating teachers' students behavior patterns and those of the student teachers' students from the start to the end of the experience was rejected. This was due to (a) high canonical correlations between the cooperating teachers' students and the student teachers' students at the start and at the end of the teaching experience, (b) high significance of MANOVAs performed on both the cooperating teachers' students and the student teachers' students at the start and end of the student teaching, and (c) univariate ANOVAs that found more significant differences between the student teachers' students at the end of student teaching than at the start.

## CHAPTER 5

### DISCUSSION OF RESULTS

In this chapter the findings of this investigation and the results of previous studies will be related. This chapter will be divided into four sections. In the first section the results from this study will be compared to earlier studies involving changes in student teachers' behaviors during the student teaching experience. The second section will discuss earlier studies involving the influence of the cooperating teacher on the student teacher. In the third section results of this study will be compared and contrasted to earlier studies pertaining to behavioral patterns of cooperating teachers and student teachers. The final section will summarize the chapter.

#### Change in Student Teachers' Behaviors During the Student Teaching Experience

This study examined the change in the student teachers' behavioral patterns through examining the students behaviors during the student teaching experience. This study also investigated the cooperating teachers' influence on the student teachers' behavioral patterns. Multivariate analysis of variance (MANOVA) was used to determine if changes in ALT-PE occurred during the 7-week student teaching experience. It was also used to determine if the student teachers' classes were significantly different from the cooperating teachers' classes either at the beginning or

end of the student teaching experience. The MANOVA on student teachers' ALT-PE pre-posttest data indicated a significant change in the context level behavior throughout the student teaching experience. The univariate analysis of variance (ANOVA) indicated that there were significant decreases in rules, warm-up, and skill practice. A significant increase in scrimmage was also indicated.

No significant multivariate change over time was found on the learner involvement level. Due to the motor appropriate category being regarded as an indication of effective learning, the ANOVA for this variable was studied. This analysis indicated a significant increase in motor appropriate behavior or ALT-PE during the student teaching period.

The findings that the student teachers' emphasis on content-related activities changed during their student teaching experience led to the rejection of the first hypothesis that there will be no significant change in the student teachers' behaviors over the course of the student teaching experience. It was also concluded that student teachers provided more opportunities for their students to accrue ALT-PE. These results indicated that student teachers' behaviors do change over the course of the student teaching experience.

These findings support earlier studies by Price (1961) who concluded that student teachers' attitudes change

considerably during the student teaching experience. Flint (1965) found that student teachers' verbal behaviors also changed during that time. Halley (1974) concluded that up to 70% of verbal behaviors were changed over that period. According to Goss (1982), student teachers' behavioral patterns do change within a 7-week student teaching experience. Many differences within these studies were recognized; these differences include variables examined, instruments used, and age level of subjects. However, despite these differences, the overall broad concept may be used for comparison. In all studies, student teachers were the subjects being studied, along with their cooperating teachers, to assess the influence exerted by cooperating teachers. In all cases an observable change did occur in the student teachers' behavioral patterns from beginning to end of the teaching experience.

#### Cooperating Teachers' Influence on Student Teachers' Behaviors

This study further examined the influence of the cooperating teacher on the student teacher during the student teaching experience. The present study used canonical correlation procedures to indicate significant relationships between the cooperating teachers and the student teachers throughout the experience. Results indicated that four significant correlations were found at the beginning of the student teaching experience and three

correlations at the end of the experience. This was expected when considering the number of variables measured in similiar teaching situations. The correlations are relative only to the rankings of behaviors involved in the relationships. MANOVA was used to indicate if the specific amounts of behaviors were similiar or different for all variables. The pretest and posttest MANOVAs substantiated the findings that student teachers become less like their cooperating teachers as the teaching experience continued.

Cooperating teachers and student teachers were significantly different at both the context level and the learner involvement level as indicated in both pretest and posttest data. The differences each time occurred in the same variables. In the context level the cooperating teachers' students were significantly higher in transition, management, and technique while student teachers' students were significantly higher on strategy, rules, and scrimmage. At the learner involvement level the cooperating teachers' students were significantly higher in waiting and off-task behaviors, while student teachers' students were significantly higher on motor appropriate behaviors or ALT-PE.

These results of this investigation indicated that there is a relationship between the behavioral patterns of cooperating and student teachers' students at the beginning of the teaching experience. However, greater individual

differences were noted at the conclusion rather than at the beginning of the student teaching experience. This indicates that the student teachers' behaviors become less like their cooperating teachers' behaviors, not more like them. These findings support earlier studies by Boschee, Prescott, and Hein (1978); Bowers (1971); Farrow (1964); Goss (1982); Halley (1974); and Terwilliger (1965). Terwilliger (1965) concluded no demonstrable influence by the cooperating teachers. Boschee et al. (1978) found no influence of the cooperating teacher on the student teacher due to differences in teaching philosophy. Farrow (1964) and Bowers (1971) both found that student teachers failed to become more like the cooperating teachers either on the use of verbal behaviors or on the use of overall classroom behaviors. Halley (1974) and Goss (1982) used FIAS and CAFIAS, respectively, and concluded that student teachers' behavioral patterns changed but they became less like their cooperating teachers.

Studies that do not support these results were reported by Flint (1965); Johnson (1969); McAuley (1960); Mitchell (1969); Price (1961); Serperson and Joyce (1971); Underhill (1968); and Yee (1969). McAuley (1960) studied six student teachers and their cooperating teachers without using systematic observation but concluded that student teachers were greatly influenced by their cooperating teachers. Price (1961) and Yee (1969) concluded that the attitudes of

student teachers were influenced by cooperating teachers. Underhill (1968) studied empathy levels and found student teachers to be influenced by cooperating teachers. Johnson (1969) examined dogmatism, which was found to be directly influenced by cooperating teachers. Verbal behavioral patterns of cooperating teachers and student teachers were studied by Flint (1965); Goss (1982); Mitchell (1969); and Serperson and Joyce (1971). Flint (1965) concluded that there was a strong relationship between the student teachers' change in verbal behaviors and the verbal behaviors of the cooperating teachers through the use of the Observation Schedule and Record Form (OScAR). The study recommended further examination with a variety of instruments. Serperson and Joyce (1971) used eight indicators for teaching behaviors and found significant relationships between cooperating and student teachers on the Conceptual Systems Manual. FIAS was used by Mitchell (1969) to determine that student teachers' verbal behaviors were influenced by their cooperating teachers. Bowers (1971), Goss (1982), and Halley (1974) all failed to report a positive influence being exerted by the cooperating teacher on the student teachers.

Comparisons can be made between this study and the studies presented by Goss (1982), Halley (1974), and others. Differences between studies include the variables examined, testing instruments, sample size, and setting. The act of

teaching encompasses many variables and domains which may be difficult to separate. All of the various domains and variables may possibly allow the cooperating teacher to influence the student teacher.

Behavioral Patterns of Cooperating Teachers  
and Student Teachers in Physical Education

ALT-PE was used to study cooperating and student teachers' behaviors by focusing on the students in their classes. The mean percentages revealed that the cooperating teachers spent considerably more time in general content activities than the student teachers. Management and transition activities accounted for most of the time spent in general content. The cooperating teachers related slightly more content-related information focused on skill technique than did their student teachers. The percentages also indicated that student teachers gave their students more information about rules and strategy. Their students spent more time in content-related motor activities. This difference was accounted for by the time spent engaged in practicing skills and scrimmaging.

The mean percentages for the cooperating teachers' students at the learner involvement level indicated that their students spent more time not actively engaged in motor activities. This was accounted for by the longer time spent on off-task behavior and waiting. The student teachers'

students were engaged in motor activities more often and accrued more ALT-PE.

The results indicated that while there was a relationship between the ALT-PE of cooperating teachers and student teachers, there were some evident differences between them. Cooperating teachers spent more time on organizational tasks and allowed more waiting and off-task behaviors in their classes. Student teachers' students accrued more ALT-PE. The findings of this investigation confirmed that student teaching is a time of growth. The behaviors of student teachers changed significantly during the experience.

The findings of this investigation were similar to the findings of Goss (1982). CAFIAS was used to investigate the influence of cooperating teachers on student teachers' behaviors and interactions with their students and the change that takes place during the experience. Goss concluded that cooperating teachers failed to significantly influence the behaviors of their student teachers. Similar to this investigation, the student teachers became less like their cooperating teachers as the teaching period progressed.

#### Summary

Secondary physical education student teachers in this study were observed to assess changes in their behavioral patterns, as indicated through the use of ALT-PE, during

their student teaching experience. Student teachers' behavioral patterns were related to the cooperating teachers' but were not found to be directly influenced through behavioral changes that occurred. MANOVA followed by an ANOVA resulted in the findings of significant differences between student teachers at the start and end of student teaching. The hypothesis that there would be no significant change in student teachers' behavioral patterns was rejected. These findings are similar to those found by Flint (1965), Goss (1982), Halley (1974), and Price (1961).

It was concluded that there is a relationship between the behavioral patterns of cooperating teachers and student teachers. Greater differences were found at the end of the teaching experience than at the start of the period. This indicated that student teachers' behavioral patterns became less like their cooperating teachers. This conclusion supported earlier studies by Bowers (1971), Farrow (1964), Goss (1982), and Halley (1974). Many studies did not support the results of this study. These studies include those by Flint (1965), McAuley (1960), Price (1961), and Yee (1969).

## Chapter 6

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

#### Summary

The purpose of this investigation was to examine the influence of the cooperating teacher on the student teacher's effectiveness through the use of ALT-PE instrument and to determine if the student teacher's effectiveness changes throughout the student teaching experience. Two specific subproblems were examined:

1. Does the effectiveness of the student teacher change during the student teaching period?
2. If so, does the effectiveness tend to approximate that of the cooperating teacher more at the end of the student teaching period than at the beginning?

Thirteen secondary physical education student teachers at Ithaca College, Ithaca, New York, and their cooperating teachers were used for this study, which was conducted during the 1980 spring semester. The cooperating teachers were videotaped for two entire class periods prior to the arrival of the student teachers. The student teachers were videotaped for two entire class periods, one in the beginning of the 7-week period and one at the end of the 7-week period. The tapes were coded using the ALT-PE instrument. MANOVA and ANOVA were used to determine if a significant change occurred in the student teachers'

behaviors and canonical correlation was used to determine the relationship, if any, between cooperating teachers' and student teachers' behavioral patterns.

MANOVA was performed on nine selected context level variables and seven learner involvement level to assess change in behavioral patterns of student teachers. The findings were significant on the context level. This led to the rejection of the first hypothesis that there would be no significant change in the student teachers' behavioral patterns over the course of the teaching experience. No significant multivariate change was found at the learner involvement level. ANOVA, which considered each ALT-PE variable independently, revealed significant decreases in warm-up, rules, and skill practice and increases in scrimmage and motor appropriate behavior from start to finish of student teaching.

The canonical correlation technique was used to assess the relationship between the cooperating and student teachers' behavioral patterns on all ALT-PE variables. Canonical correlations between the cooperating teachers' and student teachers' students behaviors revealed significant relationships at both levels throughout the 7-week experience. MANOVA was also performed on all variables in the context level and learner involvement level at the beginning and at the end of the teaching experience. Results indicated that student teachers were significantly

different from cooperating teachers both on pretest and posttest scores.

ANOVA was performed on all variables of cooperating teachers' and student teachers' students both at the beginning and at the end of the student teaching to assess the difference between the groups. At the context level, transition, management, technique, strategy, rules, and scrimmage were variables that independently contributed to the between group difference. All six variables indicated significant difference between the cooperating teacher and the student teacher at the start of the teaching experience. The posttest values of the variables in the context level scores revealed the same six variables contributing independently to the significant between group difference. Cooperating teachers' students scored significantly higher on transition, management, and technique. Student teachers' students were significantly higher on strategy, rules, and scrimmage.

At the learner involvement level, pretest and posttest scores showed significant differences in the categories of waiting, off-task, and motor appropriate behavior at the start and end of the teaching experience. Cooperating teachers' students were significantly higher on waiting and off-task, and student teachers' students accrued significantly more ALT-PE.

The hypothesis that there would be no significant difference in the relationships between students of the cooperating teachers and the student teachers was rejected due to (a) the high canonical correlations between the cooperating and student teachers' students, (b) the significance of the MANOVAs performed on the cooperating and student teachers' students, and (c) the significance of the ANOVAs which found more individual differences between the cooperating teachers' and student teachers' students at the end of the teaching experience than was present in the beginning.

The results of the first hypothesis that student teachers' behavioral patterns change during the student teaching period seem to support findings revealed in earlier studies (Flint, 1965; Goss, 1982; Halley, 1974; Price, 1961) that the student teachers do indeed change during the student teaching experience.

The findings related to the second hypothesis also concurred with earlier results (Bowers, 1971; Farrow, 1964; Goss, 1982; Halley, 1974; Terwilliger, 1965) which indicated no significant relationship between student teachers' student behavioral pattern change and the cooperating students' student behavioral patterns. Significant influence by the cooperating teacher was found in studies by Flint (1965), McAuley (1960), Price (1961), and Yee (1969).

### Conclusions

From the findings provided by this investigation, the following conclusions were drawn:

1. The teaching behaviors of student teachers in secondary physical education do change during the student teaching experience.
2. The relationship between teaching behaviors of cooperating teachers and student teachers decreased significantly from start to end of the student teaching experience.
3. Student teachers' emphasis on content-related activities changed during the student teaching experience.
4. Student teachers at the end of their experience provided greater opportunities for their students to accrue ALT-PE.
5. Cooperating teachers spent more time on organizational tasks and technique and had more waiting and off-task behaviors in their classes.
6. Student teachers spent more time on content-related activities and their students accrued more ALT-PE.

### Recommendations for Further Study

The following recommendations are suggested for further study:

1. A replication of this study using elementary school physical education student teachers.

2. A study of the effects of various teaching styles of the cooperating teacher and how it effects the student teachers' effectiveness with their students.

3. A study of the effects of age and teaching experience of the cooperating teacher and how it effects the student teacher's behaviors.

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