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A comparison of the Academic Learning Time-Physical Education of high-skilled and low-skilled intercollegiate junior varsity football players

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A COMPARISON OF THE ACADEMIC LEARNING TIME-PHYSICAL EDUCATION

OF HIGH-SKILLED AND LOW-SKILLED INTERCOLLEGIATE

JUNIOR VARSITY FOOTBALL PLAYERS

by

David A. Murray

An Abstract

of a thesis submitted in partial fulfillment

of the requirements for the degree of

Master of Science in the School

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Thesis Advisor: Dr. Victor H. Mancini

ABSTRACT

This study was conducted to compare the Academic Learning Time-Physical Education (ALT-PE) of high-skilled and low-skilled NCAA Division III intercollegiate junior varsity football players. The subjects for this study were 12 male football athletes from an NCAA Division III college in the central New York area. The athletes' position coach was asked to rank his players from high to low according to their overall playing ability. The highest four ranked and lowest four ranked players at their position were selected for inclusion in this study. The coach wore a wireless microphone and was videotaped along with his players 18 times during the 1983 season. The videotape of each practice session was coded using the revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982). The target players were observed for an entire positional practice session on an alternating interval basis. The data obtained from these codings were compiled into percentages for all 21 ALT-PE categories. Visual analysis of the data revealed no significant differences in the context levels of the players. However, significant differences were found in the learner involvement levels of the players, particularly the motor appropriate engaged time (ALT-PE). High-skilled athletes were motor engaged more often (55.7% versus 43.0%), accrued more ALT-PE (34.7% versus 21.7%), and spent less time waiting (23.1% versus 37.2%) than their low-skilled teammates. The results led to the rejection of the major hypothesis which stated that there will be no significant difference between the ALT-PE of high-skilled and low-skilled intercollegiate junior varsity football players.

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A Thesis Presented to the Faculty of

the School of Health, Physical

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In Partial Fulfillment of the

Requirements for the Degree

Master of Science

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by

David A. Murray

September 1984

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

David A. Murray

submitted in partial fulfillment of the requirements
for the degree of Master of Science in the School of
Health, Physical Education, and Recreation at Ithaca
College has been approved.

Thesis Advisor:

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DEDICATION

This thesis is dedicated to my parents, two people who have given me continued patience, support, and guidance and never asked for anything in return.

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Chapter 1

INTRODUCTION

An area in which educators have become increasingly concerned is the degree to which a student is involved in learning, as measured by time (Carroll, 1963). In the classroom as well as on the athletic fields, researchers are interested in the idea that what teachers/coaches do relates to what students/athletes achieve (Locke, 1977). Thus, educators must be concerned with structuring their environment so as to offer each student or athlete the greatest opportunity for achievement.

Researchers have found that within the classroom definite patterns of behavior, performance expectations, and systems emerge separating those doing well from those doing poorly (Rist, 1970). According to Rosenthal and Jacobson (1968), teachers give different treatment to individuals based on their expectations of those individuals. These teacher expectations function as self-fulfilling prophecies. A self-fulfilling prophecy is an expectation which initiates a series of events that cause the expectation to come true (Martinek & Johnson, 1979). In other words, students tend to behave as their teachers expect them to behave.

A number of interaction analysis systems have been developed to investigate teacher-student and coach-athlete interactions in the physical education setting. Cheffers (1972) developed the Cheffers' Adaptation of the Flanders' Interaction Analysis System (CAFIAS) to study teachers' and students' behaviors and their interaction patterns; this is one of the most widely used interaction analysis systems in physical education. However, CAFIAS is difficult to use by researchers seeking to investigate the

influence of teacher's expectancies on an individual student's achievement or the achievements of a small group of students because it focuses on the whole class, obscuring the teacher's interactions with individual students. To remedy this shortcoming, Martinek and Mancini (1979) developed the Dyadic Adaptation of CAFIAS (DAC), which provided a method for coding and analyzing behaviors that occur between a teacher/coach and an individual student/athlete or between a teacher/coach and a small group of students/athletes. Boyes (1981) and Hoffman (1981) used DAC to examine football and lacrosse teams on the college level, respectively. Boyes (1981) found no significant differences in coaches' behaviors as they related to their starting and non-starting football players. Hoffman (1981) found significant differences in the instruction patterns of male and female lacrosse coaches with athletes of different skill levels.

Academic Learning Time in Physical Education (ALT-PE) is another systematic observation instrument that is being used in physical education and athletics with increasing frequency (Siedentop, Birdwell, & Metzler, 1979; Siedentop, Tousignant, & Parker, 1982). ALT-PE was developed to focus on teacher effectiveness and the amount of time a student is engaged in activity in the gymnasium and on the playing field (Siedentop et al., 1979). The revised ALT-PE observation system (Siedentop et al., 1982) is a two level, hierarchical decision system. This system's first level requires a decision on the context of the environment being observed. For each observation on the context level a decision is made as to whether the class/team is in general content or in subject matter content. These context decisions are made by observing the class/team as a whole. The second level in the decision sequence involves observations of individual learner involvement. The learner involvement level has two subdivisions, motor

engaged and not motor engaged; individual student's activities have to be classified into one of these categories. All learner involvement decisions are made by observing individual target students. ALT-PE can be used to accumulate information about how much time a student is involved in a task and able to perform that task successfully and effectively (Siedentop et al., 1982).

Recent studies (Galli, 1982; Rate, 1981; Thomas, 1983; Wuest, Mancini, Terrillion, & van der Mars, 1984) have concluded that the ALT-PE instrument can be used to collect reliable data and give valid information about athlete achievement in the athletic environment. Rate (1981) compared the ALT-PE accrued by athletes in five different sports during practice sessions. Considerable differences were found among the sports, and the ALT-PE of athletes was significantly higher than the ALT-PE of physical education students in the same sport. Galli (1982) investigated the difference in the ALT-PE between high-skilled and low-skilled male high school basketball players. Galli found that the high-skilled player accrued a greater amount of ALT-PE than the low-skilled player during the same practice sessions but the amount of ALT-PE(M) was equal. Thomas (1983) compared the ALT-PE of high-skilled and low-skilled male and female collegiate lacrosse players. The results indicated that the high-skilled athletes accrued more ALT-PE than the low-skilled athletes. Wuest et al. (1984) investigated the difference in the ALT-PE of female intercollegiate volleyball players of different skill levels. Wuest et al. found that the high-skilled players were provided with more opportunities to actively participate during practices, spent less time waiting, experienced more success, and accrued more ALT-PE than the average- and low-skilled players.

Investigations utilizing the ALT-PE instrument to focus on the effects

of coaches' expectations on their athletes of different skill abilities have been limited in number. Thus far, none of the studies have involved an intercollegiate football team. The present investigation will focus on employing the ALT-PE instrument to examine the actions of an intercollegiate football coach with athletes of different abilities.

Scope of Problem

This investigation was conducted to compare the amount of quality football practice time experienced by high-skilled and low-skilled athletes. Subjects used for this study included an assistant football coach and 12 junior varsity football athletes from an NCAA Division III college in central New York State. The coach involved was responsible for players in the specific position of defensive linebackers. Eighteen practice sessions were videotaped during the 1983 season.

The coach ranked his athletes according to their overall football ability at the position of linebacker at the conclusion of the season. For this investigation the top four ranked players and the lowest four ranked players from the athletes who played linebacker were selected as the target players. These players were observed for an entire positional-practice session, and the videotapes were coded using the revised ALT-PE observational system (Siedentop et al., 1982).

Statement of Problem

The purpose of this study was to investigate any differences in the involvement and the amount of ALT-PE experienced by high-skilled and low-skilled intercollegiate junior varsity football players.

Major Hypothesis

There will be no significant difference between the ALT-PE of high-skilled and low-skilled intercollegiate junior varsity football players.

Assumptions of Study

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

1. The coding of 18 practice sessions would be sufficient to yield valid data on the athletes' behaviors.

2. The coach's rankings of his players provided valid data on the relative skill abilities of his players.

3. The revised ALT-PE instrument provided a valid and accurate view of the athletes' involvement in the team setting.

Definition of Terms

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

1. Academic Learning Time (ALT) is the amount of time a student spends engaged in a relevant learning task with a high success rate (Marliave, Fisher, & Dishaw, 1972).

2. Allocated Time is the amount of time apportioned for a specific learning task (Marliave, 1976).

3. Engaged Time is the proportion of allocated time during which the students/athletes are actively involved (Marliave, 1976).

4. Academic Learning Time-Physical Education (ALT-PE) is the amount of time a student/athlete spends engaged in a physical education task in such a way as to produce a high degree of success (Siedentop et al., 1982).

5. Coach is the individual who directed and was primarily responsible for the position of linebacker on the junior varsity football team at the central New York college in this investigation.

6. Low-skilled Athlete is a player whose skill ability, as perceived by his coach, ranked him as one of the lowest four players at his position.

7. High-skilled Athlete is a player whose skill ability, as perceived by his coach, ranked him as one of the highest four players at his position.

Delimitations of Study

The following were the delimitations of this study:

1. One intercollegiate junior varsity football coach from the central New York area was used in the study.

2. Eight intercollegiate junior varsity football players, four high-skilled and four low-skilled, from the central New York area were used in this study.

3. Each group of subjects was videotaped for 18 practice sessions.

4. ALT-PE was the only instrument used to record the group context level and the learner involvement level during the practice sessions.

Limitations of Study

The limitations of this study were as follows:

1. The findings related to the context levels and the learner involvement levels may be valid for comparison only when the ALT-PE instrument is used to identify involvement.

2. Because only one college was used, the findings may only be valid for the football players and their coach at the involved college.

Chapter 2

REVIEW OF RELATED LITERATURE

The review of literature in this chapter focuses on the following areas:
(a) analysis of the coaching environment, (b) Academic Learning Time-Physical
Education, and (c) summary.

Analysis of the Coaching Environment

Not until the 1970s was research involving systematic observation of
coaches and their athletes in evidence. Prior to this time many coaching
studies were based on opinions and traditions instead of being based on
knowledge of scientific coaching theories (Percival, 1971). Many of the
coaching studies during this time were psychologically oriented and
descriptive in nature.

Investigations focusing on coaches' behaviors using techniques such as
attitude and personality inventories and questionnaires were conducted by
Danielson, Zelhart, and Drake (1975); Hendry (1968); Kaplan (1976); Ogilvie
and Tutko (1966); Penman, Hastad, and Cords (1974); and Yeager (1964).

In an investigation of coaches' personality traits by Hendry (1968),
swimmers described their coaches as relaxed and trusting individuals while
Ogilvie and Tutko (1966) discovered team-sport coaches to be dominant and
inflexible. In a study investigating leadership characteristics and win-loss
records, Kaplan (1976) found no significant relationship between the leader
behavior of Division II football coaches and their win-loss records. Yeager
(1964) described successful coaches as possessing a sense of humor,
enthusiasm, and understanding.

Questionnaires to investigate coaching behaviors were used by Danielson,

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Zelhart, and Drake (1975); and Penman, Hastad, and Cords (1974). Danielson, Zelhart, and Drake (1975) administered questionnaires to hockey players ranging in age from 12 to 18 years old to investigate the behaviors of hockey coaches as perceived by adolescent hockey players. Most of the coaches were perceived by the players to be communicative rather than dominating in nature. Penman, Hastad, and Cords (1974) investigated the personalities of successful high school coaches. Results from questionnaires administered to 30 male football and basketball coaches indicated the successful coaches were found to have authoritarian personalities.

In order to analyze the coaching behaviors of John Wooden, UCLA's noted basketball coach, Tharp and Gallimore (1976) developed their own 10-category observational system. The investigators discovered that Wooden's tremendous success as a coach can probably be traced to the fact that over 50% of his practice time behavior was instructionally oriented.

An investigation was conducted by Langsdorf in 1979 to study the behaviors of Frank Kush, the former very successful head football coach at Arizona State University. The investigation consisted of three parts: (a) the study of Kush's behavior, (b) the study of the behavior of the assistant coaches, and (c) objective recording of how players spent their time during practice. Kush and his assistant coaches were coded using the same event-recording system used by Tharp and Gallimore (1976), with the addition of one category, "use of player's first name". Darst, Langsdorf, Richardson, and Krahenbuhl (1981) conducted a similar study, collecting data on the coaching behaviors of Kush's assistant coaches and did player time studies in a thorough investigation of the football environment at Arizona State University. A number of first- and second-team players were followed throughout the practice sessions to determine how the athletes spent their

time in practice. The data collected were converted to a percentage representing the frequency of occurrence for each of the behavior categories. Comparisons were made for all practices combined as well as for individual practice sessions, practice sessions by weeks, and practice sessions by segments (warm-up, agility, one-on-one, individual skills, group skills, scrimmage, and conditioning). Additional comparisons were made between Kush's behaviors and those of his assistants.

After analysis of the data, Langsdorf (1979) and Darst et al. (1981) arrived at several conclusions. The researchers found that instructions were the most common behavior emitted by all coaches, followed by hustle statements, which were used less by Kush than his assistants. Kush was found to use an equal amount of praise and scolds, while his assistants used praise twice as often as they scolded. Coach Kush also used a great deal of scold-reinstruct. Practice-to-practice fluctuations in coaching behavior percentages seemed to be partially dependent on the segments included in practice that day; different segments evoked different behaviors from the coaches.

The player time study consisted of following several first- and second-team players throughout each day's practice. The amount of time accumulated in the following areas was recorded: waiting, drills, huddle time, receiving instruction, relocating between and within practice segments, and rest and water breaks. It was found that the players spent much of their practice time in categories other than actual skill or game situations (Darst et al., 1981).

The behavior percentages of Coach Kush and the percentages arrived at by Tharp and Gallimore (1976) for Coach Wooden were correlated by Langsdorf (1979). The behaviors emitted by the two coaches were remarkably similar.

On the strength of the correlation of the data on these two very successful
coaches and from the data gathered by Darst et al. (1981), Langsdorf (1979)
listed a number of implications for aspiring coaches: (a) coaches can
benefit from training in the giving of instructions; (b) praise may not be as
important a motivator in high level coaching environments as some other
behaviors; (c) scolds are more effective when accompanied by information; (d)
the use of hustle statements seems to generate enthusiasm among athletes,
thereby increasing their performance; and (e) design of the individual
practice sessions is important because it has an effect on the rate and type
of behaviors exhibited by the coach. Darst et al. (1981), in addition,
suggested that practice sessions be arranged so more of the athletes' time is
spent actively engaged in activity.

Using the Ohio State Athletic Observation Code (OSAOC) to investigate
the effects of feedback on the practice behavior of athletes, Crossman (1980)
recorded the practice behavior of nine competitive athletes from three
separate sports. Crossman found that intervention successfully increased the
amount of productive behaviors emitted during practice and decreased the
amount of non-productive behaviors occurring for gymnasts and wrestlers. The
intervention had no effect on the practice behaviors of volleyball players.

One approach used to describe and evaluate teachers' behaviors has been
the use of systematic observation techniques. One systematic observation
technique is interaction analysis which focuses on describing the
interactions that occur between teachers and students. One of the most
widely used interaction analysis instruments has been the Flanders'
Interaction Analysis System (FIAS) which was developed by Flanders (1960) to
analyze verbal behaviors that occur in the classroom. The most refined and
advanced adaptation of FIAS was designed by Cheffers (1972) to allow for the

classification of verbal and nonverbal behaviors between teacher and student, the identification of specific teaching agencies and class structure, and the elaboration on student response behavior. Although initially used to describe teachers' interaction with students in the gymnasium, Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) has been utilized by several researchers (Agnew, 1977; Avery, 1978; Barr, 1978; Hirsch, 1978; Proulx, 1979; Rotsko, 1979; Sciera, 1983; Staurowsky, 1979; Stulmaker, 1981) to describe coaching behavior.

The first coaching study using CAFIAS was conducted by Agnew (1977). CAFIAS was used to examine the teaching and coaching behaviors of 20 female physical educators at the secondary level. According to Agnew (1977), interactions between athletes and coaches were more evident than interactions between pupils and teachers. Not only was there a greater variety of behaviors exhibited in the coaching settings, but a greater amount of athlete-initiated behavior and greater amounts of coach praise and acceptance were evident.

A multivariate analysis of variance was performed by Barr (1978) to determine whether differences in coaching behaviors existed between coaches who received instruction in CAFIAS and those who did not receive instruction in CAFIAS. The researcher found that coaches instructed in CAFIAS used more questioning, praise, and acceptance; they also allowed more athlete-initiated behavior.

CAFIAS was utilized by Avery (1978) to determine differences in the interaction patterns of effective and less effective secondary school coaches. The Coaches' Performance Criteria Questionnaire (CPCQ) was used to divide coaches into effective and less effective groups. Avery concluded that more indirect behaviors were exhibited by effective coaches than less

effective coaches. The CPCQ was also used by Rotsko (1979) to divide 10 male high school basketball coaches into effective and less effective groups. Four practice sessions were videotaped and coded using CAFIAS. The results obtained by Rotsko (1979) concurred with the results found by Avery (1978).

CAFIAS and the Group Environment Scale (GES) (Moos, Insel, & Humphrey, 1974) were used by Hirsch (1978) to examine coaching behaviors in two social climates. This study was replicated by Proulx (1979) and Staurowsky (1979). The GES enabled these researchers to make comparisons between the interaction of teams and their coaches in a satisfied environment and those in a less satisfied environment. The researchers concluded that coaches in satisfied environments had better control, provided more organization, and tended to be more supportive.

Stulmaker (1981) utilized CAFIAS to determine if there were any significant differences in the coaching behaviors of male and female secondary basketball coaches. Fifty male and 50 female secondary basketball coaches were videotaped for 30 minutes during two different practice sessions. Stulmaker found no significant differences existed between the coaching behaviors of male and female secondary basketball coaches.

An investigation utilizing CAFIAS was conducted by Sciera (1983) to examine the interaction behavior patterns of NCAA Division III football coaches to determine if there were differences in their behavior as they interacted with athletes during various phases of the football season. Coaching behavior was investigated during preseason, after wins, and after losses. Six male NCAA Division III football coaches at a college in central New York state served as subjects. Each coach was videotaped during the entire 1981 football season while working with players of the specialized skill positions for which he had responsibility. Sciera found the preseason

coaching style to be significantly different than the coaching style observed during the regular season. The coaches used more acceptance, praise, and information-giving behaviors during preseason as compared to the regular season. After wins the coaches used less acceptance and praise than during preseason, and a significant increase in the use of criticism was observed after losses. Athlete behaviors after wins were more often interpretive than predictable in nature, while after losses their behaviors were evenly distributed between predictable and interpretive.

One limitation of CAFIAS was that it focused on the interactions of the teacher and the whole class, unfortunately neglecting the teachers' interactions with individual students. The Dyadic Adaptation of CAFIAS (DAC) (Martinek & Mancini, 1979), a modification of the CAFIAS instrument, was developed to enable researchers to describe the interaction behaviors between a teacher and either a student or a small group of students. Recently researchers have used DAC to record the behaviors of coaches with athletes of various ability levels (Boyes, 1981; Hoffman, 1981). Hoffman found that both male and female lacrosse coaches interacted with low-skilled and high-skilled athletes differently. Both coaches were direct and critical in their interactions with their low-skilled athletes, and informative and supportive in their interactions with their high-skilled players. The female coach was found to be more supportive of her low-skilled athletes' efforts and actions than was the male coach. Boyes found that there were minor differences in coaches' behaviors toward the starters and non-starters. Starting players received more praise and acceptance while the non-starting players received more directions from their coaches.

To investigate the coaching behaviors of winning high school head football coaches, Lacy (1983) utilized a systematic observation instrument

with 11 behavior categories. Lacy collected data on the behaviors of 10 experienced winning coaches who were observed in preseason, early season, and late season practices, with segments of the observed practices being classified as warm-up, group, team, or conditioning. The main sequence of behavior was analyzed for each phase of the season, for the entire season, and for each coach for the three observed practices. The main sequences recurring in the various analyses were Instruction - Instruction - Hustle - Instruction, Instruction - Instruction - Praise - Instruction, and Instruction - Instruction - First Name - Instruction.

Academic Learning Time-Physical Education

Academic Learning Time-Physical Education (ALT-PE) (Siedentop, Birdwell, & Metzler, 1979; Siedentop, Tousignant, & Parker, 1982) was recently developed for use in the observation of teachers and their students and its use has been extended to coaches and their athletes. The precursor to ALT-PE was the Academic Learning Time (ALT) instrument (Marliave, Fisher, & Dishaw, 1972) which was developed to observe teaching and student activity in elementary classrooms. For a complete understanding of ALT-PE, it is necessary to briefly examine ALT.

A growing amount of research suggests that what teachers do relates to what students achieve (Locke, 1977). Carroll (1963) stated that the degree to which a student was involved in learning, as measured by time, was one of the most influential factors in creating favorable learning environments. In 1972 the Beginning Teacher Evaluation Studies (BTES) of the Far West Laboratory for Educational Research and Development investigated Carroll's assertion. This began a multi-year project to investigate teaching in elementary reading and mathematics classrooms.

It was determined that allocated time, engaged time, task relevancy, and

student success rate were integral components in measuring student achievement (Marliave, 1976). Allocated time was the amount of time provided for a learning task, engaged time was the percentage of allocated time students spent actively responding, task relevancy was the degree to which an activity can be viewed as contributing to an academic goal, and success rate was the amount of success experienced by the student for the engaged task. These four variables were combined and the ALT systematic observation instrument was developed by BTES researchers for use in studying classroom environments. ALT was defined as the amount of time a student spends engaged in a relevant learning task with a high rate of success (Marliave et al., 1972). The BTES theory that ALT was significantly related to student achievement received strong support from researchers (Berliner, 1978; Filby & Cahen, 1977, 1978; Marliave, 1979; Marliave, Fisher, & Dishaw, 1977; Ortiz, 1980).

Through their studies at Ohio State University, Siedentop et al. (1979) developed the Academic Learning Time-Physical Education (ALT-PE) observation instrument based on the findings of the BTES and the ALT model. ALT-PE was defined as the amount of time a student spends engaged in a relevant motor task at an easy level of difficulty (Siedentop et al., 1979). The ALT-PE instrument has been used to provide researchers with information for evaluating student/athlete achievement and teacher/coach effectiveness in the physical education setting (Appendix B).

The intent of ALT-PE was to observe participation levels of physical education students in respect to the context of the class and the difficulty of the activity. The ALT-PE recording instrument observes student in-class behavior using four major decision levels: setting, content, learner moves, and level of difficulty. The use of a 12-second interval recording format

was added. The subject is observed for 6 seconds, and the coder records for the next 6 seconds. The original ALT-PE system was revised by Siedentop et al. in 1982 for easier application of the instrument.

Most of the investigations to date have utilized the original ALT-PE system (Siedentop et al., 1979). Because of the similarities between the original and revised ALT-PE system (Siedentop et al., 1982) comparisons to the findings of previous researchers can be made, although the reader should proceed with caution. Subject matter knowledge and subject matter motor in the revised system included almost identical categories to the PE content level in the original system. General content subdivisions were similar in both systems, with the exception that waiting in the original system was replaced by warm-up in the revised system. Motor engaged in the revised system was similar to engaged motor categories in the original system. Where ALT-PE in the original system consisted of motor activity at easy, medium, cognitive, or indirect levels, ALT-PE in the revised system is categorized as motor appropriate activity. Most other individual categories remained the same.

The ALT-PE instrument has been used by many researchers to investigate the involvement and ALT-PE of different subgroups in classes, such as males and females, mainstreamed and nonmainstreamed students, and students of different skill abilities. Shute, Dodds, Placek, Rife, and Silverman (1982) investigated the ALT-PE of high-skilled, medium-skilled, and low-skilled students in one instructor's elementary movement education classes. Shute et al. (1982) found that this teacher created learning environments where all children of varying skill levels could experience success. Shute et al. (1982) emphasized that the ALT-PE instrument was helpful for teachers in identifying how efficiently they keep their students

actively involved in their physical education class. Similarly, Placek, Silverman, Shute, Dodds, and Rife (1982) found no significant differences in the ALT-PE accrued by students of different gender and different skill abilities in traditional elementary physical education classes. The ALT-PE instrument was utilized by Pieron (1982) to study the effects of teachers' expectations on learners' involvement. In comparing the ALT-PE of high-achievers and low-achievers in gymnastics and volleyball activities, Pieron found that high-achievers accrued significantly higher amounts of time-on-task and success rate variables than did low-achievers in both activities. The data also indicated that the low-achievers received feedback more frequently than the high-achievers. The difference in ability between the two groups was expected to widen despite the additional feedback because of the greater time-on-task and higher rate of success experienced by the high-achievers. Ryan (1983) and Smith (1983) concluded, through utilization of the ALT-PE instrument, that students classified as high-skilled had more opportunities to participate in motor activities in the physical education classes and accrued more ALT-PE on a day-to-day basis and throughout the unit than those students classified as low-skilled.

A study was conducted in the athletic environment by Rate (1981) to compare the amount of ALT-PE accrued by athletes in different sports. Forty-six athletic teams were observed during practice sessions. The ALT-PE of physical education students in the same, central Ohio area were also compared. There was representation from five different sports: baseball, basketball, gymnastics, tennis, and wrestling. Findings indicated that: (a) 75% of all instruction was direct; (b) over 90% of practice time was spent in content-physical education time; (c) almost 75% of the content-physical education time was skill practice or scrimmage; (d) the average amount of

ALT-PE for all practice sessions was 49.3%; (e) significant differences in ALT-PE existed between the wrestling and tennis practices; and (f) coaches spent equal amounts of time in instruction, silent monitoring, and management. Considerable differences in ALT-PE were found between the physical education classes and athletic settings in the same sport. Rate attributed the higher level of ALT-PE in the athletic settings to different group sizes, greater level of motivation, the use of scrimmage techniques, and the greater availability of equipment.

A study to investigate the difference in ALT-PE between high-skilled and low-skilled male high school basketball players was conducted by Galli (1982). A total of 20 practice sessions were videotaped, five before the first game, five after wins, five after losses, and five while the team was preparing for postseason competition. Galli found that the high-skilled player accrued a noticeably greater amount of ALT-PE than the low-skilled player during the same practice sessions. The results indicated that the high-skilled player spent less time waiting to participate and was more actively involved in motor and cognitive situations. No difference was found between the players in the percentage of intervals coded as successful motor engagement (ALT-PE-M).

A study comparing the ALT-PE of high-skilled and low-skilled male and female collegiate lacrosse players was conducted by Thomas (1983). A male and female lacrosse coach and 10 high-skilled and 10 low-skilled players from each team served as subjects and were observed during 10 practice sessions throughout the season. The results indicated that while there was little difference observed at the context level between the teams and between players of different ability levels, significant differences were found at the learner involvement level. The high-skilled male and female athletes

were motor engaged more often, less frequently inappropriately engaged, and spent less time waiting than the low-skilled athletes. Thomas found that the high-skilled athletes accrued more ALT-PE than the low-skilled athletes.

Wuest, Mancini, Terrillion, and van der Mars (1984) performed a study to compare the ALT-PE of high-skilled, average-skilled, and low-skilled female intercollegiate volleyball players during a season. The subjects observed were a female intercollegiate volleyball coach and her 12-player volleyball team. Eighteen practice sessions were videotaped during the season and were coded using the revised ALT-PE instrument (Siedentop et al., 1982). Wuest et al. (1984) found that the low-skilled and average-skilled players were provided with fewer opportunities to actively participate during practices, spent a greater amount of time waiting, experienced less success, and accrued less ALT-PE than the high-skilled players.

Summary

Recently, researchers in education concerned with coaches and their athletes have developed various techniques to systematically observe and code coaches as they interact with their athletes. Early researchers such as Danielson et al. (1975), Hendry (1968), Kaplan (1976), Ogilvie and Tutko (1966), Penman et al. (1974), and Yeager (1964) examined coaches' behaviors using methods such as attitude and personality inventories and questionnaires.

Following 1970 systematic observations of teachers and students increased significantly with some researchers utilizing similar techniques to study the coaching environment. Several researchers (Crossman, 1980; Darst et al., 1981; Langsdorf, 1979; Tharp & Gallimore, 1976) applied their observational systems to investigate the behavior of coaches and their athletes. Tharp and Gallimore (1976) concluded that the success of John

Wooden, UCLA's noted basketball coach, could be attributed to the fact that over 50% of his practice time behavior was instructionally oriented. Langsdorf (1979) used Tharp and Gallimore's (1976) event-recording system to describe the coaching behaviors of Arizona State's former very successful head football coach, Frank Kush. In addition, Darst et al. (1981) collected data on the coaching behaviors of Kush's assistant coaches and did player time studies in a thorough investigation of the football environment at Arizona State. Crossman (1980) found that increased feedback creates greater amounts of productive behavior during practice for gymnasts and wrestlers.

The most widely used observational system for physical education was developed by Cheffers (1972). His system, CAFIAS, provided a systematic procedure for recording and analyzing the verbal and nonverbal behavior patterns of teacher-student interactions. Numerous studies of coaches have been completed using CAFIAS (Agnew, 1977; Avery, 1978; Barr, 1978; Hirsch, 1978; Proulx, 1979; Rotsko, 1979; Sciera, 1983; Staurowsky, 1979; Stulmaker, 1981).

The DAC system was developed by Martinek and Mancini (1979). This system was an extension of CAFIAS that provided a method for coding and analyzing interactions between a teacher and an individual student or small group of students. DAC has been used to study coaches' expectations in the athletic setting by several researchers (Boyes, 1981; Hoffman, 1981). Results from these studies indicated that athletes are treated differently according to the expectations of their coaches.

ALT, a new observational system, was conceptualized by the researchers of the Far West Laboratory for Research and Development. Until Siedentop et al. (1979) modified the ALT observation instrument for use in the physical education environment all research using ALT was done in the classroom

(Marliave, 1979; Ortiz, 1980). This modification, ALT-PE, was defined as the amount of time a student is actively responding in a relevant motor task (Siedentop et al., 1982). ALT-PE is an orderly procedure for recording student/athlete participation in the physical education environment and describing teacher/coach effectiveness (Siedentop et al. 1979).

ALT-PE has been used in several studies (Pieron, 1982; Placek et al., 1982; Ryan, 1983; Shute et al., 1982; Smith, 1983) to study teacher effectiveness and student achievement, particularly achievement by students of different ability levels. Another group of researchers (Galli, 1982; Rate, 1981; Thomas, 1983; Wuest et al., 1984) have used the ALT-PE system to investigate athletes' opportunity and success in the athletic environment. Rate (1981) compared the ALT-PE of athletes representing five different sports while Galli (1982) investigated the difference in ALT-PE between high-skilled and low-skilled male high school basketball players.

Studies comparing the ALT-PE of athletes with different skill levels were conducted by Thomas (1983) and Wuest et al. (1984). Results from these studies indicated that high-skilled athletes accrued more ALT-PE than the low-skilled athletes.

The ALT-PE observation instrument has been used to answer a variety of questions during the last 5 years since its development in 1979. All results from recent studies utilizing ALT-PE indicate it is a reliable and valid instrument for the observation of teachers and coaches. The amount of accrued ALT-PE is an indicator of teacher/coach effectiveness and student/athlete achievement.

Chapter 3

METHODS AND PROCEDURES

In this chapter a description of the selection of subjects, the testing instrument, establishment of intraobserver agreement, the procedures, the method of data collection, the scoring of data, and the treatment of the data are discussed. A summary of the methods and procedures utilized is also included.

Selection of Subjects

The subjects in this investigation consisted of 12 junior varsity football players and their positional coach from an NCAA Division III college junior varsity football team in central New York. The coach gave the investigator permission to videotape the team's practice sessions. Informed consent forms (Appendix A) were used in this investigation to obtain each athlete's permission to participate. The coach ranked his players from high to low according to overall playing ability. The top four ranked players were classified as high-skilled players, and the four lowest ranked players were classified as low-skilled players for this investigation.

Testing Instrument

The testing instrument used to measure the amount of time the athletes were actively involved in a task was the ALT-PE systematic observation system. The revised ALT-PE systematic observation system (Siedentop, Tousignant, & Parker, 1982) was used to code the videotapes (Appendix C). The ALT-PE instrument uses a group-focused context decision and an individually-focused learner decision format. There are three major subdivisions at the context level (general content, subject matter knowledge,

subject matter motor) and two major subdivisions at the learner involvement
level (not motor engaged and motor engaged). There are 13 categories within
the subdivisions of the context level that describe the nature of the class
environment and within the learner involvement level are eight categories
that describe individual student behavior. The interval recording technique
used in this investigation was a 6-second observe, 6-second record format.

Intraobserver Agreement

Intraobserver agreement (IOA) for this study was assessed using the
scored-interval agreement method (Hawkins & Dotson, 1975). Two randomly
selected videotapes were coded during two independent coding sessions by
Dr. Victor Mancini, an expert in descriptive-analytic techniques. IOA was
calculated on an interval-by-interval basis and 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:

$$\frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100 = \text{\% of agreement or IOA.}$$

When the target behavior was recorded as occurring during the same
interval of both coding sessions, it was determined to be in agreement. It
was determined to be in disagreement when the behavior recorded during the
same interval did not concur for both coding sessions.

Procedures

Each player in this study was videotaped with his knowledge and consent
during 18 team practice sessions. The players were videotaped only while
working with their positional coach during practice; practice activities
during which the players worked with the entire team, such as warm-ups or
fitness, were not videotaped. The coach was equipped with a wireless

microphone which did not interfere with his coaching actions.

At the completion of the season the coach was asked to rank his players from high to low according to their overall playing ability. For this study the highest four ranked players were selected to represent the high-skilled group and the lowest four ranked players represented the low-skilled group.

The videotapes were coded by Dr. Victor H. Mancini, an expert coder trained in using the ALT-PE instrument. The target players representing each group were observed for an entire practice session on an alternating interval basis, using a 6-second observe, 6-second record coding format. A programmed cassette was used to provide verbal cues to observe and record.

Method of Data Collection

Data for final analysis were obtained from the coding of 18 videotapes of the team's practice sessions. The videotapes were coded by Dr. Victor H. Mancini using the revised ALT-PE system.

Scoring of Data

The data collected were scored manually and percentages and ratios for the 21 variables identified by ALT-PE were calculated.

Treatment of Data

Descriptive statistics were calculated for each ALT-PE variable. The percentages and ratios of the ALT-PE variables were visually compared to determine differences in ALT-PE between high- and low-skilled players.

Summary

The subjects in this study were 12 junior varsity intercollegiate football linebackers from a central New York college. Their coach ranked the athletes from high to low according to their overall playing ability at the conclusion of the season. Eighteen practice sessions were videotaped during the same season.

The videotapes were coded using the revised ALT-PE system by Dr. Victor H. Mancini, an expert in descriptive-analytic techniques. During the coding of practices, the highest four ranked players were selected to represent the high-skilled group and the lowest four ranked players represented the low-skilled group. IOA was calculated using the scored-interval method.

The data were scored manually and percentages and ratios for the 21 ALT-PE variables were calculated. Visual comparisons were used to determine differences between high-skilled and low-skilled players.

Chapter 4

ANALYSIS OF DATA

The results obtained when comparing the Academic Learning Time in Physical Education (ALT-PE) of high-skilled and low-skilled junior varsity intercollegiate football players are presented in this chapter. The revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982) was used to describe the context levels and learner involvement levels of the players. This chapter is divided into the following sections: (a) intraobserver agreement, (b) analysis of the data, and (c) summary.

Intraobserver Agreement

Intraobserver agreement (IOA) scores were computed using the scored-interval agreement method (Hawkins & Dotson, 1975). Two randomly selected videotapes 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 agreements and disagreements and multiplied by 100 (Herson & Barlow, 1976). IOA scores ranged from 89.5% to 100% which were sufficient to indicate the coder was reliable (Appendix D).

Analysis of Data

Percentages were calculated manually for all ALT-PE categories for high-skilled and low-skilled intercollegiate junior varsity football players. These calculations were obtained from 5,333 observation intervals of the football team's practice sessions.

Visual comparisons of the data in Table 1 revealed no significant differences in the context levels of high- and low-skilled players, but

Table 1

Percent Occurrence of ALT-PE Categories for

High- and Low-skilled Players

ALT-PE Categories	High-skilled	Low-skilled
General Content	2.7	2.7
Transition	2.6	2.6
Management	.1	.1
Break	.0	.0
Warm-up	.0	.0
Subject Matter Knowledge	12.8	12.7
Technique	3.3	3.3
Strategy	8.1	8.1
Rules	.0	.0
Social Behavior	.0	.0
Background	1.3	1.3
Subject Matter Motor	84.5	84.6
Skill Practice	21.7	21.9
Scrimmage/Routine	62.8	62.8
Game	.0	.0
Fitness	.0	.0

Table 1 (continued)

ALT-PE Categories	High-skilled	Low-skilled
Not Engaged	44.3	57.0
Interim	.7	.9
Waiting	23.1	37.2
Off-task	.1	.1
On-task	2.2	2.1
Cognitive	18.2	16.7
Motor Engaged	55.7	43.0
Motor Appropriate	34.7	21.7
Motor Inappropriate	18.9	18.5
Motor Supporting	2.1	2.8

Note. Due to rounding some subcategories do not sum to exactly the same value as the categories.

marked differences were found in the learner involvement levels of these two groups. Regardless of their ability level, the players spent 2.7% of their time performing general activities. Of this time, 2.6% was spent in transition activities. The players were involved in performing managerial tasks infrequently and received no break or rest period during practice. No time was devoted to executing warm-up activities during positional practice. The coach spent close to 13% of practice time relating knowledge to his players, with 8.1% of the time being spent discussing strategy with the team. The players received some information about skill technique (3.3%) and some background information (1.3%) as well. No time was devoted to reviewing the rules or discussing appropriate social behavior. Approximately 84.5% of the practice sessions were spent in subject matter motor activity--performing football skills and scrimmaging. The players were engaged in a scrimmage setting 62.8% of the time and spent close to 22% of their time in skill practice and drills. No practice time was devoted to game play or fitness activities.

Noticeable differences were found in the learner involvement levels of high- and low-skilled intercollegiate junior varsity football players. The low-skilled players were inactive or not engaged more often than the high-skilled players (57.0% versus 44.3%). The greatest difference was in the time spent waiting. The low-skilled players spent 37.2% of their practice time waiting as compared to 23.1% for the high-skilled players. The high-skilled players spent slightly more time involved in cognitive tasks than the low-skilled players (18.2% versus 16.7%). Both high- and low-skilled athletes spent about 2% of their time performing on-task activities. Both the low-skilled and high-skilled players exibited few interim and off-task behaviors. The high-skilled players were engaged in

motor activity 12.7% more of the time than the low-skilled players; the high-skilled players were actively participating 55.7% of the time compared to 43.0% of the time for the low-skilled players. The high-skilled players were appropriately engaged (ALT-PE) 34.7% of the time compared to 21.7% of the time for the low-skilled players. The high-skilled players were not appropriately engaged or unsuccessful in the performance of motor skills 18.9% of the time compared to 18.5% of the time for the low-skilled players. The amount of time spent in motor supporting behavior was slightly higher for the low-skilled players than for the high-skilled players (2.8% versus 2.1%). These results led to the rejection of the major hypothesis which stated that there would be no significant difference between the ALT-PE of high-skilled and low-skilled intercollegiate junior varsity football players.

Summary

IOA scores for this study were calculated using the scored-interval method (Hawkins & Dotson, 1975). Two randomly selected videotapes were coded during two independent coding sessions by Dr. Victor H. Mancini, an expert in descriptive-analytic studies. IOA scores ranged from 89.5% to 100% which were sufficient to indicate the coder was reliable.

Visual comparison of the ALT-PE data for the high- and low-skilled intercollegiate junior varsity football players revealed no significant differences in the context levels (see Table 1). At the learner involvement levels, however, significant differences were found between the high- and low-skilled players.

High-skilled players were engaged in more motor activity in such a way as to produce a high degree of success (ALT-PE) 13% more of the time than were their low-skilled teammates (34.7% versus 21.7%). The high-skilled players also spent less time waiting (23.1% versus 37.2%) and more time

involved in cognitive tasks (18.2% versus 16.7%) than the low-skilled

players.

Visual comparison of the results of this investigation indicated that significant differences existed between the ALT-PE of high- and low-skilled intercollegiate junior varsity football players. Thus, the major hypothesis was rejected.

Chapter 5

DISCUSSION OF RESULTS

The present study compares the Academic Learning Time-Physical Education (ALT-PE) of high-skilled and low-skilled intercollegiate junior varsity football players. This chapter will discuss the results of this investigation and compare the findings with those of other studies.

Visual inspection of Table 1 revealed no significant differences in the context levels of high- and low-skilled intercollegiate junior varsity football players. These results were predictable when one realizes that the coach dealt with his players as a single unit. He did not organize his practice sessions in ways that allowed different athletes within the group to perform different activities at the same time. Instead, practice time was organized such that all players of all abilities would be engaged or not engaged in the same manner. For example, when the high-skilled players were practicing skills, the low-skilled players were too. When the low-skilled players were in a scrimmage setting, the high-skilled players were also. This method of coaching accounts for the lack of context differences.

Two categories at the context level, warm-up activities and fitness activities, were a part of the daily practice sessions but were not videotaped for this study. The players were videotaped only while working with their positional coach during practices; practice activities during which the players worked with the entire team, such as warm-ups or fitness, were not videotaped. Each high- and low-skilled athlete participated equally in each category, therefore no differences would be indicated in these categories. This also accounts for no percentage of time being indicated in

either category in Table 1.

Although no differences were evident at the context level, significant differences occurred in the players' learner involvement levels. The results of this investigation suggest that disparities existed in the opportunities provided for the low- and high-skilled players during football practice. The low-skilled athletes had fewer opportunities to actively participate during practices than the high-skilled athletes (43.0% versus 55.7%). Much of this difference was accounted for by the amount of time the low-skilled players spent waiting; the low-skilled players spent 14.1% more of their practice time waiting. During the time the high-skilled players were engaged, they experienced greater success performing football skills and accrued more ALT-PE (34.7% versus 21.7%) than the low-skilled players. These findings indicated that the coach treated his high- and low-skilled players differently.

One possible explanation for the low-skilled players' accrual of less ALT-PE during practice can be directly related to the ability levels of the high-skilled players. Since the high-skilled players were, by definition, more skilled, it is logical that they would be more successful than low-skilled players (as evidenced by their higher ALT-PE levels). Another possible explanation is that the long periods of waiting may be responsible for the low-skilled players' lower levels of success (ALT-PE). A greater amount of waiting time indicates that the low-skilled players probably received less trials during skill-related activities, and, therefore, they received fewer opportunities to improve their skills. This would account for their lower ALT-PE levels and motor-engaged times. It may be reasoned that the coach designed his practices with his high-skilled players in mind. These findings concur with those of Rosenthal and Jacobson (1968) who

concluded that teachers/coaches give different treatment to individuals based on their expectations of those individuals. If the coach geared his practice activities toward his high-skilled athletes, or "starters", the results found in Table 1 are predictable.

Pieron (1982) suggested that the gap in performance between students of different abilities was sure to widen because the high-skilled students were more productively engaged in activities during class. It would seem to follow that the gap in performance between low- and high-skilled players would be affected in a similar manner. Therefore, in order to reduce the gap in performance, coaches need to design their practices to include skill progressions that will allow the athletes of lesser skill to experience success and improve their skills to the level of their higher skilled teammates.

Darst, Langsdorf, Richardson, and Krahenbuhl (1981), after using systematic observation techniques to observe noted former Arizona State University football coach Frank Kush, suggested that objective observation can provide coaches with valuable information about their practices. Darst et al. suggested coaches design their practices to reduce unproductive time--time spent in waiting, relocating, and resting--to a minimum. Practices should be arranged to maximize productive time, specifically the time athletes' spend actively engaged in activity. For example, as shown in Table 1, one-fourth of the high-skilled players' practice time and two-fifths of the low-skilled players' practice time was spent waiting. The coach may want to reorganize activities through the use of smaller drill groups and/or by providing more activity stations. It would also seem desirable for the coach to maximize the amount of ALT-PE accrued by players of different ability levels. This could be accomplished by designing different tasks for

athletes of different abilities or through using different progressions for each group.

The results of this investigation can be compared to those of Thomas (1983) who utilized the revised ALT-PE instrument to compare high- and low-skilled male and female collegiate lacrosse players. Results indicated no significant differences in the context levels of the players. However, differences were found in the learner involvement levels of the players. The findings of the present investigation also indicated no differences in the context levels and significant differences in the learner involvement levels of the players. Thomas also found the high-skilled athletes were motor engaged more often, accrued more ALT-PE, were engaged inappropriately less often, and had to wait less than their low-skilled teammates. Although the present study differed in that the high- and low-skilled athletes were found to be inappropriately engaged almost equally, the remainder of the findings were congruent with those of Thomas (1983).

Recently, a study was conducted by Wuest, Mancini, Terrillion, and van der Mars (1984) to compare the ALT-PE of high-skilled, average-skilled, and low-skilled female intercollegiate volleyball players during a season. Wuest et al. (1984) found that the lower skilled athletes were provided with fewer opportunities to actively participate during practices, spent a greater amount of time waiting, experienced less success, and accrued less ALT-PE than the high-skilled players. These results were in agreement with those of the present investigation.

The ALT-PE of athletes while they were practicing basketball, wrestling, gymnastics, tennis, and baseball was observed by Rate (1981). Results indicated that approximately 90% of the practice time was spent in content-PE. The average amount of ALT-PE for all sports was 49.3%. Although

the revised ALT-PE system did not have a category for content-PE, the percentages obtained for subject matter knowledge and subject matter motor in this investigation may be combined to provide an estimate of the time spent in content-PE activities. The athletes in the present study spent approximately 97% of their time in content-PE or football-related activities. This was greater than the 90% reported by Rate. The average ALT-PE experienced by players in this study was approximately 49% which also compared favorably with the average ALT-PE of 49.3% reported by Rate.

The ALT-PE instrument was employed by Galli (1982) to investigate the differences in ALT-PE between high- and low-skilled male high school basketball players. His results indicated that the low-skilled player accrued less ALT-PE and spent much more time waiting to participate than the high-skilled player. These results concur with those of the present investigation.

Pieron (1982), Ryan (1983), and Smith (1983) utilized the ALT-PE instrument to study the effects of teachers' expectations on students' involvement. Pieron (1982) found that high-achievers accrued significantly greater amounts of ALT-PE than did low-achievers when observed in gymnastics and volleyball activities. Smith (1983) found high-skilled secondary students spent more time actively participating in class and accrued significantly more ALT-PE than the low-skilled students; Ryan (1983) reported similar results for high-skilled elementary students. As indicated in Table 1, the high-skilled football athletes accrued substantially more ALT-PE than did the low-skilled athletes. The results of the present investigation concur with the findings of Pieron (1982), Ryan (1983), and Smith (1983).

The Dyadic Adaptation of Cheffers' Adaptation of Flanders' Interaction Analysis System (DAC) was used by Hoffman (1981) to analyze intercollegiate

coaches' interactions with their lacrosse players of different abilities.
Although many similarities exist between the findings of Hoffman and the
present investigation, no direct relationships can be established because of
the use of different observation instruments. The results of the present
study paralleled Hoffman's results in the fact that players labeled
high-skilled by their coaches appeared to experience more advantageous
conditions than their low-skilled teammates. Hoffman found the high-skilled
players received more support and information from their coaches. The
results of the present study indicated that high-skilled athletes experienced
more motor involvement, were more successful, and spent less time waiting
than their low-skilled teammates. The coaches in both studies favored their
high-skilled athletes, either through their interactions with them or the
opportunities they provided for them during practice sessions.

DAC was used by Boyes (1981) to observe the interaction patterns of
college football coaches with their starting and non-starting players.
Findings indicated only minor differences in coaches' behaviors toward
athletes of different abilities. Unlike this investigation Boyes found no
significant differences existed between treatment received by the high- and
low-skilled players.

Information about the actions and achievements of intercollegiate junior
varsity football players of different ability levels was provided by the
ALT-PE data from this investigation. Systematic observation systems, such as
ALT-PE, can be very useful in aiding the coach in using the time allocated
for practice more effectively. The coach can use this information to
reorganize activities, design different tasks for athletes of different
abilities, and use different progressions for each group in an effort to
maximize the amount of ALT-PE accrued by players of different ability levels.

Summary

No differences were found in the context levels of the high- and low-skilled intercollegiate junior varsity football players. These results may be attributed to the coaching methods employed by the coach. Most of the significant differences between the high- and low-skilled athletes existed at the learner involvement level. These findings led to the rejection of the major hypothesis.

A number of possible explanations for the findings in this investigation existed. It was likely that superior ability of the high-skilled players contributed to them being more involved and successful (ALT-PE) than the low-skilled players during practice. The longer waiting time experienced by the low-skilled players may be related to their low success levels (ALT-PE). While the low-skilled athletes were waiting, they received less trials and, therefore, received fewer opportunities to improve their skills.

The ALT-PE systematic observation system can be a very useful tool in aiding the coach in using the time allocated for practice more effectively. In order to maximize the amount of ALT-PE accrued during practice by players of different ability levels the coach may want to reorganize activities, design different tasks, or use different progressions for athletes of different skill levels.

The findings of this investigation concur with the findings of other researchers (Galli, 1982; Hoffman, 1981; Pieron, 1982; Rate, 1981; Ryan, 1983; Smith, 1983; Thomas, 1983; Wuest et al., 1984). The results of this investigation supported the contention that coaches treat their athletes differently according to their skill abilities.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The purpose of this study was to determine if differences existed between the Academic Learning Time-Physical Education (ALT-PE) of high-skilled and low-skilled intercollegiate junior varsity football players. Twelve junior varsity football players and their position coach from a central New York college served as subjects. The players' coach gave the investigator permission to videotape 18 practice sessions during the course of the 1983 season. Following the season, the coach ranked his players from high to low according to overall playing ability. The top four ranked players and bottom four ranked players were selected for participation in this study. The 18 videotapes of the practice sessions were coded using the revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982).

The ALT-PE data were manually scored and percentages calculated for each ALT-PE category. Visual comparisons were made between the groups.

Visual analysis of the data revealed no significant differences in the context levels of high- and low-skilled intercollegiate junior varsity football players. However, significant differences were found in the learner involvement levels. The high-skilled athletes were motor-engaged more, spent less time waiting, and accrued more ALT-PE than their low-skilled teammates. The differences in accrued ALT-PE between high- and low-skilled athletes led to rejection of the major hypothesis that stated there would be no significant difference between the ALT-PE of high-skilled and low-skilled intercollegiate junior varsity football players.

Conclusions

The results of this study led to the following conclusions regarding the accumulated ALT-PE of high- and low-skilled intercollegiate junior varsity football players:

1. There were no significant differences in the context levels for the high- and low-skilled players.

2. The high-skilled athletes had more opportunity to actively perform football skills than their low-skilled teammates.

3. The high-skilled players were more successful and effective (ALT-PE) in performing football skills than their low-skilled counterparts.

4. The low-skilled athletes spent a considerably larger amount of time inactively waiting to participate in an activity.

5. The coach treated his high- and low-skilled players differently.

Recommendations for Further Study

The following recommendations are suggested for further study:

1. A study to examine the ALT-PE of low- and high-skilled football players at the intercollegiate varsity level.

2. A study that would examine the effects of instruction and supervision in interaction analysis on the ALT-PE of football players.

3. A study that would examine the effects of instruction and supervision in ALT-PE on the ALT-PE of football players.

4. A study to determine if football players of successful and less successful coaches have different amounts of ALT-PE accrued in practice.

Appendix A

INFORMED CONSENT FORM

ATHLETE'S COPY

The study in which you are asked to participate is observing the Academic Learning Time-Physical Education (ALT-PE) of intercollegiate junior varsity football players. You will be videotaped 18 times during the 1983 season. The videotaping will in no way interfere with your normal actions.

It is assured that the names in this study will be kept strictly confidential. If you do not have any questions and you are willing to participate in this study, please sign your name below. Thank you.

_____   _____
Signature   Date

THE ORIGINAL CATEGORIES OF ALT-PE

Setting Level--describes the general instruction strategy of the observed

movement.

Direct Instruction (D). Teacher controls focus and pacing of the

instruction.

Task Instruction (T). Instruction defined by task--multiple station

and/or multiple task.

Reciprocal (R). Students in identifiable pairs for instruction and

feedback.

Group (G). Same function as reciprocal with large group.

Guided Discovery (GD). Teacher leads students toward predetermined

goal through series of sequenced prompts.

Problem Solving (P). Teacher controls instruction through sequenced

problems in which alternative solutions are possible.

Content-General--describes the focus of the instructional content of the

observed movement.

Wait (W). Periods of no activity and no movement prior to and

between activities.

Transition (T). Periods of change from one activity to another,

including lining up or quieting down for the next activity.

Management (M). Time devoted to practical business which is unrelated

to the instructional activities of the day.

Break (B). Intentional periods of no activity to rest students, drink

water, etc. Breaks must be initiated by the coach.

Content-General (continued)

Non-academic Instruction (N). Activities which fall outside the domain of focused instruction, such as rapport-building activities.

Content-Physical Education

Skill Practice (P). Participation in drills and other instructional activities in which the primary goal is individual skill development.

Scrimmage (S). Controlled group practice in which instruction and feedback are frequent. It includes the simulation and/or modification of game playing to focus upon a specific instructional point.

Game (G). Practice under game conditions.

Fitness (F). Repetitive activities for fitness development. Includes warm-up and cool-down activities, such as stretching.

Other Motor Activity (O). Motor activity unrelated to specific goals of the day's instruction is other motor activity.

Knowledge Focus (K). Activities which have knowledge about skill, background information, etc., as the focus.

Social Behavior (B). Activities in which social behavior, attitudes, etc., are the focus.

Learner Moves Level--describes student behavior when Content-PE has been coded on the second (Content) level of an interval.

Engaged Motor Responding (M). Student is performing a skill.

Engaged, Indirect Participation (I). Student is in an activity but not directly involved with the immediate action (includes assisting others in skill practice, such as spotting, setting up targets, retrieving balls, etc.).

Learner Moves Level (continued)

Engaged Cognitive (C). Cognitive involvement related to instruction, such as listening, questioning, verbal responding, or thinking about the activity.

Not Engaged, Interim (NI). Any non-instructional activity that is part part of the P.E. activity. Changing sides of the net and times out between points is not engaged, interim.

Not Engaged, Waiting (NW). Time during activity when student is waiting for help or waiting to participate again. Being a substitute in a game is not engaged, waiting.

Not Engaged, Off-Task (NO). Student is inappropriately disengaged from the lesson.

Difficulty Level--describes the student level of success.

Easy (E). Few errors are made and student performs appropriately with little effort, experiencing success frequently.

Medium (M). Any performance that is other than easy or hard.

Hard (H). Many errors are made, and student appears to be unable to perform appropriately, experiencing success infrequently.

1
Cited from Siedentop, Birdwell, and Metzler (1979, pp. 10-12).

THE REVISED CATEGORIES OF ALT-PE[1]

Content Level

The first level of decision making focuses on the class as a whole (or a subset of the class) and is designed to describe the context within which student behavior is occurring. There are three major subdivisions at the context level--general content, subject matter knowledge content, and subject matter motor content.

General Content	refers to class time when students are not intended to be involved in physical education activities.
SM Knowledge Content	refers to class time when the primary focus is on knowledge related to physical education content.
SM Motor Content	refers to class time when the primary focus is on motor involvement in physical education activities.

Each of the three main subdivisions at the context level has categories which describe more specifically the nature of the setting within which individual student behavior is occurring. These categories are defined as follows:

General Content Categories

Transition (T)	Time devoted to managerial and organizational activities related to instruction such as team selection, changing equipment, moving from one space to another, changing stations, teacher explanation of an organizational arrangement, and changing activities within a lesson.
Management (M)	Time devoted to class business that is unrelated to instructional activity such as taking attendance, discussing a field trip, lecturing about appropriate behavior in the gymnasium, or collecting money for the yearbook.

Break (B)

Time·devoted to rest and/or discussion of nonsubject matter related issues such as getting a drink of water, talking about last night's ball game, telling jokes, celebrating the birthday of a class member, or discussing the results of a student election.

Warm Up (WU)

Time devoted to routine execution of physical activities whose purpose is to prepare the individual for engaging in further activity, but not designed to alter the state of the individual on a long term·basis, such as a period of light exercises to begin a class, stretching exercises prior to a lesson, or a cooling down activity to terminate a lesson.

Subject Matter Knowledge Categories

Technique (TN)

Time devoted to transmitting information concerning the physical form (topography) of a motor skill such as listening to a lecture, watching a demonstration, or watching a film.

Strategy (ST)

Time devoted to transmitting information concerning plans of action for performing either individually or as a group such as explanation of a zone defense, demonstration of an individual move, or discussion of how best to move the ball down a field.

Rules (R)

Time devoted to transmitting information about regulations which govern activity related to the subject matter such as explanation of the rules of a game, demonstration of a specific rule violation, or viewing a film depicting the rules of volleyball (time devoted to transmitting information about rules governing general student behavior in physical education are coded management).

Appendix C (continued)

Social Behavior (SB)   Time devoted to transmitting
                              information about appropriate and
                              inappropriate ways of behaving within
                              the context of the activity such as
                              explanation of what constitutes
                              sportsmanship in soccer, discussion of
                              the ethics of reporting one's own
                              violations in a game, or explanations
                              of proper ways to respond to officials
                              in a game.

Background (BK)   Time devoted to transmitting
                              information about a subject matter
                              activity such as its history,
                              traditions, rituals, heroes, heroines,
                              records, importance in later life, or
                              relationship to fitness.

Subject Matter Motor Categories

Skill Practice (P)   Time devoted to practice of skills or
                              chains of skills outside the applied
                              context with the primary goal of skill
                              development, such as a circle drill in
                              passing a volleyball, one against one
                              practice of dribbling a basketball,
                              exploration of movement forms,
                              practicing the Schottische step, or
                              practicing a particular skill on a
                              balance beam.

Scrimmage/routine (S)   Time devoted to refinement and
                              extension of skills in an applied
                              setting (in a setting which is like or
                              simulates the setting in which the
                              skill is actually used) and during
                              which there is frequent instruction and
                              feedback for the participants--such as
                              a half court five on five basketball
                              activity, the practice of a complete
                              free exercise routine, six against six
                              volleyball (all with instructions,
                              suggestions, and feedback during the
                              scrimmage).

Game (G)   Time devoted to the application of
                              skills in a game or competitive setting
                              when the participants perform without
                              intervention from the
                              instructor/coach--such as a volleyball
                              game, a complete balance beam routine,
                              the performance of a folk dance, or
                              running a half-mile race.

Fitness (F)   Time devoted to activities whose major
                                   purpose is to alter the physical state
                                   of the individual in terms of strength,
                                   cardiovascular endurance, or
                                   flexibility such as aerobic dance,
                                   distance running, weight lifting, or
                                   agility training (the activities should
                                   be of sufficient intensity, frequency,
                                   and duration so as to alter the state
                                   of the individual).

Learner Involvement Level

The second level of decision making focuses on the individual

learner(s) and is designed to describe the nature of the learner(s)

involvement in a more specific way. There are two major subdivisions at the

learner involvement level--not motor engaged and motor engaged.

Not Motor Engaged   refers to all involvement other than
                                   motor involvement with subject-matter-
                                   oriented motor activities.

Motor Engaged   refers to motor involvement with
                                   subject-matter-oriented motor
                                   activities.

Each of the two main subdivisions at the learner involvement level has

categories which describe more specifically the nature of the learner's

involvement. These categories are defined as follows:

Not Motor Engaged Categories

Interim (I)   The student is engaged in a non-
                                   instructional aspect of an ongoing
                                   activity such as retrieving balls,
                                   fixing equipment, retrieving arrows,
                                   or changing sides of a court in a
                                   tennis match.

Waiting (W)   Student has completed a task and is
                                   awaiting the next instructions or
                                   opportunity to respond such as waiting
                                   in line for a turn, having arrived at
                                   an assigned space waiting for the next
                                   teacher direction, standing on a side-
                                   line waiting to get in a game, or
                                   having organized into the appropriate
                                   formation waiting for an activity to
                                   begin.

Appendix C (continued)

Off-task (OF)

The student is either not engaged in an activity he/she should be engaged in or is engaged in activity other than the one he/she should be engaged in-- behavior disruptions, misbehavior, and general off-task behavior, such as talking when a teacher is explaining a skill, misusing equipment, fooling around, fighting, disrupting a drill through inappropriate behavior.

On-task (ON)

The student is appropriately engaged carrying out an assigned non-subject matter task (a management task, a transition task, a warm up task) such as moving into squads, helping to place equipment, counting off, doing warm up exercises, or moving from the gym to a playing field.

Cognitive (C)

The student is appropriately involved in a cognitive task such as listening to a teacher describe a game, listening to verbal instructions about how to organize, watching a demonstration, participating in a discussion, or watching a film.

Motor Engaged Categories

Motor appropriate (MA)

The student is engaged in a subject matter motor activity in such a way as to produce a high degree of success.

Motor inappropriate (MI)

The student is engaged in subject-matter-oriented motor activity but the activity-task is either too difficult for the individual's capabilities or the task is so easy that practicing it could not contribute to lesson goals.

Supporting (MS)

The student is engaged in subject matter motor activity the purpose of which is to assist others learn or perform the activity such as spotting in gymnastics, feeding balls to a hitter in a tennis lesson, throwing a volleyball to a partner who is practicing set up passing, or clapping a rhythm for a group of students who are practicing a movement pattern.

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[1]Cited from Siedentop, Tousignant, and Parker (1982, p. 11-15).

Appendix D

INTRAOBSERVER AGREEMENT PERCENTAGES FOR

TWO RANDOMLY SELECTED VIDEOTAPES

Category	Tape 1		Tape 2	
	High-skilled	Low-skilled	High-skilled	Low-skilled
GENERAL CONTENT				
Transition	100.0	100.0	100.0	100.0
Management	----	----	----	----
Break	----	----	----	----
Warm Up	----	----	----	----
SUBJECT MATTER KNOWLEDGE				
Technique	100.0	100.0	100.0	100.0
Strategy	100.0	100.0	100.0	100.0
Rules	----	----	----	----
Social Behavior	----	----	----	----
Background	----	----	----	----
SUBJECT MATTER MOTOR				
Skill Practice	----	----	94.0	93.8
Scrimmage/Routine	100.0	100.0	98.6	97.8
Game	----	----	----	----
Fitness	----	----	----	----

Appendix D (continued)

Category	Tape 1		Tape 2	
	High-skilled	Low-skilled	High-skilled	Low-skilled
NOT MOTOR ENGAGED				
Interim	100.0	100.0	100.0	100.0
Waiting	92.3	96.1	95.2	97.0
Off-task	----	----	----	----
On-task	100.0	100.0	100.0	100.0
Cognitive	93.7	90.0	90.7	91.8
MOTOR ENGAGED				
Motor Appropriate	95.7	93.0	92.9	89.5
Motor Inappropriate	90.3	90.9	91.1	90.6
Supporting	----	----	----	----

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