INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
THE EFFECTS
OF A SPORT EDUCATION MODEL
ON THE PARTICIPATION AND ACHIEVEMENT
LEVELS OF ELEMENTARY STUDENTS IN
PHYSICAL EDUCATION CLASS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Robert P. Snyder, B.A., M.A.

The Ohio State University
1997

Dissertation Committee:
Professor Sandra Stroot, Adviser
Professor Daryl Siedentop
Professor Mary O'Sullivan

Approved by

Adviser
College of Education
ABSTRACT

This study examined the effect that a sport education model had on the participation and achievement levels of fourth and fifth grade students in a basketball unit. The teacher/researcher used qualitative and quantitative research methods to examine the model.

For student activity levels, academic learning time - physical education data were collected. A modified academic learning time - physical education instrument was used to gather data for the roles of scorekeeper and referee. A teacher diary was kept to obtain the teacher's perceptions of sport education, and student perceptions were obtained using a questionnaire and interviews. A skill test was given to students to determine skill improvement, and video tapes were observed to determine if strategic play improvement occurred.

Students participating in the sport education unit were observed in the academic learning time - physical education motor appropriate behavior at 46%. Students participating in the role of referee were actively involved 83% of the lesson.
time and passively involved 13% of the time. Students observed in the role of scorekeeper were fully attentive 96% and distracted 4% of the time spent in this role.

The teacher found sport education to be more work and more preparation than past, traditional, lessons but was pleased with the unit, and felt the extra planning time was well spent. Students liked the sport education unit and the various roles in which they were expected to participate.

Using a correlated t-test, to examine pretest and posttest scores, students were found to have significantly improved their skill level in passing, shooting, and dribbling. Strategic play improved for the students that were observed before the unit and again at the end of the unit.

These results suggest that students participating in sport education will be appropriately and actively involved in various roles of the sport education model. Through this participation, skill level and strategic play may be improved in the student participants. The teacher and students enjoy the sport education format creating a positive experience in physical education.
To my Family, Friends and in

Memory of my Dad
ACKNOWLEDGEMENTS

I would like to express my appreciation to Dr. Sandra Stroot for guidance, patience, and professional advice during my years at The Ohio State University.

I would also like to thank Dr. Daryl Siedentop, and Dr. Mary O'Sullivan for serving on my committees and showing me true professionalism and commitment to our profession.

Many thanks to the fourth and fifth grade students and teachers for participating in this study.

A very special thank you to Sue and Kate for support and understanding these last few years.
VITA

June 7, 1957..............Born - Lorain, Ohio

1985......................B.A. Health, Physical Education, Recreation, and Dance, Bluffton College, Bluffton, Ohio

1991........................M.A. Ashland University, Ashland Ohio

1985 - Present............Elementary physical education teacher, Marion, Ohio

FIELDS OF STUDY

Major Field: Education
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Dedication</td>
<td>iv</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>v</td>
</tr>
<tr>
<td>Vita</td>
<td>vi</td>
</tr>
<tr>
<td>List of Tables</td>
<td>ix</td>
</tr>
<tr>
<td>Chapters:</td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
<td></td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Research Questions</td>
<td>7</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>8</td>
</tr>
<tr>
<td>Assumptions of the Study</td>
<td>9</td>
</tr>
<tr>
<td>Definitions of Terms</td>
<td>9</td>
</tr>
<tr>
<td>2. Review of Related Literature</td>
<td>11</td>
</tr>
<tr>
<td>Teacher as Researcher</td>
<td>11</td>
</tr>
<tr>
<td>Curriculum in Physical Education</td>
<td>21</td>
</tr>
<tr>
<td>Academic Learning Time - Physical Education</td>
<td>32</td>
</tr>
<tr>
<td>3. Methods and Procedures</td>
<td>38</td>
</tr>
<tr>
<td>Subjects</td>
<td>39</td>
</tr>
<tr>
<td>Sport Education Unit</td>
<td>41</td>
</tr>
<tr>
<td>Student Roles</td>
<td>45</td>
</tr>
<tr>
<td>Format</td>
<td>47</td>
</tr>
<tr>
<td>Award System</td>
<td>49</td>
</tr>
<tr>
<td>Video Taping</td>
<td>49</td>
</tr>
<tr>
<td>Academic Learning Time - Physical Education</td>
<td>50</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>53</td>
</tr>
<tr>
<td>Interviews</td>
<td>54</td>
</tr>
<tr>
<td>Teacher Diary</td>
<td>57</td>
</tr>
<tr>
<td>Strategic Play</td>
<td>57</td>
</tr>
<tr>
<td>Pretest - Posttest</td>
<td>58</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>61</td>
</tr>
<tr>
<td>Triangulation</td>
<td>65</td>
</tr>
<tr>
<td>Reliability Check</td>
<td>65</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ALT-PE Data for the Unit.............71</td>
</tr>
<tr>
<td>2</td>
<td>Involvement in Duty Roles.............72</td>
</tr>
<tr>
<td>3</td>
<td>Degree to Which Subjects Liked their Roles..........................96</td>
</tr>
<tr>
<td>4</td>
<td>t-Test for Basketball Skills...........101</td>
</tr>
<tr>
<td>5</td>
<td>Analysis for Critical Elements of Basketball Skills.........................102</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Physical education is an integral part of the school curriculum. According to Pangrazi and Dauer (1992) "Physical education is a part of the general educational program that contributes, primarily through movement experiences, to the total growth and development of all children" (p. 1). For children to remain physically fit, they need to continue participation in activities after their school years are over. Too often this is not the case. Many youths tolerate their early fitness programs only to discard them later in life. School physical education is irrelevant or boring for many adolescents (Tinning & Fitz Clarence, 1992). Youth programs are not preparing students for lifetime participation. Many adolescents bored with school physical education see physical activity as significant to their lifestyles outside the school context (Tinning & Fitz Clarence, 1992).

Using sport in physical education can be an excellent way to develop an appreciation of physical activities. "Sport, when taught properly, provides important
developmental experiences for children and youth, not only through increased playing competence but also through personal growth and responsibility" (Siedentop, 1994, p. ix).

Not all physical educators agree with using competition in physical education. Criticism has been made of teachers who use physical education classes as an opportunity to develop elite athletes (Hastie, 1996). There are also those who feel that if physical education has less to do with sport, the subject could be more academic (Grant, 1992). One suggestion was that sport should be an after school, extra curricular activity rather than included in physical education (Grant, 1992).

Many professionals, however, do consider sport as holding a rightful place within the physical education curriculum (Hastie, 1996). "Sports are a part of the American scene and little justification is needed for their inclusion in the elementary school program" (Pangrazi & Dauer, 1992, p. 559). The physical education setting, if used properly, could be an excellent means for teaching the appropriate values connected with sport participation. One possible way to achieve this goal is by using the sport education model developed by Siedentop (1994).

Most physical educators already teach sport as part of the curriculum (Siedentop, 1994). "Sport education is a curriculum and instruction model developed for school
physical education programs" (Siedentop, 1994, p. 3). Grant's (1992) research in New Zealand, where sport education has become an integral part of the physical education programs, concluded that "Sport education had a clearly defined purpose and put students into a situation that required and valued their full involvement" (p. 312). Siedentop (1994) also stated "Sport education provides experiences that are more complete and authentic than typical physical education sport" (p. 3). According to Siedentop sport education has three major goals for its student participants:

1. To develop a competent sportsperson who has sufficient skill to participate in a game.
2. To develop a literate sportsperson who understands and values rules, rituals, and traditions of sport.
3. To develop an enthusiastic sportsperson who behaves in ways that preserve, protect and enhance the sports culture. (p. 4)

Students participating in a sport education unit are typically associated with a team. Grant's (1992) research also suggested that the first and most notable achievement for many of the students was simply being a valued member of a team. Sweeney, Tannehill, and Teeters (1992) reported that sport education heightens interest and participation by placing physical education in team sports context.
Sport education is defined by specific characteristics. Jewett, Bain, and Ennis (1995) identified these characteristics as sport seasons, team affiliation, scheduled competitions, culmination events, record keeping, and teachers as coaches.

Grant (1992) suggested that sport education changes the way students think about themselves and each other while improving their capacity to be competent sport performers. Participation in this model also encourages elements of enjoyment and fun. School physical education programs have program objectives to which they attend. Sport education has specific objectives which include:

1. Develop skills and fitness specific to particular sports.
2. Appreciate and be able to execute strategic play in sports.
3. Participate at a level appropriate to their stage of development.
4. Share in the planning and administration of sport experiences.
5. Provide responsible leadership.
6. Work effectively within a group toward common goals.
7. Appreciate the rituals and conventions that give particular sports their unique meanings.
8. Develop the capacity to make reasoned decisions about sport issues.
9. Develop and apply knowledge about umpiring, refereeing, and training.

10. Decide voluntarily to become involved in after school sport. (Siedentop, 1994, p. 4-5)

The sport education model provides teachers with the opportunity to enhance the sport experience for students. School physical education programs have the potential to be improved through the use of sport education. "Sport education can increase the impact of physical education as a school subject, moving it from the marginal status it now too often occupies to a more central, valued place in the school curriculum" (Siedentop, 1994, p. x). Sport education provides a model in which the values of competition can be effectively taught and learned (Grant, 1992). Students learn to participate within the team concept through sport education. Strategies and skills are taught and students practice these techniques within the framework of a team (Sweeney, Tannehill, & Teeters, 1992). Students need to have a positive experience in their sport participation. "Each year thousands of youth sport participants withdraw from sport participation. Many of these are turned away by their experience in sport" (Rotella, Hanson, & Coop, 1991, p. 421). Sport education gives students the chance to understand and love sport and the opportunity to have a good educational and social experience as part of a team (Siedentop, 1994). If we want our students to remain active
once their school years are over, they need this positive experience. Teachers who have used sport education are pleased with the results. "Most teachers who have tried sport education have chosen to repeat it" (Alexander, Taggart, & Medland, 1993, p. 16).

One way to achieve justification of teaching methods and practices is through action research. Inquiry teachers undertake to understand and improve their own practice is action research (McCutcheon & Jung, 1990). By using action research, the teacher researcher can study the impact of sport education on students. "Action research is intended to support teachers in coping with the challenges and problems of practice and carrying through innovations in a reflective way" (Altrichter, Posch, & Somekh, 1993, p. 4).

Using the action research concept, teachers are able to study curriculum or instruction while teaching is taking place. There is a repertoire of simple methods and strategies for researching practice to those engaging in action research. The strategies are tailored to what is achievable without overly disrupting practice (Altrichter, Posch, & Somekh, 1993).

Sport education has the possibility of changing the way physical education is typically taught in the schools. By combining sport education and action research, a greater understanding of the true impact of sport education on the lives of the students may be achieved.
Statement of the Problem

The purpose of this study was to investigate the effect of a sport education model on the participation and achievement levels of fourth and fifth grade students in a basketball unit.

The implementation of a sport education basketball unit with fourth and fifth grade students required the subjects to participate as players, captains, referees, and scorekeepers. During the unit, data were gathered relative to teacher perceptions, student perceptions, student performance and academic learning time in physical education.

Listed below are six questions addressed in this study:
1. What were the activity levels of fourth and fifth grade students participating in a sport education basketball unit?
2. What was the extent of involvement in the duty roles of referee, and scorekeeper?
3. What were the teacher's perceptions of the sport education unit?
4. What were the students' perceptions of the sport education unit?
5. Did basketball skill improve for students participating in a sport education basketball unit?
6. Did strategic play improve for students participating in a sport education basketball unit?

Limitations of the Study

The limitations that affected this study were:

1. Subjects were limited to fourth and fifth grade students in a regular physical education class. This limitation precludes any generalization to other grade levels.

2. Subjects for the study were from a central Ohio city school district. This precludes any generalization outside the school district.

3. The study was conducted during a basketball unit. This precludes any application of findings to other sport education units.

4. Low, medium, and high skilled students were rated by the physical education teacher. This limitation precludes generalization to other groups.

5. The curriculum model used for this study was the sport education model developed by Siedentop (1994). This precludes any generalization to other curricular models.
Assumptions of the Study

1. Students who participated in the interviews were representative of the fourth and fifth grade students in the class.

2. "By using triangulation, a more detailed and balanced picture of the situation is obtained" (Altrichter, Posch, & Somekh, 1993, p. 117).

Definition of Terms

To ensure clarity, the following definitions have been included:

ALT-PE - Academic learning time - physical education. "To measure the portion of time in a physical education lesson that a student is involved in motor activity at an appropriate success rate" (Parker, 1989, p.195).

Qualitative - "A generic term for a variety of approaches to educational research and evaluation variously labeled as field studies, ethnography, and participant observation" (Ary, Jacobs, & Racavieh, 1990, p. 444).

Sport Education - "A curriculum and instruction model developed for school physical education programs... In this model students not only learn more completely how to play sports but also to coordinate and manage their sport experiences. Students also learn individual responsibility and effective group membership skills" (Siedentop, 1994, p. 3).
Teacher Diary - Written reflections on research methods and role as researcher are noted. Ideas and insights which can lead to the development of the theoretical constructs which, in turn can be used to interpret the data (Altrichter, Posch, & Somekh, 1993).

Triangulation - "Triangulation directs the observer to combine multiple data sources, research methods, theoretical perspectives, and observers in the collection, inspection and analysis of behavior specimens" (Templin, 1983, p. 39).
"We believe the task is now to research and develop an embryonic sport education curriculum model, within school physical education programs" (Alexander, Taggart, & Medland, 1993, p. 22). Research on sport education is needed to justify its place in school curricula, and to effectively promote sport education as a viable addition to existing programs.

This review of related literature addresses three areas of research that are necessary for this study: teacher as researcher, curriculum in physical education, and academic learning time in physical education.

**Teacher as Researcher**

Action research constitutes research that teachers do to better understand their own professional practice (McCutcheon & Oberg, 1990). Teachers who engage in action research are aware of a problem or question they want to investigate regarding their own teaching process.
The action research model identified by Tripp (1990) consists of four basic phases of planning, acting, observing, and reflecting. Altrichter, Posch, and Somekh (1993) used this basic model when working with teacher researchers in developing details and practicalities of action research. Action research begins with a plan the teacher has developed or adopted for researching a specific problem or question (Altrichter, Posch, & Somekh, 1993).

The next phase Altrichter, Posch, and Somekh, (1993) used in their research was the act of using the plan in the teaching process. "A result of the plan is that action strategies are developed and put into practice" (Altrichter, Posch, & Somekh, 1993, p. 7).

Observation of the implemented plan occurs next in the model used by Altrichter, Posch, and Somekh (1993). The purpose for observing is to collect data on the change in practice to see its effects on the problem or question. From these data, the teacher researcher is able to reflect on the outcome of the implemented plan.

The last phase in the research model is the reflection period, where the teacher evaluates the effectiveness of the implemented plan on improving or clarifying the situation. "The analysis of data should result in a deeper understanding of the situation" (Altrichter, Posch, & Somekh, 1993, p. 121).
Many different methods of data collection are available
to the teacher involved in action research, such as
interviews, questionnaires, and teacher diaries. The
interview is the most common source of data collection in
qualitative action research studies (Thomas & Nelson, 1990).
Oral questioning during an interview offers more direct
access to the meaning of the question for the student than
do other methods (Altrichter, Posch, & Somekh, 1993). The
use of a tape recorder is the most common method of
recording interview data (Thomas & Nelson, 1990). By
recording the interview the researcher can later go back and
transcribe. Through their work with teacher researchers
Altrichter, Posch, and Somekh, (1993) offered these
conclusions to make the interview more effective:

1. Tape record the interview, as a record of what was
   said will be more authentic.
2. Do not interrupt trains of thought.
3. Accept pauses as a natural part of reflection.
4. Accept whatever is said however unexpected and
   regardless of the interviewer's own views.
5. The questions should be clear, while also helping
   the interviewee to explore his/her mental space.
6. Repeat what was said to make sure a total
   understanding is achieved.
7. Ask for clarifications of contradictions. (p. 104-106)
"... A questionnaire that can guarantee confidentiality may elicit more truthful responses than would be obtained with a personal interview" (Ary, Jacobs, Razavieh, 1990, p. 421). Some of the important advantages to the questionnaire include:

1. It is easy to distribute to the students.
2. Does not take much time to complete.
3. Large numbers of students can answer the questions simultaneously.
4. The social pressure on the students is not as strong as it is in an interview which makes answering easier. (Altrichter, Posch, & Somekh, 1993, p. 113).

A teacher diary can also be used to record the teacher researcher's reactions, concerns, and speculations during the course of data collection (Thomas & Nelson, 1990). "The research diary is one of the most important research methods and is very commonly used by teachers doing research" (Altrichter, Posch, & Somekh, 1993, p. 10).

Using the different data collection methods and combining them through triangulation, the teacher researcher can gain a better understanding of the overall situation being researched. According to Altrichter, Posch, and Somekh, (1993) the advantages of triangulation include:

1. It gives a more detailed and balanced picture of the situation.
2. The contradictions which are often hidden in situations become visible, enabling a more profound interpretation.

3. Triangulation regularly shows that students are able to help explain a situation by providing relevant information. (p. 117)

"Triangulation of data is used to establish validity and reliability" (Thomas & Nelson, 1990, p. 339). Data collected through different procedures that support each other become more valid. When trying to determine if data are reliable and valid, the critical analysis is not primarily a question of procedures. More important is intellectual integrity and the determination to be honest with yourself and others (Altrichter, Posch, & Somekh, 1993). Templin (1983) using triangulation, concluded that triangulation is a plan of action that will raise investigators above their personal biases. Triangulation may provide a more accurate assessment of what is going on in the gym.

It is important to involve the classroom teacher when doing research. Too often it is the teacher being researched rather than being involved in the actual research process. Practitioners need to be able to relate to research, and this can be accomplished by having the Practitioners actually do research. Teachers are skeptical towards research being conducted by university professors. Housner's (1990) investigation concluded that "Teachers have found
educational research to be removed from their concerns - the product of experts who do not understand or appreciate teachers, yet presume to tell them what to do" (p. 56).

There is currently a call for teachers to be involved in their own research. Glesne (1991) related that the need for teachers to become researchers is easy to understand and makes sense. Teacher educators are starting to understand the importance of having teachers as researchers, as the research has more practical value. Glesne (1991) argued that "Recent reports and articles emphasize the importance of involving teachers in research as a way to link theory into practice" (p. 7). Teachers that do their own research can improve and better understand their own teaching methods and teaching philosophies. If the purpose of doing research is to improve the educational process, teachers could take a huge step in improving their own teaching by being involved in research. Cochran-Smith and Lytle (1990) reported "Through their own research, teachers can strengthen their judgement and improve their classroom practices" (p. 4). For improvement to take place, whether it is in instruction or curriculum, the teacher must first understand his/her current situation, and that research will result in improvement. Teachers are in a perfect place to do research, as they understand their school context better than anyone else. Cochran-Smith and Lytle (1990) explained how teachers could use research to their advantage, "Teachers are
uniquely situated to conduct inquiries, they often have many years of knowledge about the culture of the community, school and classrooms; and they experience the ongoing events of classroom life in relation to their particular roles and responsibilities" (p. 6). Teachers who do research in their own contexts do not have to generalize other research results to their own situation. If a teacher is to improve his/her own curriculum or instruction it is best for the research to be conducted in the teacher's own setting.

Kelsay (1991) researched 16 elementary classroom teachers who completed an action research project as part of a graduate class requirement. Results from this study indicated that becoming conscious of reflection was part of being a teacher researcher, and that the teachers who were researchers were discovering what was taking place in their classrooms. Kelsay (1991) also indicated that teacher educators need to assist teachers through the process of research because the teachers in this study were uncomfortable at the first thought of doing action research.

Oberg and McCutcheon (1987) interviewed nine teachers who were involved in doing action research. All nine teachers reported they had learned something they had not known about their teaching before their action research project. Teachers in this study also concluded that the ownership of a problem committed them to do research, and
that the most difficult part of action research is in asking the right kind of questions to be researched.

Sardo-Brown (1992) researched nine elementary teachers who participated in a action research project for graduation in a masters' degree program. All nine of these teachers collected either quantitative information or qualitative descriptions specific to their research questions. Results from this study indicated that the teachers improved planning and organization and were better equipped to analyze causes of student behavior. Another benefit was the teachers' willingness to try new methods of teaching.

Cardelle-Elawar (1993) studied 18 white female teachers from different schools within the same school district. These teachers were instructed to identify a problem, define the problem, explore ideas to solve the problem, and assess the effects of the strategies chosen to solve the problem. According to Cardelle-Elawar (1993) "The teachers used each class as a source of growth. Mistakes were the source of learning rather than sources of frustrations. Each class was an opportunity for experimentation" (p. 55). Conclusions from this study indicated that the teachers emerged from the process with a sense of ownership and commitment to change.

In the field of physical education there is a push for teachers to become involved in doing research. Along these lines Templin (1992) stated "Practitioners should become major players in the health, physical education, recreation
and dance research process" (p. 11). Twine and Martinek (1992) concluded that gaining a sense of ownership of research is a prerequisite for self-improvement. Teachers who conduct research in their own setting become more open to alternatives. Williamson (1992) stated:

For a teacher to draw inferences based on his or her experiences and apply them in context is more important in improving professional practice than teachers trying to relate conclusions from studies that have little relevance to their own performance lives, and contexts. (p. 17)

Physical education specialists can use action research to improve their own educational process. Williamson (1992) argued that teachers need to be empowered to investigate their own practice.

Martinek and Butt (1988) studied 12 middle school physical education teachers using action research. These teachers worked with university personnel to facilitate the research project. The action research team assisted the teacher in developing a plan of action for researching the problem. The teacher implemented the research project and then the teacher and the university personnel discussed and analyzed results of their action research project. Martinek and Butt (1988) concluded that:

Action research is unlike many of the paradigms linked to traditional research methodology. The stringent
requirements of randomization, use of inferential 
statistics and a priori declaration of instructional 
theory may in fact become useless. There are a variety 
of ways in which questions can be answered. (p. 220)

Almond and Thorpe (1988) researched physical education 
teachers involved in action research. The teachers in this 
study were asked to use small-sided games in their teaching 
of games and monitor the results through various data 
collection procedures such as questionnaires, writing a 
diary, and committing thoughts to paper. In addition to the 
research done by the teachers, the university personnel were 
monitoring how well the teachers faced the problems they 
encountered in their attempt to monitor their own practice 
of teaching games. Almond and Thorpe (1988) concluded that 
"The major difficulty was the newness of the experience and 
the conditions under which the teachers were expected to 
teach and research" (p. 226). Some benefits reported in this 
study were that "All of the teachers in the study said that 
reflecting and monitoring their practice enabled them to 
learn more about their teaching, themselves, and their 
students" (p. 226).

More research needs to be done by teachers. Housner's 
(1990) investigation concluded that researchers do research 
and teachers do the teaching. College professors have held 
the role of researcher while classroom teachers were 
expected to implement curriculum in accordance with the
experts. Housner (1990) reported that the literature indicated a clear trend toward teacher involvement in research and curriculum development. This shift will move research out of the ivory tower and into the hands of those who will benefit the most from the results, the teachers themselves. Teachers should be at the forefront of the research process as well as the consumers of research results (Housner, 1990). This will only happen when teachers are prominent in conducting their own research.

Curriculum in Physical Education

"Curriculum is defined as the planned sequence of formal instructional experiences presented by the teachers to whom the responsibility is assigned" (Jewett, Bain, & Ennis, 1995, p. 12). A physical education curriculum must give direction and sequence to the learning experience of students (Pangrazi & Dauer, 1992).

There is a wide range of curricular models being used in physical education. Jewett, Bain, and Ennis (1995) have identified several of these curricular models. Their research has indicated that physical education programs used models that included the fitness education model, movement analysis model, developmental model, personal meaning model, and the sport education model.
Fitness Education Model

According to Jewett, Bain, and Ennis (1995):

Those who plan curricula using the fitness education model assume that physical activity is essential to healthy lifestyle, and that the development of such a lifestyle requires knowledge about the relationship of activity and health, skills in activities with health benefits, and a commitment to the importance of exercise. (p. 197)

Relatively, Feigley (1990) stated that the Public Health Service's Year 2000 National Health Objectives will call for physical education teachers to spend 30 percent or more of class time promoting lifetime physical activity. In the fitness model the student is expected to achieve a certain level of fitness along with an understanding of fitness content. Teachers using the fitness model are expected to improve student fitness in the areas of cardiorespiratory endurance, strength, and flexibility (Jewett, Bain, & Ennis, 1995). Fitness testing is a common component of the fitness education model.

One problem associated with the fitness model is that it is generally regarded as being too narrow in scope (Jewett, Bain, & Ennis, 1995). Jewett, Bain, and Ennis (1995) reported that:

Very few professional educators believe that a physical education program is complete unless it includes
opportunities for the development of a wide range of motor-performance skills and experiences leading to satisfying participation in selected lifetime sports and physical activities. (p. 217)

An overemphasis on testing and awards is also a problem sometimes associated with the fitness model.

Movement Analysis Model

"The movement analysis model places the curriculum focus on the movement process and the student's ability to perform a variety of movements skillfully" (Jewett, Bain, & Ennis, 1995, p. 221). According to Pangrazi and Dauer (1992) using movement education is a rejection of fitness education because fitness is seen as training and not really education. Jewett, Bain, and Ennis, (1995) related some guiding principles in movement education:

1. The movement content is the core of the physical education program.
2. The program should include a variety of activities.
3. The content should recognize individual differences in the rate of learning.
4. Content should consider the development of the whole child. (p. 227)

According to Jewett, Bain, and Ennis, (1995) "In the movement analysis model a physically educated person is one who has learned the knowledge and skills associated with effective human movement" (p. 229).
Critics of the movement model argued that movement tends to be intellectualized and that "Students spend too much time cognitively understanding the concept categories and their relationships" (Jewett, Bain, & Ennis, 1995, p. 242). These same critics believe that student physical education time should be spent in physical activity.

Developmental Model

Curriculum planners who use the developmental model use programs based on the students' current developmental level (Jewett, Bain, & Ennis, 1995). This model puts an emphasis on the cognitive, affective, and motor domains. Along these same lines Pangrazi and Dauer (1992) reported that "Values, feelings, and judgements are receiving more attention in the schools and in physical education" (p. 12). Developmental models are concerned with the whole individual. Teachers are responsible for selecting activities that are developmentally appropriate for each student. Gallahue (1993) stated that movement activities are geared to the student's stage of motor development. Gallahue (1993) concluded that tasks are moved from simple to complex and from general to specific. A class of students will display a wide range of levels and abilities and it is the teachers responsibility to meet the needs of each student.

In the elementary school developmental model "Teachers focus on the creation of an environment in which individuals
select individually appropriate tasks" (Jewett, Bain, & Ennis, 1995, p. 262). Students get to experiment and make their own choices regarding equipment and movement experiences that are appropriate for their needs.

"When teachers write separate objectives for the affective, cognitive, and motor domain, they break the child's learning into three separate, unrelated parts" (Jewett, Bain, & Ennis, 1995, p. 266). Critics argue that "Goals and objectives must be designed to reflect the growth and development of the whole child" (Jewett, Bain, & Ennis, 1995, p. 266). Most models can and should be classified as developmental if they attend to the needs of each student.

In summary Jewett, Bain, and Ennis (1995) stated the characteristics of the developmental model "The developmental model places the individual student at the center of the curriculum. Teachers plan lessons and programs that are sensitive to students' needs and interests" (p. 265).

Personal Meaning Model

The personal meaning model is based on a value orientation of ecological integration (Jewett, Bain, & Ennis, 1995). Jewett, Bain, and Ennis (1995) described the personal meaning model "The primary goal of physical education in curricula designed with a personal meaning model is that each individual shall find meaning and
significance through participation in movement activities" (p.274). Through investigation Jewett, Bain, and Ennis (1995) have identified the conceptual framework of the personal meaning model:

1. Individual development: I move to fulfill my human developmental potential.
2. Environmental coping: I move to relate myself in three dimensional space.
3. Social interaction: I move to relate myself to others. (p. 277)

"The teacher must develop skills for analyzing the potential sources of meaning to which students may be given access. For every setting there are many potential sources of meaning" (Jewett, Bain, & Ennis, 1995, p. 279).

Proctor school in the Vermont Public School District uses the personal meaning model for their physical education curriculum. As reported by Jewett, Bain, and Ennis (1995) the Proctor curriculum partially consists of:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>joy of movement</td>
<td>all activities</td>
</tr>
<tr>
<td>awareness</td>
<td>tumbling</td>
</tr>
<tr>
<td>relocation</td>
<td>rhythms/dance</td>
</tr>
<tr>
<td>relationships</td>
<td>obstacle course</td>
</tr>
<tr>
<td>participation</td>
<td>all activities (p. 287)</td>
</tr>
</tbody>
</table>

"We need more creative applications of the personal meaning model to provide for a broader range of local goals and the
greater diversity of our students" (Jewett, Bain, & Ennis, 1995, p. 293).

The personal meaning model is criticized for being too difficult for teachers. Connecting the students' purposes for engaging in movement activities and translating these purposes into statements of desired program outcomes makes the personal meaning model difficult to use (Jewett, Bain, & Ennis, 1995).

Sport Education

The final model discussed in this review, and the one that will be implemented in this study is the sport education model. According to Alexander, Taggart, and Thorpe (1995) "Sport education was first proposed by Siedentop in a keynote address to the 1982 VIIth Commonwealth and International conference on Sport, Physical Education, Recreation and Dance, in Brisbane Australia" (p. 4). Siedentop (1994) stated that "Sport education grew out of my dissatisfaction with seeing sport taught incompletely and inadequately in many physical education classes" (p. 7). Siedentop, Mand, and Taggart in their physical education textbook, Physical Education: Teaching, and Curriculum Strategies for Grades 5-12, included sport education as one of the alternative curriculum models (Taggart & Alexander, 1994).
Alexander, Taggart, and Medland (1993) reported on the New Zealand Sport Education Research Project where 2,368 tenth grade students, and 86 teachers in 34 schools were researched. Using sport education, the teachers in this study reported that students:

1. had ownership and responsibility for the program;
2. helped establish realistic goals;
3. were valued members of a team;
4. had a purpose to improve some aspect of skill;
5. had the opportunity to share responsibility for and fully participate in all aspects of sport;
6. were involved in decision making;
7. were put into situations where their presence and contributions were valued. (p. 18)

Alexander, Taggart, and Medland (1993) also reported that all 86 teachers said sport education would become part of their tenth grade curriculum.

In the same reference that Alexander, Taggart, and Medland (1993) reported on the New Zealand Sport Education Research Project they also reported a study from Edith Cowan University Sport and Physical Activity Research Centre (SPARC). In this study 32 teachers from 19 different high schools were invited to participate. Researchers questioned whether outcomes from the New Zealand Sport Education
Research Project would differ from those in SPARC. Some similar findings included:

1. Sport education impacted students in ways that exceeded teacher expectations.
2. Outcomes were more positive than anticipated.
3. Student cooperation among each other arose.
4. There was a positive change in attitude among students who were uncooperative. (p. 18)

Although no data were collected, teachers using sport education have reported similar findings here in the United States. Some of these findings from Siedentop (1994) include:

Dugas (1994) at the elementary level reported on her experience with sport education:

1. Sport education allowed more students to succeed because it increased opportunities for success.
2. Students report positive reactions to their participation.
3. Discipline problems were reduced substantially.
4. Helped create better sports persons. (p. 111)

Hook (1994) reported on middle school students who had participated in sport education:

1. Students enjoyed the affiliation with teams.
2. Students participated enthusiastically. (p. 79)

Darnell (1994) an elementary teacher indicated that through sport education:
1. Students become adept at organizing and implementing their own sports involvement.

2. Teams request extra practice time. (p. 71)

Carlson (1995) reported on the reactions of low-skilled students participating in sport education. The low-skilled students thought they improved skills and learned more team strategies compared to past physical education experiences. These low-skilled players also thought they gained trust from their teammates.

Alexander, Taggart, and Thorpe (1996) reported on the findings of three research projects in Western Australia using sport education. Among the conclusions in this report are:

Students learn more under sport education and enjoy its student centeredness. Many teachers now suggest they are unable to return to the teacher directed pedagogies they employed prior to encountering sport education. In three years of researching sport education in Australia we (Alexander, Taggart, & Thorpe) are yet to hear of any teachers who, after trialing the model, have suggested they would discontinue its use. (p. 35-36)

Pope and Grant (1996) reported on student experiences in sport education. Through interviews and field notes their results indicated that "The nature of sport education provided plenty of opportunity for students to apply newly learned and practiced tasks" (p. 108). Pope and Grant (1996)
also reported that students indicated being a member of a team contributed to their skill development because working with the same people gave them more confidence.

Hastie (1996) used sport education in a middle school setting, and through questionnaires, interviews, and quantitative data results indicated that students want to be involved during physical education. These students would rather take non-playing roles such as scorekeepers and referees than stand and wait for a turn to participate. Hastie (1996) also reported that students enjoyed being a member of a team, they liked the social interaction of teammates.

In a comparison of sport education and a traditional approach to teaching secondary school basketball Ormand, DeMarco, Smith and Fisher (1995) reported on three findings. First, students given a cognitive test showed no difference between the units. Second, students participating in the traditional unit indicated they were primarily concerned with having fun while the sport education students thought team unity and team strategy was important. Third, The traditional unit was more a "run and gun" style of play with the sport education unit showing offensive and defensive strategies.

One of the criticisms to the sport education model is that sport develops the elite athlete while ignoring the average and low-ability players (Jewett, Bain, & Ennis,
1995). This notion is countered by Sweeney, Tannehill, and Teeters, (1992) who suggested that sport education presents sports lessons to all athletes, not just the elite athlete. This occurs because each student is viewed as an equal member of the team and must participate. Another criticism associated with sport education is the emphasis placed on competition "Critics argue that competition is a negative factor for children and adolescents" (Jewett, Bain, & Ennis, 1995, p. 192).

Grant (1992) described sport as a significant component of our culture and one cornerstone of physical education. It may, therefore, be appropriate to reappraise how physical education could be used to promote positive values that emerge for young people who participate in sport. Alexander, Taggart, and Medland (1993) suggested that "We need empirical, analytic, interpretive and critical studies to put the educative promise of sport education under the microscope" (p. 22).

Academic Learning Time-Physical Education

One of the more important variables that will be addressed in this study will be academic learning time-physical education. Research examining this variable was popularized through an important study reported by Berliner (1979). Research conducted from the Far West Laboratory in California considered three measures of time as being important variables to study: allocated time, engaged time,
and academic learning time. According to Berliner (1979) "Academic learning time is the time students are engaged with activities that are at an easy level of difficulty" (p. 120). Berliner (1979) reported that allocated time, engaged time, and academic learning time were studied during a school year in 25 second grade, and 25 fifth grade classes in California. Teachers were trained in log keeping so daily time allocations could be recorded. Results from this study indicated that teachers were in control of a variable, (time), that can improve their effectiveness. "By maximizing academic learning time in the classroom teachers can increase chances that students are learning" (Berliner, 1979, p. 134).

Academic learning time in physical education (ALT-PE) was originally created by Siedentop, Birdwell, and Metzler. Metzler was the first to use the model in a research study. Metzler (1979) used ALT-PE in his doctoral dissertation at The Ohio State University, where he investigated how much ALT-PE was accrued by students in physical education classes. He coded 32 classes in 14 different activities (Metzler, 1979). The original version used by Metzler has been refined by Siedentop, Tousignant, and Parker (1982). The system was based on interval recording techniques where behavior was coded during specific intervals (Metzler, 1979). "The typical interval length for the ALT-PE instrument is 12 seconds" (Parker, 1989, p. 199). The first
six seconds of the interval are used to observe and the second six seconds to record (Parker, 1989).

Rife, Shute, and Dodds, (1985) compared the original version of academic learning time in physical education and the refined version. Their research indicated both versions yield similar information about students' opportunities to learn physical education skills. They also concluded that "The ALT-PE instrument can be a useful and appropriate research tool" (p. 141).

Metzler (1989) reviewed research on time in physical education and concluded that the most widely used means for collecting interval data is the academic learning time in physical education system. Metzler's (1989) review also indicated that "...very few studies of time in physical education since 1980 have been completed without it [ALT-PE] or an innovative new version of it" (p. 93).

Metzler (1983) used ALT-PE in process product studies with experimental teaching units, and argued that achievement scores improved for those students who were given higher academic learning time than those students who were just given high allocated time. Metzler (1983) concluded it is not enough to increase time in class, it is more important to increase academic learning time as a possible way to increase student learning. Beachamp, Darst, and Thompson (1990) concurred with Metzler's (1983) findings indicating that "ALT-PE has been identified as an indicator
of student achievement in physical education. This ALT-PE can be used as one indicator of quality physical education programs" (p. 92).

Godbout, Brunelle, and Tousignant (1983) investigated how much academic learning time is experienced by elementary and secondary school students during regular physical education classes. Using 30 elementary and 31 secondary physical education teachers, each teacher had two of their regular classes observed for academic learning time in physical education. The results indicated that elementary students had a mean ALT-PE percentage of 31.3, and secondary students had a mean ALT-PE percentage of 36.5. These findings are similar to Metzler (1979) who studied the classes of 21 physical education teachers and found elementary students with 32.3% academic learning time, and secondary students with 28.1% ALT-PE. Similarly, Shute, Dodds, Placek, Rife, and Silverman (1982) studied the amount of academic learning time in an elementary movement education course and found students in this class received 22% ALT-PE.

In a study that compared the academic learning time of students in a specialist and non specialist class, Placek and Randall (1986) determined that there was no significant difference between the classes. Seven specialists and 13 non specialists were observed using academic learning time in physical education. The specialists obtained a percentage of
14.1 in the motor appropriate category while the non specialists had 15.6% in the motor appropriate category.

Siedentop (1983) has identified some limitations of ALT-PE:

1. ALT-PE is limited by the nature of interval recording techniques.
2. ALT-PE does not delineate what players are doing.
3. ALT-PE is not sensitive to what students are doing who are not judged to be in ALT.
4. There are other ways to view time besides the very useful strategy of partitioning time into minutes and seconds. (p. 6)

The validity of ALT-PE was researched by Silverman, Devillier, and Ramirez, (1991). They conducted a study with 60 students using pretest-posttest scores for two volleyball skills. They concluded that the validity of the ALT-PE system as a process measure of achievement can be substantiated.

Physical education by nature is very dynamic. Finding an instrument to effectively measure the complexity of students' participation is a difficult task. Placek and Locke (1986) have identified ALT-PE as an instrument that is appropriate for this task, "Using the ALT-PE instrument for research in physical education is attractive because many complex skills such as team games taught in physical
education classes do not lend themselves to valid and reliable measures of student achievement" (p. 25).

In a study by Hastie (1996) a modified ALT-PE instrument was used in a sport education speedball unit at a middle school in Alabama, using 37 sixth grade boys. Results of this study indicated that during formal competitions, students were spending 44% of class time waiting, .1% in off-task behavior, 4.7% in transition, and 51.2% of the total class time actively engaged in appropriate activity.

Using academic learning time in physical education to research sport education is one variable that can be investigated. Since ALT-PE has been identified as an indicator of student achievement it is important to investigate the amount of ALT-PE during a sport education unit. By combining academic learning time with qualitative measures it is hoped that a more complete picture of what is happening during a sport education unit is obtained.
Specific procedures used in this study will be described in this chapter. Data were collected using various procedures such as interviews, questionnaires, teacher diary, academic learning time - physical education, and skill testing.

Some data in this study were gathered using qualitative methodologies. "Research studies that investigate the quality of relationships, activities, situations, or materials are frequently referred to as qualitative research" (Fraenkel & Wallen, 1993, p. 380). Fraenkel and Wallen (1993) have identified five characteristics of qualitative research:

1. The natural setting is the direct source of data, and the researcher is the key instrument in qualitative research.
2. Qualitative data are collected in the form of words or pictures rather than numbers.
3. Qualitative researchers are concerned with process as well as products.
4. Qualitative researchers tend to analyze their data inductively.

5. How people make sense out of their lives is a major concern to qualitative researchers. (p. 380 - 381)

Quantitative research methods were also utilized in this study. "Quantitative data are obtained when the variable being studied is measured along a scale that indicates how much of the variable is present. Quantitative data are reported in terms of scores" (Fraenkel & Wallen, 1993, p. 157 - 158). To effectively answer the six questions in this study it was beneficial to combine qualitative and quantitative research methods.

Subjects

Subjects for this study were students from two fourth and two fifth grade classes in a central Ohio city school district where the researcher teaches elementary physical education. Students participated in their regular physical education class which consisted of two meetings per week, at 30 minutes per session.

The two fourth grades consisted of 22 and 23 students each. One fourth grade had 14 boys and 8 girls while the other fourth grade consisted of 13 boys and 10 girls. The two fifth grades consisted of 23 and 24 students each. There were 9 boys and 14 girls in the first fifth grade class and 9 boys and 15 girls in the other fifth grade class.
One fourth grade class had one severe behavior handicapped student, a boy, while the other fourth grade had one severe behavior handicapped student, a boy, and three developmentally handicapped students two boys and one girl. One fifth grade class had two severe behavior handicapped students, both boys, and three developmentally handicapped students, all girls. The other fifth grade class had two severe behavior handicapped students, both boys, and two developmentally handicapped students, one boy and one girl.

The students were placed into one of three ability groups. The teacher/researcher had taught most of these students since they were in kindergarten, therefore had known them for several years prior to the research project. Based on past knowledge of student performance, the teacher rated each student as being either low, medium, or high skilled. The rating was based on overall athletic ability and perceived basketball proficiency in the students.

The previous year the basketball unit consisted of students practicing dribbling, passing, and shooting for two weeks. The following two weeks the students participated in sideline basketball games which mainly consisted of three players on each team, using the full court, with the rest of the class situated on the sidelines. No other basketball content was covered in physical education the previous year for subjects in the study.
Each subject had a parent sign a consent form issued from The Ohio State University Human Subjects Review Committee (See Appendix A). The Human Subjects Review Committee had already approved the study, (Protocol No. 95b0167). An oral presentation was made to the class describing the research project. (See Appendix B).

**Sport Education Unit**

The sport education unit used for the study was basketball. Basketball was chosen because it is a regular part of the curriculum in the elementary physical education program. The teacher/researcher also had a high level of expertise in this content area.

**Selection of Teams and Captains.** Selection of the teams were based on student ability, which was determined by the teacher's perceptions of the student skill level. Three teams were selected from each class for the basketball unit. From the teacher's ratings of ability level, each team was given an equal number of high, medium, and low skilled players. Making the teams as even as possible was important to assure fair and even competitions. A captain and co-captain were selected by the teacher for each team, based on the students' attendance, perceived leadership skills, perceived attitude, and perceived skill in basketball.

**Class Procedures and Instruction.** The beginning of the season was used to develop dribbling, passing, and shooting skills which would be needed to participate in formal
games. Team players determined their own rosters for the one-versus-one, two-versus-two, and three-versus-three competitions. Each team had a home basket to report to each day, where players performed warm-ups and practiced skills. Each lesson began with a skill warm-up, with all students participating as a group. Basic skills of dribbling, shooting, and defending were introduced by the teacher to the entire class. Proper techniques of dribbling, shooting, and defending were demonstrated by the teacher, and the whole class practiced each skill in preparation for the one-versus-one games that were the initial competition of the season.

During lesson number one each player had their own basketball and they followed the directions of the teacher. The critical elements of not slapping the ball, keep the ball forward when moving and trying to keep your head up were explained and demonstrated by the teacher. Students were given time to practice these skills in their own space, at their own pace. Double dribble, traveling, and carrying the ball were demonstrated by the teacher and while the class was practicing their dribbling the teacher walked around coaching those who needed it.

During lesson number two shooting was introduced to the class. The teacher demonstrated the critical elements of shooting to the whole class. The three teams were split in half with half practicing their dribbling and the other half
practicing their shooting at their assigned basket. On the teachers signal those that were dribbling moved to the basket for shooting, while those that were shooting moved to open space to practice dribbling.

During lesson number three teams practiced their dribbling and shooting the same as they did for the first two lessons and defense was introduced. Students were shown how to play defense against an opponent without fouling.

Lesson number four had the students practicing to be a referee. The teacher demonstrated the technique to the whole class. For the demonstration two students were chosen to be players with the teacher participating as the referee. The remainder of the class was sitting on the half-court line watching the demonstration. As the two students participated as one-versus-one competitors, the teacher demonstrated how to make a correct call, to retrieve a ball that went out of bounds so the players could position themselves, and how to keep the game moving as smooth as possible. After the initial demonstration volunteers were chosen to demonstrate the referee role. During these demonstrations the rest of the class would critique the referees and the calls they made. These role playing demonstrations helped prepare the students for the competitions. As the season progressed, passing and more complex strategies such as the pick and roll, maintaining floor balance, and screening away from the
ball were introduced in preparation for the two-versus-two, and three-versus-three competitions.

To start lesson number seven the teacher demonstrated and explained passing techniques to the whole class. The critical elements were introduced and volunteers were chosen to pass the ball to the teacher and be critique by the class. Students then chose a partner from their own team to practice passing in their own space. The teacher walked around and coached those who needed help. During this lesson the teacher also showed the students the importance of maintaining floor balance. Two students were chosen to play against two other selected students with the remaining class sitting on the half-court line watching. Students were shown the consequences of crowding together, and how standing too close together makes it easier for the defensive team. Volunteers were chosen to play two-versus-two games so the class could critique their strategy. Teams then practiced their two-versus-two games to decide on rosters for the formal competitions. During this practice the teacher coached individual teams to help them understand floor balance.

During lesson number ten the strategies of pick and roll and screening away from the ball were introduced to the students. As the class sat on the half-court line volunteers were used to demonstrate these two new strategies. When
teams went to their own baskets to practice three-versus-three. The teacher helped the teams in strategic play.

Seasonal Schedule

Lesson:
1. Introduction, teams, names, captains, skill practice.
2. Skills practice, dribbling, shooting.
4. Team practice lv1, referee practice, scorekeeping, decide rosters for lv1 competition.
5. lv1 competition, referee, scorekeeping.
6. lv1 competition, referee, scorekeeping, questionnaires, interviews of selected students.
7. Passing, strategy, 2v2 practice, decide on rosters.
8. 2v2 competition, referee, scorekeeping.
9. 2v2 competition, referee, scorekeeping.
10. 3v3 practice, decide on rosters.
11. 3v3 competition, full court, referee, scorekeeping.
12. 3v3 competition, full court, referee, scorekeeping.
13. Interviews of selected students.

Student roles.
Each role was taken from Siedentop, (1994). According to Siedentop (1994) "Sport education assigns students more roles than is typical for children's, youth, or school sport, where the only role to learn is performer. In sport education students learn to be captains, referees, and scorekeepers" (p. 13).
**Player.** Each student actively participated in the warm-ups, skill work, team practices, and formal competitions.

**Captain.** Captains were selected by the teacher and remained captain throughout the basketball unit. Students who had good attendance, proper attitude, leadership qualities, and above average basketball ability, as determined by the teacher, were considered for captain. The captain was responsible for a wide range of responsibilities and signed a captain's contract prior to the season (See Appendix C). All students were aware of the captains' responsibilities. Fulfillment of the captains' role resulted in a special captain's award at the end of the season. Co-captains were selected to assist the captains and to be ready to take over if the captain was absent or moved away from the school. Co-captains were selected using the same criteria that were used for the captains.

**Scorekeeper.** All students participated as a scorekeeper. The scorekeeper kept the points and fouls during the one-versus-one competition. For the two-versus-two competitions, points, fouls and turnovers were scored. During the three-versus-three competitions, points, fouls, turnovers, and assists were scored. The whole class was taught how to keep score and scorekeeping practice occurred during lessons 4, 7, and 10 when teams were participating in practice games to determine rosters (See Appendix D). Scorekeeping was demonstrated by the teacher. Students were
instructed how to watch the game without being in the way, to respond to any questions about which player committed the foul and to pay attention to the game play. All students had a chance to be a scorekeeper during the formal competitions.

**Referee.** Each student participated as a referee. The teacher explained and demonstrated refereeing techniques to the whole class. Students were taught how to be clear and precise with the call, and to keep the game moving. All students understood that the referee was in charge, and to follow their commands. Only team captains were permitted to speak to a referee during a competition. Under no circumstances were the referees to argue with the players. A technical was given to anyone not demonstrating fair play and resulted in a one point deduction from the total team points. Referees were instructed to give a technical to anyone that argued, complained, or intentionally fouled an opponent. Each student initially practiced being a referee during the teams' practice games of one-versus-one, two-versus-two, and three-versus-three.

**Format.**

**Competitions.** The first formal competition was the one-versus-one. Prior to this the captains, along with their teams, completed rosters with players placed in order of ability. The top position was the best player, to ensure equal competition. The top players on each team would play each other, the second ranked players would play each other,
and so on down the line to the bottom players playing each other. The third team was used as a duty team providing referees and scorekeepers. When the initial competition was over the teams would rotate so all three teams performed as the duty team once during the competitions. Four baskets were available so four games were played during each time slot. The games were four minutes in length timed by a running clock. All games started and stopped on the teacher's signal. Each team was given three fouls, after the first and second fouls the game was restarted with the fouled player receiving the ball, after the third foul the fouled player took a foul shot. After a turnover, missed basket, or a successful basket the ball was dribbled back to the foul line. The defensive player restarted the game by passing the ball to the offensive player. Tied games resulted in 1/2 point awarded to each team. These were the same rules used for two-versus-two and three-versus-three games.

The next competition was a two-versus-two game. Each team had two-person teams ranked according to ability. Ranked players challenged other correspondingly ranked players on opposing teams. This competition took two days using four baskets.

The culminating event was the three-versus-three competition. Again the captains ranked their three-person teams according to ability. Equally ranked players competed
against each other throughout this competition. Referees and scorekeepers were used during all formal competitions.

**Award System.** Teams were awarded points daily for specific procedures. At the end of the season the points were totalled to determine the overall champions. Based on a 12-lesson schedule, points were awarded as follows:

**Total Possible Points:**
- 12 team participation in skill work and practice
- 12 equipment and scoresheets turned in on time
- 1 point deducted for technical
- 2 points deducted for second technical
- 1 point awarded for each competition won
- 1/2 point awarded for each competition tied.

**Additional awards that were given:**
- **CAPTAINS AWARD:** Given to all captains who complete their assigned duties in the captain's contract.
- **MOST IMPROVED:** One member of each team by vote of that team.
- **BEST SPORTSPERSON:** Voted on by the class.

**Videotaping**

Every class session was videotaped. The video camera used was a Hitachi CCD - II, VHS integrated camera. The camera was positioned on the stage that was located on one end of the gymnasium. The camera was situated on a tripod and focused on an area under one of the baskets at the opposite end of the gym. Student participation was videotaped to determine the extent students were actively
participating in their assigned task. The same team was videotaped from each class throughout the unit to ensure an accurate representation of each class. If the day's practice did not use a referee or scorekeeper, as during the skill practice, then no data were collected on these roles for that day.

Written permission was granted by the parents of the students involved in videotaping. No special backdrops or arrangements for videotaping were prepared as the environment was kept as natural as possible.

**Academic Learning Time - Physical Education**

The same team from each class was videotaped each day. From this team a low, high and included student was coded for academic learning time - physical education. The students were observed for six seconds and their observed behavior was recorded during the next six seconds (Parker, 1989, p. 199). The ALT-PE categories reported by Parker (1989) were:

- **NOT MOTOR ENGAGED:** Any student involvement other than motor involvement with subject matter-oriented motor activities.

- **Interim (I):** The student is engaged in a noninstructional aspect of an ongoing activity.

- **Waiting (W):** The student has completed a task
Off-Task (OT): The student is either not engaged in an activity he or she should be engaged in or, engaged in an activity other than the one he or she should be engaged in.

On-Task (ON): The student is appropriately engaged in carrying out an assigned non subject matter task.

Cognitive (C): The student is appropriately involved in a cognitive task.

Transition (T): Time devoted to managerial and organizational activities related to instruction.

MOTOR ENGAGED: Motor involvement with subject matter-oriented activities related to the goals of the setting. Thus the categories under the heading not motor engaged may include motor activity, but not subject matter-oriented motor activity.

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 a subject matter-oriented activity but the activity is either too difficult for the individual's capabilities or so easy that practicing it could not contribute to lesson plan goals.

Supporting (MS): The student is engaged in subject matter motor activity whose purpose is to assist others in learning or performing the activity. (p. 198)

According to Parker (1989) reporting on summarizing and interpreting ALT-PE data:

The frequency of occurrence for each behavior category is counted and recorded, then converted to a percentage figure by dividing the frequency by the total number of observed intervals. The total length of the observation period can then be multiplied by this percentage figure to obtain an estimate of total time in ALT-PE. (p. 203)

Modified ALT-PE scores were used for the referee, and scorekeeper (Hastie, 1996). When a player moved to a duty
role the modified ALT-PE coding procedure was used. Since students did not actively move to the role of captain no ALT-PE data was collected on this role. The role of captain was researched using interviews and teacher diary. The score for each category is the percentage of that category of all the observations (Hastie, 1996).

ALT-PE categories from Hastie (1996):

For the referee the categories were:
Actively Involved: Keeping up with the play, makes appropriate calls.
Passively Involved: Behind the play, does not make all appropriate calls.
Distracted: Watching another game, talking to friends.
Off-Task: Not where they should be, not alert to play action, disrupts game. (p. 94)

For the scorekeeper the categories were:
Fully Attentive: Watching play, recording data.
Distracted: Watching another game, talking to friends, still trying to record data.
Off-Task: Not where they should be, not alert to play action does not record data.
(p. 94)

Questionnaires

The questionnaire can be a useful method of data collection for teacher-researchers (Altrichter, Posch, &
Somekh, 1993). Questionnaires were given to each student following their sixth class session. Students were encouraged to answer honestly, being reassured that no penalty would be given for any chosen response. "The social pressure on the respondents is not as strong as it is in an interview, which makes it easier for respondents to reflect on the questions before answering" (Altrichter, Posch, & Somekh, 1993, p. 113). Questions from the questionnaires can be found in Appendix E. Students were asked to circle the answer they thought best.

**Interviews**

All interviews were audio recorded and later transcribed. The students were brought in to be interviewed in groups. The group interview is a more normal situation for students. The social pressure to talk is lower for the individual because of the presence of others, and if one student talks, this can stimulate comments from the others (Altrichter, Posch, & Somekh, 1993). "In the semistructured interview, the interviewer has a specific number of major questions or issues to explore, but then is free to probe beyond the respondent's immediate answers" (McBride, 1989, p. 424).

Interviews were conducted with all members of one team in each class; the same team that was videotaped for ALT-PE data. It is important to interview several pupils who somehow differ from one another, to help get a total picture
of the situation (Altrichter, Posch, & Somekh, 1993). The researcher interviewed the students at the end of the school day. After session number 6, four players from one team per class were interviewed. The remaining four players from the same team were interviewed at the end of the unit. After the completion of this interview session six randomly selected captains were interviewed. The remaining six captains were interviewed following the completion of the basketball unit. Students were given the freedom to develop their own answers to the interview questions. Probing questions were used, depending on the answers the students gave to the initial question. Basic questions used for the players from Hastie (1995):

1. What do you think about being on the same team for the whole unit?
2. Did your captain do a good job? Would you rather have a captain or the teacher run the team?
3. What do you think about the scorekeeper role?
4. What do you think about the referee role?
5. Have your skills improved during this unit?
6. Is winning important?

Questions asked of the captains were:
1. Did your team work hard?
2. How do you like having the same team all the way through?
3. Who should pick the teams?
4. What was it like being the referee?

5. Have your skills gotten better since you have started this unit?

6. Is winning important?

At the completion of the unit, the remaining four members from teams interviewed earlier were brought in to be interviewed, the six remaining captains were also interviewed following the completion of the unit. The basic questions asked of the players were:

1. Was your captain a good captain?

2. Would you rather have the teacher pick the captains or should each team pick their own captain?

3. How could you make this unit better?

4. Have your skills improved during this unit?

5. How do you like the scorekeeper role?

6. What do you think about the referee role?

7. Do you think winning is important?

Questions for the six remaining captains were:

1. Did you notice anything different from practice to the actual games?

2. How could you make this unit better?

3. Have your skills improved during this unit?

4. How long should the unit run?

5. Is winning important?
Teacher Diary

Diaries can contain data which are obtained by participatory observation. The diary makes visible both the successful and unsuccessful routes of learning and discovery so they can be analyzed (Altrichter, Posch, & Somekh, 1993). Unobtrusiveness, honest, and constructive relationships with the subjects will enhance internal validity. Another method to achieve internal validity is the intensive firsthand presence of the researcher over an extended time (Thomas & Nelson, 1990).

At the end of each day the teacher/researcher kept a written diary. Specific attention was placed on perceptions of the quality of student work, the students' activity levels, the degree to which the students were working at their set tasks, how well students were participating in strategic play, and the teachers' perception of sport education. Notes from the teacher's diary were used as part of the triangulation process involving student perceptions, teacher perceptions, and quantitative data on student performance (Hastie, 1994).

Strategic Play

Before the season started, a team of three medium skilled players was selected from a fourth grade class to play against a team of three medium skilled players selected from the other fourth grade class. The same procedure was
followed for the two fifth grade classes. Ten-minute games were videotaped in order to observe the strategic play of pick and roll, screening away from the ball, and maintaining floor balance during the game. Floor balance is important because "One player can defend two players standing close together and allow another defensive player to sag and congest the scoring area. Proper floor spacing or balance helps prevent this" (Wilkes, 1982, p. 116). When students make an effort to move away from the ball and not crowd together, this is considered proper floor balance. The coding was accomplished by recording each incident where students incorporated strategic play into the ten minute game. Data were reported by "... the number of times the specific behavior [strategic play] occurs in some period of time" (Cooper, Heron, & Heward, 1987, p. 70). Following the season the same format was followed to see if strategic play improved for the students who participated in the sport education unit.

Pretest - Posttest

There was some question as to whether sport education improved students skill levels. According to Hastie (1996) "Sport education may not be the most efficient mechanism through which to develop skills..." (p. 100). A pretest-posttest basketball skill assessment measure was taken of a low and high-skilled student randomly selected from each
team. The instructor was primarily concerned that the proper techniques were being used to pass, dribble, and shoot a basketball. By charting student abilities at the beginning of an instructional unit and again at the end, it is possible to determine the amount of progress made during the unit (Gallahue, 1993). Students were given scores based on demonstration of critical elements of each skill (Appendix F), along with a specific skills test related to the basic skills of basketball (Pangrazi & Dauer, 1992).

**Dribbling**

Students were rated on the critical elements of dribbling a basketball. The three critical elements were identified by Pangrazi and Dauer (1992):

1. Push the ball to the floor. Do not slap it.
2. Push the ball forward when moving.
3. Eyes forward and head up. (p. 572)

Each student was given a 3 for outstanding, 2 for satisfactory, and a 1 for unsatisfactory performance of each critical element. Along with the critical elements, a dribbling test was given which included the straight dribble and the figure eight dribble.

**Straight dribble.** A marker was placed 15 yards from the starting point. The dribbler must dribble around the marker and back to the starting position, where he/she finishes by crossing the starting line. The marker must remain standing...
or disqualification results. Three trials were given and the best time was taken. (p. 590)

**Figure eight dribble.** Four cones were placed 5 feet apart in a straight line beginning 5 feet from the starting line. The player must dribble in and out of the cones in the path of a figure eight, finishing at the point where he/she started. Three trials were given and the best time was taken. (p. 590)

**PASSING**

Students were rated on the critical elements of the two handed chest pass. The four critical elements identified by Pangrazi and Dauer (1992) were:

1. Fingers spread with thumbs behind ball.
2. Elbows in; extend through the ball.
3. Step forward, extend arms, and rotate hands slightly inward.
4. Throw at chest level to the receiver. (p. 570-571)

Each student was given a 3 for outstanding, 2 for satisfactory, and a 1 for unsatisfactory. Along with the critical elements a passing test was given.

**WALL PASS TEST:** A player stands 5 feet from a wall. He/she was given 30 seconds to make as many catches as he/she can from passes against the wall. Two handed chest pass is used. Balls must be caught on the fly to count. Only one trial is given. (p. 590)
SHOOTING

Students were rated on the critical elements of shooting a basketball. A one-handed set shot or jump shot was used. The five critical elements identified by Pangrazi and Dauer (1992):

1. Use the pads of the fingers. Keep the fingers spread.
2. Keep the shooting elbow near the body.
3. Extend through the ball.
4. Bend the knees and use the legs.
5. Release the ball off the fingertips. (p. 573)

Each student tested was given a 3 for outstanding, 2 for satisfactory, and a 1 for unsatisfactory. Along with the critical elements a shooting test was given.

Baskets made in thirty seconds. The player stood near the basket in any position he/she chose. On signal he/she started to shoot and continued shooting for a period of 30 seconds. Score was the number of baskets made during time period. Only one trial was given. The student was told to use a one handed set shot or a jump shot. (p. 591)

Data Analysis

Data collected using academic learning time in physical education were reported as percentages. Each behavior was reported as a percentage of the total number of behaviors. According to Randall (1992) "ALT-PE is an extremely useful
tool for gaining insight into the effective use of time in physical education" (p. 46). Using these percentages the researcher made determinations of how the students were spending time in physical education class.

Questionnaire answers were sorted into categorical data. The answers were reported as frequencies in each category and as percentages of the total number of instances that fell into each category (Fraenkel & Wallen, 1993).

Student interviews were used to gain access to the students' perceptions of sport education. Through the use of probing questions, the researcher qualitatively examined how students viewed sport education. Analyzing the data involved synthesizing the information obtained into a coherent description of what was discovered. Interview data analysis relied heavily on description (Fraenkel & Wallen, 1993). Data analysis for student interviews consisted of using the six steps of the constant comparative method reported by Glaser (1978):

1. Begin collecting data.
2. Look for key issues, recurrent events, or activities in the data that become categories of focus.
3. Organize data that provide many incidents of the categories of focus keeping an eye on the diversity of the dimensions under the categories.
4. Write about the categories, attempting to describe
and account for all the incidents in the data while still searching for new incidents.

5. Work with data to discover basic social processes and relationships.

6. Use sampling, coding, and writing as the analysis focusing on the main categories.

Results were recorded and presented in the natural language of the participants as drawn from the interviews. Analysis of data should result in a deeper understanding of the situation (Altrichter, Posch, & Somekh, 1993).

The teacher diary contained information on the teacher's perception of sport education. The diary included data obtained by observation during each day of the sport education unit. The sport education unit was 18 days long, which resulted in 18 diary recordings. A description of activity levels, student behavior, how well students performed their roles, strategic play, and the teacher's overall perception of sport education were included in the diary recordings. In most qualitative studies, data collection and data analysis take place simultaneously (Ary, Jacobs, & Razavieh, 1990).

Questionnaire data were analyzed with the interview description and the teacher diary in order to gain insight into how the students felt about their roles during the unit, and how seriously students performed their tasks. The questionnaire data were put into categories in order to
analyze the percentage of students who answered the questions in similar ways.

Data analysis for the skill tests consisted of using a correlated t-test to determine if the mean posttest scores were greater than the mean pretest scores for dribbling, passing, and shooting. Six steps of hypotheses testing with a correlated t-test were reported by Fraas (1983):

Step 1: Formulate the specific question to be investigated.

**Question:** Is the mean posttest skill score for the students exposed to [sport education] greater than their mean pretest [skill] score?

Step 2: Determine the critical point on the t distribution.

**Degrees of Freedom:** Calculated by subtracting 1 from the number of students exposed to [sport education].

\(23 - 1 = 22\ df\)

**Alpha:** Researcher set alpha at .05 for the two-tailed test.

Step 3: Calculate the correlated t value.

Step 4: Compare the correlated t value with the critical point.

Step 5: Reject or fail to reject the null hypothesis.

Step 6: Interpret the results of the hypothesis testing procedure. (p. 176-181)
This procedure was followed for the students who were skill-tested in the endline dribble, figure eight dribble, passing and shooting.

**Triangulation**

To give a complete understanding of the sport education unit, triangulation was used to examine the data. For many research questions it is useful to combine different methods of data collection (Altrichter, Posch, & Somekh, 1993). To study student perceptions, teacher perceptions, and quantitative data on student performance it was useful to use triangulation (Altrichter, Posch, & Somekh, 1993). "The purpose of triangulation is to help the researcher accurately present findings from the participants' perspective and to minimize the effects of the researcher's biases in interpreting meaning from the data" (Griffin & Templin, 1989, p. 404). In addition "Triangulation is an important method for contrasting and comparing different accounts of the same situation" (Altrichter, Posch, & Somekh, 1993, p. 117).

**Reliability Check on Data Collection**

Throughout the data collection, random videotapes were scored separately by a trained graduate student. The scores were compared to the researcher's scored data to check the reliability of the scoring procedure. The formula used to
establish percentage of agreement among observers measuring permanent products is the number of agreements divided by the total of agreements and disagreements multiplied by 100 equals the percentage of agreement (Cooper, Heron, & Howard, 1987).
CHAPTER 4

ANALYSIS AND DISCUSSION OF THE DATA

A discussion and an analysis of data will be described in this chapter. For student activity levels, academic learning time - physical education data were collected. A modified academic learning time - physical education instrument was used to gather data for the roles of scorekeeper and referee. A teacher diary was kept to obtain the teacher's perceptions of sport education, and student perceptions were obtained using a questionnaire and interviews. A skill test was administered to students to determine skill improvement and video tapes were observed to determine if strategic play improvement occurred. Each method of data collection and analysis will be discussed according to the six research questions guiding this study.

Results of Reliability of ALT-PE

Three videotapes were scored for reliability. One tape was from the beginning of the unit, one was from the midpoint of the unit, and the third tape was from the end of the unit. A graduate student trained in academic learning time - physical education coding was used to check the
reliability of the scoring procedure. Players, referees, and scorekeepers were observed by the graduate student. Data were collapsed to get a total check on the reliability. Accuracy agreement score between observer and researcher was 83%. "Usual convention is to expect independent observers to achieve an average of at least 80% agreement" (Cooper, Heron, & Heward, 1987, p. 97).

Results of Reliability of Strategic Play

The strategic play videotapes were viewed by a trained observer to check the reliability of the scoring procedure. Interobserver agreement score between observer and researcher for the videotapes taken before the sport education unit started was 67%. The two incidents of strategic play in dispute were observed by the researcher and observer together using slow motion and stop action. After viewing the tape together the observer and researcher were in agreement that two more incidents of strategic play had occurred than what was originally reported by the observer.

The videotapes of strategic play after the sport education unit had ended were observed for reliability of the scoring procedure. The researcher recorded 24 incidents of strategic play. The observer recorded 20 incidents of strategic play. The 4 incidents in dispute were reviewed by the observer and researcher together. Using slow motion and
stop action the observer and researcher agreed on the original 24 strategic play incidents.

Discussion of Research Questions

Question No. 1: What were the activity levels of fourth and fifth grade students participating in a sport education basketball unit?

Data on Table 1 provide information relative to the extent of student engagement during the sport education unit. These academic learning time—physical education data represent player involvement during the entire unit. Included students had a motor appropriate level of 38%; data also show included students were off-task 3.8% of the total lesson time. Included students also spent time in the following behaviors: waiting (13.7%), interim (13.5%), cognitive (17%), motor inappropriate (1.8%), on-task (0), supporting (0), and transition (11.7%). Low-skilled students had a motor appropriate level of 48% and were off-task 1.8% of the lesson time. Low-skilled students also spent time in the following behaviors: waiting (15%), interim (9%), cognitive (10%), motor inappropriate (1.5%), on-task (0), supporting (0), and transition (14%). High-skilled students had a motor appropriate level of 50%, and were off-task .1%. High-skilled students also spent time in the following behaviors: waiting (10%), interim (9.3%), cognitive (18.2%), motor inappropriate (0), on-task (.9%), supporting (0), and
transition (11.8%). Total player involvement included a motor appropriate level of 46%; data also show students were off-task 1.7% of the total lesson time. Players also spent time in the following behaviors: waiting (13.4%), interim (11%), cognitive (16%), motor inappropriate (.9%), on-task (.3%), supporting (0), and transition (11.6%).

Question No. 2: What was the extent of involvement in the duty roles of referee, and scorekeeper?

Involvement of the students when in the roles of referee and scorekeeper was high. Table 2 shows the extent of involvement of the referee and scorekeeper. When included students were active as referee they were actively involved 82% of the time, passively involved 10.4%, distracted 7.5% and were not off-task. Low-skilled student participating as referees were actively involved 71%, passively involved 27%, distracted 2% and were not off-task. High skilled students in the referee role were actively involved 95%, passively involved 1.9%, distracted 3.1% and were not off-task during the observations. Total student involvement in the role of referee resulted in students being actively involved 83%, passively involved 13%, distracted 3.5% and no instances of off-task behaviors.

While participating in the scorekeeper role students were in the highest activity levels during the sport education unit. Included students were fully attentive 98%,
<table>
<thead>
<tr>
<th>Student</th>
<th>MA</th>
<th>W</th>
<th>I</th>
<th>C</th>
<th>OT</th>
<th>MI</th>
<th>ON</th>
<th>MS</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included</td>
<td>38</td>
<td>13.7</td>
<td>13.5</td>
<td>17</td>
<td>3.8</td>
<td>1.8</td>
<td>0</td>
<td>0</td>
<td>11.7</td>
</tr>
<tr>
<td>Low-skill</td>
<td>48</td>
<td>15</td>
<td>9</td>
<td>10</td>
<td>1.8</td>
<td>1.5</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>High-skill</td>
<td>50</td>
<td>10</td>
<td>9.3</td>
<td>18.2</td>
<td>.1</td>
<td>0</td>
<td>.9</td>
<td>0</td>
<td>11.8</td>
</tr>
</tbody>
</table>

MA - motor appropriate
W - waiting
I - interim
C - cognitive
OT - off task
MI - motor inappropriate
ON - on task
MS - supporting
T - transition

Table 1: ALT-PE Data for the Unit. Behaviors are recorded as percentages of the lesson time.
<table>
<thead>
<tr>
<th>Context</th>
<th>Referee</th>
<th>Scorekeeper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I  L  H  T</td>
<td>I  L  H  T</td>
</tr>
<tr>
<td>Actively Involved</td>
<td>82  71  95  83</td>
<td>98  100  93  96</td>
</tr>
<tr>
<td>Passively Involved</td>
<td>10.4 27  1.9 13</td>
<td>2  0  7  4</td>
</tr>
<tr>
<td>Distracted</td>
<td>7.5  2  3.1 3.5</td>
<td>0  0  0  0</td>
</tr>
<tr>
<td>Off-Task</td>
<td>0  0  0  0</td>
<td>0  0  0  0</td>
</tr>
</tbody>
</table>

I = Included students  
L = Low-skilled  
H = High-skilled  
T = Totals  

Table 2: Involvement in Duty Roles. Behaviors are recorded as percentages.
and distracted 2% with no instances of off-task behavior. Low-skilled students were fully attentive 100% of the time they participated as scorekeepers. The high-skilled students were fully attentive 93% and distracted 7% with zero instances of off-task behavior. Total student involvement in the role of scorekeeper was 96% fully attentive and 4% distracted with no off-task behaviors.

**Question No. 3:** What were the teacher's perceptions of the sport education unit?

One of the areas the teacher/researcher investigated during the sport education unit was the perception of quality of the students' work. The teacher/researchers' perception of the quality of students' work was recorded in a diary.

The students were seen as having high activity levels and were on task during the unit. "Two of the better students who are always active and eager to participate had to sit down and rest. Many students asked to get a drink of water which is unusual" (Day 2). Another entry stated that during the lesson the teacher/researcher was able to "Sit back and watch as the students were at work" (Day 5, 14). The teacher/researcher also noted that "Every student was active and participating at the same time" (Day 8). The students seem to be absorbed in the sport education format and look forward to the quick transitions, this is evident
by how quickly they stop and listen when it is time to change roles (Day 14).

Students were enjoying the competitions. On Day 9 it was noted, "We finished our one-versus-one games today and some students indicated they were disappointed they did not get to be a player today (they had already played their two games on Tuesday) by asking several times if they would get to play." Another entry noted, "The players are working very hard and some were aware of winning points for their teams." One comment by a student was "I knew time was running out and I wanted to at least tie the score so I wouldn't lose a point for the team" (Day 10).

Behavior was still a problem for some during the first part of the unit, but seemed to improve. Day 5 noted, "One student lost a point for his team because of behavior, and his team let him know they were upset with him by telling him not to do it again." Another time a severe behavior handicapped student walked off because he did not like the calls from the referee. He lost his game for this and his team was upset with his behavior (Day 8). On Day 15 it was noted "There does not seem to be time for behavior problems, students are too active with quick transitions from one role to the next."

The teacher/researcher was evaluated by the principal on Day 10 of the sport education unit. "The principal was
really impressed with the organization and the high activity that takes place with the sport education format."

Another area the teacher/researcher recorded in the diary writings referred to how well the students worked during their roles of captain, referee, and scorekeeper. It was observed that the captains were helpful and fair. "The team captains were helpful in keeping things organized and there was a lot of cooperation when picking team names; they all used a method where majority rules" (Day 1). One captain "Gathered his team together and told them to work hard and win some points" (Day 10). Two captains were absent the day we made rosters for two-versus-two. The two co-captains that had to substitute did a nice job taking over (Day 13). These co-captains had to organize their rosters in preparation for the two-versus-two competitions.

The role of referee seemed to be a problem for some students. "Some shy students have some difficulty being a referee" (Day 5). Also on Day 5 "Some fourth graders want to make the right call but have not been able to grasp the correct calls of traveling, double dribble, and some fouls." These students are attentive and are trying hard but they either make the wrong call or miss some things. On Day 11 it was noted that "A shy referee with an outspoken player is potentially a problem. Players must understand the referee is in charge and to abide with all calls that are made." The students who were observed at the end of the unit performed
well (Day 18). These referees are making the correct calls and doing it in a matter that keeps the game moving without interruptions from the players. "The referees are more confident and appear to make quick, precise calls" (Day 18).

Being a scorekeeper seemed to be a role the students enjoyed. "More students than I would have thought wanted to be a scorekeeper. Students kept coming up to me and asking to be a scorekeeper" (Day 5). On Day 6 it was observed that some students seemed to like the scorekeeper role best. There was one student who was disappointed she did not get to be a scorekeeper (Day 7). On Day 17 students were still excited to perform in the scorekeeper role, "Several students asked to see the schedule when they came in because they wanted to be a scorekeeper."

A third area the teacher/researcher noted in the diary referred to strategic play. During the second half of the sport education unit, when two-versus-two and three-versus-three games were being played, strategic play was observed. Strategic play for these elementary students was limited to pick and roll, screening away from the ball and maintaining floor balance. On Day 15 it was observed that students were trying to keep the floor balanced and appeared to understand the importance of not crowding the player with the ball. There seemed to be good spacing among teammates and when a player was dribbling his/her teammates would give enough room for the ball handler to make good decisions. Also on
Day 15 players were observed setting picks for their teammates. "One team in particular used a pick and roll just about every time they had the ball" (Day 15). Although strategic play was occurring, not all students were interested in incorporating strategic play into the competitions. There were still students who just wanted to shoot every time they touched the ball. They did not seem to think about any strategy or teamwork, they simply wanted to shoot every time (Day 15, 16, 17, 18).

The last area the teacher/researcher noted during the diary writing was the overall perception of the sport education unit. The initial reaction to the sport education unit was that the good students were very good (behavior), the problem students were still off-task, and the marginal students, the ones that could go either way, were very good. "Students were eager to get started. The kids who were regularly off-task in the past were still needing attention, while the marginal students seemed to be active and on-task" (Day 2). On Day 3 it was noted that "There are still students who are off-task, but most seem to realize this behavior will lose a point for their team." Losing a point for the team is a good deterrent for most off-task behavior (Day 3). By Day 5 the "Severe behavior handicapped students are starting to settle down and are staying on-task." All of the students seem to engage in high levels of activity (Day 2, 3, 8, 10, 13, 14).
Sport education is more work than other sport units taught by the teacher/researcher in the past. Scoresheets, scheduling, checking for absences, all create more paperwork (Day 4, 8, 12). The benefit of this extra work is higher participation and higher activity from the students. "I do not remember teaching a sport unit where every person in the class was participating during competitions" (Day 9).

Students want to improve and look forward to the competitions. "One whole team wanted to come in at lunch to practice. This is the first time this has ever happened" (Day 13). On Day 14 another team wanted to come in at lunch but lunch duty for the teacher interfered with this plan so the team borrowed a basketball so they could practice outside at lunch time.

The overall perception of the sport education unit was that it ran well and was liked by the teacher and students. The students were kept active and on-task, and appreciated the various roles they were expected to perform. The teacher had to do a little more preparation for each class, but the time was well spent.

**Question No. 4**: What were the students' perceptions of the sport education unit.

**Student Interviews**

After class session six, which was half way through the unit, a total of 16 students, 9 boys and 7 girls, were interviewed to get their perception of the sport education
unit. A total of five low-skilled players, six medium-skilled players, three high-skilled players, and two students with severe behavior handicaps who were identified as medium-skilled players were interviewed.

How do you like being on the same team everyday? "I like it because I get to cooperate with that team and I get used to working with them everyday. It is easy to practice because I know who my partner will be and I can work on getting along with them" (low-skilled). Another low-skilled student added "It is easy practicing with the same team everyday because I learn how they play and they learn how I play and practice goes better." A follow-up question was asked, Does it make you feel comfortable knowing who is on your team? All of the respondents indicated that they did feel comfortable knowing they would be on the same team everyday, except two. "I don't care who is on my team, I just want to play" (medium-skilled). Another student said "I would like to switch teams once in awhile." Why would you like to switch? "So I can get a chance to play with other kids" (low-skilled).

Do you think your captain is doing a good job? All of the students except one thought they had a good captain. One medium-skilled student thought her captain was a little bossy, but she still thought the captain did a good job. One student said "I like him, he does a good job" (medium-skilled). A follow-up question, Would you rather have a captain or the teacher run the team? One low-skilled student
thought the teacher should run the team while one medium-skilled student did not care who ran the team as long as the person running the team knew what to do. The remaining players wanted the captains to run the team. Players were asked if they would like to pick their own captains from the teams that were picked by the teacher. All players who responded said they would rather pick the captains themselves. "We could pick who we want to be captain, and that would be better" (medium-skilled).

**How do you like being a scorekeeper?** A severe behavior handicapped student responded that he liked it, but he was afraid that he was going to miss something and the team would get mad. All of the other players responded that they liked being a scorekeeper with responses including, "I had fun" (low-skilled) to "It's cool" (high skilled). Do you think you pay attention and are a good scorekeeper? "Yes, I like watching them play. It is real fun when you are playing too" (medium-skilled). "I pay attention" (low-skilled). "I try to do the best I can" (low-skilled). One high-skilled player added "The only problem with scorekeeping is that you can't tell the players anything." What do you want to tell them? "I like to tell them what to do, to help them win."

The players were asked, why do you like being a scorekeeper? "It gives us something to do when we are not playing" (medium-skilled). "Yes, if we can't play all the time then we might as well be doing something else besides just
watching other people play" (high-skilled). Respondents indicated they wanted to be involved in the competitions even when they were not playing and being a scorekeeper was a good way to stay involved.

**How do you like being a referee?** Although none of the players indicated that they did not like being a referee, a few were not as enthusiastic as they were about being a scorekeeper. One player said, "I like it (being a referee) a little bit" (low-skilled). Another player said, "I like it when nobody argues" (medium-skilled). A follow-up question was, "What is difficult about being a referee?" A low-skilled player responded, "Sometimes it is hard because I make mistakes and the players get mad and I don't like them getting mad at me." Another player added, "Some players who don't understand the rules get mad when you make a call against them" (medium-skilled). A medium-skilled player said, "I think being a referee is hard, sometimes I see something happen but I am not sure what to call." Another question asked was, "Do you think you will improve your referee skills with practice?" None of the players knew if their referee skills would improve with more practice.

**Have your skills improved during this unit?** Every player except one thought their skills had improved. "Yes, I have improved. I'm better than I was. I'm even teaching my mom how to play" (severe behavior handicapped). "My dribbling is getting better because the referees kept calling me for
double dribble and I finally had to stop doing it so I wouldn't lose the ball all the time" (low-skilled). The one player who thought he did not improve was a low-skilled player who thought he did improve his passing and dribbling but not his shooting. A follow-up question, "Why do you think your skills have improved" was asked to the students. "I think it is because you (teacher) showed me the right way to shoot, then we practiced shooting, then we played games so now I'm a better shooter than before" (medium-skilled). A high-skilled student added, "We get to play more, it seems like every minute we are in class we are doing basketball. Before (last year) we would do warm-ups and exercises and stuff, and we would not have much time to play." "Yes, sometimes I get tired because we don't take any breaks" (low-skilled). Another related question asked was, "Do you understand basketball better than before the unit started?" Every respondent indicated that he/she understood the game of basketball better than before the unit started. A low-skilled student responded, "Last year we just picked teams everyday and played games. This year I know what I am doing when I play." "What do you mean you know what you are doing?" "I know what double dribble and traveling are and I try not to foul so much" (low-skilled). "Last year people used to run with the ball and that doesn't happen so much now" (high-skilled). A medium-skilled player added, "I think I have a better idea of what is going on. I think it is
because we have gone over the rules and learned to play."

Do you think winning is important? The low and medium-skilled players indicated that winning is not important with many saying playing and having fun was important. Responses included, "Learning how to play the game, that is important" (medium-skilled). "Winning isn't everything. It's not important to me. Being on the team and being a good sport is important to me" (low-skilled), and "Playing is important, winning isn't" (medium-skilled). All three high-skilled players said that winning was important and they liked to win. A follow-up question was, "Should we play the games and not keep the score?" Every respondent indicated it was important to keep score during competitions. "I like to keep the score, it helps you to know how you are doing" (medium-skilled). A low-skilled player said, "I thought basketball was boring until I got the hang of it, now it is fun and I like to keep the score when I play." "Keeping score adds to the fun, but it's not very important" (medium-skilled). A high-skilled player added, "It's going to be cool to see at the end which team wins; which team has shown the most teamwork and scored the most points."

There was some difference in the answers given in the interviews between the high, medium, and low-skilled players. The most obvious difference occurred with the last question of whether winning was important. The highly-skilled students were playing the games to win while the
others indicated that they wanted to have fun and just get the chance to play, although keeping the score was important to all groups. The group as a whole, seemed satisfied with the way the sport education has gone so far. Half way through the unit, the students were positive and looking forward to continuing the unit.

Captain Interviews

After class session six, a total of six captains were interviewed. These six captains represented half of the captains that were used during the sport education unit. The remaining six were interviewed after the unit ended.

Do you think your team is working hard? All of the captains except one said that they thought their teams were working hard. The one captain thought his team had good days and bad days. This captain said:

Some days I have a team that is real lazy and doesn't want to do anything, and some days I have a team that is real hyper and just wants to shoot all the time. Then there are days they all try hard and do a good job.

Another captain added, "I would say they are working hard; we all are." A follow-up question was asked, "Do you like having the same team everyday?" One captain said, "I like working with the same people all the time and showing them different things." Another added, "Keeping the same teams is cool, it's like the Bulls, they always have the same team
and they can work together to get better." Another related question was, "Who do you think should pick the teams?" All of the captains thought it was a good idea that the teacher picked the teams. Responses included, "I think it worked out good just the way it is, with you (teacher) picking the teams" and, "It's alright with me the way it is." The interviewer then asked the captains if each team should pick their own captains. Every captain thought it was a good idea to let the individual teams pick their own captains. One captain said, "I wouldn't mind because I know my team wants me to be captain." Another added, "I think teams should pick their own captains; then they would always pick somebody they get along with." A third captain responded, "If you don't get along with your team, it's hard to work together." Another captain concurred, "I agree with that, we all have to get along." A follow-up question of "Are any of you having any problems being a captain?" All six captains indicated they were not having any problems being a captain. How do you like being a referee? All of the captains indicated they liked the role of referee. Responses were short and to the point, "I like being a referee," "It's alright," "Yes, it's OK." A follow-up question of, "Why do you like the role of referee?" was asked. The captains responses were similar, they thought being a referee was good because it kept them involved in the games even when they were not playing. "Being a referee is good because it
is better than sitting on the side and watching the games."
"I like being a referee because I get to be part of the
games, even though I am not playing." The next question
inquired into whether the players listen to the referees.
Responses were, "I think so," "They listen to me when I'm
the referee," "Yes, I think they listen to me."

How do you like being a scorekeeper? All of the captains
indicated they like being a scorekeeper. One captain said,
"I like it (scorekeeping), but I would rather be playing."
When the captains were asked why they liked this role their
responses were similar to the ones they gave for the role of
referee. The captains wanted to stay involved in the games
when they were not playing and they saw the scorekeeper role
as one way to do this. The captains understood they could
not always be playing games and the added roles were a good
way to be involved.

Do you think you are getting better at basketball? All of
the captains thought they were getting better. One captain
said, "Last year we played five-on-five, and it was like I
never got to touch the ball. I get a lot more practice now."
Another captain added, "I think I am a much better shooter
since we started basketball." A follow-up question, "Why are
you getting better at basketball?" was asked. "I get more
practice, I get to touch the ball more, and when I am not
playing I am still part of the game. Last year if I wasn't
playing I was sitting on the sidelines not paying attention.
to the game. "I agree, and when you play five-on-five the games are short and you don't get to do much when it's your turn." Another captain agreed, "We just get to do so much more playing basketball this way" (sport education).

Do you think winning is important? Five out of the six captains who were interviewed said they thought winning was very important. One said, "Yes, very important. When we keep score, then I play my best." One captain thought the main objective was to have fun and learn how to play, and that winning was not really important.

Do you like the way we are doing this basketball unit? Every captain indicated they liked the way the unit was going. One captain compared sport education to last year's basketball unit, "I like your way (sport education) better than last year." The captains were asked "Why do you like this year better than last year?" One responded, "It seems to be more fun and we get to do a whole lot more than before." Another added, "So far it is going good. I can't wait until I get to play some more." "Yes, it is really fun when you get to play your games against other teams."

The captains were positive about sport education in the interview. They all liked the way the unit had gone so far and were looking forward to the rest of the unit. The captains were high-skilled players, and they gave similar responses to the same questions that were asked to the other high-skilled players. These captains agreed with the high-
skilled players in saying that winning was important to them. The importance of winning seemed to be the one area that separated high-skilled players from the other players.

End of Season Interviews with Players

After the final sport education session, a total of 12 players, 5 boys and 7 girls, were brought in to be interviewed. From these 12 players 4 were low-skilled, 5 were medium-skilled, and 3 were high-skilled. One player was a severe behavior handicapped student who was a medium-skilled player.

Do you think your captain did a good job? All of the respondents indicated that they thought their captain did a good job. One severe behavior handicapped student did not like his captain initially, but he thought his captain ended up doing a fine job, "He helped us pick out our team name, The Taz Devils, and he helped pick out teams without being bossy." "Why do you think your captain did a good job" was a follow-up question. "We were able to work together on our team names and our team rosters without any problems" (high-skilled). Another player added, "He let me play in the spot I wanted to be in and I liked that; he didn't just tell me what to do" (medium-skilled). A low-skilled player said, "When we all sat down to figure out who we were going to play it was pretty easy. There weren't any arguments or anything." Captains were able to work cooperatively with their players, and the players appreciated this.
Would you rather pick your own captains or have the teacher pick them for you? All of the players except one thought the teams should pick their own captains. One player said, "My captain was good and you (teacher) picked him, so it worked out well" (high-skilled). Another added, "The teams should have picked; yes, that would work better. We could pick who we wanted" (low-skilled).

Did your skills improve during the basketball unit? One low-skilled student thought her skills had not improved because she still did not like basketball very much. When pressed on whether her specific basketball skills improved, she did not know if improvement had taken place. The other players all thought their skills had improved. "I got better (low-skilled). "Yes, I practice at home more than I used to" (medium-skilled). Players were asked, "Why do you think your skills have improved?" A medium-skilled student said, "We got to play a lot of basketball the last couple of weeks. I would think anyone would improve if they played that much." Another medium-skilled player agreed, "It seems like from the time we come in until we leave we are doing basketball. I think that is what helps us get better." A high-skilled player added, "I played at the YMCA and we had to stand and wait our turn all the time. And, over there (YMCA) I didn't get to be a scorekeeper either. When we played our games if you were a sub you had to sit and wait until the coach let you play."
How do you like being a scorekeeper? A wide range of responses were received from this group of players. Only one indicated that it was boring and not much fun to be a scorekeeper (medium-skilled). One player thought she learned how to play better because she was watching the game so closely (medium-skilled). A high-skilled player thought scorekeeping was fun. Another high-skilled player said, "Sometimes when I was the scorekeeper, I pretended that I was the ref and I see if I am making the same calls as the referee." Many of the responses were simply, "I like it."

How do you like being a referee? This question had the most negative responses of any interview question asked. One low and two medium-skilled students indicated that they did not like being a referee. The low-skilled student thought it was too hard to make the right call. One medium-skilled player thought it was hard to be a referee because sometimes players did not listen to the calls being made. The other medium-skilled player thought being a referee was difficult because not everyone knows what the rules are. There were some players who really liked being a referee, "Being a referee is fun, then you get to make the calls yourself" (high-skilled). A medium-skilled player responded, "I like being a referee, sometimes it is hard, but I still like it."

Students were asked, "What makes being a referee hard?" "When someone doesn't want to listen to you" (medium-
skilled). "What do you do then?" (researcher). "I just make the call and ignore them" (medium-skilled).

Is winning important? One high-skilled player thought winning was very important, the rest of the players did not think winning was very important. A medium-skilled player said, "I don't even worry about the score." Players were then asked if keeping the score during games was important. All of the players indicated that it was important to keep score for various reasons. One player responded, "We need to keep score so people will not cheat and say they won when they really didn't" (medium-skilled). Overall, students thought winning was not important but keeping the score during competitions was important.

Do you have any suggestions to make this basketball unit better? One high-skilled player thought the referees should understand the game better and speak up more. Another suggestion was to have the teams pick their own captains. One player said, "Maybe we could play teams from other classes" (high-skilled). Several players thought the unit should be longer. A few players did not have any suggestions for improvement.

The players interviewed after the sport education unit had ended were positive and had good things to say about the way the unit was run. They enjoyed the format and participating in the various roles. A few students did not like being a referee. There were a variety of reasons why
these students did not like the role of referee, but the negative responses were not limited to one skill level. Players wanted the unit to go on longer than the six weeks which is an indication of their satisfaction with sport education. Students would like to choose their own captains even though they were satisfied with the captains who were chosen by the teacher. A sense of ownership probably occurs in being able to choose your own captain.

End of Season Interview with Captains

The remaining six captains that were not interviewed earlier were brought in to be interviewed. This interview session took place after the final sport education session. Did you notice anything different from when we practiced and when we played our games? Three captains thought there was no difference with the remaining three captains indicating that the teams worked harder during the games because they were more fun and they counted more. Some responses were, "I didn't notice any difference at all," "I think the players work harder in games," "Yes, the games counted more so they work harder than during practice."

Did your skills improve since the start of the unit? All of the captains thought their skills had improved as a result of participating in the sport education basketball unit. Captains were asked, "Why do you think your skills have improved?" One response was, "Just because we got to play so much." Another captain said, "The longer we play, the better
we get." Another question asked was, "Do you think you improved as much as last year?" The captains thought they probably improved more than last year. One captain said, "Probably more, but I'm not sure," another responded, "I think I have improved more because it is more fun than standing around."

**Do you think winning is important?** Every captain responded that winning was not important. The main response was that playing was important. One captain said, "I just like to play and you can't win all the games anyway." A follow-up question was asked to the captains of "If winning is not important, what is?" All of the captains were in agreement in their answers indicating that playing and having fun was important. Some responses include, "Getting a chance to play is important," "Everybody playing and having a good time," and, "How we play and everyone playing is the important thing."

**How well do you like the roles of referee and scorekeeper?** All of the captains indicated they liked the role of referee, and none of them experienced any problems when they were referee. They all liked the role of scorekeeper also. A few indicated they still liked playing better, but being a scorekeeper was fun. When pressed as to why they liked the roles of scorekeeper and referee the captains indicated it was better than sitting out waiting your turn to play. "When
you can't play than being a referee or scorekeeper is the next best thing" (captain).

Do you have any suggestions to make the sport education basketball unit better? One captain thought playing more full-court games would be fun. A few of the other captains wanted the unit to last longer than it did. A follow-up question was, "Did you like the way the sport education unit went?" Every captain overwhelmingly responded that they liked the way this unit was organized. One captain said, "We got to do more things, like being a referee. I have never been a referee before. And scorekeeping, that was fun."

In summary, a total of 28 players and 12 captains were interviewed. Only a few isolated negative responses were received. These negative responses were not prevalent to one skill level but covered all levels. One change some students would like to see is that each team should be able to choose their own captain. Even the captains who were chosen by the teacher would like to have the teams choose captains. The other change many students would like to have is for the sport education unit to last longer than six weeks.

Students were generally pleased with the sport education unit. Players and captains liked their teams and enjoyed participating in the different roles of referee and scorekeeper. Low, medium, and high-skilled players felt their basketball skills improved as a result of participating in sport education. Winning seemed to be more
important to the high-skilled players, while the medium and low players were more interested in participation and having fun. The captains were not in agreement as to whether winning was important. The captains in the first interviews thought winning was important while the second group thought participation was important. Captains thought their teams worked a little harder during the games than they did during practices which is probably normal.

Based on the interview responses the students enjoyed the sport education unit. The only change from mid-point of the unit until the end was the captains attitudes about winning. The responses from the students interviewed were that they would make few changes in the format of sport education, but would change the length of the unit so that it lasted longer. The major change students would like to see is that they get to choose their own captain.

To gain another perspective on the students' perception of sport education, students were given a questionnaire after class session 6. A total of 81 responses were received from a possible total of 92 students who started the unit; this is a response rate of 88%. Ten students were absent and one was on a medical disability from physical education.

The first question asked the students to identify their first role of the day. Six respondents indicated that coach was their first role for the day which is 7% of the subjects questioned. Twenty-five respondents indicated their first
role was referee which is 31% of the subjects. The role of player was reported by 42 subjects which is 52% of the students. The scorekeeper role was reported by 8 subjects which represented 10% of the students in the unit. Table 3 shows the results for question number 1.

The second question on the questionnaire asked students how well they liked their first role of the day. Students had four choices, "very good," "good," "bad," and "very bad." Data in Table 3 provides an indication of how well students liked participating in their first role of the day.

<table>
<thead>
<tr>
<th>Role</th>
<th>First</th>
<th>Very Good</th>
<th>Good</th>
<th>Bad</th>
<th>Very Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coach</td>
<td>6(7%)</td>
<td>2(33%)</td>
<td>3(50%)</td>
<td>1(16%)</td>
<td></td>
</tr>
<tr>
<td>Referee</td>
<td>25(31%)</td>
<td>4(16%)</td>
<td>17(68%)</td>
<td>4(16%)</td>
<td></td>
</tr>
<tr>
<td>Scorekeeper</td>
<td>8(10%)</td>
<td>3(38%)</td>
<td>5(62%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Player</td>
<td>42(52%)</td>
<td>25(60%)</td>
<td>13(31%)</td>
<td>0</td>
<td>4(9%)</td>
</tr>
</tbody>
</table>

Table 3: Degree to which subjects liked their roles.

Of the six students that responded "coach" as their first role, two (33%), indicated that being a coach was "very
good." Three (50%), indicated being a coach was "good," and the remaining subject who chose coach indicated he thought being a coach was "bad." None of the six subjects chose "very bad" as an indicator of how well they liked their role as coach.

A total of 25 (31%) of the students were a referee for their first role of the day. Of the 25 students who were referee as their first role 4 (16%) indicated being a referee was "very good," 17 (68%) responded with the answer "good" as an indicator of how well they liked being a referee, and 4 (16%) responded that being a referee was "bad" for them. None of the students chose to identify "very bad" as an indicator of their role as referee.

There were 42 (52%) of the students questioned who indicated their first role of the day was player. Of these 42 a total of 25 (60%) chose "very good" to describe how well they liked this role. Thirteen (31%) students who chose player as their first role, responded that "good" was an indicator of how well they liked this role. Four (9%) indicated being a player was "very bad" for them. None of the students responded in the "bad" category as an indicator of how well they liked being a player.

The scorekeeper role was chosen by 8 (10%) of the total students responding. Three (38%) of these 8 students indicated that being a scorekeeper was "very good." The remaining 5 (62%) indicated that being a scorekeeper was
"good." None of the students chose "bad" or "very bad" to indicate how well they liked the role of scorekeeper.

From the 81 students who responded on the questionnaire, a total of 34 (42%) indicated their first role of the day was "very good." A total of 38 (47%) responded that their first role was "good." Five students (6%) of the total indicated that their first role of the day was "bad" and 4 (5%) indicated their first role was "very bad."

Question number 3 on the questionnaire asked the students which role they liked best. Five students (6%) of the total indicated they liked being a coach best. For the referee role 8 (10%) of the total responded they liked this role best. Fifty-six (69%) of the total respondents indicated they liked being a player the best. The scorekeeper role was chosen by 12 (15%) of the students as the role they liked best.

Question number 4 asked the students if they took their nonplaying role seriously. From the 81 responses a total of 70 (86%) indicated that they did take their nonplaying role seriously. The remaining 11 (14%) indicated that they did not take their nonplaying role seriously.

Question 5 on the questionnaire asked the students if they liked playing on the same team every day. Fifty-three (65%) of the students responded that they did like playing
on the same team every day. Twenty-eight (35%) indicated that they did not like playing on the same team every day.

Question 6 asked the students "How do you like the way this sport is taught compared to others?" Students were given four choices, "very good," "good," "bad," and "very bad." Forty-one students (51%) responded "very good," thirty-seven (45%) responded "good," and the remaining 3 (4%) students thought "bad" was an indicator of how sport education was taught compared to other sport units. None of the 81 students chose "very bad" as an indicator of how this sport was taught compared to other units.

Results form the questionnaire would indicate that students were satisfied with the sport education unit and liked the various roles associated with sport education. Students overwhelmingly indicated they liked their first role of the day. With percentages including 83% for the captain, 100% for the scorekeeper, 91% for the player, and 84% for the referee, the students answered either "good" or "very good" as an indicator to how well they liked their first roles. Being a player was the role the students liked best. Most students indicated they did take the nonplaying roles seriously. The majority of students related that they liked playing on the same team every day. A total of 96% of the respondents indicated they liked the way sport education is taught by responding either "good" or "very good" when compared to the way other sports have been taught. These
questionnaire data show favorable results for all areas of sport education.

**Question No. 5**: Did basketball skill improve for students participating in a sport education basketball unit?

Students were pretested and posttested on dribbling, shooting, and passing. In addition to this testing the critical elements were also reported for each student that was skill tested.

**Figure Eight Dribble**

Results of the t-test for the figure 8 dribble can be found in Table 4. The 23 students tested on a figure 8 dribble test had a mean score for the posttest of 8.69 and a mean pretest score of 10.43. The scores should go down because the test was a timed test with improvement occurring with a decreased time. Using a t-test it was determined that the difference between the pretest and posttest score was significant. Mean scores from the pretest to posttest went down almost 2 seconds which showed significant improvement.

**Endline Dribble**

Results of the t-test for the endline dribble can found in Table 4. The 23 students tested on a endline dribble test had a mean pretest score of 11.83 compared to a mean posttest score of 10.69. The scores went down which shows improvement on the timed test where students are trying to go as fast as they can, while maintaining control of the ball. Using a t-test it was determined there was a
significant difference between the pretest and posttest scores.

The results for the critical elements of dribbling can be found in Table 5. For all three critical elements the mean scores improved for the students that were tested. Data

<table>
<thead>
<tr>
<th>Skill</th>
<th>Pretest M</th>
<th>Posttest M</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure Eight Dribble</td>
<td>10.43</td>
<td>8.69</td>
<td>2.79</td>
</tr>
<tr>
<td>Endline Dribble</td>
<td>11.83</td>
<td>10.69</td>
<td>3.51</td>
</tr>
<tr>
<td>Shooting</td>
<td>2.65</td>
<td>4.13</td>
<td>5.87</td>
</tr>
<tr>
<td>Passing</td>
<td>22.21</td>
<td>28.39</td>
<td>5.99</td>
</tr>
</tbody>
</table>

df=22, alpha=.05, n=23, critical point=1.717

Table 4: t-test for Basketball skills.
<table>
<thead>
<tr>
<th>Critical Elements of Dribbling</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Push ball to the floor, do not slap it.</td>
<td>1.96</td>
<td>2.35</td>
</tr>
<tr>
<td>2. Push ball forward when moving.</td>
<td>1.87</td>
<td>2.26</td>
</tr>
<tr>
<td>3. Eyes forward and head up.</td>
<td>1.13</td>
<td>1.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Elements of Shooting</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use pads, keep fingers spread.</td>
<td>1.83</td>
<td>2.13</td>
</tr>
<tr>
<td>2. Keep shooting elbow in.</td>
<td>1.70</td>
<td>2.22</td>
</tr>
<tr>
<td>3. Extend through the ball.</td>
<td>1.91</td>
<td>2.22</td>
</tr>
<tr>
<td>4. Bend knees and use legs.</td>
<td>1.40</td>
<td>1.87</td>
</tr>
<tr>
<td>5. Release ball off the fingertips.</td>
<td>1.26</td>
<td>2.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Elements of Passing</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fingers spread, thumbs behind ball.</td>
<td>1.74</td>
<td>2.35</td>
</tr>
<tr>
<td>2. Elbows in; extend through the ball.</td>
<td>1.70</td>
<td>2.48</td>
</tr>
<tr>
<td>3. Step forward, extend arms rotate hands.</td>
<td>1.39</td>
<td>2.35</td>
</tr>
<tr>
<td>4. Throw at chest level to the receiver.</td>
<td>1.48</td>
<td>2.43</td>
</tr>
</tbody>
</table>

Table 5: Analysis of Critical Elements of Basketball Skills.
suggested that students improved in all areas of dribbling after the sport education unit ended.

**Shooting**

Results of the t-test for the shooting performance can be found in Table 4. The 23 students tested on shooting had a mean score on the pretest of 2.65 and a mean posttest score of 4.13. This suggested that the students made more baskets after the sport education unit than they did before. Using a t-test it was determined that the difference between the pretest and posttest score was significant.

The results for the critical elements of shooting can be found in Table 5. For all five critical elements of shooting the mean posttest scores increased from the mean pretest scores. These data suggested that students improved their shooting after the sport education unit ended.

**Passing**

Results of the t-test for the passing performance can be found in Table 4. The 23 students tested on passing had a higher posttest mean score than their pretest score. The posttest score was 28.39 compared to a pretest mean score of 22.21. Using a t-test it was determined that the difference between the pretest and posttest score was significant. These data suggested that these tested students were able to more accurately pass a basketball after the completion of the sport education unit.
The results for the critical elements of passing can be found in Table 5. All four of the critical elements showed some improvement from pretest to posttest. These data suggested that the students that were tested improved in all areas of passing.

Data obtained for passing, shooting, and dribbling would suggest that the students that were tested had improved in all areas of the basketball skills that were tested. The mean scores for all of the skills and the critical elements showed improvement when students were tested at the completion of the sport education unit.

**Question No. 6: Did strategic play improve for students participating in a sport education basketball unit?**

A team of three medium-skilled fourth graders were randomly selected to play against another team of three medium-skilled fourth graders in order to observe the strategic play incorporated into game situations by the students. The same procedure was followed using two fifth grade teams. Games were 10 minutes in length and coding was accomplished by recording each incident of strategic play. Each time the offensive team performed an incident of strategic play the behavior was recorded. Strategic play was limited to pick and roll, screening away from the ball, and maintaining floor balance.
The fourth grade game which took place before the sport education unit began resulted in a total of 3 incidents observed for strategic play. All 3 of these incidents involved players trying to keep the floor balanced. There were 0 incidents of a pick and roll or screening away from the ball. After the conclusion of the unit the same students participated in another three-versus-three game and 11 incidents of strategic play were observed. These 11 incidents consisted of 2 pick and rolls, 4 screens away from the ball and 5 efforts by the students to maintain floor balance.

The fifth grade game that occurred before the start of the sport education unit began resulted in a total of 3 strategic play incidents. All 3 of these incidents were players trying to maintain floor balance. These same students were observed after the sport education unit ended and this observation resulted in 13 strategic play incidents being recorded. The 13 incidents consisted of 5 pick and rolls, 4 screens away from the ball and 4 incidents of maintaining floor balance.

These data suggested that before the students participated in sport education they were not aware of strategic play or, if they were, were not capable of incorporating strategic play into a game situation. After the students participated in sport education they were not
only aware of strategic play, but actually used it in game play.
CHAPTER 5

SUMMARY, FINDINGS AND CONCLUSIONS

The purpose of this study was to analyze the effects of a sport education model on the participation and achievement levels of fourth and fifth grade students in a basketball unit. Students from two fourth grade and two fifth grade classes at a central Ohio city school district were the participants in this study. Students participated in their regular physical education class, which met twice per week for six weeks.

Student perceptions of sport education were obtained using questionnaires, and interviews as well as through a teacher diary. The teacher's perceptions of sport education were obtained from the data collected daily in the teacher diary. Activity levels during the unit were researched using academic learning time - physical education, with a modified version for the roles of scorekeeper and referee. A dribbling, shooting, and passing skill test was given to students to determine if skill level improved during the unit. A strategic play video tape was observed to determine
if strategic play improved during the unit. Using the six research questions guiding this study, a synthesis of the findings and conclusions will be discussed.

**Question No. 1:** What were the activity levels of fourth and fifth grade students participating in a sport education basketball unit?

Total player involvement during the sport education unit was observed in the academic learning time - physical education motor appropriate behavior at 46%. This finding is similar to the 51.1% Hastie (1996) observed during a sport education speedball unit during formal competitions. Included students were observed at 38% motor appropriate behavior, low-skilled students at 48%, and high-skilled students at 50% during the unit. Parker (1989) reported that the ALT-PE percentage for public school classes appears to be somewhere between 15% and 25%. The ALT-PE in this study exceeded this estimate. The ALT-PE in this study also exceeded the findings by Metzler (1979) 32.3%, Dodds, Placek, Rife & Silverman, (1982) 22%, and Godbout, Brunelle, & Tousignant, (1983) 31.3%. For included students participating in general elementary physical education classes Vogler, van der Mars, Darst, and Cusimano (1990) reported a motor appropriate level of 21.2% Although included students in this study spent less time at a motor appropriate level than the typically developing students, they still spent greater time in this category than included
students in the Vogler et al study (1990), and were higher than students in the previously described studies as well.

Waiting times for this study were observed at 13.4% and transition at 11.6% for total player involvement. The waiting and transition time is in contrast to the low off-task time observed in this study, 1.7%. This waiting and transition time with the low off-task combination supports work reported by Hastie (1996) who observed .1% off-task behavior during formal competitions, and Alexander, Taggart, and Medland (1993) who reported 2.4% off-task behavior in game contexts. Included students in this study were observed in the highest off-task behavior at 3.8%, with low-skilled students off-task 1.8%, and high-skilled players .1% off-task behavior. Included students in the research findings of Vogler, van der Mars, Darst and Cusimano (1990) were observed at 19.3% off-task behavior. This finding far exceeds the 3.8% off-task behavior of included students in this study.

Question No. 2: What was the extent of involvement in the duty roles of referee and scorekeeper?

High-skilled students were actively involved 95% of the lesson time, with included students observed at 82% and low-skilled students 71% actively involved as referee. These percentages support Hastie (1996) using the same modified ALT-PE instrument which had referees actively involved 80% during preseason and 86% during the tournament. During the
role of referee, the high-skilled students were passively involved 1.9%, the included students were passively involved 10.4% and low-skilled students were passively involved 27% during the time they were referees. The low-skilled and included students seemed to have more difficulty in the role of referee as evidenced by their high percentage in the passively involved category compared to the high-skilled students. These findings are similar to the work of Hastie (1996) who reported referees passively involved 19% during practice and 14% during tournaments. Total student involvement during the role of referees had students passively involved 13% for this study. High-skilled students in this study were distracted 3.1% of the observed lesson time, included students were distracted 7.5% and low-skilled students 2%. Low-skilled students seemed to have the most difficulty with the role of referee as evidenced by their 27% in the passively involved behavior. This would support some data from the interviews and teacher diary that noted some students with difficulty in the referee role. The majority of students were trying to do a good job in this role as the data show the total students observed in the referee role were actively involved 83%.

Low-skilled students observed in the role of scorekeeper were fully attentive 100% of the time. Included students were fully attentive 98%, and high-skilled scorekeepers were observed to be fully attentive 93%. High-
skilled scorekeepers were distracted 7%, and included students were distracted 2%. Being a scorekeeper is one area the low-skilled and included students felt comfortable. This is similar to Hastie (1996) who observed scorekeepers at 96% fully attentive and 4% distracted. These findings indicate sport education may be a way to keep all students involved during a sport lesson.

Question No. 3: What were the teacher's perceptions of the sport education unit?

The teacher/researcher observed the students during the sport education unit and noted high activity and high on-task behavior. This observation supports the ALT-PE data coded during the unit. The diary notes were also similar to the teachers' attitudes and comments reported by Alexander, Taggart, and Medland (1993). The high school, middle school, and elementary teachers comments about sport education reported by Siedentop (1994) are supported by the findings in this study. These teachers indicated that students enjoyed the affiliation with teams, discipline problems were reduced, and teams requested extra practice time. Students were also observed to participate enthusiastically. These findings are similar to what the teacher/researcher observed in this study.

Students observed in the roles of referee, captain, scorekeeper, and player were all thought to work hard and enjoy their roles. Hastie's (1996) study reported a
teacher's diary entry which stated "The officials, statisticians and scorekeepers did a good job and seemed to understand what they were supposed to do" (p. 96). The teacher's perception of sport education also included the observation that the unit was more work and involved more preparation than typical sport units taught by the teacher. Overall, the sport education unit was liked by the teacher and would be used again in the future. Alexander, Taggart, and Medland (1993) reported that most teachers who have tried sport education have chosen to repeat it; some are already in their second season.

**Question No. 4**: What were the students' perceptions of the sport education unit?

The students liked the sport education unit and the various roles in which they were expected to participate. Through interviews, questionnaires, and teacher diary, students liked being a player the best but appreciated being put into other roles so they could stay involved in the competitions. When comparing sport education to their former physical education experience the sport education was rated higher. Alexander, Taggart, and Medland (1993) described similar findings with students comparing sport education with past physical education experiences.

Students thought their skill level had improved, which was a result of more opportunities to respond than in previous lessons. Hastie (1996) indicated that students
thought they had received more opportunities for involvement during sport education than in their previous lessons in physical education.

Students liked playing on the same teams throughout the unit. A chance to get to know other students and to work with the same students consistently were reasons the students gave. Students liked being a valued member of a team. This finding supports Grant (1992) who suggested that the first and most notable achievement for students was being a valued member of a team, Sweeney, Tannehill, and Teeters (1992) reported that sport education heightens interest and participation by placing physical education in a team context.

**Question No. 5:** Did basketball skill improve for students participating in a sport education basketball unit?

Twenty-three students were given two separate dribbling tests before the unit and again after the unit ended. A correlated t-test indicated these students had improved from the beginning of the unit until the end. These findings were significant and suggest that sport education, or the conditions the students were exposed to created a positive change in dribbling skills.

The same 23 students were pretested and posttested on shooting skills. Improvement occurred again with a t-test indicating the findings were significant. Sport education, or the conditions to which the students were exposed during
the unit improved the shooting skills in the students tested.

Passing skills were pretested and posttested before and after the unit. Through the t-test it was determined the positive change was significant. Sport education, or the conditions to which the students were exposed during the unit improved passing skills in the students tested.

Critical elements were observed in all of the students pretested and posttested. Although some of the critical elements did not reach "satisfactory" levels by the end of the unit, all of the critical element mean scores showed some improvement from beginning of the unit until the end.

Although it has been suggested that sport education may not be the most efficient way to develop skills (Hastie, 1996), students participating in this sport education unit that were skill tested did show significant improvement in passing, shooting and dribbling skills.

Question No. 6: Did strategic play improve for students participating in a sport education basketball unit?

Strategic play did improve for the students that were observed before the unit and again at the end of the unit. Both the fourth and fifth grade students that were observed, improved in the three areas of strategic play that were investigated in these elementary students. The video tapes that were observed for strategic play confirmed the notes in the teacher diary on strategic play improvement. It also was
noted that a small percentage of students are not willing to incorporate strategic play into a basketball unit. These students were interested in shooting the basketball and very little else. A majority of students did incorporate strategic play into the competitions by the end of the unit to determine that strategy was an important part of the game for the majority of students.

Conclusions

1. The students that participated in the sport education unit had high ALT-PE levels in addition to low off-task levels. The included students in this unit also had high ALT-PE levels when compared to other included students participating in non sport education units. It can be concluded that sport education may be a means to effectively teach sport in existing physical education programs.

2. Students participating in the roles of captain, referee, and scorekeeper did an effective job in performing the various roles. The student roles associated with sport education can be an effective way to keep many students involved and on-task during the lesson.

3. Because of the results obtained from the ALT-PE data, the skill analysis, and strategic play, the teacher was satisfied with sport education and through action research, justified using sport education in the future.

4. Students liked the format of sport education. The
students liked affiliation with a team, the formal competitions, the long season, keeping records, and the culminating event.

5. Basketball skill improved significantly from the beginning of the unit until the end. These skills were limited to passing, shooting, and dribbling. Sport Education seems to be an effective means for improving skill levels in students participating in sport education units.

6. The students' use of strategic play improved from beginning of unit until the end. Sport education seems to be a way for physical educators to improve strategic play in students participating in sport.

**Summary**

In summary, the elementary physical education classes observed in this study were greatly affected by the sport education unit. Academic learning time - physical education levels were high for the players and the student roles associated with sport education. The teacher was pleased with all aspects of sport education and received justification for using the model again in the future. The students enjoyed the sport education format and many wanted the unit to last longer than it did. Skill level was improved for those students who were tested from beginning of the unit until the end. Strategic play was addressed
during the unit, resulting in students using more strategy at the end of the unit than they did at the start.

Hastie (1996) stated that sport and physical education are not always comfortable bedfellows. Sport does have a chance to succeed in physical education if it is taught properly, and sport education may be the means through which sport is attended.

Implications for Teachers

As Siedentop (1994) indicated, most physical educators already teach sport as part of the curriculum, therefore, it is not a question of whether or not teachers should include sport as part of the curriculum, but to determine the best way to teach sport in the physical education setting. This study has shown that using sport education in physical education students had high activity levels, were on-task, improved skill levels, and incorporated strategic play into game situations. Teachers looking for an effective way to teach sport should consider using sport education. The teacher and students in this study enjoyed the sport education format. Alexander, Taggart, and Medland (1993) described a teacher's statement about this format as, "Sport education has produced outcomes that I have been trying for years to produce in a normal situation" (p. 21). It is time for teachers to take a look at the best possible way to teach sport, and give sport education a try.
Reflections of the Teacher/Researcher

This research study was the teacher/researcher's first experience implementing sport education into the school setting. This was the students' first encounter with sport education, as they were accustomed to the traditional unit approach of teaching skills and playing large-sided games.

The teacher/researcher had many assumptions prior to implementing sport education. The first of these assumptions was that fourth graders would be too young to grasp the full concept of sport education. It was believed that fourth graders would not understand the importance of the individual roles associated with sport education, and the strategy of organizing team rosters in order of ability to create the optimum situation for competitions. These fourth grade students proved the teacher/researcher wrong in doing an effective job in all the roles and participating with their captains in making team rosters that put each player in their best performance situation.

Another assumption was that the scorekeeper role would not be accepted by these fourth and fifth grade students. It was thought that asking these students to stand with paper and pencil during physical education class and record scores would not go over well, especially by the high-skilled students who are very active. The result was that all
students enjoyed the scorekeeper role, and some were actually looking forward to the role during competitions.

There was some reluctance on the teacher/researcher's part to give up some control of the class. It was difficult to move from a teacher-centered atmosphere to a more student-centered class. The teacher would read the schedules after each competition rather than posting the schedules and let the students read them individually. Any situation involving a referee and a player was resolved by the teacher rather than letting the students grow from this natural conflict of roles. The teacher chose all the teams and the team captains without any assistance from the students. It was believed these students were too young to effectively choose their own team structures. By the end of the unit the teacher's views had changed. These students are capable of a more student-centered classroom and can handle the responsibilities of sport education. Scheduling, role conflicts and choosing fair and even teams are all within the capabilities of fourth and fifth grade students if they are given the opportunity.

The long length of a sport education unit was a concern to the teacher. These students had not experienced any unit that lasted longer than four weeks and this one was scheduled for six weeks. Boredom and restlessness was a big concern with a six-week unit. However, many of the students
indicated they wanted the unit to last longer, and they were still enthused and participating the last day.

The teacher's view of fourth and fifth grade students has changed as a result of the sport education unit. Given the chance, these students will demonstrate responsibility and an understanding of the basic concepts of sport education. Students want to be involved in decision-making and take ownership of their learning. It seems harder for the teacher than the students in moving to more student-centered environment. A reluctance to give up some power and control was evident with this teacher.

As a result of this project the teacher has changed his approach to teaching fourth and fifth grade students. Students are now given the freedom to choose their own teams, and are given more responsibility than in the past. Students are responsible for reading schedules and for knowing their roles at all times. Students now pick their own captains, and all conflicts between referee and player must be resolved by the students involved. The teacher has moved to a more student-centered approach to teaching physical education.

Recommendations for Future Research

1. This study should be replicated at the middle and high school level. Elementary school students were the focus of this study; how middle and high school students
participate and accept sport education is an important area to investigate.

2. This study should be replicated with an emphasis on boys' and girls' participation. Each group should be observed for skill improvement, perceptions of sport education, strategic play, and ALT-PE data. Low, medium, high-skilled, and included students were researched, there was no comparison of boys' and girls' participation in this sport education unit.

3. Skill analysis and strategic play could be assessed using a tactical approach to teaching games Mitchell (1996) rather than with a separate pretest-posttest procedure. Skills could be assessed during actual game play which would result in a more authentic assessment than the pretest-posttest.

4. This study should be replicated with other team sports besides the very popular basketball unit. Students generally like basketball and many are active during a typical basketball unit. Using another team sport may produce different results.

5. This study should be replicated with individual sports such as gymnastics or a fitness unit. How well sport education fits into more individual sports and activities is an important area of research that needs to be investigated.
LIST OF REFERENCES


APPENDIX A

Consent Form
Dear Parents,

I am back as your child's physical education teacher after taking a one year leave of absence to do graduate work at The Ohio State University. I plan on doing my dissertation during this school year. I would like to do my research with the fourth and fifth grade classes at Ohio Elementary. Participation in the study will be voluntary and the students may refuse to participate or withdraw from the study at any time without penalty. Data will be collected on activity levels of students as well as their perceptions of sport education. This data will enable me to determine the effectiveness of sport education.

I am planning on teaching the basketball unit in a different way than your child is accustomed to in physical education. The students will placed on a team that they will remain throughout the unit. Basketball skills will be stressed but your child will also be doing some scorekeeping, some will be selected as coaches and most will have to referee a game.

I would like to videotape some classes and also interview some selected students. Questionnaires will be given to the students in order to get their feeling on the basketball unit. Students who do not participate in the study will not be in any group that is videotaped. Only students who volunteer for the study will be videotaped. A random selection process will be used to select students to be interviewed.

If you have any questions or concerns, please contact me at Ohio Elementary.

Dr. Sandra Stroot  
Associate Professor HPER

Bob Snyder  
Physical Education Teacher

I give my permission for my child to participate in this study.  
Signed ________________________________

Date ________________________________
APPENDIX B

Script of Information
Outline of Script of Information
Which will be provided to Subjects

Students were told:
1. Research will take place during their basketball unit.
2. Videotaping of the class will take place to check activity levels - all tapes will be destroyed and nobody will be identified through the tapes.
3. Questionnaires will be given, no names or identification will be used with these.
4. Interviews of selected students will be conducted, nobody will be identified through these.
5. If anyone does not want to answer a questionnaire or be interviewed they will not be required to do so.
6. All that will be required of the students is regular participation in their normally scheduled physical education classes.
APPENDIX C

Captain's Contract
TEAM CAPTAIN'S CONTRACT

The Captain's Responsibilities Are:

Check Schedule Each Day
Organize Team in Practice
Check Attendance, Proper Dress
Lead Team in Warm-ups
Assign Playing Positions
Turn in Lineups on Time
Provide Leadership, Sportsmanship

Signed: ______________________________

132
APPENDIX D

Score Sheet
SCORE SHEET

CIRCLE ONE:  1V1  2V2  3V3

TEAM ________ VS. TEAM ________

POINTS:
1 2 3 4 5 6 7 8
9 10 11 12 13 14
15 16 17 18 19 20

POINTS:
1 2 3 4 5 6 7 8
9 10 11 12 13 14
15 16 17 18 19 20

FOULS: 1 2 3

FOULS: 1 2 3

TURNOVERS:
1 2 3 4 5 6

TURNOVERS:
1 2 3 4 5 6

ASSISTS:
1 2 3 4 5 6

ASSISTS:
1 2 3 4 5 6

COMMENTS:

134
APPENDIX E

Questionnaire
QUESTIONNAIRE

GRADE ________________________

1. WHAT WAS YOUR FIRST ROLE TODAY?
   CAPTAIN   REFEREE   PLAYER   SCOREKEEPER

2. HOW DID YOU LIKE IT?
   VERY GOOD   GOOD   BAD   VERY BAD

3. WHICH ROLE DO YOU LIKE BEST?
   CAPTAIN   REFEREE   PLAYER   SCOREKEEPER

4. DO YOU TAKE YOUR NONPLAYING ROLE SERIOUSLY?
   YES   NO

5. DO YOU LIKE PLAYING ON THE SAME TEAM EVERYDAY?
   YES   NO

6. HOW DO YOU LIKE THE WAY THIS SPORT IS TAUGHT COMPARED TO OTHERS?
   VERY GOOD   GOOD   BAD   VERY BAD

136
APPENDIX F

Critical Elements
Score
1 = Unsatisfactory
2 = Satisfactory
3 = Outstanding

Passing Critical Elements
1. Fingers spread thumbs behind ball.
2. Elbows in; extend through the ball.
3. Step forward, extend arms, rotate hands.
4. Throw at chest level to the receiver.

Dribbling Critical Elements
1. Push ball to the floor, do not slap it.
2. Push ball forward when moving.
3. Eyes forward and head up.

Shooting Critical Elements
1. Use pads, keep fingers spread.
2. Keep shooting elbow in.
3. Extend through the ball.
4. Bend knees and use the legs.
5. Release ball off the fingertips.