

**Capabilities of Primary Students Participating in a  
Sport Education Physical Education Unit**

by

Todd Estel Layne

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Approved by

Dr. Peter Hastie, Chair, Wayne T. Smith Distinguished Professor of Kinesiology  
Dr. Sheri Brock, Associate Professor of Kinesiology  
Dr. Angela Love, Assistant Professor and Program Coordinator, Early Childhood Education  
Dr. Mary Rudisill, Department Head & Wayne T. Smith Distinguished Professor of Kinesiology

## Abstract

Research has supported the use of Sport Education in physical education. The majority of studies have focused on its use in elementary, secondary, and higher education. Little research has been completed in regards to the use and effectiveness of Sport Education in the primary grades. This research examined a fourth grade class using Sport Education for the first time. Therefore, the purposes of this investigation were to (1) to determine if students can work independently of the teacher, (2) to determine if fourth graders can play a modified game without constant intervention from the teacher, (3) to determine if students' can officiate games successfully, and (4) to determine if students' can manage the other organizational tasks associated with the season. The participants in this study were two fourth grade classrooms. Each lesson consisted of coding the tasks presented by the teacher. Included in the coding was type of task, the explicitness of the task, student compliance, skill opportunities and success, referee involvement and success, and duration of the task.

Results indicated that students can work independent of the teacher during a Sport Education season. Tasks transitioned from explicit to implicit and, irrespective of the explicitness of task, compliance was high. There was no drop in management time due to the amount of time needed to prepare for the culminating event, which is an important element of Sport Education. Students experienced an increase in skill and referee success during the post-season. Furthermore, during this time students became more involved as referees. Finally, students displayed perfect compliance during all transitional tasks. Together, these results indicate

positive student responses to their initial experience with Sport Education and suggest that it can potentially enhance the learning experience of all students.

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## CHAPTER 1

### INTRODUCTION

The National Association for Sport and Physical education states that in the primary years of learning, “students develop maturity and versatility in the use of fundamental motor skills” (NASPE, 2010, p. 12). The learning of motor skills during the primary years establishes a foundation for continued motor skill learning as a child progresses through school. It is the goal of teachers to develop competency in students so regular participation in physical activity may occur. In schools today teachers are regularly looking for the best possible curriculum model that meets the needs of their students. In physical education, many types of teaching models are available for teachers to implement in their respective classes (Kulinna & Cothran, 2003). In 1994, Daryl Siedentop introduced a pedagogical model for physical education known as Sport Education. The goal of Sport Education is to provide students with an authentic sport experience which will help them develop as competent, literate and enthusiastic sportspersons.

There are necessary skills for a student to participate in Sport Education. Siedentop, Hastie and van der Mars (2011) list six key features of Sport Education. These are seasons, affiliation, formal competition, culminating events, record keeping and festivity. In Sport Education, students are assigned to a team for a season of learning a specific sport or activity. Teams compete against one another for a set number of games and a culminating event, which can include a tournament or the two teams with the top point total, concludes the season. As part of a team all students fulfill roles which have a determined list of responsibilities. Success of the team is dependent upon students taking the necessary steps in fulfilling their roles. In addition, students may also receive the opportunity to be an official, record statistics, coach, design team

uniforms, and create awards for the end of the season festivity. By including these elements, the aim of Sport Education is to produce the *complete sports player*, one who has a more defined understanding of sport, instead of one who has only developed sport skills. The structural design and intent of Sport Education is to allow students the opportunity to be more involved in the overall process. Students have a voice in the overall flow of the class, which gives the teacher freedom to facilitate and provide more instructional feedback to the class.

Sport Education was first implemented into a school curriculum in 1993. The teacher decided to create a Sport Education unit for gymnastics in grades fourth through sixth. During that first implementation, one significant outcome was that students expressed a desire for more time to practice their routines for the upcoming competition (Siedentop, 2002). From the very beginning, Sport Education had created an enthusiasm among students for physical activity. Through the years, research has produced positive outcomes related to the use of Sport Education. MacPhail, Gorely, Kirk and Kinchin (2008) found that Sport Education may be more enjoyable for students because of the greater opportunities for autonomy, affiliation, and competition, plus perceived learning. Kinchin (2006) conducted a review of the research on Sport Education and found many benefits associated with the model. Students' responses to sport education included a reported preference for Sport Education over their previous physical education experiences, the opportunity of having roles and responsibilities, an increase in enthusiasm, being with a team that persists and an improvement in developing better techniques and tactical awareness. Teachers believed that Sport Education created more interest compared to previous experiences in physical education. Teachers also enjoyed their facilitation role even though it was difficult for some to give up direct control of the classroom.

Even with these positive results, most research on Sport Education has started in the upper elementary grades. Very little research exists that provides information on the implementation of Sport Education in the primary grades. Kinchin and Kinchin (2005) believe that introducing Sport Education during the primary years can provide a foundation for future learning in physical education. Lewis (2001) applied certain features of Sport Education for a class of five and six year old students. Team affiliation, non-playing roles, and opportunities for competition were all implemented during the Sport Education unit. Lewis found that an increase in student assistance occurred and that team affiliation increased a desire to be together outside of the classroom. At the end of the unit students were able to complete their roles without any assistance from the teacher. Even with favorable results from research, certain features of Sport Education may make implementation in the primary grades more difficult.

In Sport Education students are more involved in guided practice, independent practice and developing game sense. Guided practice occurs when the teacher introduces a skill to a group of students. The students will then practice the skill on their own while the teacher provides feedback, instructional help, or more assistance with the technique of the skill. Guided practice is also beneficial for learning duty roles. As other teams play a practice game, students can officiate or keep statistics to better their skills. As skills are learned teams must then begin to focus on the development of the team. This occurs during independent practice. Students must be able to conduct team practices and work to improve the necessary skills. Finally, a key component of Sport Education is game play. There are two key elements to effective game play; technique and tactics. As students participate in game play they must have the necessary skills to participate and there needs to be some understanding of the tactics of the game. In other words, teams work on ways to take advantage of the other teams' weaknesses.

Based on the components of Sport Education it is easy to assume that not all children would be able to participate in a Sport Education curriculum. Siedentop et al. (2004, p. 1) states that “Sport Education has been used at all levels from the third grade in elementary schools through the twelfth grade in high schools”. Kinchin and Kinchin (2005, p. 111) believe by introducing Sport Education during the primary years that “developing the necessary attitudes and personal, social, emotional and physical skills which Sport Education demands will prepare students for experience of fuller versions of Sport Education in later years...”. On occasion teachers may assume what a child is capable of doing without fully understanding their overall potential. Table 1 list the national standards for physical education and what can be expected of children in grades kindergarten through second.

Table 1

*National Standards and Expectations for Primary Grades*

NASPE Standards for Physical Education	Grades K-2
1. Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.	Students develop maturity and versatility in the use of fundamental motor skills (e.g., running, skipping, throwing, striking) that are further refined, combined, and varied during the middle school years.
2. Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.	Students learn and apply concepts such as actions, planes, and personal/general space.  Students identify elements of correct form for fundamental skills and use them in performance.

3. Participates regularly in physical activity.	Young children participate in physical activities largely because of the pleasure they experience.
4. Achieves and maintains a health-enhancing level of physical fitness.	Young children engage in a variety of activities that serve to promote health related physical fitness.
5. Exhibits responsible personal and social behavior that respects self and others in physical activity settings.	Young children discover the joy of playing with friends and experience how social interaction can make activities more fun.

At the state level, the Alabama course of study for physical education states that “The Grades K-2 physical education program establishes the foundation for the entire physical education curriculum” (2009, p. 8). Students from these grades can expect to develop cognitive (i.e., high degree of curiosity and creativity, express individual opinions, understand the concept of teamwork), social (i.e., stress active but safe participation, adherence to class rules, the ability to take turns and share, and demonstration of good sportsmanship), and psychomotor skills (i.e., gross motor skills are being refined, and fine motor skills are beginning to develop). The national and state standards show that Sport Education can potentially have an impact on the learning of children based on the listed goals and objectives of the model. However, Sport Education is not used in grades kindergarten through second. If a class is unable to participate in an invasion game designed for older children, one may assume that Sport Education would not be the appropriate model to use. Sport Education requires students to possess skills (i.e., duty roles, leadership, decision making, etc.) other than game play. Teachers can take advantage of these

early years of learning by teaching students the necessary skills for participation in Sport Education. Teachers can also become consumed with competition instead of the goal of meeting the objectives of Sport Education. Sport Education is designed to provide opportunities for developmentally appropriate activities where children have the chance to learn the needed skills.

The Council on Physical Education for Children (COPEC) defines developmentally appropriate practices as those “which recognize children’s changing capacities to move and those which promote such change” (1992). Jess, Pickup and Haydn-Davies (2007, p. 17) believe that in order to offer developmentally appropriate activities, “teachers must have a good understanding of the developing child and how this development influences their engagement and learning in physical education”.

Sport Education is designed to provide developmentally appropriate activities to all children. As Siedentop (2004, p.13) notes an activity organized for Sport Education should be “developmentally matched to the experiences and abilities of the students”. This can occur a couple of ways: (1) Sport Education is set up so that all students will receive maximum opportunities to practice technique and tactics. Teams are typically modified to allow more opportunities for each student (Browne, Carlson, & Hastie, 2004; Hastie, 1998a; Hastie, 2000). (2) Although it may be difficult to change the primary rules of a sport, one can make changes to the secondary rules. Rules such as the size of the playing area, the size and type of ball, the color of the ball, the height and width of a goal, the rules on performance, etc. Many adjustments can be made to a game to make it more developmentally appropriate for the student.

Since its beginning, Sport Education has become increasingly popular in the physical education classroom. Kinchin (2006, p. 605) states “a wide examination of the literature indicates that Sport Education has been introduced successfully into schools in the majority of

cases”. Inclusion of Sport Education typically begins in the intermediate grades (3<sup>rd</sup>-5<sup>th</sup>) and continues on through higher education. There has been limited research on the impact of the Sport Education model on students in grades kindergarten through second. There are reasons for this lack of research. Within Sport Education teachers take more of a facilitator role, whereas students are asked to fulfill semi-autonomous roles such as coaches, managers, statisticians, designers, etc. Sport Education enables students to become more involved in the management and completion of activities so that the teacher is free to provide more individual instruction and feedback to students (Brunton, 2003). Modifications would have to be made for primary aged children to have an opportunity to fulfill one of the many duty roles.

Officiating is also a key component of Sport Education. Officiating provides a difficult challenge based on the amount of knowledge that is needed to be successful. Students are asked to make quick decisions about the play of their classmates. A good understanding of the rules and the different components of game play are deemed necessary for students to be able to officiate. Finally, Sport Education requires students to compete in actual game play. Students need the necessary skills to successfully participate in game play. Research is needed to determine what elements of a Sport Education program should be included and modified for the primary grades. The outcome of this research might provide answers to questions concerning ways to improve Sport Education readiness with primary aged children.

#### *Purpose of Study*

Given that previous research for third and fourth graders experiences has only focused on responses to Sport Education (e.g.; enjoyment, comparison to previous physical education, etc.), the purpose of this study was to determine whether in fact fourth graders are capable of enacting the model as it was intended. Therefore the purposes of the study were (1) to determine if



students can work independently of the teacher, (2) to determine if fourth graders can play a “good game” without significant teacher intervention, (3) to determine if students’ can successfully officiate games, (4) to determine if students’ can manage the other organizational tasks associated with the season. Sport Education has four key assumptions and hypotheses. Key assumption one and hypotheses. Evidence for students working independently of the teacher would come from an examination of classroom management. Hypotheses 1a. Total managerial time will decrease. 1b. Earlier managerial tasks will be explicit, later managerial tasks will be implicit. 1c. As it shifts from explicit to implicit, there will be no decrease in task compliance. Key assumption two and hypothesis. Given that Sport Education seasons are longer than normal, by the end of the season students should be able to demonstrate high level of success in game play. Hypothesis two. There will be a significant difference in the quality of game play from the beginning of formal competition to the end of the post-season phase of season. Key assumption three and hypothesis. Given that significant time is devoted to teaching refereeing skills, under teacher direction and practice games, there should be an increase in attentiveness and accuracy of calls based on the duration of the season. Hypothesis 3a. There will be a significant difference in the attentiveness of the officials. 3b. There will be a significant difference in the accuracy of the officials decisions. Key assumption four and hypotheses. By its very nature Sport Education introduces a large number of unique transitional tasks within lessons (e.g.; going from practice to play, practice to officiate, etc.) Evidence of students’ ability to accomplish transitional tasks would come from less time spent in transitional time. Hypotheses 4a. Time allocated to transitional tasks will decrease. 4b. On task rates during transitional tasks will increase from the beginning to the end of the season.

### *Delimitations*

Delimitations in this study include using only fourth grade students. Fourth grades students who will be participating in Sport Education for the first time will be the subjects for this study.

#### *Limitations*

Limitations in this study include using only two classes from one school as subjects for the study.

#### *Definition of Terms*

Sport Education-a pedagogical model designed to provide students with authentic experiences that are thorough and enjoyable and that contribute to their desire to become and stay physically active throughout their lives (Siedentop, et. al., 2011)

## CHAPTER II

### REVIEW OF LITERATURE

The two studies presented will investigate the necessary skills to be able to successfully participate in sport education and to create interventions to determine if components of sport education, when introduced, can be effective in promoting learning in the primary age classroom. Therefore, this review of literature will examine elements that are crucial to the implementation of the sport education model. These elements include the sport education model of teaching, the teaching of developmentally appropriate activities, and autonomous behavior among children.

#### Sport Education

Sport education is a pedagogical model designed to provide authentic, educationally rich sport experiences in the context of school physical education (Siedentop, 1998). The goal of sport education is to help students develop as competent, literate, and enthusiastic sportspersons (Siedentop, Hastie, & Van der mars, 2004). A competent sportsperson is one who is both a knowledgeable and skilled performer that was derived from appropriate participation in games and activities. A literate sportsperson understands the overall importance of sport. They are a willing participant, but more importantly are sensitive to the proper purpose of sport. From this a literate sportsperson will work to provide quality sports programs for youth and children. Finally, an enthusiastic sportsperson values the enjoyment and the overall experience of participating in sport. Their goal is to preserve and protect the sport culture so that in the future, children and adults can have that same experience (Siedentop, 1998).

Since the creation of sport education, many studies have been conducted to provide a better understanding of whether or not the goal of sport education has been impacted. Hastie (1998a) found that studies had shown promising findings in relation to the development of competent, literate, and enthusiastic sportspersons. The following text will provide a review of studies related to the goal of sport education.

In order to reach a goal, objectives must first be met. Siedentop et al. (2004) list sport education objectives which are to be achieved through experiencing a sport education season. *Develop sport-specific techniques and fitness, appreciate and be able to execute sport-specific strategic play, and participate at a developmentally appropriate level* are objectives that if met, can help develop a competent sportsperson. A competent sportsperson has developed skills and seeks ways to use their knowledge of sport or game to gain an advantage against an opponent. In practical terms a competent sportsperson understands the strategies associated with a game. For example, in basketball one may understand that effective passing and quality dribbling may lead to a higher percentage shot. In soccer, an individual may realize the strengths and weaknesses of their opponent, which can lead to an advantage for their team. Another strength of tactical awareness may come in a game such as handball. A player may realize that the opposing team doesn't efficiently get back on defense to defend their goal. A strategic player will attempt to advance the ball and take a shot on goal before the defending team is set up. A knowledgeable games player can have a distinct advantage over opposing players or team with sufficient understanding of game play.

Hastie (1998b) claimed that research on sport education has been limited to studying enthusiasm and literacy. Wallhead and O'Sullivan (2005) reported a lack of research on student tactical knowledge and performance as a result of sport education seasons. Studies clearly show

that more research is needed on sport education and the ability to produce “competent” sports people. Even with the lack of research there have been some studies that have produced positive results.

Hastie (1998b) wanted to evaluate the efficacy of sport education as a tool for developing game competence. Six sixth grade students participated in an Ultimate Frisbee sport education season for this study. The six students were all on the same team. A total of 30-lessons were used for this study which offered the students numerous opportunity for practice and skill development. Twelve different games (four preseason, five regular season, three playoffs) were recorded for data collection purposes. Data was recorded for the skill components related to the accuracy of passing and receiving the disk. Results from this study suggest that the students who participated in the sport education season made gains in terms of competence. From the beginning to the end of the season many of the components of skill and tactics changed. Higher success in receiving occurred and the students improved on their percentage of completed passes. Results also revealed that students realized that shorter passes led to more successful receptions, which led to a reduction of turnovers.

Browne, Carlson, and Hastie (2004) examined the effect an instructional model (traditional/sport education) would have on the learning, knowledge and affective domain of students. Participants were 53 eight grade boys with one group being taught using the traditional approach, while the other group was taught using the sport education model of teaching. The following was used for data collection purposes; a pre-and-post knowledge test, a pre-and-post self-assessment test of skill, tactical ability, and behaviors in class, a teacher evaluation using the same assessment as the students, and student interviews. Results showed that there was a significant difference in the pre-and-post self-assessment scores of students involved in the sport

education unit. Scores from the teacher assessment report that the students from the sport education group made greater improvement than the students in the traditional groups. Another study wanted to determine the impact an instructional model (traditional sport education) could have on the basketball ability of secondary students (Ormond, DeMarco, Smith & Fischer, 1995). Twelve game playing sessions (six each for both teaching approaches) were videotaped and analyzed independently by a group of four expert judges for quality of game play. Analysis of play using the sport education model resulted in an improvement of knowledge when compared to the traditional group and an observable better quality of play.

Hastie, Sinelnikov, and Guarino (2009) looked at the development of skill competence and tactical knowledge of 41 eighth grade students as they completed a season of badminton using the sport education model. The students in this study had received no prior instruction related to the skills of the sport of Badminton. Data were collected on students' performance on:

- Badminton skills tests: French clear and wall volley tests were used.
- Students' competence in game play: Students were videotaped twice during the first three days of the season and twice during the final three days of competition. An assessment instrument was used to rate student performance.
- Students' tactical knowledge: The students ability to solve tactical problems were assessed by observing video and having each student select a solution (out of three possibilities) and an argument for their decision from a list (choose 2 from a list of 10).

Results from this study showed an increase of pre-to-post test scores for the badminton skills tests, students' competence in game play, and students' tactical knowledge. These results show

that students can make significant improvements in their skill, the quality of their game play, and basic understanding of tactics following a season of sport education.

Studies have looked at ways of improving the fitness and health of children (Hastie, Sluder, Buchanan, & Wadsworth, 2009; Mohr, Townsend, & Pritchard, 2006; Sluder, Buchanan, & Sinelnikov, 2009). Hastie et al. (2009) compared two groups of fifth grade students with one group participating in a sport education season and the other group representing the control group. Student in the sport education group completed a 15-lesson season called Obstacle Course Fitness. The class met three days a week with the schedule the same for each week.

- Day 1- direct teacher instruction was implemented and practice centered around a fitness component.
- Day 2- consisted of team training, where teams went to different stations to work with different fitness equipment.
- Day 3- of each week was for competition. One team would explain the rules, demonstrate the obstacle course and then officiate the competition.

Students in the control and intervention groups completed the Progressive Aerobic Cardiovascular Endurance Run (PACER) one week prior to and one week after completing the study. Results for the study indicate that there was a significant difference between the groups on the number of laps ran and the number of students in the healthy fitness zone. These results indicate that implementation of the sport education model can have a significant impact on the cardiovascular fitness of secondary school students. The strength of the study is based upon the interpretation of the goal of sport education. A competent sportsperson “has sufficient skills to participate in games and activities satisfactorily” (Siedentop et al., 2004, p. 8). The results of this

study indicate that the students have significantly improved in the area of cardiovascular endurance.

A literate sportsperson is one who has an understanding of the purpose and goal of sport. Whether it is as a participant, spectator or fan, a literate sportsperson seeks to ensure that sport or activity programs are safe and educate children on the importance of positive values. Many of the sport education objectives (Siedentop et al., 2004) are focused on the literate sportsperson;

- *Share planning and administration of sport experiences*
- *provide responsible leadership*
- *work effectively within a group toward common goals*
- *appreciate the rituals and conventions that give sports their unique meanings*
- *develop the capacity to make reasoned decisions about sport concerns*
- *develop and apply knowledge about umpiring, refereeing, and training*

Of the 10 sport education objectives, six relate specifically to the development of a literate sportsperson. In a traditional physical education classroom, students rarely have the opportunity to make decisions relative to play, rules, coaching decisions, etc. In a sport education model students receive the following opportunities; to fulfill a role related to the administration of sport, provide leadership through coaching, work with teammates to fulfill goals, to understand the importance of showing good sportsmanship to fellow classmates, how to manage conflict, and to have the capability and knowledge to officiate a game. Studies on the impact of sport education creating “literate” sportspersons have shown positive results.

Hastie (1996), when studying student role involvement with sixth grade boys, found that during the season students exhibited more on task behavior while being involved with their roles, an increase in accuracy in their officiating calls, and an increase in accuracy of their duty roles



over the course of a season (from pre-season to competition). One limitation mentioned by the author is that the study was completed with only one class and that it was a same sex class. In addition to the increased success in refereeing, students have also had a positive experience when introduced to the role of refereeing (Carlson & Hastie, 1997). Students stated a better understanding of rules due to the fact that they were expected to referee and that more games were played in a sport education unit. Students also discussed have a greater appreciation for the role of coach and teacher and that teams were much more effective at listening to one another's ideas and thoughts. Finally, due to the length of time spent with teammates, students developed relationships with one another and had a more defined understanding the word team.

Hastie and Sharpe (1999) wanted to study the changes in the positive social behavior of at-risk children who participated in a sport education season. Behaviors of interest included agreement with referees and captains decisions, interactions with classmates, and statement of leadership that were observed. Twenty seventh and eighth grades boys participated in a sport education season of modified football, called Kangaroo Ball. This game was chosen because of the difficulty of rule interpretation and the fact that the student's would represent novice officials for the game, which can lead to disagreement. The hope was that the scenario would offer the teacher opportunity to teach positive social behavior. Each lesson was recorded and data was collected on behaviors related to compliance, resistance, leadership, conflict, positive peer interaction, negative peer interaction, and "hot-dogging". Results show that desired behaviors increased with the introduction of fair play before the formal competition. Conflict, negative peer interaction, and "hot-dogging" all decreased during the formal competition stage of the season. A desired result also occurred with leadership and positive peer support as both increased during

the formal competition stage. The authors concluded that a curriculum which places an emphasis on positive social actions can impact positive student behaviors.

Hastie and Buchanan (2000) found that sport education can produce a literate sportsperson when combined with another model of teaching. Hellison (1995) provided a model that helps teach responsibility through physical activity. Using levels as benchmarks, students are able to classify their behavior as ranging from irresponsible to helping others. Throughout the sport education season scenarios were created where students would have to work with one another to accomplish a task. For example, during the pre-season teams would ask other teams to play. Before play would begin teams would complete an agreement contract where format and rules of play would be discussed. Students in this study became more literate because modifications could be made and players could experiment with scenarios to create the best method of play.

MacPhail, Kinchin, and Kirk (2003) wanted to understand the idea of sport and sport education held by fifth grade students. The students participated in a game which was adapted from netball and basketball. The object of the game was to score a point by bouncing a ball in a hoop that was placed behind the baseline of the court of play. Data collection was in the form of interview and drawings. Students were asked to draw a picture that best represented their experience of sport education. Results showed that there was a consistent understanding of sports among the students. Furthermore, the authors believed that participation in a sport education season can have a positive impact on the awareness and participation of sport outside of the school. In practical terms, to create an idea of sport which is free of negativity and offers students the opportunity to gain knowledge of the overall game.

Sinelnikov and Hastie (2008) examined how a group of ninth grade Russian students would respond to a sport education experience. Of particular interest to this study was the method of learning that was instilled in most Russian classrooms. Teacher directed instruction with very little group work or discussion among students was a common theme. Work was completed individually and decisions were frequently made by the teacher. The authors wanted to see how students would respond to a curriculum which included group work, cooperation between students, peer instruction and student responsibility. Data collection consisted of video recorded lessons, student journals, and group and individual interviews. In regards to managerial tasks, results showed that student took pride in their given roles. Students also showed an interest in instructional tasks. For most instructors of sport education, officiating can sometimes present a challenge. Students in the study were serious about their role as an official and fair play was evident not only by the officials, but also by the participants. The study produced some significant results as it relates to the student social tasks. One team took advantage of extra time by strategizing about their upcoming game, another team wore their team t-shirts as they gathered together over the weekend. Before the introduction of the sport education season, some of the higher skilled students normally dominated the opportunities that were available during class. However, during the study it was observed that this dynamic no longer existed. The students embraced the team affiliation feature of sport education and took responsibility for their individual roles.

An enthusiastic sportsperson seeks ways to maintain a healthy lifestyle. They are interested in activity and actively seek opportunities to be involved in sports or physical activity. One of the objectives of a sport education season is to *become involved in sport after school and*

*outside of school* (Siedentop, 2004). Most students choose to be involved in sport after, or outside of, school, because they find it to be fun.

Carlson and Hastie (1997) found that students enjoyed the opportunity to work together as a team, the increased interaction time with other classmates and some students found winning, although not as much as having fun, contributed to the fun of sport education. Hastie (1998c) found that girls enjoyed their sport education experience more than their regular physical education experience. Some factors contributed to this response:

1. A longer season-a 20-lesson season of floor hockey was implemented compared to the typical 10-12 lesson unit that was usually experienced. The extra lessons gave each student more opportunity to practice their skills.
2. Consistent team membership-the girls enjoyed the experience of being on the same team for a lengthy period of time. They also felt they were important to their team.
3. More involved with class management-the girls liked the opportunity to take roles other than player. These roles led to a better understanding of the game.

According to Hastie (1996) sixth grade boys stated their reasons for enjoyment during a sport education season:

1. The students really enjoyed taking on duty roles.
2. More opportunity to practice and compete was available compared to previous units of learning. Students liked the fact that more students were active compared to sitting and waiting to play.
3. Increased involvement, particularly with lower-skilled students. In order for one's skill to develop, opportunity must be available. In a traditional setting, higher-skilled students

can easily “take over” a game, which decreases the number of touches for other members of the team.

Siedentop (2002), in his retrospective of sport education, shares a story on the enthusiastic sportsperson. In the summer of 1983, Siedentop conducted a workshop on sport education at Ohio State on the sport education curriculum and instructional model. One of the students at the workshop was an elementary physical education specialist who took the model and implemented it into the fall curriculum. The student turned out to be the first sport education practitioner. One of the first two sports chosen for a season was gymnastics. During practice for the first competition, the floor exercise, the power of the model to motivate students to practice and learn were realized. Many of the students asked the teacher for more time to practice their floor exercise for the competition. The teacher informed the students that the gymnasium would be opened two days a week, 45 minutes prior to the beginning of school for students to receive extra practice time for the competition and that attendance was strictly voluntary. Of the four fifth and sixth grades classes that were participating in the sport education unit, over 70 students took advantage of the extra practice time. The gymnastics competitions were videotaped, originally for the purpose of assessment. But when students began asking to take the videotapes home, the excitement to share their accomplishments with family and the opportunity to share knowledge of what was learned in the classroom was exposed. The example shared by Siedentop in this article gives a clear example of what an enthusiastic sportsperson represents, one who is excited about being active and takes advantage of opportunities to be active whether they are in or out of school.

Wallhead and Ntoumanis (2004) created a study that assessed the effectiveness of a sport education intervention in enhancing students’ enjoyment, perceived effort, and perceived

competence in physical education. Participants for this study included 51 high school boys who were split into two groups; a group was taught using the sport education model (eight 60-minute lessons) and the other group was taught using a traditional approach of teaching. Using different measures for determining significance, results showed that the sport education group reported higher post-intervention enjoyment and perceived effort than those taught with the traditional approach. Results also indicated that perceived autonomy can have a positive impact on one's motivational outcome. In turn, this increase in motivation can have a direct impact on the physical competence of different sports activities.

MacPhail, Gorely, Kirk and Kinchin (2008) interviewed fifth grade students in a United Kingdom school to determine their experiences of participating in a 16-week sport education season. Students interviewed found the sport education model to be fun and enjoyable. Another source of enjoyment was a feeling of affiliation and being part of a team. This confirms the findings of a previous study on the importance of team affiliation in a sport education model (MacPhail, Kirk, & Kinchin, 2004). Students appreciated the opportunity to work for an extended time with the same group. Team affiliation also led to greater opportunities to get to know people and more positive outcomes such as learning more about an individual. Students also showed an appreciation for the autonomy that was created by the number of different roles that they were asked to practice. Finally, students showed an interest in competition. Specifically, students wanted to work hard to be playing in the final match. One interesting finding from this study showed that students demonstrated a significant decrease in ego orientation pre-to-post-sport education. Students were more likely to define success in terms of team accomplishment. These results show that competition can be a healthy motivator for students if used properly by the teacher.

Sport education has been proven to be effective for children with visual impairments (Fittipaldi-Wert, Brock, Hastie, Arnold & Guarino, 2009). Based on the findings from the study, students received benefits in ways that had never been experienced. Students enjoyed the opportunity to participate in an authentic sports experience. Other areas of enjoyment include being a part of a team, increasing in their knowledge of sport, playing in a complete game, and the experience of festivity provided a lot of excitement for the students. More importantly, sport education provided a way to motivate students with visual impairments to be physically active and to lead a healthier lifestyle.

Some studies have examined the benefits associated with implementing the sport education model (Alexander, Taggart, & Luckman, 1998; Dyson, Griffin, & Hastie, 2004; Hastie, 1998b). According to Hastie (1998b), through participation in a sport education model, benefits can occur for students and also teachers, which can lead to an increase of enjoyment for the student.

### *Students*

- *Investment*-As students become more skillful, they are given increased levels of responsibility within their teams. The creation of roles creates a system of accountability within each team. Students enjoy the amount of time to have fun and socialize with friends that is established with sport education.
- *Learning*-Both low and high skilled students gain opportunities for advancement based on the amount of time of active learning. Students also become more literate about the sport they are playing due to the non-playing roles such as officiating, manager, coach, statistician, etc.

- *Opportunities for potentially marginalized students*-In a traditional setting, girls and low-skilled students typically will receive less opportunity compared to students of higher skill. Using a sport education model, Hastie (1998c) showed that girls received equal practice and playing opportunities as boys during the course of a middle school hockey season. Alexander, Taggart and Thorpe (1996) found that lower skilled students may benefit from participation in a sport education season.

### *Teachers*

- *Freedom from Direct Instruction*-In a sport education setting the managerial tasks are removed from the direct control of the teacher. Tasks such as leading the team warm up, gathering equipment, and conducting the practices are usually directed by a student. This new found freedom offers the teacher more time to offer feedback, give individual instruction, and assess the performance of individual students. The new freedom provides students with more opportunity for instruction which may lead to an increase of skill.
- *Opportunity to focus on student behavior*-A sport education model gives a teacher the opportunity to reinforce any behavior through the point system used at the end of a competition. Points can be earned by exhibiting behaviors such as showing respect to officials, using positive reinforcement with teammates, etc. The newly formed positive environment can allow students the freedom to enjoy the benefits that come from participation.

Other studies have found potential benefits that the sport education model can provide teachers. One attraction for Australian teachers is its effectiveness of catering to high and less skilled students, girls, and students with behavior problems (Alexander & Luckman, 2001). Brunton (2003) found that sport education enabled teachers to spend more time observing,



assessing, and praising students. These are very limited when a direct style of teaching is implemented. Some studies discovered that a number of students preferred student coaches over teaching instruction (Carlson & Hastie, 1997; Hastie, 1996), which can also offer less time for the teacher to be in control. Teachers also identified greater attention and motivation levels of most students during a sport education season when compared to previous units of physical education (Pill, 2008). Grant (1992) reported that due to an increase of enthusiasm from students, teachers became strong supporters of the sport education model even though there was strong resistance before implementing the model. Hastie (2000) summarized his study by showing that in a traditional style of teaching, much time will be spent in managerial procedures by the instructor. However, when implementing the sport education model more help is given through the student social system. Students become more involved in the management of the class and give more input in the decision making process. The assistance frees the teacher to spend more time with student assessment and helping students with their individual skills. The studies in this section reflect the feelings of the teacher. The definition of an enthusiastic sportsperson has no mention of the teacher, only the student. However, these feelings revealed by the teachers can have a direct impact on the enthusiasm and motivation of the students.

Some of the articles discussed in this paper address only one area of the sport education goal. However, it is important to understand that studies can report significant findings that address the overall goal of sport education.

#### Developmentally Appropriate

Imagine the following scenario in a physical education classroom. The physical education teacher is preparing to teach a unit on basketball to a fifth grade classroom of about 20 students.

For this unit the teacher believes that the students would enjoy practicing the skills of dribbling, shooting, and game play. One alarming limitation for the teacher is the availability of only two basketball goals (10 feet) and 10 adult sized basketballs. During the instruction on dribbling, students pair up and take turns dribbling a ball that frequently gets away from them. The instructor then proceeds to introduce them to a game called “knockout”, where one student shoots the ball from the free throw line with the intention of making the shot before the next person in line makes a shot. If the next person in line makes it before the first person, then the first person is out. Finally, the class plays a game of full court basketball where there are five students playing for each team. The remaining members of the team sit and watch, as well as the teacher who seems more interested in reading the paper. Unfortunately, this scenario is a depressing example of how a physical education classroom may appear. What do you think the outcomes on this unit of basketball will be for the students? Do you believe that the students received a lot of physical activity or active learning time? Was the equipment appropriate for a fifth grade student? Were there opportunities for the students to succeed? Did the physical education teacher look out for the best interest of the student? Probably of most importance, do you think the students would be motivated to be physically active after having participated in this unit?

The National Association for Sport and Physical Education (NASPE) “believes that every child in the United States deserves a quality physical education and needs physical activity, whether that activity occurs within a formal program or is outside the classroom at recess, through intramurals or in recreational play” (NASPE, 2010, p. 10). So what constitutes a quality physical education program? Physical education is defined as a “program that is designed to lead youngsters to a lifetime of physical activity” (Graham, Holt-Hale, & Parker, 2010, p. 5).

Therefore, NASPE (2004) believes that a quality physical education program should include the following components;

- Opportunity to learn-NASPE believe that each elementary child should have physical education for no less than 150 minutes per week, while a middle and high school aged child should receive 225 minutes per week. It is also important that physical education be delivered by a qualified teacher. In order to provide a quality physical education curriculum, each school needs to contain appropriate equipment and facilities that accommodate learners.
- Meaningful content-instruction should focus on enhancing the development of a child's physical, cognitive, and affective domains. A program should also focus on equipping children with the knowledge and physical ability to participate in physical activity throughout one's life.
- Appropriate instruction-in a quality physical education curriculum all students should receive maximum opportunities with well-designed lessons that facilitate learning. Students should be encouraged to engage in physical activity both in and out of school. Teachers should consistently assess the performance of children and offer feedback to help with understanding and execution. In order to be a productive teacher, one must reflect on their performance as a teacher. Reflection offers teachers a way to improve in their ability to deliver the curriculum and provide students with a positive learning experience.

Pangrazi (2004) believes there are many benefits that a child can receive from participating in a quality physical education program.

- Activity- the majority of the school day offers very little moderate to vigorous activity. A quality physical education program offers the student the opportunity to be active.
- Lifetime activity-a quality program can offer enjoyment and the desire to maintain a healthy lifestyle throughout life.
- Awareness-a quality program can teach children the dangers of obesity.
- Academic performance-physical education classes may have a positive impact on the academic performance of children.
- Skills-a quality physical education program can teach the skills necessary to participate in sports and leisure activity and possibly remain active as an adult.
- Health benefits-a quality program can provide students with a variety of health benefits, both short and long term.
- Transition-by participating in a quality physical education program, students are encouraged to be active and engage in lifetime physical activity. This trend increases the possibility of children being active as adults.

In addition to these benefits, Le Masurier and Corbin (2006) believe there are additional reasons for quality physical education. A program that provides regular physical activity helps prevent the risk of disease (CDC, 2003). Preparing students to manage their physical activity is another reason for quality physical education. As students' progress through school, one must be equipped with the ability to evaluate their lifestyle as it pertains to physical activity. Through incorporating methods such as setting goals, planning an activity program, and being able to evaluate their overall fitness levels, one will be better prepared at maintaining a healthy lifestyle. A quality physical education program also makes economic sense. With the rise in obesity rates, more and more money is being spent on health care. With more education and proper methods of

adding activity to the daily routine, money can be saved. Due to all of the benefits that come with physical activity it should be no surprise that many organizations are in support of a quality physical education program (NASPE, 2010), as well as most parents. However, with more concerns being linked to inactivity, quality physical education programs can promote interest in the communities. Finally, the authors state that a quality physical education program can educate the whole child. Based on the national standards of physical education (NASPE, 2004) opportunities to teach to the physical, cognitive, and affective domains are available in a quality physical education program.

In order to implement and maintain a quality physical education program, teachers must teach skills and concepts that are developmentally appropriate. Developmentally appropriate practice requires a teacher to have knowledge of the ability of a child and assisting them to accomplish challengeable, yet achievable, goals that will aid in their developmental progress (Bredekamp & Copple, 2009). A developmentally appropriate physical education program provides opportunities to children regardless of age, size, skill ability, and previous learning experiences (COPEC, 1992). Graham et al. (2010) believe the following components are critical to a developmentally appropriate program.

- Children develop at different rates-a poor physical education teacher will teach a skill theme to a class and make no adjustments for different abilities. A quality physical education teacher will make adjustments to the lesson, or activity, so that more opportunities for success are available.
- Age does not predict motor ability-to develop a skill one has to have opportunity to practice (Coker, 2005; Derri, Emmanouilidou, Vassiliadou, Tzetzis & Kioumourtzoglou, 2008). A professional player doesn't become great because they are aging, they become

great because of their dedication to becoming better at the sport or skill. Teachers have to be aware that children of the same age will most likely have different skill ability.

- Children develop motor skills naturally through play-with less time being devoted to play, the opportunity to be active has also declined. A developmentally appropriate physical education program maximizes the opportunity for children to participate in structured and informal play.
- The myth of the natural athlete-the unique thing about physical education is that through participation of a developmentally appropriate program, all children have the same opportunity to excel. Through appropriate instruction and opportunity to practice, all children can improve in their physical ability.
- Differences in physical abilities between boys and girls-all instructors must remember that regardless of gender, all children have the potential to succeed when participating in a developmentally appropriate physical education program.

In addition, Barrett, Williams and Whittall (1992) believe two things are critical to implementing a developmentally appropriate physical education program. First, teachers must be able to assess the movements of children. Teachers can prepare great lessons and instruct students in a way that is easy to understand. But what if the teacher is unable to recognize quality performance? It is important to assess students appropriately so that productive feedback can be given to the student. Rink (2006, p. 159) stated that “effective teachers are active teachers who are actively engaged in promoting learning”. Second, teachers must have a clear understanding and purpose of the task before providing instruction to the students. Consider a lesson where the purpose is to teach a child how to catch an object. When the activity begins, the teacher realizes that many of the students are not experiencing a lot of success. If the purpose is to “catch” an object, then a

few things may need to be modified. The object being thrown, the distance it travels, the size and weight of the object, the placement of the hands before attempting to catch, visual contact with the ball, etc. are all factors that can assist a child with experiencing more success. As a teacher, it is a gratifying feeling when children experience success. Teachers in a developmentally appropriate program need to be prepared for learning situations that can occur.

### *History*

In 1990, a committee was formed to examine a document created by the National Association for the Education of Young Children (NAEYC) which addressed the term “developmentally appropriate”, as it applied to education for young children (Graham, 1992). The committee formed was known as the Council on Physical Education for Children (COPEC). Their mission was to create a goal statement which described both “developmentally and instructionally appropriate and inappropriate practices in physical education” (Graham, 1992, p.30). This initial goal statement would provide physical educators everywhere a format to follow as it applied to developmentally appropriate physical education. From this, many documents and research articles would be published related to the developmentally appropriate theme.

In August of 1992, JOPERD devoted a portion of their journal to the topic of developmentally appropriate as it relates to physical education. Many different ideas related to this concept were shared in this particular issue. The idea stemmed from the number of inappropriate practices that were being used in the physical education classroom. Following is a summary of the articles presented in the August issue.

Bredenkamp (1992) stated that the NAEYC definition focused on what is age appropriate, as well as individually appropriate. Educators were provided with an understanding that

knowledge of the curriculum being presented is important. Teachers face the task of helping students develop physically, cognitively, and socially. Along with this, teachers must be prepared to teach children of different age, ability and size. The second part of the definition allowed teachers to be able to reflect upon their teaching. As teachers it is easy to believe that “what” you are teaching is appropriate. The definition provided a foundation for other “appropriate practices” documents to be created. The goal of developmentally appropriate ideas is to strengthen the physical education classroom.

Grineski (1992) believed that a developmentally appropriate physical education program was based on three principles. First, skills taught in a physical education classroom are progressive. That is, one skill will offer a student the opportunity to accomplish a more difficult task. Today, physical education curriculum books of different teaching models provide teachers with a scope and sequence. Its purpose is to give teacher a progression to follow as it relates to skills. Second, all children will follow the same sequence. Based on previous experience some students may be more or less skilled. Even so, students will follow the same sequence and may eventually arrive at the same place at the same time. Finally, teachers must be able to adjust and adapt to the ability of the student. One must be flexible when teaching skills, so that modifications can be made for students of different ability.

Petersen (1992) built off of the idea of sequencing and established four rules to consider when creating learning opportunities for a developmentally appropriate physical education program. First, we must understand a child’s motor development. Payne and Issacs (2007) define motor development as “...study of changes in human motor behavior over the lifespan...” (p. 2). An understanding allows a teacher to develop plans of teaching more appropriately. Second, we must provide instruction for each individual. A difficult task for teachers, because of time and



the number of students' is to properly instruct each student. However, if done correctly, individual instruction can be quick and provide students an option when it comes to completing a task. Third, teachers have to avoid teaching the same lesson to students in multiple grades. What may be considered appropriate for a fifth grader may prove to be difficult for a child from a different grade. Students want to be challenged! With proper preparation the presented task can provide to be challenging and appropriate. Lastly, it is important to consider the delivery of task at all levels. A goal for a teacher is to build off of each activity. With proper sequencing student learning can increase in knowledge and become a more proficient games player.

The journal also included articles related to developmentally appropriate practices for specific sports or activities (Allsbrook, 1992; Rikard, 1992; Schwager, 1992; Werner, Sweeting, Woods, & Jones, 1992), the affective domain (Weiller, 1992), and choosing games (Williams, 1992). Rikard (1992) stressed the importance of creating maximum practice opportunities and modifying activity when teaching gymnastics. Modification will provide students with choices on how to accomplish a task instead of the potential of being embarrassed in front of their peers. Fitness components can provide physical educators with an opportunity to increase activity and improve a child's overall health. Unfortunately, the teaching of fitness components is sometimes inappropriate and may be used as punishment for children (Allsbrook, 1992). Fitness can be fun for children if it is appropriately implemented into a curriculum. A developmentally appropriate physical education program can also positively impact a child's affective domain (Weiller, 1992). A physical education teacher has a great opportunity to provide a "feeling of belonging" to all students. Children love to do things with their friends. In other words, they like being part of a group. Imagine being in a situation where everyone has a piece of equipment except one student. How would that student feel? Teachers need to provide sufficient equipment so that

everyone can be a part of the activity. Another way of having a positive impact on the affective domain is by increasing the competence of a child. It is important to have opportunities to succeed in physical education. Most people have played a game that they would consider to be difficult. Teaching developmentally appropriate activities give students the opportunity to experience success. Can you imagine trying to throw a ball to a target the size of an orange that is 20 feet away? If the anxiety of a student can be decreased, focus can be given to increasing the competence of a child. Games are taught in physical education that may provide very little, if any, educational value. Williams (1992) created the “Physical Education Hall of Shame” which includes these types of game or activities. Dodgeball, duck, duck, goose, kickball, relay races, etc. are a few of the games that have received this title. These games were included because of the potential they have to encourage elimination, lack of physical activity, embarrassment to students, dislike toward classmates, etc. More importantly, these games are considered to be “time fillers”. Teachers will use them in their curriculum because of laziness and lack of desire to teach developmentally appropriate activities.

In 1995, the national standards for physical education were introduced (NASPE, 1995). Input was received from leaders in the field of education, including other subject areas and physical education. These standards were created with the purpose to provide physical education teachers a framework from which to work. Teachers could use the standards to create a more appropriate curriculum and provide more appropriate instruction to the students so that expectation levels could be met at each of the levels addressed. The standards also provided a way to assess the work of the students and the teacher. In 2002, a committee was formed to review the physical education standards and suggest changes or corrections that they believed would enhance the quality of the standards. From this *Moving in the Future: National Standards*

*for Physical Education* (2004) was created. The process of evaluating physical education standards continue today as a third edition was created in 2009.

Other documents have been created to assist teachers in being able to provide developmentally appropriate activities to students. The first edition of *Appropriate Instructional Practices Guidelines for Elementary, Middle, and High School Physical Education* was published in 1998. The goal was to provide teachers with examples of appropriate and inappropriate practices so that quality physical education programs can be produced. By implementing a quality program, students have the chance to become physically educated. The third edition to this series has been published.

Stork and Sanders (1996) presented the idea of a developmentally appropriate physical education rating scale. The purpose of the scale was to provide teachers and administrators a way to evaluate the different elements of their physical education program. NASPE created a very similar document known as *Opportunity to Learn: Guidelines for Elementary, Middle, and High School Physical Education*. This series gives teachers, principals, and school districts the opportunity to evaluate their physical education program to see if quality physical education is being delivered to students. In addition, other documents are available that pertain to assessment, advocacy of physical education, and physical activity guidelines.

### *Discussion*

Researchers have conducted studies on the theme of “developmentally appropriate”. The following studies will show a variety of ways that developmentally appropriate practices can be beneficial to children.

Studies have shown the importance of developmentally appropriate equipment for children. In regards to the opening scenario of this paper, it would be difficult for an elementary

child to dribble an adult sized basketball. Their hand could possibly be too small to control the direction of the ball. Thus, most of the time would be spent chasing after the ball instead of actually practicing the skill. The size of a ball can have a direct impact on the skill development of a child (Burton, Greer, & Wiese, 1992). Barrett et al. (1992) believe that in order to have a developmentally appropriate program, that all children should have a ball in their hands during activity. Also, the equipment should match the developmental needs of the child. Since inclusion is a part of the physical education classroom, consideration should be given to students with disabilities (Reeves & Stein, 1999). The size of the ball, the weight of the ball and the motor ability of the child should all be considered. In addition to equipment, Helion and Fry (1995) went on to add that modifications can be made to the playing area, time allowed, and the actual task.

Mitchell and Griffin (1994) believe that tactics can be learned by using a developmentally appropriate approach to teaching games. It's obvious that in the game of basketball one team must score more points than the other team. During the course of a game an individual may make very little direct contact with the ball. Because of this, students must learn to be effective in other ways such as moving without the ball, getting open shots, using appropriate defensive strategy, etc. For a team to be successful a player must become more efficient in these areas. In order to make correct tactical decisions, students must be able to perform the necessary skill. Therefore, skill development and tactical decision making can complement one another. Students can be introduced to game situations and practice and instruction can be given to the development of skill and tactical decision making.

#### Autonomy

Motivation consists of energy, direction, persistence, and all aspects of intention and activation to perform a behavior (Ryan & Deci, 2000). Teachers are challenged with their method of motivating a student. Deci, Vallerand, Pelletier, and Ryan (1991) believe that people who are extrinsically motivated “perform not out of interest but because they are believed to be instrumental to some separate consequence” (p.328). The “consequence” can be many things. For students, it can be trophies, certificates, or even money. When intrinsically motivated, people choose to be involved in an activity because of their own interest, not because of the possibility of a reward (Deci & Ryan, 1985).

Self-determination theory (SDT) focuses on how an individual is self-determined and self-motivated (Deci & Ryan, 2002). SDT addresses the issue of energy that is present in human life. It directly looks at how each individual decides to use the energy that is available towards the psychological needs of everyday life. Those needs identified in SDT are composed of three different sources of self-motivation used by individuals; autonomy, competence, and relatedness.

-*Autonomy* involves feeling internal agreement regarding one's behavior rather than feeling controlled or pressured.

-*Competence* involves feeling efficient and effective in one's behavior rather than incompetent and ineffective.

-*Relatedness* involves feeling meaningfully connected to others rather than feeling alienated or disliked.

These three branches of motivation are what constitute SDT and identifies what directs students' to reach autonomy, competence and relatedness in life. According to SDT, no matter how someone is motivated, it can be linked to one of the three categories. SDT, as it applies to the field of education, is concerned with instilling in children an interest in learning and more

importantly, competence in their own abilities (Deci et al., 1991). A goal for physical education is to increase competence in one's physical skills and to engage in regular physical activity (NASPE, 2004). In order for this to occur a teacher plays a significant role in the intrinsic motivation of students.

A teacher who implements autonomy supportive procedures versus a controlling style offers a student numerous benefits (Reeve, Bolt, & Cai, 1999; Reeve, Jang, Carrell, Jeon & Barsh, 2004). They choose to teach and motivate by listening, providing time for independent work, and asking questions that lead the student to higher order thinking. An autonomy supportive teacher provides positive instructional feedback and values the opinions of the student (Shen, McCaughtry, Martin, & Fahlman, 2009). They provide information to the student, yet allow them to create solutions on their own. A teacher who seeks to create an autonomy supportive climate can foster intrinsic motivation in students (Mandigo, Holt, Anderson, & Sheppard, 2008) which can result in positive learning outcomes (Ntoumanis, 2001). Intrinsic motivation combined with perceived competence has shown to increase the physical activity of students in a leisure time setting (Ommundsen & Kvalø, 2007).

Teachers are always searching for the best possible learning environment. A high autonomy climate can provide children with choices of activities and will allow students to modify games or even establish a new set of rules. Tjeerdsma (1995) identifies a few ways that teachers can provide students with a sense of control; choosing the equipment, choosing partners or group, decide whether to keep score, decide on the type of game to be played, pick a method of starting a task or game, etc. Kilpatrick, Hebert and Jacobsen (2002) add that providing a rationale for the activity can facilitate a sense of autonomy and empowerment for the student. Teachers are also more willing to incorporate autonomy in their classroom when they realize the

benefits that can occur for the students (Tessier, Sarrazin, & Ntoumanis, 2008). Bryan and Solmon (2007) offer advice to physical education teachers to promote higher levels of physical activity. They believe teachers should seek ways to provide autonomy to their students and that students are more intrinsically motivated if teachers are compassionate and considerate towards students. This promotion of autonomy can increase a students' desire to participate because they want to, not because they have to, which often occurs in a controlling classroom climate. A high autonomy climate can provide the environment that can be beneficial to a student regardless of ability. The following review of literature look at how high autonomy climates in physical education can promote motor learning and the motivation to participate in lifetime physical activity.

Hagger, Chatzisarantis, Culverhouse, and Biddle (2003) wanted to examine how people transfer motivation from physical education classes into physical activity outside of the school. To explain this process the authors proposed a theory known as the trans-contextual model. This model uses “a unique multi-theory approach, adopting constructs from two social–cognitive models of motivation—self-determination theory (Deci & Ryan, 1985, 1995, 2000) and the theory of planned behavior (Ajzen, 1985, 1988, 1991)” (Hagger et al., p. 784). Results from this study did produce some interesting findings. First, intrinsic motivation in a physical education context was found to have had an impact on identified regulation in a leisure time context. Identified refers to behaviors that are considered important, but not necessarily enjoyed. Second, there was a small direct impact of perceived autonomy on the leisure time activity of people. This is significant because it indicates that when a classroom environment produces opportunities for autonomy, a positive impact can be made on physical activity levels outside of

school. Finally, the trans-contextual model did have a significant total impact on the leisure time physical activity behaviors of students.

A study by Standage, Duda, and Ntoumanis (2003) also focused on the intention of students to participate in physical activity outside of the school. 328 English students responded to items on a questionnaire related to motivational climate, perceived competence, autonomy, relatedness, motivation and the intention to participate in leisure time physical activity. Findings indicated that students received more benefits from an autonomy supportive climate that was low in controlling features. The authors believe that teachers should implement autonomy supportive and mastery climate to facilitate self-determination motivation. Students who were self-determined were also more likely to participate in leisure time physical activity. In a similar study Lim and Wang (2009) found that perceived autonomy support in physical education motivates students to be physically active outside of school and may result in an increase of activity. The authors believe that in order for these benefits to continue teachers must seek ways to increase choice (variety of choice), provide opportunities for student input (decision making) and recognize student concerns so that teachers may provide assistance. All of these elements are vital to receiving the benefits of an autonomy supportive climate.

Mandigo et al. (2008) looked at the motivation of students after participating in a games lesson which included autonomy supportive teaching techniques. The authors used the Teaching Games for Understanding (TGfU), which focuses on tactics in games, model as their foundation and combined it with autonomy supportive techniques. This combined model was known as Teaching Autonomy Supportive Games (TASG). The TASG model was based on four teaching strategies which were found to enhance learning (Reeve, 2002); (1) showing support to students by providing feedback about performance, (2) were responsive to students by listening to them,



(3) gave flexibility to the students by allowing them to work on their own, (4) attempted to motivate student by intrinsic means. A questionnaire was completed by each participating student at the end of the TASG lesson. Questions were compiled from existing questionnaires related to the challenge of the activity, intrinsic motivation, competence, autonomy, relatedness, and open-ended questions. Results from this study revealed that an autonomy supportive model can promote an increase in the intrinsic motivation of students. The authors believe that an increase in intrinsic motivation may improve the engagement of children in physical education classes.

The influence of SDT on student learning and fitness improvement has also been studied in the physical education classroom (Shen et al., 2009). Autonomy support was examined using a 14-item multiple choice test used for learning achievement and the progressive aerobic cardiovascular endurance run (PACER) was used to measure cardiorespiratory fitness. A pre-and-post test for learning achievement and cardiovascular fitness was conducted during the same period of time. Results from the study revealed a number of significant issues related to a high autonomy climate within a physical education class. The autonomy support from the teacher and the autonomous motivation from students can promote learning in physical education. Furthermore, an autonomy supportive climate can lead to greater cardiovascular fitness gains in students.

Chatzisarantis and Hagger (2009) wanted to examine the effectiveness of two teaching interventions: one that was autonomy supportive and one that provided less autonomy support. In the autonomy supportive intervention a teacher would provide students with a rationale, feedback, choice, and would acknowledge the difficulties associated with physical education. In the other intervention only a rationale and feedback were provided. 215 English students

participated along with 10 teachers. In the study five teachers were to adopt an autonomous interpersonal style, while the other five were to adopt a less autonomous style. Results showed that students who were involved in the first intervention were more likely to report autonomous motivation along with a greater enjoyment and better understanding of the importance of activity. In addition, these students showed an increase in being engaged in physical activity during leisure time. The students were asked to exercise four days a week for at least 40 minutes for the duration of the five week intervention. Students had to create leisure time activity programs, because no program was provided for them. The intervention, along with the autonomous motivational style, produced an increase in physical activity by impacting the intent to exercise outside of school. The study also provided support for including autonomy in the physical education curriculum to help with generating more physical activity during leisure time.

### *Mastery Climate*

Valentini, Rudisill, and Goodway (1999) used a physical education teaching model which is known as mastery climate physical education. The mastery climate physical education program holds a belief that the effort exhibited by a student can lead to a mastery of goals and hopefully more ability. Ames (1992) designed an intervention known as TARGET, which is designed to foster a mastery climate. TARGET is based on six different structures that are typical in an educational classroom;

- Task- instructional practices are designed with variety and individual challenge.
- Authority- students are included in the instructional process by being involved in the decision making process and developing self-management skills.
- Recognition- a focus should be placed on individual progress and improvement, a child's self-worth, and equal opportunity for rewards.

- Grouping- students should have a choice in grouping strategies and the opportunity to work with different people.
- Evaluation- students should be involved with self-assessment and feedback should be offered privately.
- Time- teachers should provide ample time for practice and learning. To ensure that learning takes place, a teacher must be flexible with their scheduling.

By providing students the opportunity to be involved in the learning process, providing them with choices, training them to monitor progress, etc. opportunity for autonomy is created.

Studies, which have examined the mastery climate versus a traditional setting, have provided positive results.

Theeboom, De Knop, and Weiss, (1995) examined the impact of a high autonomy climate on a six week university sports program. Participants were randomly assigned to either a traditional teaching climate or a mastery climate which promoted variety in choice, shared decision making, partner or small group exercises, and focused on effort and improvement. The sport of Wushu, which is a basis for Chinese martial arts, was chosen for this study. One of the reasons for choice was because of the inexperience with the sport among most students. Using a five point rating scale, students in both groups were judged by two experts in the sport of Wushu. Students were judged on the following skills; fluency of takeoff run, height of the jump, quality of leg movement, balanced landing, and intensity during execution. Results from the observation showed that students in the mastery group were half a standard deviation higher in motor skill performance than the students in the traditional group. Other factors were tested in this study that the authors suggest could have impacted the results. Students in the mastery group were found to have enjoyed the mastery climate which could have impacted the skill development results.

Although the study by Theeboom et al. (1995) did not take place in a physical education setting, it still provided positive results for physical education teachers. The national standards for physical education emphasize “demonstrates competency in motor skills and movement patterns...” (NASPE, 2004, p. 11). The study produced positive results in regards to the skill development of children.

Valentini and Rudisill (2004) studied the impact of a mastery climate and a low autonomy climate on the motor skill development of kindergarten children who were classified to show a delay in development. The participants in the study scored at or below the fifth percentile on the locomotor skills part of the Test of Gross Motor Development (TGMD). Some key features of the two different climates included low variety and challenge, no option to choose or modify rules, no choice on grouping, and a fixed time for tasks for the low autonomy group. The mastery group received high variety and challenge, option to change or modify rules, choice of grouping, and no time restraints on tasks. The TGMD was used given before and after the completion of the intervention period. Results from the study revealed that both groups improved in locomotor and object control skills, but the mastery climate group performed significantly better post-intervention in locomotor skills than the low autonomy group. A follow up study was conducted to test the motor skills of the same children six months after the intervention. All children who took part in the study were now in the first grade. All students participated in physical education classes that had a low autonomy climate. Results showed that students in the mastery group maintained their level of locomotor skill from post-intervention to follow up while the control group showed a decrease in skill development. For object control, there was no significant change in the mastery group from post-intervention to follow up, while a significant decrease in skill development occurred in the control group. The authors suggested

that a post-intervention increase in motor skill competence and perceived physical competence could have impacted the motivation of students to participate in physical activity behavior, which could have impacted the results of the follow up. These results indicate that a high autonomy climate can not only impact skill development, but it may also have a positive impact on the intrinsic motivation of students.

Another study looked at the effect of a mastery climate intervention on the skill performance of children in a naturalistic setting (Martin, Rudisill, & Hastie, 2009) Two schools participated in the study with one school implementing a mastery climate, while the other used a low autonomy climate in the physical education setting. The mastery climate consisted of the teacher introducing the skills needed for each station of play. Then, the students were allowed to move freely from station to station, they chose the amount of time to spend at each station and their task difficulty, and they were allowed to decide on partners. The low autonomy group followed a pattern that involved the teacher introducing a skill, students then practiced the skill for a set period of time until the next task was presented, and feedback was given to the group. The TGMD was used to test the skill performance of the children on three different occasions; at the beginning of the school year, after six weeks of regular physical education prior to the intervention, and at the end of the six week intervention. Results show that students from both groups improved in performance after the intervention, but only the mastery climate group showed significant improvement on locomotor and object control performance. Findings from this study enhance the findings of Valentini and Rudisill (2004) because the study took place in a naturalistic setting.

In a similar study, Robinson and Goodway (2009) examined the effect of two motivational climates (low autonomy, mastery climate) on the object control skill performance

of preschool children. Overall, 117 participants from two head start programs were used for this study. One site served as the intervention site, with preschoolers being placed in either the mastery climate or low autonomy group. The other site served as a comparison site for the study. The intervention for this study consisted of 18-30 minutes sessions devoted to object control skill performance. Each session consisted of a two to three minute warm up, 24 minutes of motor skill instruction, and a two to three minute closure. The skill instruction time was used differently in the low autonomy and mastery climate groups. The low autonomy group was provided instruction to the activity or skill and then given a demonstration. The students then had 12 minutes to practice the skill at a task progression level determined by the teacher. Students could only move to another level when decided by the teacher. The group repeated this process for the second 12 minute session. The mastery climate group had a different experience. During the motor skill instruction time, students were given the freedom to choose a skill, their level of difficulty, and the amount of time to devote to the task. The comparison group had unstructured recess for 18-30 minute sessions. The TGMD-2 was used to measure the skill performance of each participant. The preschoolers were tested at three different times; before the start of the intervention, after the completion of the intervention, and a retention test was given nine weeks after the completion of the intervention. Results revealed that both the low autonomy and mastery climate groups had a significant increase in scores from pre-test to post-test scores. The results also revealed that the comparison group showed no change in motor skill learning. The study shows that skill development can take place regardless of a low autonomy or mastery motivational climate.

## CHAPTER III

### METHODOLOGY

Research has produced positive outcomes in regards to the use of Sport Education. In physical education classrooms today, teachers will start implementing Sport Education as early as the third grade. Sport Education may offer benefits to younger children, yet very little research exists on the use of Sport Education in the primary grades. Therefore the purposes of the study were (1) to determine if students can work independently of the teacher, (2) to determine if fourth graders can play a “good game” without significant teacher intervention, (3) to determine if students’ can successfully officiate games, (4) to determine if students’ can manage the other organizational tasks associated with the season.

#### *Participants and Setting*

The study took place in a public elementary school located in Auburn, AL (population approximately 53,000). The school enrolled 472 students of which 16% received free school meals; and 89% had English as their first language. Students have physical education five days a week for 30 minutes each day.

The participants in the study were forty fourth grade students. The students were from two classes, one consisting of 10 girls and 10 boys, the other having 8 girls and 12 boys. Informed consent was obtained from all participants and their parents prior to the beginning of data collection, and the research protocol was approved by the university’s Institutional Review Board for Human Subjects Research.

The participants in the study did not have any prior experience with Sport Education. Further, the game that was played (Swirl Ball) was created by a previous class during a unit of

student-designed games. Therefore, all students were novice players due to their limited understanding of the game being played.

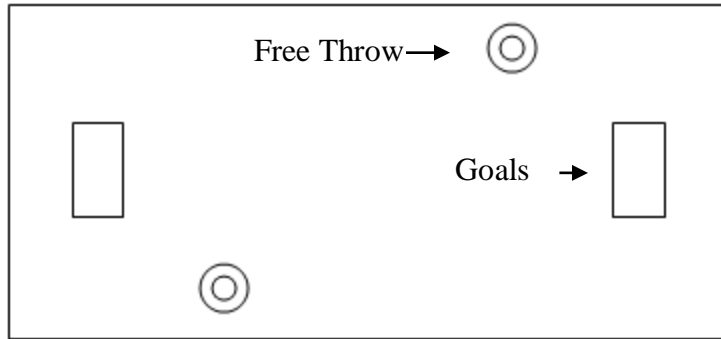
The teacher in the study had 12 years of teaching experience and 6 years of using Sport Education in the elementary setting. Due to the extensive experience of using Sport Education in the physical education classroom, no formal instruction on the model was given to the teacher for this study.

The facility in which the study took place was an indoor area with sufficient space to conduct two games at one time. An outdoor area is also available which provided enough space for all teams to practice during the Sport Education season. Equipment included small soft balls for throwing and catching, net goals for practice and games, and pinnies for game play.

#### *Season Plan*

Both classes completed an identical schedule. The season consisted of 13, 30 minute lessons. The game selected for the season was known as “Swirl Ball”, a game created by another class from the same school. In Swirl Ball, students attempt to throw a soft ball (yarn ball, etc.) into a floor hockey goal. Each team is composed of four players and one goalie. Students can pass the ball from player to player and can move three steps with the ball. However, if they are tagged by an opposing player, while holding the ball, they must drop the ball and the opposing team obtains possession. Teams are not penalized for incomplete passes. The ball may touch the floor during any possession. Another component of Swirl Ball is the free shot hoop. One hula hoop is placed about 10-15 feet diagonally from the goal at each end. If a pass is caught, from a teammate, while having at least one foot in the goal, the student receives a free shot to their goal. The game of Swirl Ball is continuous. If a goal is made, the goalkeeper will pass the ball to a teammate to resume play. Figure 1 provides a picture of a Swirl Ball court.





*Figure 1.* Swirl Ball Court.

Following typical Sport Education protocol, students were placed on teams at the beginning of the season. The teacher decided on teams based on previous knowledge of the students' ability. Students stayed with their respective teams for the duration of the season. The season began with skill practice where groups had the opportunity to practice with their teammates. Next, the students participated in a pre-season where they played practice games against other teams from the class. Teams then moved into a season of formal competition. The season concluded with playoff matches and an awards ceremony where students were recognized for their achievements. During the course of the season students served in roles such as officials, statisticians, trainers, and captains. Table 2 shows a complete outline of the 13 lesson sequence.

Table 2

Sport Education Swirl Ball Season Plan

Lesson	Content	Teacher Role	Student Role
1	Introduction Team selection, initial skill practice	Class leader	Participants Choose team name, select team role
2	Individual & team skill Practice	Class Leader Observation, Feedback	Participants
3	Individual & team skill Practice	Class Leader Observation, Feedback	Participants
4-6	Skill practice, practice competition, game roles and protocols	Discuss game roles, class protocol	Players, duty team roles
7-11	Formal competition	Facilitator	Players, duty team roles
12-13	Post-season, awards ceremony	Facilitator, master of ceremony	Players, duty team roles, participants

*Treatment Validity*

Validation of the teacher's instruction during the Sport Education season was tested through the examination of the presence of specific pedagogical behaviors (Sinelnikov, 2009). Table 3 provides a list of specific teacher behaviors that should be displayed by the teacher during a Sport Education season, and a cross-check of those behaviors observed in this study. Consequently, it can be considered that this particular season was an accurate and adequate representation of Sport Education as conceptualized by Siedentop (1994).

Table 3

Demonstration of Sport Education Specific Pedagogical Behaviors During the Season

<i>The Benchmark Element</i>		<i>Planned</i>	<i>Actual</i>
The teacher plans the unit around the principle of a “ <b>season</b> ”	Management/Organizational phase	✓	✓
	Team selection phase	✓	✓
	Pre-season scrimmage phase	✓	✓
	Regular season phase	✓	✓
	End of season event	✓	✓
The teacher promotes the “ <b>affiliation</b> ” concept	Students involved in the process of team selection		
	Persisting teams for duration of unit	✓	✓
Teacher promotes students taking “ <b>responsibility</b> ”	Incorporates student duty roles within lessons	✓	✓
	Establishes contract and/or accountability for student performance in roles	✓	✓
	Teacher holds student accountable	✓	✓
	Teacher provides training for referees	✓	✓
	Teacher utilizes tasks to train students on effective verbal communication and feedback		
	Teacher provides task sheets for coaches/captains	✓	✓
	Teacher adopts a facilitator approach during interactions with student groups	✓	✓
	Teacher encourages students to resolve conflict within groups	✓	✓
Teacher uses “ <b>formal competition</b> ” within unit plan	A formal schedule of competition is established	✓	✓
	Fair play and sportsman awards utilized	✓	✓
Teacher utilizes a form of “ <b>record keeping</b> ” within unit	Teacher provides rubrics for scorekeeper	✓	✓
	Incorporates peer assessment as part of record keeping process	✓	✓
Teacher uses “ <b>culminating event</b> ” near the end of the season	Culminating event is festive in nature	✓	✓
	Teams are easily identifiable (team names, team colors, team t-shirts)		
Teacher creates “ <b>festivity</b> ” within unit	Regular postings of team/individual performances	✓	✓
	Teacher emphasizes the celebration of fair play	✓	✓

### *Data Collection*

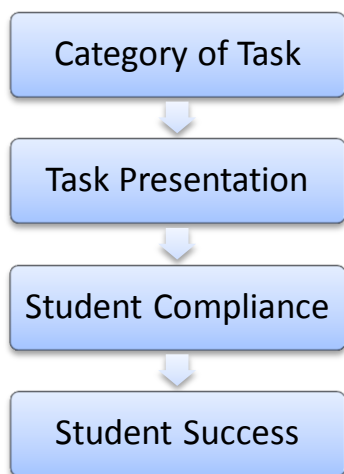
Key assumption one and hypotheses. Evidence for students working independently of the teacher would come from an examination of classroom management. Hypotheses 1a. Total managerial time will decrease. 1b. Earlier managerial tasks will be explicit, later managerial tasks will be implicit. 1c. As it shifts from explicit to implicit, there will be no decrease in task compliance. In order to test these hypotheses, the following data are necessary; (1) the category of task for every lesson of each season, (2) the explicitness of the task presentation, (3) student compliance for all categories of task for every lesson of each season, and (4) the total time associated with each task. Key assumption two and hypothesis. Given that Sport Education seasons are longer than normal, by the end of the season students should be able to demonstrate high level of success in game play. Hypothesis two. There will be a significant difference in the quality of game play from the beginning of formal competition to the end of the post-season phase of season. Key assumption three and hypothesis. Given that significant time is devoted to teaching refereeing skills, under teacher direction and practice games, there should be an increase in attentiveness and accuracy of calls based on the duration of the season. Hypothesis 3a. There will be a significant difference in the attentiveness of the officials. 3b. There will be a significant difference in the accuracy of the officials decisions. In order to test these hypotheses, the following data are necessary; (5) student opportunities and success with skills associated with Swirl Ball across two phases of seasons (formal competition and post-season) and (6) referee active involvement and success with officiating games of Swirl Ball across the same two phases of seasons. Key assumption four and hypotheses. By its very nature Sport Education introduces a large number of unique transitional tasks within lessons (e.g.; going from practice to play, practice to officiate, etc.) Evidence of students' ability to accomplish transitional tasks would

come from less time spent in transitional time. Hypotheses 4a. Time allocated to transitional tasks will decrease. 4b. On task rates during transitional tasks will increase from the beginning to the end of the season. In order to test these hypotheses, the following data are necessary; student compliance for transitional tasks for every lesson of each season and the total time associated with transitional tasks.

All lessons of the season were recorded on a Canon digital video recorder mounted on a tripod. The camera was located in the corner of the gym so that it did not interfere with the activity. The teacher wore a cordless microphone which captured their voice during the duration of the lesson. The lessons were then transferred to a PC computer for observation to take place.

#### *Observation Instrument*

A systematic observation instrument was designed to capture all information about the tasks presented during the season. Based upon the task observation framework established by Tousignant and Siedentop (1983), different components within each task were analyzed. The progression of task is shown in Figure 2. Tables 4.1 through 4.5 give the operational definition for each component.



*Figure 2. Progression of Task*

### *Category of Task*

During observation the researcher recorded each task as managerial, transitional, or instructional. Table 4.1 gives a definition of each category of task. The total time for each task was recorded to help identify the percentage of lesson time of every lesson for each type of task. Data were collected for all three phases of the season to determine the amount of time associated with each category of task.

Table 4.1

### Category of Task

<i>Type</i>	<i>Definition</i>
(1) <i>Managerial</i>	The nonacademic tasks related to the organization and the direction of student behavior.
(2) <i>Transitional</i>	The organizational operations immediately needed to accomplish an instructional task. (Tousignant & Siedentop, 1983, p. 53)
(3) <i>Instructional</i>	The skills or knowledge to be acquired.

### *Task Presentation*

For each task the researcher recorded the level of explicitness of each task that was presented. Table 4.2 gives a definition of the three levels of explicitness. The total time for each task was recorded to help identify the percentage of lesson time of every lesson for each type of task presentation. Data were collected for all three phases of seasons to determine if an interaction exists between the category of task and task presentation and to find out if task presentation becomes more implicit over time.

Table 4.2

Level of Task Explicitness

<i>Type</i>	<i>Definition</i>
(1) <i>An implicit task</i>	The task presentation was done with no or very limited information.
(2) <i>A generally explicit task</i>	The task presentation included a general description of the form or the product of an expected response.
(3) <i>A specifically explicit task</i>	The task definition included precise criteria to be used to determine the level of success (Tousignant & Siedentop, 1983, p. 53)

*Student Compliance*

As a means of assessing student compliance, records were made of the number of students who are on-task, off-task, or modified off-task for each recorded task. Table 4.3 gives a definition of the three types of student compliance.

Table 4.3

Degrees of Student Compliance

<i>Type</i>	<i>Definition</i>
On-Task	The student is appropriately engaged carrying out an assigned non-subject matter task, such as moving into squads, helping to place equipment, counting off, doing warm up exercises, or moving from the gym to a playing field. (Hastie & Saunders, 1991)
Off-Task	The student is either not engaged in an activity he/she should be engaged in— behavior disruptions, and general off-task behavior, such as talking when a teacher is explaining a skill, misusing equipment, fooling around fighting, disrupting a drill through inappropriate behavior. (Hastie & Saunders, 1991)
Modified Off-task	The student is engaged in an activity other than the one he/she should be engaged in (i.e. where a student alters the stated task to make it either more difficult or easy). (Hastie & Siedentop, 1999)

*Student Success*

For each instructional task, skills associated with Swirl Ball were observed to determine the level of success. Tables 4.4 gives a definition of the skills that were observed while playing the game Swirl Ball. The following skill scores were calculated from the raw data: (1) thrown passes as a percentage of catchable passes, (2) caught passes as a percentage of all catchable passes, (3) percentage of shots made from a free shot on goal, (4) percentage of shots made from an in play shot on goal, (5) percentage of goalkeeper saves on a shot on goal, and (6) percentage of correct calls made by an official. Following the protocol used by Hastie (1996), duration recording was used to determine student involvement in the role of an official. Table 4.5 provides a description of the categories for student involvement while officiating.

Table 4.4

Definitions of Skills used in Swirl Ball

<i><b>Skill</b></i>	<i><b>Success</b></i>	<i><b>Non-Success</b></i>	<i><b>Reference</b></i>
Throw	Catchable Pass-Pass between receivers knee's to just above the head, arm's length to the side with the appropriate force/touch on the pass.	Non-Catchable Pass 1. Too short/low/underthrown (good force but short; ball at the receiver's feet) 2. Too high/long/overthrown 3. Off target/Wide of teammate (reflects an aiming problem) 4. Poor lead pass (Behind a moving teammate) 5. Too weak/soft pass (more "zip" needed or is easily intercepted by defense) 6. Too strong (more "touch" needed on shorter passes)	Nevett, M., Rovegno, I., Babiarz, M., & McCaughtry, N. (2001).
Catch	Ball is caught	Ball is dropped	
Free Shot on Goal (A Shot taken from one knee)	Ball crosses the goal line into the goal	Ball misses the goal or does not reach the goal	



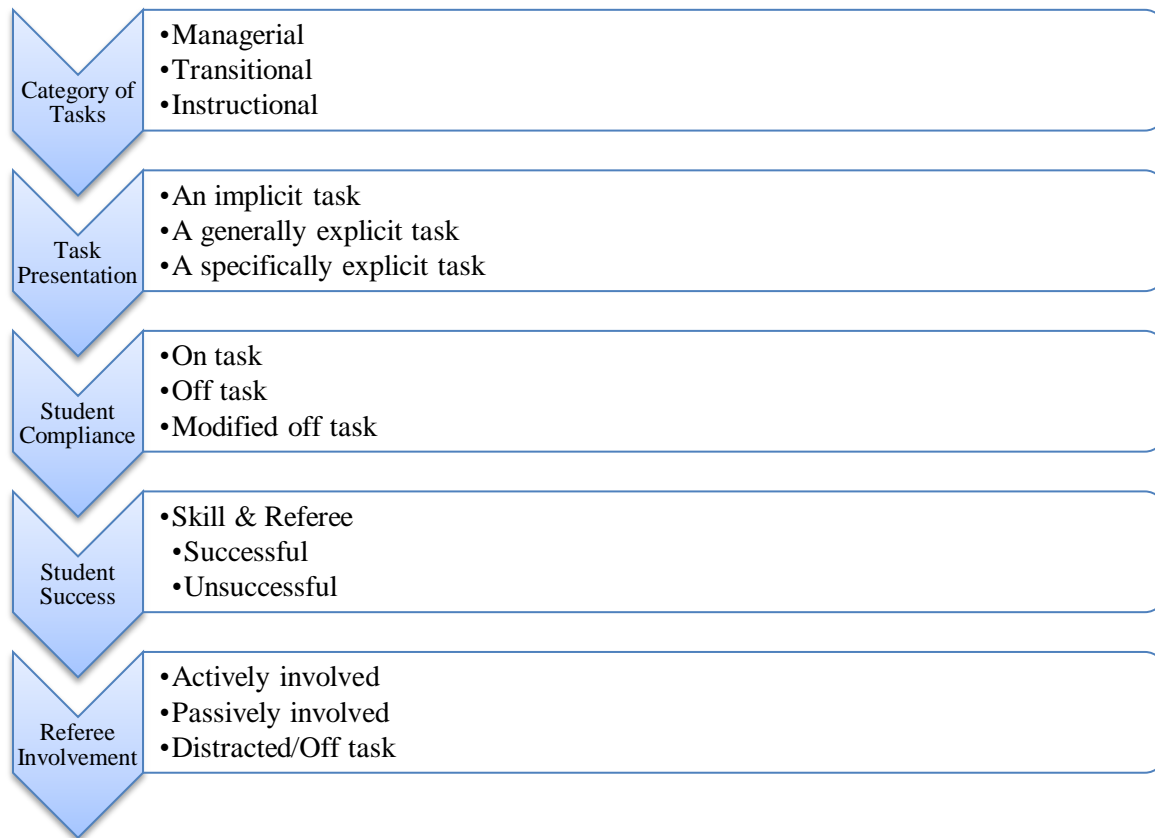
In Play Shot on Goal	A shot that will enter the goal if it is not stopped by the goalkeeper. A shot on goal must result in either a goal or a save.	Ball misses the target	<a href="http://en.wikipedia.org/wiki/Shot_on_goal">http://en.wikipedia.org/wiki/Shot_on_goal</a>
Goalkeeper Saves	Save of a shot on goal [see definition of shot on goal]	Non-successful save of a shot on goal. Ball enters the goal from a shot on goal.	
Officiating	Making the correct call, including: 1. Player is tagged 2. Player is awarded a free shot 3. Shot on goal is successful or saved 4. Appropriate transition after a goal.	1. Wrong decision 2. Failure to make a decision	

Table 4.5

Coding System for Referees (Hastie, 1996)

<i>Category</i>	<i>Definition</i>
Actively involved	Keeps up with the ball, follows play, consistently enforces the rules, uses whistle definitely.
Passively involved	Watching play, but not moving to keep up with the ball; makes occasional rulings or uses whistle passively.
Distracted	In the field of play, but attending to outside factors (e.g., the other match); misses a call due to inattention.
Off task	Not watching or following play; not making rule decisions; engaged in activity detrimental to refereeing performance.

Figure 3 provides the progression of task with each subset included. Data will be collected for all components to provide a stronger understanding of tasks associated with Sport Education.



*Figure 3. Progression of Task with Subsets*

### *Observation Protocol*

The researcher used a task system observation protocol similar to the one developed by Siedentop, Doutis, Tsangaridou, Ward and Rauschenbach (1994), and this is shown in Table 5.

The following sequence was followed:

1. At the beginning of each managerial, transitional, or instructional content task, one randomly selected team was observed for the duration of the task.
2. The explicitness of the task was recorded.

3. If the task was managerial or transitional, for each minute, the team was observed to determine the number of students who were on-task, off-task, or modified off-task.
- 3b. If the task was instructional, one student from a randomly selected team was observed for one minute (Hastie, 1996). After each minute another student from the selected team was observed.

An observation protocol similar to the one used by Hastie (1996) (see Table 6) was also followed for measuring the active involvement of referees during game play. The following sequence was followed:

1. At the beginning of game play a random official would be selected for observation.
2. The referee was observed for a total of 15 seconds.
3. The researcher would determine the involvement of the referee based on the established definitions of whether they were actively or passively involved, distracted, or off-task.

Table 5

## Coding Sheet

Time	<i>Start:</i>			<i>End:</i>		
Task Type	<i>M</i>	<i>T</i>	<i>Ic</i>	<i>Isp</i>	<i>Igp</i>	<i>Iwu</i>
Explicitness	<i>I</i>		<i>Gxt</i>		<i>Sxt</i>	
% Compliance	<i>OT:</i>		<i>OfT:</i>		<i>MOfT:</i>	
% Success	<i>SP</i>			<i>GP</i>		
	<i>Skill</i>		<i>Success</i>		<i>Non-Success</i>	
	Throw		CP:		NCP:	
	Catch					
	Free Shot on Goal (A Shot taken from one knee)					
	In Play Shot on Goal					
	Goalkeeper Saves					
	Referee					

Task Type: M = Mgmt, T = Trans., I = Instruction (Cognitive, Skill Practice, Game Play, Warm Up)

Explicitness: I = Implicit, Gxt = General explicit, Sxt = Specific explicit.

% Compliance: OT= On task, OfT= Off task, MOfT=Modified Off Task

% Success: SP=Skill Practice, GP=Game Play, CP=Catchable Pass, NCP=Non-Catchable Pass

Table 6

## Coding Sheet: Referee Active Involvement

<i>Lesson:</i>	<i>Start:</i>	<i>End:</i>
<b><i>Category</i></b>		
Actively Involved		
Passively Involved		
Distracted		
Off Task		

*Reliability*

In this study, a four phase process was undertaken to ensure intra- and inter-reliability. Phase one involved two researchers identifying categories and definitions for the coding sheet. Next, steps were taken to clarify definitions for a proper understanding of terms. Phase two involved the two researchers analyzing a segment of play using the coding system. For each coding sequence, the researchers would code the segment and a discussion would occur until 100 percent agreement was reached. A decision log was developed which served to clarify specific incidents that could possibly occur. Phase three involved the primary researcher using the coding system to code all of the Sport Education lessons. During this phase the other researcher independently coded three randomly selected lessons, with at least one from each phase of season (lessons 3, 8, & 12). The coding results from the same lessons were compared between the two researchers to determine the percent agreement for each category. The inter-rater reliability is reported in Table 7. The intra-rater reliability was determined by the primary researcher re-coding three random lessons of the season with the percentage of agreement for each category exceeding the recommended level of .85 (van der Mars, 1989) (see Table 7).

Table 7

Intra-rater and Inter-rater Reliability Levels for Coded Categories

<i>Coded Categories</i>	<i>Intra-rater Reliability</i>	<i>Inter-rater Reliability</i>
Time	.98	.98
Task	.96	1.00
Explicitness	.94	1.00
Percentage of Compliance	.94	.98
Success	.93	.92
<i>Throw</i>	.91	.96
<i>Catch</i>	1.00	1.00
<i>Free Shot on Goal</i>	1.00	1.00
<i>In Play Shot on Goal</i>	1.00	1.00
<i>Goalkeeper Saves</i>	.89	1.00
Referee		
<i>Success</i>	.88	.90
<i>Involvement</i>	.96	.95

Note. Reliability = agreements / [agreements + disagreements \* 100]

### *Data Analysis*

*Managerial and Transitional Tasks.* For each managerial or transitional task, the following data analysis procedures were followed:

1. The percentage of lesson time devoted to each type of task was graphed to determine the breakdown of time for each lesson and phase of season.

2. A one way mixed analysis of variance (ANOVA) was used to compare the percentage of lesson time for each task type across the three seasons to determine if there was difference in the distribution of time over the course of a season.
3. A 3 (task presentation) x 3 (phase of season) ANOVA was used to measure the type of task explicitness for the duration of the study with percentage of task time as the dependent variable.
4. A one way mixed analysis of variance (ANOVA) was used to compare the percentage of lesson time for each combined variable of task and explicitness (18 total) across the three seasons to determine if there was difference in the distribution of time over the course of a season.
5. A one way ANOVA with three levels was used to measure total student compliance based on the phase of season with the dependent variable as the percentage of students on task.
6. A one way ANOVA with three levels was used to analyze student compliance based on the task explicitness with the dependent variable as the percentage of students on task.

*Instructional Tasks.* For instructional tasks and game play, the following data were generated:

1. A one way ANOVA with two levels was used to compare the percentage of skill success and skill opportunities to determine if there was difference in the level of success and opportunities from the season of formal competition to the post-season.
2. A one way ANOVA with two levels was used to compare the percentage of involvement of referees to determine if there was difference in the level of active involvement from the season of formal competition to the post-season.

3. A one way ANOVA with two levels was used to compare the percentage of referee success and referee opportunities to determine if there was difference in the level of success and opportunities from the season of formal competition to the post-season.



## CHAPTER IV

### RESULTS

The purposes of the study were (1) to determine if students can work independently of the teacher, (2) to determine if fourth graders can play a “good game” without significant teacher intervention, (3) to determine if students’ can successfully officiate games, (4) to determine if students’ can manage the other organizational tasks associated with the season.

#### *Independent Work of Students*

Table 8 provides a breakdown of the total percentage of task time during each lesson of the season, while Figure 4 provides a graphic view of the total percentage of lesson time during each phase of season. The pre-season consisted of lessons one through six, formal competition took place during lessons 7-11 and the post-season occurred during lessons 12-13. Managerial tasks occurred throughout the season with the highest percentage of class time taking place during the first, sixth and last lesson. Transitional tasks mostly took place when multiple games were played. Students would take time after the first game to set up play for the second game. Instructional cognitive tasks decreased in total percentage of class time through each season. The highest percentage occurred during the pre-season as instruction was given on the new game.

Instructional skill practice and game play took an expected path due to set up of Sport Education. Skill practice took place during the pre-season while game play occurred during both formal competition and the post-season. Finally, an instructional warm up took place at the beginning of each lesson with the exception of lesson one. This was due to the fact that teams were not yet formed and trainers had not been chosen to lead the warm up.

Table 8

## Percentage of Task Time for Each Lesson

Lesson	Managerial	Transitional	Instructional Cognitive	Instructional Skill Practice	Instructional Game Play	Instructional Warm Up
1	59.17	0	23.28	17.61	0	0
2	28.00	0	15.67	45.06	0	11.22
3	8.67	0	22.67	55.94	0	12.78
4	5.78	0	46.11	34.72	0	13.39
5	12.89	11.28	24.06	0	30.89	20.89
6	25.06	18.78	19.06	0	22.17	14.94
7	11.28	23.28	29.39	0	34.89	1.17
8	16.28	14.61	18.33	0	42.67	8.11
9	19.33	14.44	8.56	0	44.50	13.17
10	13.61	9.89	4.17	0	58.17	14.17
11	14.78	14.72	0	0	54.83	15.61
12	19.56	15.56	8.33	0	47.17	9.33
13	41.11	0	3.06	0	40.17	15.28

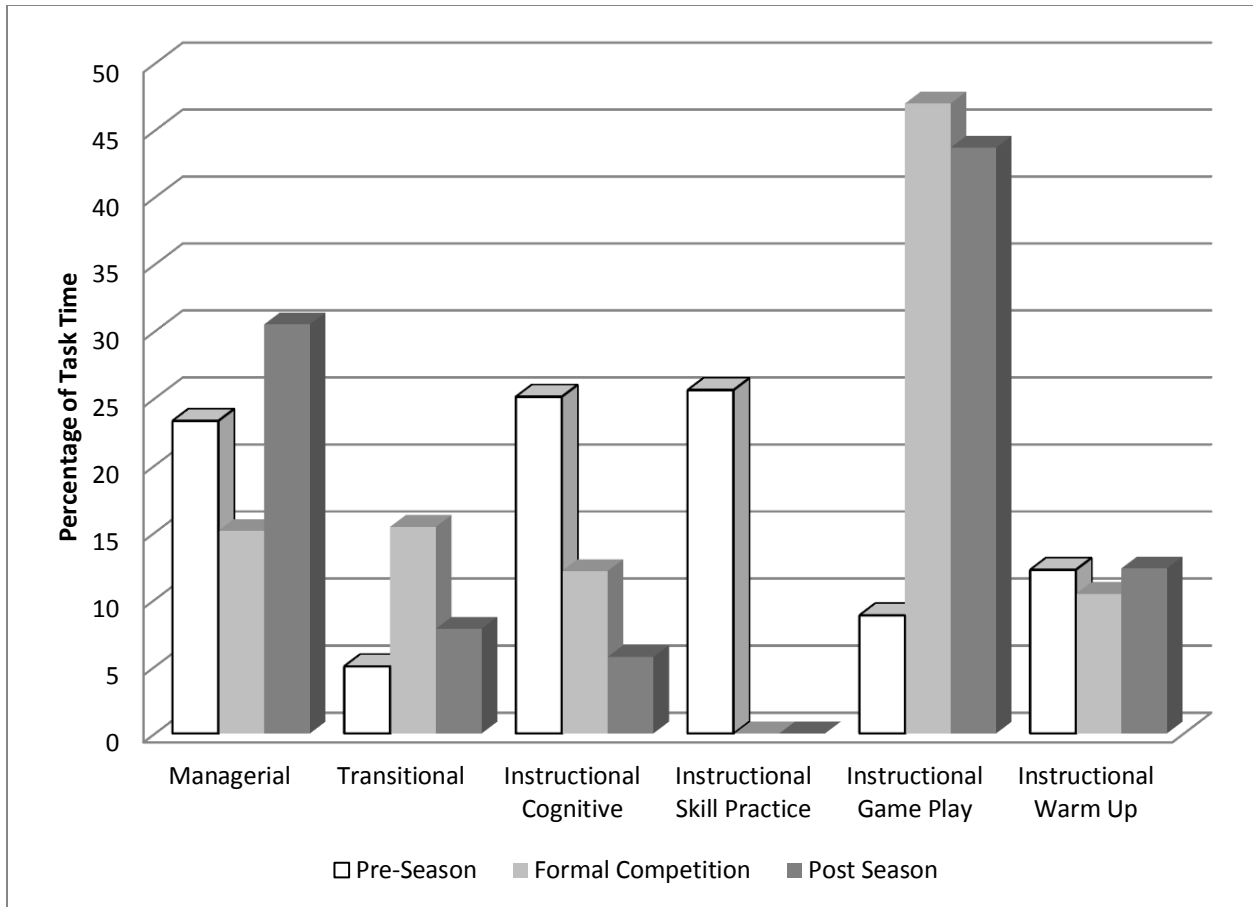


Figure 4. Percentage of Task Time for Each Season

A one way analysis of variance (ANOVA) test was used to compare the percentage of lesson time for each task across the three seasons to determine if there was difference in the distribution of time over the course of a season. An alpha level of .05 was set for the analysis. The test confirmed that there was a significant difference in the percentage of lesson time for instructional game play over the course of the season ( $F=14.59, p=.001$ ). A Bonferroni test also showed a significant difference between the pre-season and formal competition ( $p=.001$ ) as well as pre-season and post-season ( $p=.013$ ). Table 9 provides the ANOVA analysis for each type of task over the course of the season.

Table 9

ANOVA analysis for each Type of Task for the Duration of the Season

	Mean (seconds per lesson, N=13)	SD	Percent	$F(2,10)$	$p$	$\eta^2$
Managerial	381.92	265.16	21.22	0.87	.447	.149
Transitional	169.69	151.04	9.43	2.76	.111	.355
Instructional Cognitive	308.31	227.94	17.14	3.36	.077	.402
Instructional Skill Practice	212.31	362.51	11.79	3.83	.058	.434
Instructional Game Play	544.23	371.72	28.88	14.60	.001	.768
Instructional Warm Up	207.77	104.12	11.54	0.13	.884	.024

Based on these data there was no drop in managerial time. However, irrespective of the phase of the season there was no significant difference in the amount of managerial time with it averaging just over 20% of total class task time across the season.

A 3 (task presentation) x 3 (phase of season) ANOVA was used to measure the type of task explicitness for the duration of the study with percentage of task time as the dependent variable. Table 10 provides the percentage of task presentation for each phase of season along with significance, while Figure 5 provides a visual presentation of the numbers represented in Table 10.

The results show that there was no significant difference in the percentage of general explicit tasks ( $F=1.51$ ,  $p=.268$ ) throughout the duration of the season. However, results do show that there was a significant difference with implicit tasks ( $F=5.02$ ,  $p=.031$ ) and specifically explicit tasks ( $F=10.23$ ,  $p=.004$ ). More specifically, a Bonferroni post hoc test revealed a significant difference for implicit tasks between the pre-season and post-season phase ( $p=.032$ ).

Also, the test showed a significant difference for specifically explicit tasks between the pre-season and formal competition ( $p=.012$ ) as well as formal competition and post-season ( $p=.013$ ).

One can see from Figure 5 that as the percentage of implicit tasks went up, the percentage of specifically explicit tasks went down. The outcome is a desired result when using Sport Education. Siedentop et al. (2011, p.7) states that “in too many physical education programs, the only responsibilities students have are to obey class rules and do what the teacher tells them to do.” Implicit tasks give teachers the freedom to use their time in the classroom more effectively.

Table 10

Percentage of Task Presentation per Season and Significance

Explicitness	Pre-season (N=6)	Formal Competition (N=5)	Post-season (N=2)	$F(2,10)$	$p$	$\eta^2$
Implicit	9.78	20.53	40.89	5.02	.031	.501
General Explicit	53.92	69.10	57.14	1.51	.268	.232
Specifically Explicit	36.30	10.37	1.92	10.23	.004	.672

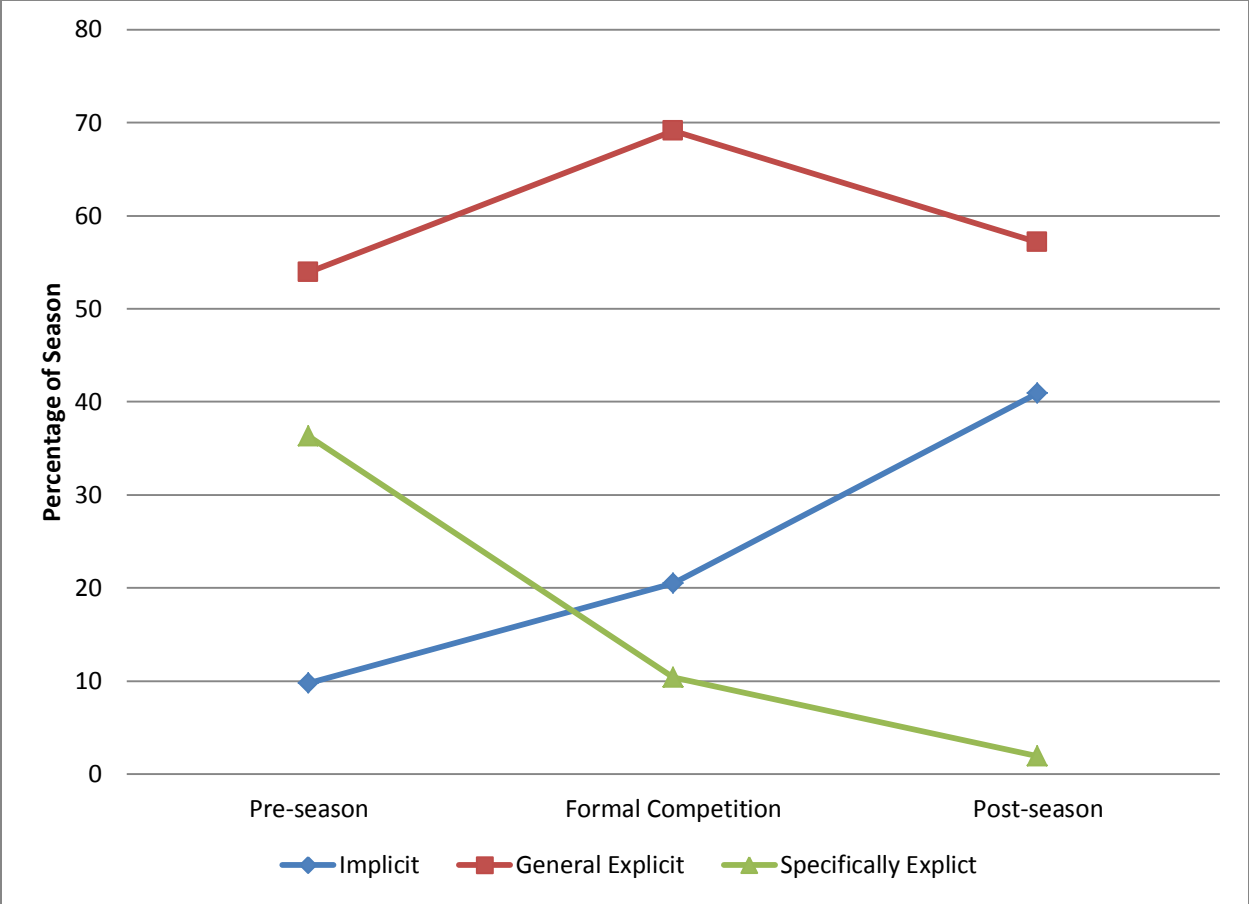


Figure 5: Graphic of Percentage of Task Explicitness per Season

When each type of task is combined with task presentation (implicit, general explicit, specifically explicit), a total of 18 variables are created. Table 11 provides a breakdown of time for each variable across all 13 lessons of the season. The number represents a percentage of time for each lesson.

Table 11

Percentage of time for each Type of Task/Task Presentation per Lesson (Each Lesson=100%)

Lesson	POS	MI	MGXT	MSXT	TI	TGXT	TSXT	ICI	ICGXT	ICSXT	ISPI	ISPGXT	ISPSXT	IGPI	IGPGXT	IGPSXT	IWUI	IWUGXT	IWUSXT
1	1	11.89		47.22				14.78	7.00	1.44		17.61							
2	1	6.44		21.61					15.67			45.06						11.22	
3	1	3.33		5.33					19.83	2.83		55.94							12.78
4	1	5.00		0.78					10.72	35.39		34.72							13.39
5	1	1.06		11.83			11.28		24.06						30.89				20.89
6	1	1.22	9.56	14.22			18.78		19.06						22.17		14.94		
7	2	4.72		6.56		5.50	17.78		29.39						34.89		1.17		
8	2	3.44	3.11	9.78		5.11	9.50		18.33						42.67		8.11		
9	2	18.17		1.11		14.44			5.78	2.78					44.50		13.17		
10	2	13.61				9.89			4.17						58.17		14.17		
11	2	10.50		4.33		14.72									54.83		15.61		
12	3	15.72		3.83		15.56			8.33						47.17		9.33		
13	3	41.44							3.06						40.17		15.28		

(Key: Managerial (M), Transitional (T), Instructional Cognitive (IC), Instructional Skill Practice (ISP), Instructional Game Play (IGP), Instructional Warm Up (IWU), Implicit (I), General Explicit (GXT), Specifically Explicit (SXT))

A one way analysis of variance (ANOVA) test was used to compare the percentage of lesson time for each variable across the three seasons to determine if there was difference in the distribution of time over the course of a season. Due to the consistency of time representation across the three seasons, only managerial implicit, managerial specifically explicit and instructional cognitive general explicit were tested for significance. The test confirmed that there was a significant difference in the percentage of lesson time for managerial implicit over the course of the season ( $F=7.53$ ,  $p=.010$ ). A Bonferroni test also showed a significant difference between the formal competition and post-season ( $p=.044$ ) as well as pre-season and post-season ( $p=.009$ ). Table 12 provides statistics for each tested variable over the course of the season.

Table 12

ANOVA Analysis for Task Type/Task Presentation for the Duration of the Season

	Mean (seconds per lesson, N=13)	SD	Percent	$F(2,10)$	$p$	$\eta^2$
Managerial Implicit	189.08	195.234	10.51	7.53	.010	.601
Managerial Specifically Explicit	175.31	232.873	9.74	1.98	.189	.283
Instructional Cognitive General Explicit	229.00	161.815	12.72	1.08	.376	.178

Based on these data there was an increase in the amount of managerial implicit tasks. The results supported the hypotheses that management time would go from explicit to implicit.

Table 13 provides statistics and significance for the percentage of on task students during each phase of season, while table 14 provides the same information for the percentage of on task students for each type of task. A one way ANOVA with three levels was used to measure total student compliance based on the phase of season with the dependent variable as the percentage of students on task. The analysis revealed that there was no significant difference ( $F=.69$ ,



$p=.526$ ) between the phase of seasons. The lowest percentage of compliance occurred during the pre-season. One explanation could be that almost half of the instructional time consisted of game play during the formal competition (47%) and post-season (43.7%) phase. The same analysis was also completed based on the type of task. Results showed a significant difference ( $F=10.54$ ,  $p=.011$ ) between the different types of task. A Bonferroni post hoc test revealed a significant difference between managerial and transitional ( $p=.014$ ). The test also showed a significant difference between transitional and instructional ( $p=.042$ ). The mean compliance for managerial task was 92.61 percent, 94.17 percent for transitional tasks, and 100 percent for transitional tasks.

Table 13

Percentage of Compliance per Phase of Season

Compliance	Pre-season (N=6)	Formal Competition (N=5)	Post-season (N=2)	$F(2,10)$	$p$	$\eta^2$
Mean	91.67	95.33	95.00	0.69	.526	.120
SD	5.05	5.58	7.07			

Table 14

Percentage of Compliance per Type of Task

Compliance	Managerial (N=3)	Transitional (N=3)	Instructional (N=3)	$F(2,6)$	$p$	$\eta^2$
Mean	92.61	100.00	94.17	10.54	.011	.778
SD	2.59	0.00	2.50			

A one way ANOVA with three levels was used to analyze student compliance based on the task explicitness with the dependent variable as the percentage of students on task. The

analysis revealed that there was no significant difference ( $F=1.37, p=.323$ ) between the different types of task explicitness. Table 15 provides the mean percentage of student compliance and standard deviation for each type of task explicitness along with the reported significance.

Table 15

Percentage of Compliance per Task Presentation

Compliance	Implicit (N=3)	General Explicit (N=3)	Specifically Explicit (N=3)	$F(2,6)$	$p$	$\eta^2$
Mean	92.14	95.09	96.88	1.37	.323	.314
SD	1.03	2.66	5.41			

The data reveals that irrespective of the explicitness of task, compliance was high. In addition, it is worth noting that compliance was also high regardless of phase of season or task type. The lowest percentage of student compliance was during the pre-season phase of season.

#### *Skill Success in Game Play*

A one way ANOVA with two levels was used to compare the percentage of skill success and skill opportunities to determine if there was difference in the level of success and opportunities from the season of formal competition to the post-season. Mean, standard deviation, and significance are presented in Table 16, while Figure 6 gives a visual presentation of skill success for each lesson.

The statistics represented in Table 16 show that when the Sport Education season progressed from formal competition to the post-season there was a significant difference with skill success ( $p=.041$ ). In addition, the table shows that there was no significant difference with skill opportunities ( $p=.563$ ). These results show that throughout game play students received consistent skill opportunities. The significance for skill success suggests that over time, and with

the same opportunities, students participating in a Sport Education season do show improvement in overall ability.

As can be seen in Figure 6, skill success rates were higher for each lesson with the exception of lesson 10. Moreover, one can see that success rates had a highest percentage of 69% during formal competition, but increased to 79% and 73% during the post-season.

Table 16

Mean, Standard Deviation, and Significance for Skill Success (%) and Opportunities

	Formal Competition (N=5)		Post Season (N=2)		<i>F</i> (1,5)	<i>p</i>	$\eta^2$
	Mean (% Success)	SD	Mean (% Success)	SD			
Skill Success	55.98	9.54	75.85	3.89	7.44	.041	.598
Skill Opportunities	23.00	4.90	20.00	8.49	0.38	.563	.071

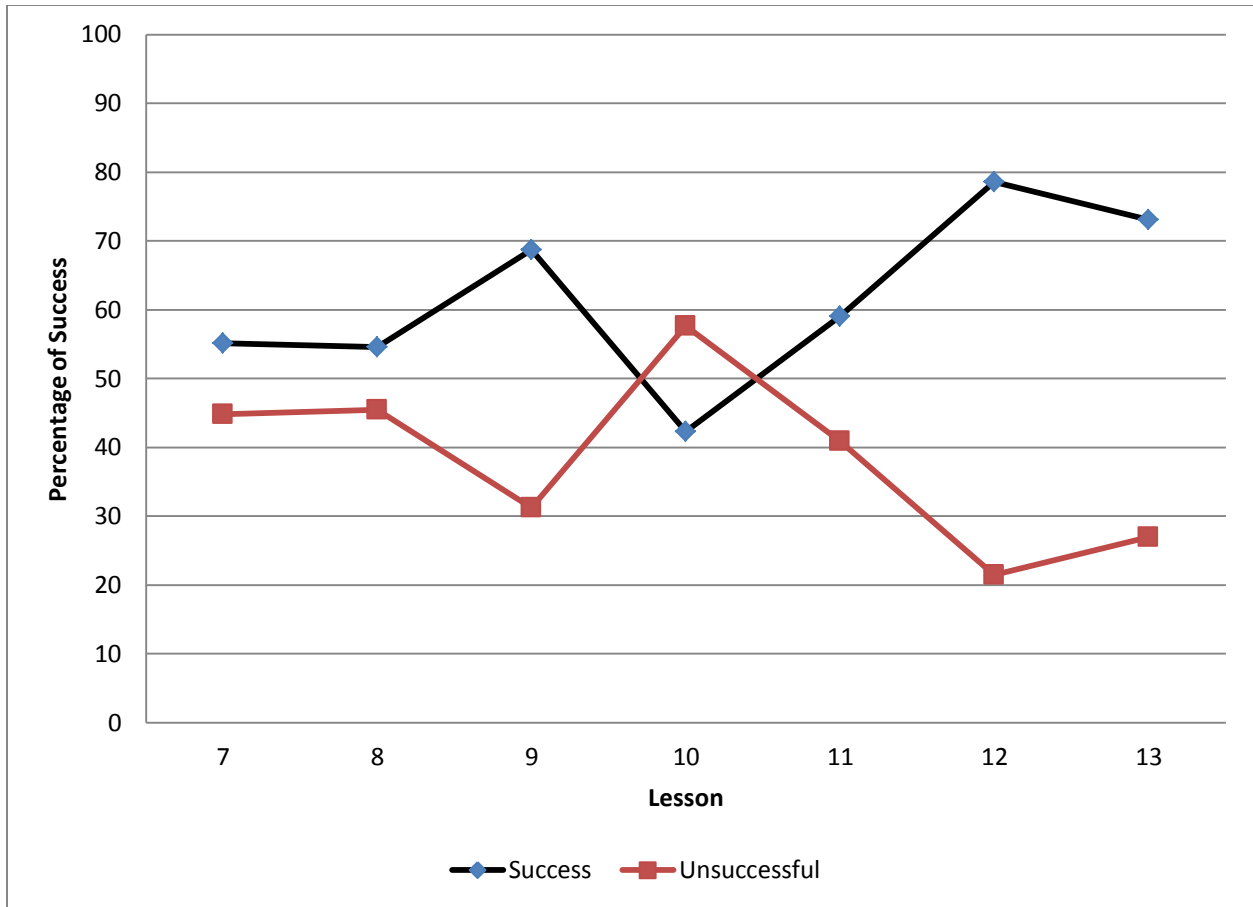


Figure 6. Percentage of Skill Success during Game Play

Based on these data, the hypothesis that students should be able to demonstrate high level of success in game play is supported.

#### *Students Officiating Ability*

A one way ANOVA with two levels was used to compare the percentage of involvement of referees to determine if there was difference in the level of active involvement from the season of formal competition to the post-season. Mean, standard deviation, and significance are presented in Table 17, while Figure 7 gives a visual presentation of percentage of referee active involvement for each lesson.

Table 17

Mean, Standard Deviation, and Significance for Referee Involvement

	Formal Competition (N=5)		Post-season (N=2)		<i>F</i> (1,5)	<i>p</i>	$\eta^2$
	Mean (% of Time)	SD	Mean (% of Time)	SD			
Active Involvement	74.06	2.56	94.92	7.19	39.85	.001	.889
Passive Involvement	23.01	2.31	5.09	7.19	31.41	.002	.863
Distracted	2.94	4.43	0.00	0.00	0.79	.416	.136

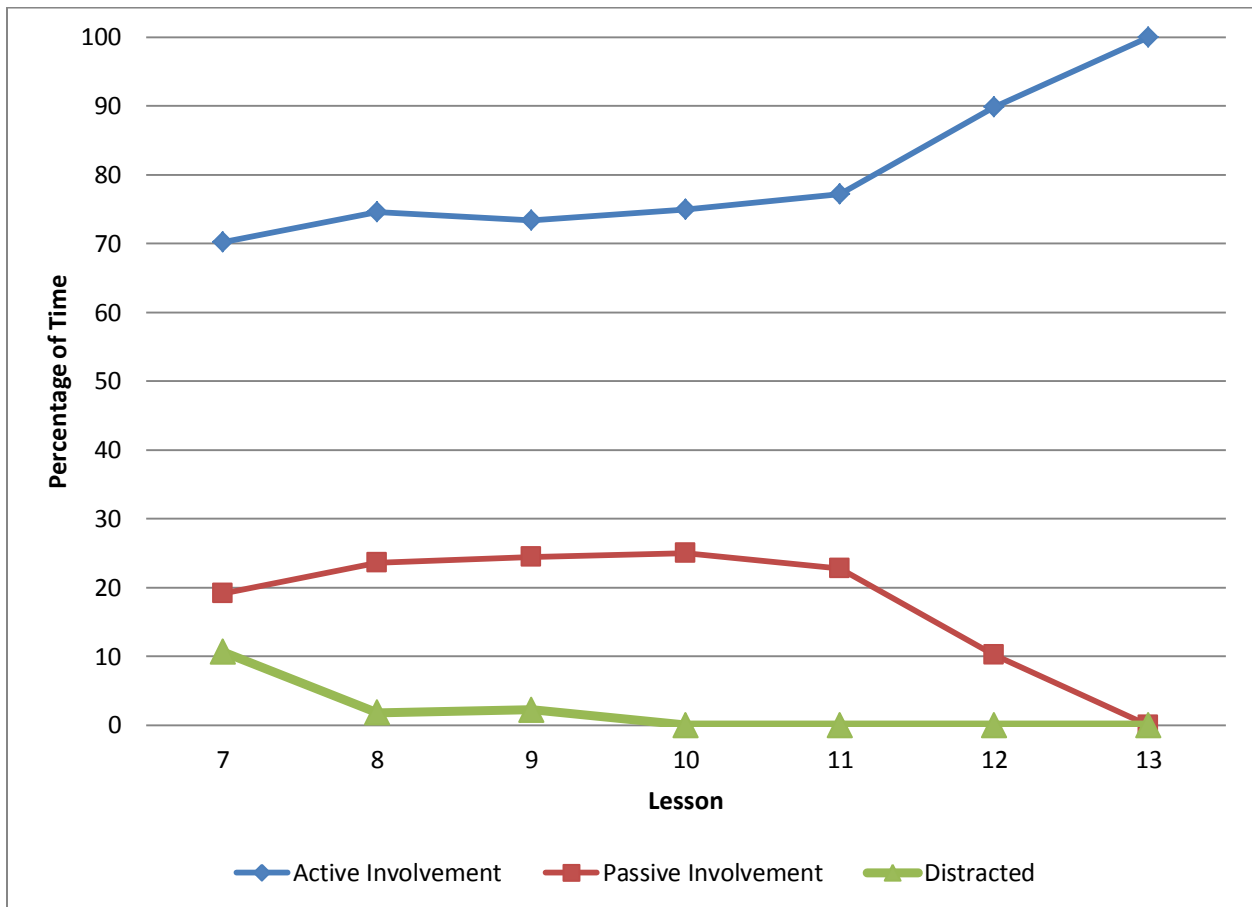


Figure 7. Graphic of Percentage of Referee Involvement per Lesson during Game Play

Table 17 shows that when the Sport Education season progressed from formal competition to the post-season there was a significant increase with active involvement ( $P=.001$ ) and significant decrease with passive involvement ( $P=.002$ ) of referees.

As can be seen in Figure 7, active and passive involvement was consistent throughout the formal competition season. However, during the post-season, active involvement saw an increase while a decrease occurred with passive involvement.

A one way ANOVA with two levels was used to compare the percentage of referee success and referee opportunities to determine if there was difference in the level of success and opportunities from the season of formal competition to the post-season. Mean, standard deviation, and significance are presented in Table 18, while Figure 8 gives a visual presentation of referee success for each lesson.

The statistics represented in Table 18 show that when the Sport Education season progressed from formal competition to the post-season there was a significant difference with referee success ( $p=.004$ ). In addition, the table shows that there was no significant difference with referee opportunities ( $p=.913$ ). These results show that throughout game play students received consistent referee opportunities. The significance for referee success suggests that over time, and with the same opportunities, students participating in a Sport Education season do show improvement in overall ability. Considering the results of referee success, one may suggest that as active involvement of referee improves, so does the referee success.

Likewise, Figure 8 shows a continuous increase in the success rates of referees. With the exception of lesson 11, success rates for officiating gradually increased with each lesson of the formal competition and post-season periods.

Table 18

Mean, Standard Deviation, and Significance for Referee Success (%) and Opportunities

	Formal Competition (N=5)		Post-season (N=2)		$F(1,5)$	$p$	$\eta^2$
	Mean	SD	Mean	SD			
Referee Success	48.28%	8.19	84.00%	8.77	26.39	.004	.841
Referee Opportunities	37.80	7.98	38.50	3.54	0.01	.913	.003

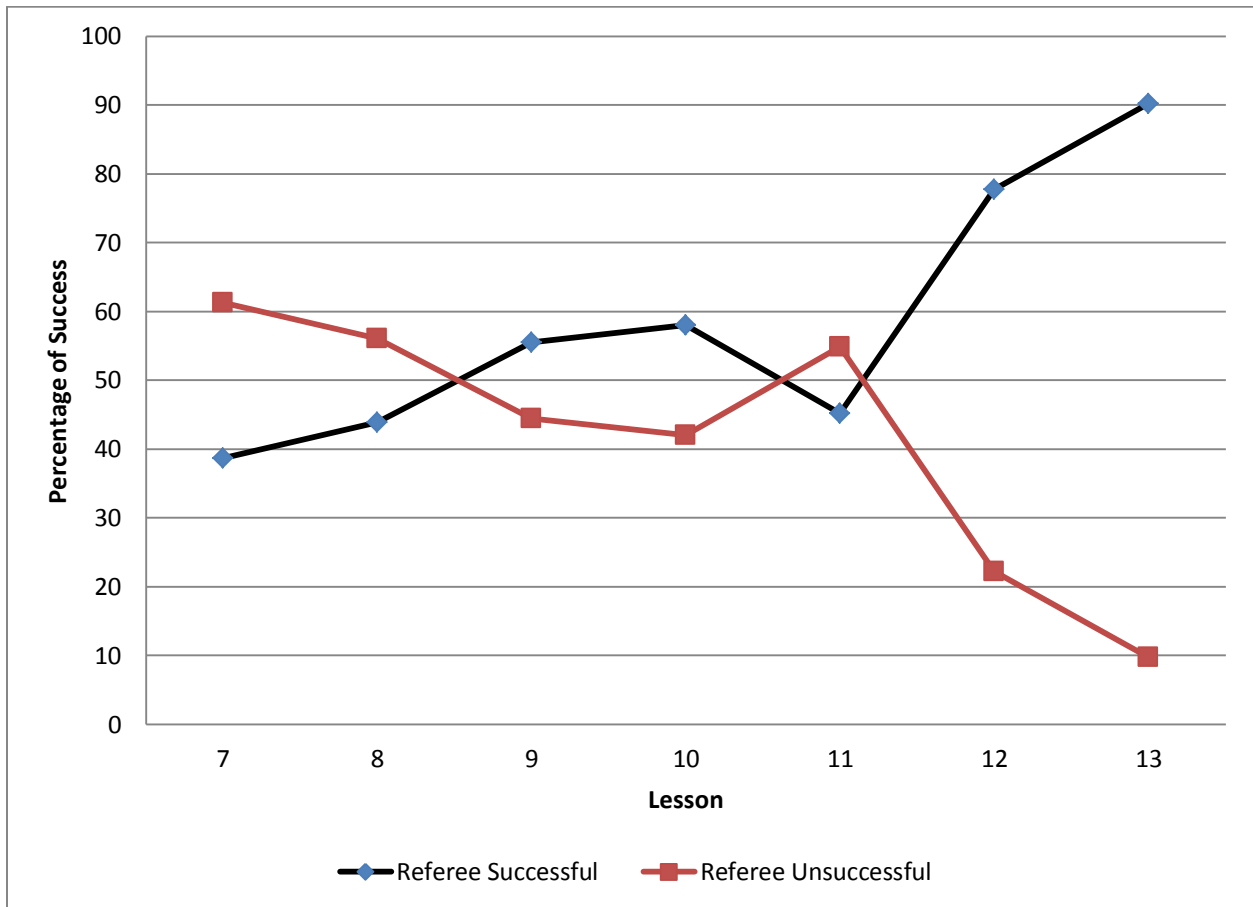


Figure 8. Percentage of Referee Success during Game Play

Based on these data, the hypotheses that there would be a significant difference in the attentiveness of the officials and accuracy of their decisions at the end of the season is supported.

*Organizational Tasks*

As stated previously in this chapter, there was not a significant difference in the transitional time from the beginning to the end of the season ( $p=.111$ ). Figure 9 provides a description of the total time devoted to transitional tasks for lessons 5-12.

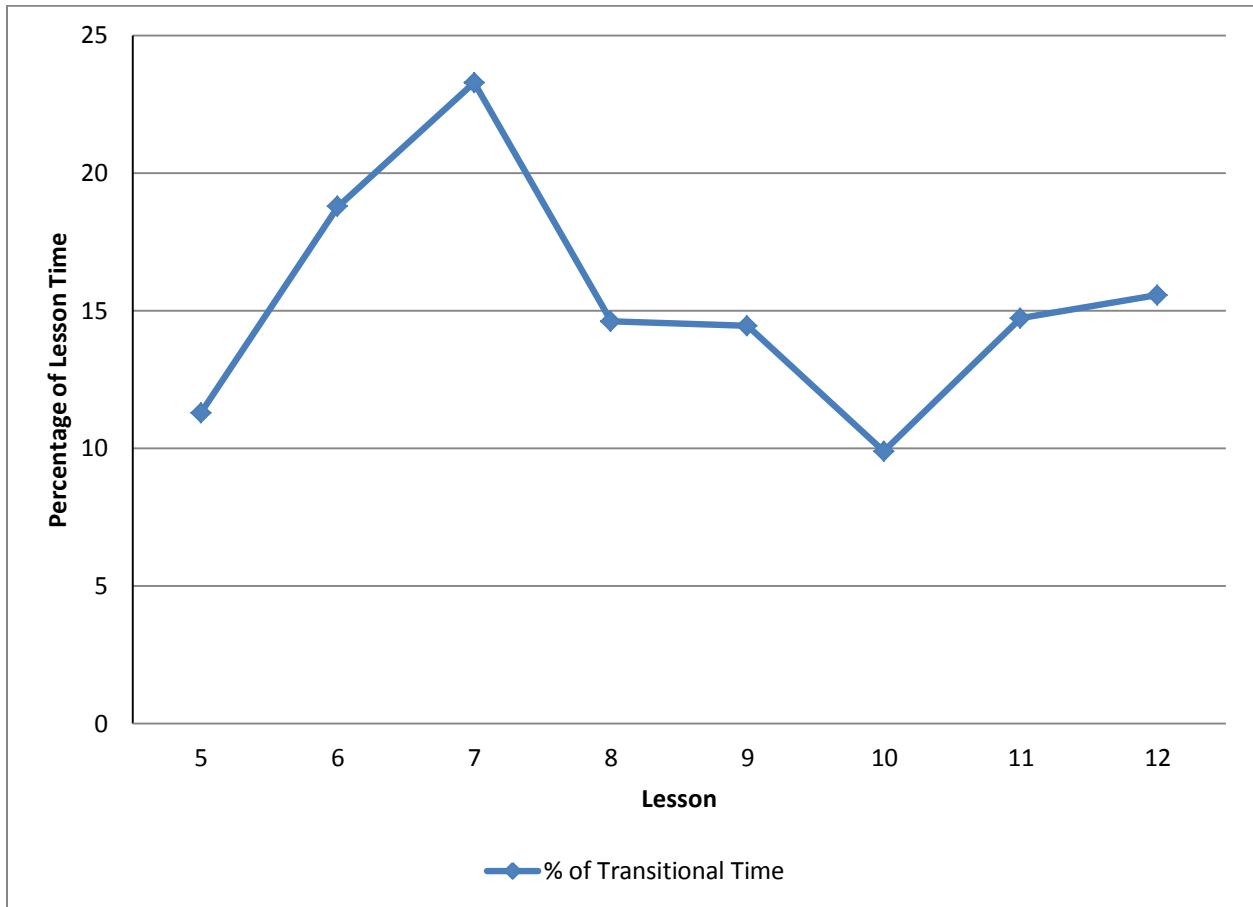


Figure 9. Percentage of Transitional Task Time

As a teacher there are certain elements that can't be eliminated. In class preparation requires the teacher and students to work together so that there can be more time spent in activity. Sport Education is designed so that students take on more responsibility, including game preparation. Time spent in transition can be lowered, but it does take time for game preparation. The positive is that compliance was perfect during transitional tasks.



Based on these data, the hypotheses that there would be a decrease in transitional time and an increase of compliance during transitional tasks was not supported. Irrespective of the data, compliance for transitional tasks was perfect throughout the season.

## CHAPTER V

### DISCUSSION

This study had four key purposes. These were (1) to determine if students can work independently of the teacher, (2) to determine if fourth graders can play a modified game without constant intervention from the teacher, (3) to determine if students' can officiate games successfully, (4) to determine if students' can manage the other organizational tasks associated with the season.

As an executive summary, this study demonstrated results towards the consideration of implementing Sport Education into a curriculum for primary aged children. For this to occur, students participating in a Sport Education season for the first time need to be able to move from a teacher directed environment to one of independence for students. As students progressed through the season, tasks did become more implicit. Specifically, there was a significant difference in managerial implicit tasks for the duration of the season. As the season progressed students had a better understanding of management tasks and responsibilities. Although management time did increase for the post-season, it should be noted that the increase was due to preparing for the culminating event. The culminating event is an important element for Sport Education. Sacrificing time for the management of the event should be an acceptable outcome when using Sport Education. The current study also produced high levels of compliance, which were maintained throughout the Sport Education season for all administrative and motor tasks.

In addition to the independence and strong compliance, students also improved in skill and officiating success. As the season progressed from formal competition to the post-season, students displayed improvement in skill and officiating ability. A decrease in instructional

cognitive tasks during each phase of season signifies that students were able to complete games without receiving continuous feedback from the teacher.

Finally, students displayed the ability to manage other organizational tasks associated with Sport Education. Specifically, students were able to complete transitional tasks independent of the teacher.

### *Task Explicitness*

Previous research on Sport Education have suggested that this pedagogical model provides teachers with the freedom to devote their time to classroom issues other than direct instruction (Brunton, 2003; Clarke & Quill, 2003; Hastie, 1998b; Hastie, 2000; Kinchin, 2006). For this to occur successfully, students are required to take on more responsibility in the completion of tasks. In this regard, previous research has shown that students find enjoyment with taking on more responsibility through duty roles or other tasks (Hastie, 1996; Kinchin, Wardle, Roderick, & Sprosen, 2004; MacPhail, Gorely, Kirk & Kinchin, 2008; Sinelnikov & Hastie, 2008).

While the current study did not measure the teacher's agenda nor student enjoyment of taking roles, what was demonstrated was a significant difference between implicit and specifically explicit tasks throughout the duration of the season. In the pre-season, the teacher gave more specific instructions for each type of task, but as the season progressed, the responsibility shifted to the students without a concurrent drop in task compliance. For example, in lesson one 47.2% of class time was devoted to managerial specifically explicit tasks while 11.9% of class time was devoted to managerial implicit tasks. In both cases student on-task levels were 93%. By the last lesson of the season 41.4% of class time was devoted to managerial implicit whereas no time was spent on managerial specifically explicit tasks. In this lesson, the

level of student on-task behavior for these tasks was still 100%. This suggests that there is no decrease in compliance when the class shifts from teacher control to more student responsibility. The increase in managerial implicit tasks during the last lesson was due to the culminating event. All fourth grade students, their teachers, administration and parents were invited to attend. Due to the large number in attendance, more time was devoted to introductions, rules and procedures, and the announcement of awards. Based on the format of Sport Education one should expect management time to increase during this event. Given the fact that compliance is high when a shift to student responsibility occurs, students are expected to complete tasks without the assistance of the teacher. For example, students in this study showed they were capable of doing warm up duties without supervision. When the students entered the classroom, they went directly to their team area and began their warm up for that lesson. The teacher was free to accommodate other areas of importance and time was not wasted. While this trend towards student empowerment and autonomy is a goal of the model, this is the first study to actually quantify this dimension.

### *Student Compliance*

In order for students to work independently of the teacher, student compliance needs to be high. Previous studies of Sport Education have reported high levels of student compliance (e.g., Hastie, 2000; Hastie & Sharpe, 1999; Wallhead & O'Sullivan, 2005). The results of this study are consistent with these findings. For example, the level of compliance exceeded 90% across all season phases.

One explanation for the high compliance can be that students were part of a strong managerial system. The teacher had experience with Sport Education and effectively teaching class protocol. The teacher's lessons were similar to those described in the study of Hastie

(2000). In that situation, the sport education format was followed with content embedded accountability and the student social system giving support to the model. Hastie (2000) stated that students were eager to participate in a Sport Education season. In the study, the allocated preparation time given by the teacher for games was cut from eight minutes during the pre-season to four minutes during the regular season. Because of the format used at the beginning of the season, students were standing and waiting to play before the four minutes had expired. Nonetheless, in the current study there was a significant difference for compliance across the different types of task. One note of interest was that transitional tasks (100%) received perfect compliance, while managerial (93%) and instructional (94%) tasks were still very high.

Another reason for the high level of compliance may have been that students were eager to participate in their second game of the day. As has been well documented, competition is a very attractive component of Sport Education (Bennett & Hastie, 1997; Carlson & Hastie, 1997; Fitipaldi-Wert et al., 2009; Grant, 1992; Sinelnikov & Hastie, 2010), and by consequence, quick accomplishment of transitional tasks would allow more playing time. The game of Swirl ball seemed to create a high level of enjoyment which produced a desire to complete tasks as quickly as possible.

Based on these findings related to student compliance, one can better understand the importance of enjoyment when using Sport Education. Much research has been devoted to the goal of Sport Education producing “enthusiastic” sportspersons (Alexander, Taggart & Luckman, 1998; Carlson & Hastie, 1997, Dyson, Griffin & Hastie, 2004; Fitipaldi-Wert et al., 2009; Hastie, 1996; Hastie, 1998b; Hastie, 1998c; MacPhail, Kirk & Kinchin, 2004; MacPhail et al., 2008; Siedentop, 2002; Wallhead & Ntoumanis, 2004). The high level of compliance indicates that students are engaged and that the activities are fun.

### *Skill Success*

Although there is some Sport Education research which indicates improvement with regard to skill competence (Hastie, 1998b; Hastie & Trost, 2002; Hastie, Sinelnikov & Guarino, 2009; Hastie et al., 2009; Pritchard, Hawkins, Wiegand & Metzler, 2008), more evidence is needed to solidify the contribution of Sport Education. In the present study, the findings indicate that from the beginning of the formal competition phase to the end of the post-season, skill success increased by just under 20 percent.

There are two postulates as to why this may have occurred. First, as the season progressed, the researcher observed students becoming more aware of their tactical decisions. For example, at the beginning of the study, students, when receiving the ball, would become frantic and throw the ball to no one in particular because of fear of being tagged. This led to many turnovers and little ball control by the offensive team. Towards the end of the season students became more conscious of a free throw (occurs after tagging someone from the opposing team with the ball) and the free shot hoop. These data are consistent with Hastie, Sinelnikov and Guarino (2009), who found that eighth grade students improved on their skill development, game competence and tactical knowledge after completing a Sport Education season in Badminton for the first time. Using a pre-and-post test design, students displayed improvement in all three categories following a season of Sport Education. Pritchard et al. (2008) examined how Sport Education and a traditional style of teaching would impact skill development, knowledge, and game performance for volleyball at the secondary level. Results of the study revealed that the Sport Education model produced a significant increase in the game performance of participants. Pritchard believes that the increase may have occurred due to earlier opportunities to play modified games when using Sport Education. Second, another reason for

the increase in skill success is that students took advantage of shorter passes and passing to students who were open. In the beginning, students were intrigued by the possibility of completing a long pass to a teammate. Eventually, one may realize that long passes don't always lead to success. Therefore, it's possible that success increased because of this change. These outcomes match exactly the study of Hastie (1998b) in which students learning Frisbee would change the way they performed without any intervention from the teacher. Through playing, students would acquire better tactics which resulted in shorter attempts being completed.

Future research might well examine elementary students' tactical decision making during their first experience using Sport Education. In addition to skill success it is worth noting that there was no significant difference in skill opportunities. Throughout the season students received consistent skill opportunities. These results indicate that improvements in success could not be attributed to greater levels of opportunity to respond (Silverman, 1985). Due to the fact that success increased during the post-season it may indicate the significance of longer seasons.

#### *Referee Success*

While there is emerging research on skill development in Sport Education, there is minimal research that has been completed on the success of students when they take officiating roles. It has been found that students can become highly engaged in officiating (Hastie, 1996; Hastie & Sinelnikov, 2006) and the results of this study are consistent with those findings, with students being actively involved 95% of the time during the post-season.

Hastie and Sinelnikov (2006) showed that students were actively involved as officials 90% of the time during the Sport Education season. Where this study makes an original contribution is its examination of officiating success. That is, no previous studies have examined the quality of refereeing performance from a quantitative perspective. In the current study, there

was a significant increase with referee success as students progressed from the formal competition (48%) to the post-season (84%). It should be noted that there was no significant difference with referee opportunities. Comparable to skill success, consistency in referee opportunities may indicate that over time the ability to accurately officiate games may increase. Both skill and referee success improved over the course of the Sport Education season. By examining the results one can see that it takes time to improve in ability. Students in this study didn't reach 70% success in both skill and officiating until the next to last lesson of the season. These data confirm the suggestion for longer seasons (Carlson & Hastie, 1997; Hastie, 1996; Hastie, 1998a; Hastie, 1998b; Hastie, Sinelnikov & Guarino, 2009) due to the many new things needed to be learned in a Sport Education season.

There were a couple of points of interest related to referee success. First, in swirl ball, students had to be decisive in their decision making ability. Being able to distinguish whether the student had the ball in their hand while tagged, or if it was already released, was critical towards making the correct call. In the beginning, students played the game in swarms. In other words, students were packed together and possession was difficult to distinguish. As skill success improved, the opportunities to decisively make accurate calls were more available. Second, during post-season play a couple of variables may have had an impact on the overall ability of the student official.

The teacher was more involved with students due to the fact that only one game was being played at a time. During the course of the game the teacher would make comments like "Good call ref!" or "Good tag Brian!" Having a teacher observe your performance and the actual game could possibly have a positive impact on officiating. It is also worth noting that the magnitude of the game may impact the performance of an official. Results revealed that active



involvement was at 100 percent for the championship game. There was a lot people observing the game and the excitement level was very high. Student involvement and success may have been the result of understanding that the game was important and that their performance was being observed.

### *Additional Findings of Interest*

Siedentop, Hastie and van Der Mars (2011) suggest you consider a number of factors when planning a Sport Education curriculum. As a member of any team the number one role for a student is that of a player. With Sport Education each student fulfills an additional role during game play and as a member of a team. Sufficient time is needed for a student to become accustomed to these additional expectations and to show improvement. Hastie (1996) found that students displayed high levels of accuracy in their duty roles and that the accuracy improved during the unit. In addition, it takes time for a student to improve their technique and tactical awareness so that successful participation takes place. Hastie, Sinelnikov and Guarino (2009) found that students' badminton competency improved when participating in a Sport Education season of significant length. Sport Education is set up so that students have the necessary opportunities to become competent sportspersons. In the present study, results showed that extensive time is needed for skill and referee improvement to occur. Both skill and referee success experienced significant improvement between formal competition and the post-season. Siedentop (1994) believed that seasons of greater length would create more opportunities, which could impact better student learning. The length of the season is critical to the development of the student as it relates to a number of learning outcomes. Curtner-Smith (2012) stated that one pre-service teacher misunderstanding was that lengthier seasons would result in things such as student boredom and disciplinary issues. Results from the current study show that a season of

significant length can help produce high levels of student compliance and an increase in student success as a performer and referee.

### *Future Research*

As noted, research on Sport Education in the early years has rarely ventured under the third grade (Ojeda, Luquin & Hastie, 2012). The exception here is the case study of Lewis (2001) which used elements of Sport Education with children as young as five years old. Given that the fourth grade students in this study were able to achieve all the required benchmarks for successful participation, studying a second grade class might identify the critical elements that would be problematic. One might suggest that there would need to be certain compromises to the full iteration of Sport Education. For example, the game or activity chosen would need to be developmentally appropriate for the ages involved. In addition, you would have to consider their ability to consider multiple aspects. In other words, would they be able to perform and referee actual game play at a high level of success. To answer this question would require a design that would implement an activity that would limit the number of options for the student. For example, in the present study students had to be able to do the following (1) throw to a partner while being defended, (2) catch and throw a ball before being tagged by an opponent, (3) catch and throw a ball while sometimes on the move, and (4) understand spacing and the importance of using the open space. A possible choice of activity would be a throwing at a target. For example, throwing at a target could be implemented for younger ages. A variety of targets could be used (e.g.; small, big, target zones, etc.) which only required the student to be able to throw. There would be no time limit and students could consider the proper sequence needed to be successful. In addition, different point values could be placed on each of the targets or zones. The student serving as the referee would mark the score once the throw is complete. Using the same format

as the present study, results would reveal the level of success or the difficulty of the task with a younger age class.

A second study that might be spawned from this study of second graders would include an investigation of interventions in kindergarten and first grades that might help prepare students to participation in Sport Education in upper grades. A more sophisticated replication of the Lewis (2001) study across a number of classes should provide these data.

Given that studies of competence in Sport Education have been conducted with older students (i.e., 6<sup>th</sup> grade & above) (Hastie, 1998b; Hastie & Trost, 2002; Hastie, Sinelnikov & Guarino, 2009; Pritchard et al., 2008), and with evidence from the current study that skill development of fourth graders improved over time, future research might examine tactical decision making across a number of elementary schools. While anecdotal evidence would suggest the students in this study were able to make better tactical decisions in regards to their game play, this was not empirically investigated.

The present study discovered that there was a significant improvement in skill and referee success over the course of the swirl ball season. It may be of interest to examine the correlation between skill performance and refereeing ability. For example, in the present study an examination of the skill and refereeing performance of an individual student could provide insight into how improvement is manifested. By collecting data for the individual, as opposed to the group, one could determine whether skill and referee success improve concurrently with the individual student.

### *Limitations*

For the current study only one school and one teacher was used for the purpose of data collection. For future studies it would be important to include multiple schools, in addition to

multiple teachers, so that more data can be produced in regards to having a better understanding of the complete task analysis of implementing Sport Education for the first time. It is also important to maintain the consistency of the class environment due to the fact that Sport Education is being presented to students for the first time. During the present study, there were two occasions where class had to be moved outside due to school events. While outside, open space was a benefit but it did present an opportunity for skill practice and game play to be interrupted because of students having to travel farther to retrieve a ball. These events could have obstructed total task time and the success of students due to the increase in total playing area. Finally, from a pragmatic perspective of data collection, it would be beneficial to use a wide angle lens to increase the amount of space that can be recorded during game play. If this is not possible one may add an extra camera to ensure that all play is being recorded for the purpose of including all of the game during data collection and analysis.

### *Conclusions*

Even with the limitations, this study contributes to our understanding of the capabilities of primary students participating in a Sport Education physical education unit in the following ways: First, it provides a clear understanding of the tasks that are presented during a Sport Education unit. As previously mentioned, there is a desire for participation in a Sport Education unit to consist of a movement from a high percentage of specifically explicit tasks to more implicit tasks. In other words, during a typical Sport Education season a student will have a better understanding of expectations and be more involved in the process of the class. In addition, with a high percentage of on task students, students are engaged throughout the Sport Education season. Second, the study provided evidence that skill and referee success increased during the final phase of season. Due to the consistency of skill and referee opportunities, over

the course of time students may see an improvement of overall skill ability. Ultimately, the length of season may provide the framework for students to develop improved skill competency. Third, because of the significant results of the current study, the potential to implement Sport Education into the primary grades is high. Future research could potentially provide a more solid understanding of how Sport Education can enhance the learning experience of students not only in grades 3-12, but students of all ages.

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APPENDIX A

INFORMED CONSENT FOR STUDENTS



COLLEGE OF EDUCATION
DEPARTMENT OF KINESIOLOGY

(NOTE: DO NOT SIGN THIS DOCUMENT UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

PARENTAL PERMISSION/CONSENT - CHILD ASSENT for a Research Study entitled

"Capabilities of Primary Students Participating in a Sport Education Physical Education Unit"

Your child is invited to participate in a research study to determine the skills needed to participate in a Sport Education unit. The study is being conducted by Mr. Todd Layne of the Auburn University Department of Kinesiology. Your child was selected as a possible participant because he or she is currently in the 4th grade. Since your child is age 18 or younger we must have your permission to include him/her in the study.

What will be involved if your child participates? If you decide to allow your child to participate in this research study, your child will be videotaped while participating during their regularly scheduled physical education class. The videotapes will be reviewed for student response to different instructor behaviors. Once the tapes have been reviewed to record the research data, they will be destroyed.

Are there any benefits to your child or others? If your child participates in this study, your child can expect to receive the continued benefits of participating in a physical education classroom. Although there is no personal benefit for your child allowing their data to be used in research, the researchers hope to have a better understanding of the skills needed to participate in a full season of Sport Education in the physical education classroom.

If you (or your child) change your mind about your child's participation, your child can be withdrawn from the study at any time. Your child's participation is completely voluntary. Your decision about whether or not to allow your child to participate or to stop participating will not jeopardize your, or your child's, future relations with Auburn University, the Department of Kinesiology.

Your child's privacy will be protected. The videotapes for the unit will be protected by Todd Layne. Information obtained through your child's participation may be used to be published in a professional journal or presented at a professional meeting.

If you (or your child) have questions about this study, please ask them now or contact Todd Layne at 334-844-1497. A copy of this document will be given to you to keep.



2050 BEARD-EAVES MEMORIAL COLISEUM AUBURN, AL 36849-5323

TELEPHONE: 334-844-4483

FAX: 334-844-1467

www.auburn.edu

Parent/Guardian Initials\_\_\_\_\_

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COLLEGE OF EDUCATION

DEPARTMENT OF KINESIOLOGY

If you have questions about your child's rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at [hsubjec@auburn.edu](mailto:hsubjec@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

**HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH FOR YOUR CHILD TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO ALLOW YOUR CHILD TO PARTICIPATE.**



\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Investigator obtaining consent Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Child's Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Co-Investigator Date

\_\_\_\_\_  
Printed Name

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MEMORIAL COLISEUM  
AUBURN, AL 36849-5323

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FAX:  
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## APPENDIX B

### RECRUITMENT SCRIPT (verbal, in person)

My name is Todd Layne, and I am an Instructor in the Department of Kinesiology at Auburn University. I would like to invite you to participate in my research study that looks at the skills needed to participate in a Sport Education unit by examining the task associated with each lesson of instruction. The expected outcome is to expand the use of Sport Education to include the primary grades. Anyone in this class is able to participate. We have chosen 4<sup>th</sup> grade students because this is the typical grade to begin using Sport Education.

As a participant, you will be asked to do the following.

1. Each day we will be videotaping your class for data collection.

If you would like to participate in this research study, please take home with you today this form we have. It explains to your parents what we have just talked to you about, and asks them to sign the form giving you permission to wear the pedometer, and giving us permission to record the scores.

Do you have any questions now? If you have questions later, please contact Mr. Cooper (*the students physical education teacher*) and he can give you some details. He will also contact me if there is a question he cannot answer. If your parents want to contact me there are details for them on the form that I'm giving you.

APPENDIX C  
CODING SHEET

Time	<i>Start:</i>			<i>End:</i>		
Task Type	<i>M</i>	<i>T</i>	<i>Ic</i>	<i>Isp</i>	<i>Igp</i>	<i>Iwu</i>
Explicitness	<i>I</i>		<i>Gxt</i>		<i>Sxt</i>	
% Compliance	<i>OT:</i>		<i>OfT:</i>		<i>MOfT:</i>	
% Success	<i>SP</i>			<i>GP</i>		
	<i>Skill</i>		<i>Success</i>		<i>Non-Success</i>	
	Throw		CP:		NCP:	
	Catch					
	Free Shot on Goal (A Shot taken from one knee)					
	In Play Shot on Goal					
	Goalkeeper Saves					
	Referee					

Task Type: M = Mgmt, T = Trans., I = Instruction (Cognitive, Skill Practice, Game Play, Warm Up)

Explicitness: I = Implicit, Gxt = General explicit, Sxt = Specific explicit.

% Compliance: OT= On task, OfT= Off task, MOfT=Modified Off Task

% Success: SP=Skill Practice, GP=Game Play, CP=Catchable Pass, NCP=Non-Catchable Pass

APPENDIX D

CODING SHEET: REFEREE ACTIVE INVOLVMENT

<i>Lesson:</i>	<i>Start:</i>	<i>End:</i>
<b><i>Category</i></b>		
Actively Involved		
Passively Involved		
Distracted		
Off Task		