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## A descriptive analysis of motor learning contexts within a netball season of sport education

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**A DESCRIPTIVE ANALYSIS OF  
MOTOR LEARNING CONTEXTS  
WITHIN A NETBALL SEASON OF  
SPORT EDUCATION**

by

**Kirsten Scott B.A. (Ed.)**

A thesis submitted in partial fulfilment of the requirements of the award  
of:

**Bachelor of Education with Honours**

**In the Faculty of Education  
Edith Cowan University  
Mount Lawley Campus  
Perth, Western Australia**

**SUPERVISOR: DR. ANDREW TAGGART**

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## USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

**ABSTRACT**

Time spent successfully engaged in motor skill activity has been found to have a high correlation with skill learning and achievement (Metzler, 1989). This study describes the different activities and key behaviours in which students are engaged and which ones provide opportunities to make motor skill responses.

These key behaviours are described as they occur within a year eight netball class incorporating the sport education curriculum model. Selected students were observed in the natural setting to determine how their time was spent in a sport education unit.

The method incorporated systematic observation, checklist recording and the use of interviews in an attempt to describe the learning opportunities used by high and low skilled participants in a sport education netball unit.

Analysis of engaged time and skill responses performed were the major sources of data generation. Student perceptions of their sport education experiences were also revealed to indicate what the students actually think of their motor skill development and their level of performance.

The overall purpose of the study is, therefore, to describe student behavioural experiences of motor learning and game-playing skills within a sport education season. This involves highlighting the types of opportunities students are given to perform motor skills and the way they use these opportunities. The students perceptions of their opportunities are also considered to highlight their opinions and thoughts of the sport education unit.

Major findings revealed that students generally prefer sport education classes to traditional physical education classes. Motor skill development does occur within the sport education setting and social development is greatly enhanced.

This study provides new information on motor skill learning within sport education context and can be used as a basis for future research in sport education and motor skill development within physical education.

**DECLARATION**

I certify that this thesis does not to the best of my knowledge and belief:

- (i) incorporate without acknowledgement any material previously submitted for a degree or a diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text.

Signature .. 

Date..... 23 / 7 / 1997 .....

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## DEFINITION OF OPERATIONAL TERMS

1. Dominant model - the traditional multi-activity model used in the unit curriculum where students are exposed to a large number of sports for relatively short periods: eg. 6 weeks.

2. Approach tendencies - positive feelings towards sport and physical education in a manner that promotes the desire to participate.

3. Motor play - sport derives from play (Siedentop, Mand & Taggart, 1986, p. 187). It is said to be an institutionalised form of play using motor skills thus motor play involves students making motor skill responses.

5. Skill response - a motor skill performance that is made within the activity key behaviour. This may include throwing, catching and shooting.

6. Topographical response - a skill response that is monitored for correct technique based on a set of criteria for performance. Each separate part to the complete performance of the skill is monitored and ticked as either having occurred or not having occurred using the correct procedure (see checklist appendix 1).

7. Functional response - a skill response that is monitored for its result (i.e. did the response serve its function?). These responses are recorded as being successful or unsuccessful based on the purpose and result of the skill response. These may include shooting for goal and scoring. See appendix 1 for an example.

8. Appropriate activity - activity that is deemed to be at an appropriate level of challenge for the performer. The performance cannot be too easy or too difficult, but at a level which provides a challenge and allows success. Learning is said to have occurred when a participant performs at an appropriate level of challenge.

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## **CHAPTER 1: INTRODUCTION TO THE STUDY**

Chapter one outlines the benefits of physical activity and concerns with the current state of physical education in Australian secondary schools. It incorporates the background to the study, problems that Australian secondary schools physical education is confronting and introduces sport education as a new curriculum model that is currently being implemented in schools. The research questions are then highlighted to give an indication of what this study aims to reveal.

### **Background**

Lack of numeracy and literacy skills are problems which many high school students are currently facing. Concern that our children are not leaving school with these basic skills has led to a push for more core subject time in secondary schools. As this push for a more academic curriculum emerges (Nettleton, 1985), physical education is in danger of extinction. Its existence in the curriculum is being questioned due to the lack of importance placed on the identity of physical education at the school level. Metzler (1990) suggests that despite the rightful claims physical educators make for a place in education, we stand on an eroding base of support.

As Nettleton (1985) has indicated the crowded curriculum has resulted in a reduction of time available for physical education. Physical education is fast approaching extinction, even though the importance of teaching about the movement culture should need no justification within school programs (Siedentop, Mand & Taggart, 1986).

### **The value of physical activity**

There has been much evidence documented outlining the importance and value of regular participation in physical activity (Crum, 1993; Cowell & France, 1965; Lumpkin, 1986; Seefeldt, 1986; Seefeldt & Vogel, 1986; Siedentop et al., 1986). A summary of findings which help justify physical activity as an essential component of life and therefore the necessity of physical education to be included as

a core component of school curriculum is illustrated below:

1. Regular participation in physical activity helps to "guard against the threat of disease" (Crum, 1993, p. 344), including obesity, coronary heart disease and the depletion of bone minerals.

2. Regular activity stimulates and develops muscular function. "Hearts, lungs and other vital organs owe their development and power to the demands and stimuli of the muscular system" (Cowell et al., 1965, p. 28).

3. Physical activity increases the function of the central nervous system and the ability to concentrate and remain on task. "Mental fatigue from studying or working can be reduced through exercise" (Lumpkin, 1986, p. 12).

4. Regular exercise encourages the development and refinement of perceptual abilities, such as balance, vision and tactile sensations.

5. Physical activity promotes aerobic fitness, flexibility, muscle strength and power.

6. Participation in physical activity readily helps individuals develop social sensitivity and the ability to adapt to new situations. Self concept and confidence is enhanced which helps to alleviate the onset of mental stress and/or illness. "Sport can be used in an educational way to promote both physical educational objectives such as enhancing knowledge and skill, and personal qualities, such as self esteem, cooperation and self knowledge" (Murdoch, in Grant, 1992, p. 307).

7. Participation in the movement culture allows people to develop as a 'whole' person. "Participation in the movement culture allows them to realise important values, such as recreation, health, adventure, excitement, togetherness, performance, and self realisation" (Crum, 1993, p. 341).

8. Active participation can promote basic skills to enhance social efficiency (such as responsibility and self discipline) and also transferable job skills (such as initiative and communication skills), where participants learn to become "socially efficient as they become sharers with others" (Cowell & France, 1965, p. 91).

These outcomes give a clear picture of the potential benefits of regular physical activity. This information and the development of physically active behaviours/skills should be taught to students so that they are given an opportunity to not only become involved in active participation, but that they also learn the reasons why they should participate at school and throughout their lives. If schools choose not to teach these necessary behaviours and related information to students, how then will students learn the benefits of exercise or how will they develop a desire to become involved in the movement culture?

With the decline of physical education already occurring in Australian government secondary schools (Senate Inquiry, 1992), messages are already being conveyed that it is acceptable not to participate in active leisure or sport and that it is far more important to concentrate on academic skills. This is a problem which is of great concern for physical educators and needs to be addressed before it is too late. Quality school physical education programs can make an impact on activity levels of adolescents.

#### Contemporary physical education in Western Australia

Australian and Western Australian schools have traditionally followed American and British trends in physical education. The current dominance of approaches such as the multi-activity curriculum model in Western Australian schools (Taggart, 1992a) reflects the 1970s emphasis given to exposing students to a wide range of activities. The current approach to teaching physical education involves teachers taking the role of demonstrator and performer with students following directions. Students are exposed to a large number of sports for relatively short periods of time (4-6 weeks). Garnaut (1991) claims that this smorgasbord approach to physical education exposes students to lots of different sports and as a result they do not develop expertise in any of them.

Andrews (1979, p. 127) claims that "one of the tenable aims of physical education is to develop the knowledge, skills and attitudes to enable individuals to participate in physical activity in their leisure time", and Maunsell states that "the

physical education curriculum should provide appropriate opportunities for children to develop fundamental skills and understandings of a variety of sports in order for the individual to participate in sport as a leisure pursuit" (1985, p. 10). It appears that these aims are not being met through the multi-activity model that is currently being implemented in many Western Australian government schools.

The multi-activity model of physical education requires students to perform discrete skill practices for the majority of lesson time with short games at the end of the lesson or often not until the end of the unit. This method fails to teach children about sport as it is practised in the community, which is what physical education is aiming to do (Siedentop, 1994). This model appears to be lacking when it comes to students achieving goals specified in curriculum documents, such as motor skill acquisition and the often stated affective outcomes. Locke (1992) suggests that "replacing the dominant program model is the only course of action that can save a place for physical education in secondary schools" (p. 361).

#### Sport education in physical education

Sport education is a curriculum model outlined by Siedentop et al. (1986) in which aspects of community junior sport are implemented in physical education classes. Alexander, Taggart and Medland (1993) indicate that the model begins with the formation of mixed ability teams at the start of an extended 'season', that is extended from the traditional six week multi-activity model of teaching physical education. Students are taught to fulfil not only the role of player, but other roles such as umpire, team coach, manager, captain and member of a duty team or sports board. These roles are implemented within competitive games and team practices.

The major characteristics of the sport education model are that sport education involves seasons rather than units, students become members of a team, modified games are performed during practice and competition, records are kept and publicised, a formal schedule of competition is provided and there is a festive culminating event (Alexander et al., 1993). Alexander et al. (1993) claim that the sport education curriculum model may offer a solution to the current crisis that

physical education is facing by making classes more meaningful and worthwhile for the students.

This research describes a sport education netball class in a metropolitan government secondary school. Data based on student motor skill responses and perceptions was collected, via systematic observation and interviews, during Term 4 of the 1994 school year. By collecting data using systematic observation and stimulated recall, the study can be used to help in determining the different key behaviours in which students engage within a sport education class and which of these key behaviours facilitate the learning of motor skills. Students' feelings about their experiences are also discussed.

#### Statement of the problem

Time on task is significant to learning and appropriate academic learning time can contribute to motor skill acquisition (Metzler, 1989), therefore it is important to understand which learning situations contribute most to motor skill acquisition through successful engagement. Traditional physical education classes have in many instances failed to achieve goals such as motor skill acquisition and game playing skills (Locke, 1992; Tinning & Fitzclarence, 1992). The allocation of time in physical education class can, in some ways, be regarded as ineffective. Sport education is a new physical education curriculum model being implemented in Western Australian schools and the way students spend their time in classes incorporating this model is not yet known.

This descriptive study is significant because it examines a new setting in which motor skills are performed, and possibly acquired, along with student perceptions of their motor skills. This will help to determine student use of time within the sport education curriculum model and how this use of time impacts on their learning of motor and game skills. By focussing on the ability of sport education to enhance motor skill through activity, the credibility of the model is tested with respect to its potential to improve student's motor skills.

### **Aims of the study**

The overall aims of the study are to observe and describe student behavioural experiences and perceptions of motor learning and game-playing skills within a sport education season of netball. The research involves systematic observation in the class setting to reveal what happens in a season of sport education from a skill development perspective. Stimulated recall in conjunction with interviews is used to highlight what the participants (ie. students) think of their motor learning experiences. As sport education changes the traditional roles of students and teachers, this study attempted to describe how the students spent their time in a sport education class, in relation to the types of activities undertaken and the different ways that they engaged in activity.

### **Research Questions**

The research is guided by two major research questions and a series of subsidiary questions which are illustrated below:

#### **Major research question one**

1. What are the key behaviours in which students engage within the sport education curriculum model and do these behaviours provide opportunity for motor skill development?

#### **Research Question one - subsidiary questions**

- a.) What key behaviours do students engage in within sport education?
- b.) How much time is spent in each key behaviour?
- c.) Did students improve their netball skills within the sport education netball class?
- d.) Which key behaviours provided opportunities for motor learning to take place?

#### **Major research question two**

2. What are participants' perceptions of their motor skill experiences within the sport education curriculum model?

### Research question two - subsidiary questions

- a.) Did the students participate in netball and/or other activities outside of class time and what has been the nature of their experiences?
- b.) Did the participants think that learning of motor skills took place in sport education?
- c.) How did the students perceive their own netball skills:
  - i.) at the beginning of the season?
  - ii.) in the middle of the season?
  - iii.) at the end of the season?
  - iv.) within the different game and practice settings in which the skills were performed?
- d.) Did the participants consciously try to improve their skills within the sport education class?

### Summary

This chapter has outlined the need for research on the sport education curriculum model. Sport education is an alternative to the current dominant curriculum model, multi-activity physical education, which appears to be failing to achieve its objectives and possibly sending physical education towards extinction in secondary schools. As sport education has only recently been implemented in secondary schools throughout Australia, the need to better understand how the model works is essential. Such research will, in part, determine if sport education can be considered a model which may help to combat the decline of physical education in schools.

The research questions provide structure for gathering information on how the sport education model operates and how students perceive their learning experiences within the model. This will help to establish the relevance of sport education to Australian secondary school physical education.

Chapter two outlines the literature related to past research in physical education and the need to change the current state of physical education and sport

**education in Australia. Recent research on sport education as an alternative curriculum model to traditional multi-activity physical education is also investigated.**



## **CHAPTER 2: LITERATURE REVIEW**

The review of literature is presented specific to four key areas relevant to this research (a) secondary school curriculum, (b) sport pedagogy research, (c) the need for change in physical education, and (d) sport education as a curriculum model for skill learning.

### **Secondary school curriculum**

There are many different interpretations of what the term curriculum means. It can be considered as a document, a process or even a set of learning experiences. It can essentially be defined as "all the planned learning opportunities offered to learners by an educational institution and the experiences learners encounter when the curriculum is implemented" (Print, 1993, p. 9). Curriculum is typically represented as a document written prior to implementation. It is fundamentally about what to teach in schools and how this selected subject matter is to be taught (Marsh, 1986).

A curriculum involves numerous subject areas and also different teaching methods within these areas. For example, a physical education curriculum involves many different subjects which can all be taught in varied ways giving unique learning opportunities and experiences to those involved in the curriculum. Examples of these include dance, outdoor education and physical education studies, all of which may be implemented using teacher directed methods or team-teaching and pupil-centred approaches to learning.

Marsh (1986) claims that many different people are involved in the curriculum development process including national organisations, state departments of education, and more recently, school committees and classroom teachers. "Staff are becoming more responsible for a vast array of curriculum decisions" (Print, 1993, p. 17). Decisions that are made include the goals, aims, objectives and ultimately the learning opportunities given to students. These decisions are based on what curriculum developers see as important or essential for today's youth and may be influenced by many different factors such as life experiences, society and even the media.

### The physical education curriculum in Western Australia

Currently physical education in Western Australian government schools follows guidelines from the unit curriculum. There are eight different subject areas within the unit curriculum, with Health and Physical Education combining to be one subject area. The unit curriculum guidelines were first outlined by the Ministry of Education in 1987 and first implemented in 1988. General aims of the Health and Physical Education component were revised in 1990 and can be seen below:

1. To promote the development of a healthy lifestyle.
2. To encourage the creative use of leisure time through physical activity.
3. To extend the range of experience in physical activity.
4. To provide experiences which reflect variety, vigour, vitality, challenge, achievement, joy, maximum participation and good sporting behaviour.

(Ministry of Education, WA, 1990, p. 1)

It is suggested that different curriculum models or methods of implementing a curriculum program (Siedentop et al., 1986) and also different teaching styles (Mosston & Ashworth, 1986) can be used to achieve the aims of physical education. The dominant curriculum model currently used for implementing the unit curriculum in physical education in Western Australian government schools is commonly known as the multi-activity model (Siedentop et al., 1986). The pedagogy of the current physical education class is "typified by teacher control, student passivity, drill and practice" (Taggart, 1992a, p. 8). The teacher takes the role of manager and demonstrator and students typically follow teacher orders. Students are generally exposed to a large number of sports for relatively short periods of time (ie. approximately 5-7 weeks), learning about lots of different activities briefly, but "developing expertise in none of them" (Garnaut, 1991, p. 9). However, it must be noted that not all physical education programs adopt this approach. Dance and outdoor education are two examples of programs where student centred approaches are often implemented. A majority of physical education programs do actually use this teacher centred method though.

In 1986, a new Education Minister in Western Australia, Mr Bob Pearce, prompted a review of the current situation of school education in the state. In December, a Better Schools Report (1986) was released which recommended changes to the policy and practices of education in Western Australia. Recommendations included the separation of the Education Department from Employment and Training and also the focus for schools to be more responsive to their respective communities. Over the next five years schools, through devolution, became more responsible for decision making with parents and the community becoming important in shaping curriculum in schools. These decision making groups saw problems with physical education because "the emphasis on a sports skills philosophy and a smorgasbord approach (ie. multi-activity) to programming physical education was not a winner with the community" (Garnaut, 1991, p. 11). Similarly, objectives related to improving fitness were not being achieved, with only two lessons per week being scheduled.

The National Curriculum Project began in 1989, based on a set of agreed national goals for Australian schools in eight key learning areas (Australian Educational Council, 1989). This brought about changes to physical education. Initially, the non-appearance of the name physical education in the national curriculum structure prompted strong reaction echoing the claim of the decline in the status of physical education in schools. The health learning area included physical education, health education and personal development. Although this learning area is now referred to as Health and Physical Education (Garnaut, 1991), there is an accepted sense that physical education is still on the decline in Western Australian Government schools. The marginality of physical education was attributed to its failure to achieve some of its objectives (such as improving fitness) and a solution was needed reserve a place for the subject within a crowded curriculum.

Siedentop et al. (1986) presented several alternative curriculum models available for implementation within secondary school physical education including the fitness model, sport education, wilderness sports, adventure education, the social

development model, and intramurals, clubs and drop-in recreation. These models were designed to encourage the development of a program philosophy for each school/PE department, thereby guiding the development of programs. Regardless of the program model chosen, each should:

- demonstrate the achievement of its outcomes
- be committed to equity and equality
- achieve more by doing fewer things better, and
- socialise students into the roles of participants"

(From Sport Education in Physical Education Manual, 1993, p. 5).

As the current curriculum "does not excite or stimulate students" (Tinning & Fitzclarence, 1992, p.287), alternative models and associated strategies must be considered to save a place for secondary physical education within a changing high school curriculum (Locke, 1992). This study focuses on the sport education curriculum model within a secondary physical education program.

#### Curriculum dimensions

The term curriculum involves varied parts of the learning process that combine to become experiences for students (eg. documented aims, learning strategies and teaching styles). Choi (1992) refers to these different parts as curriculum dimensions. From Choi's orientation, the curriculum can be conceptualised into the textual, perceptual, hidden, operational and the null dimensions (Choi, 1992; Eisner & Vallance, 1974), which refer to:

1. What is intended to happen before implementation(textual).
2. What actually happens during implementation (operational).
3. What the participants think and feel about what happens (perceptual).
4. What additional things happen that were not intended (hidden).
5. What did not happen that was either intended or not intended (null).

The definitions and goals of what we plan for a curriculum are largely determined by the assumptions through which they were approached. Beliefs and attitudes of decision makers can greatly influence who is taught, what is taught and

how it is taught. Eisner and Vallance (1974) outline five different conceptions of curriculum which have an impact on what is included in the curriculum and how the curriculum is to be implemented. This study uses one of these, a social reconstruction orientation to curriculum (Eisner & Vallance, 1974), in which schools are viewed as being able to serve as agents for social change. It embraces both a present and future orientation through which physical education can be learnt at school and encouraged to be a continuing part of a persons' life. This conception encourages the school to teach students to become socially responsible "advocating a curriculum that would make the individual better able to keep up and function in a rapidly changing world" (Eisner & Vallance, 1974, p. 11).

Sport education is one of the curriculum models outlined by Siedentop et al. (1986) in which social responsibility becomes a part of the learning process for all students. The devolved nature of the sport education class shifts the responsibility for learning to the individual and to the teams that are established at the beginning of the season. Social skills are enhanced through team affiliation and the need to solve their own problems in their own way. With sport education as the curriculum focus for this study, a social reconstruction view of curriculum is used to consider the responsibility that the students are given to act as independent learners and to cooperate with others to improve as a team.

#### Sport pedagogy research

Sport pedagogy can be referred to as "disciplined inquiry from different perspectives into teaching and coaching in a variety of contexts in order to inform and improve practice" (Bain, 1992, p. 4). Choi (1992) refers to sport pedagogy as physical education curriculum and instruction. It is a sub-discipline of human movement studies which includes teaching as a means of facilitating the acquisition of motor skills (Nixon & Locke, 1973) and research on curriculum and instruction. Lawson claimed in 1990 that sport pedagogy research was quite new and originally founded by the North American research programs of Lawrence Locke and Daryl Siedentop in the early 1970s. Sport pedagogy research has since become internationally recognised

and developed into strands of Research on Teaching (ROT) and Research on Teacher Education (ROTE), which are categories commonly used in other areas of educational research.

Studies conducted by Siedentop and other researchers attended to some of the same questions and methodologies as general ROT and ROTE, through the use of mainly empirical and positivistic methods. Since then sport pedagogy research has built on the early empirical methods and also adopted new methods with new understandings (Lawson, 1990). Many books and journals related to the field are now available. With some of this knowledge gained in Australia, sport pedagogy research in this country has been claimed to have moved from a childhood to an adolescent status (Taggart, 1992a). Taggart (1992a) suggests that research should now move on to doing "a few things well, and focus on understanding a lot about a little" (p. 6), in order to keep sport pedagogy research in Australia moving forward towards adulthood.

Even though there has been useful information and knowledge gained from sport pedagogy research in Australia, research on teaching physical education has not made much of an impact on Australian educational research. Only 1.3% of literature found in Australian educational writings (Taggart, 1992a) has included research on teaching physical education. It has generally followed the form of research on general teaching education five to ten years later (Lawson, 1990; Taggart, 1992a).

Research on teaching physical education has traditionally centred on instruction and how to teach (Bain, 1992), with male controlled empirical research dominating the field. This approach pursues validity, reliability, causal relationships and the expression of relationships among variables (Taggart, 1992a). The research aimed to find out what the teacher did in the class and how this could have been altered to bring about changes in student behaviour. Typically, "the concern was how teachers spend their time in class" (Metzler, 1989, p. 90).

By typically focussing on process-product variables (Dunkin & Biddle, 1974; Brophy & Evertson, 1974) studies on teaching physical education outlined a number of teacher process variables that positively correlate to student achievement. For example, teacher effectiveness was found to be a major contributor to student achievement (Silverman, 1985). Therefore, a teacher can increase student learning by becoming more effective in the class and manipulating time so that students increase time spent in activity and decrease time spent in non-functional tasks such as waiting or management.

Findings from observing teacher behaviour have indicated that teachers spent on average between 25% and 50% of class time involved in non-instructional activities such as management, passive observing and organising (Metzler, 1989). These are associated claims that teachers do not plan for time management within the class (Tousignant & Brunelle, 1983).

Berliner argued as far back as 1979 that learning outcomes are more related to how students spend their time in class, rather than how teachers spend their time, thus the focus of attention should be on the students rather than the teacher, and on individuals rather than an entire class. In 1982, Anderson introduced a reliable tool for monitoring students individually within a class. This research tool, based on systematic observation, collected data on a small sample of students within a physical education class. This shifted the empirical analytical focus of research to case study-like methods where individuals became the focus instead of large samples. This allowed researchers to understand a lot about a little, by focussing on a small sample in greater detail, rather than making generalisations from large sample sizes.

#### Academic learning time - physical education (ALT-PE)

Academic learning time (ALT) refers to time that students spend successfully engaged in activity achieving high levels of success. It is claimed to be a significant variable impacting on student learning. Silverman suggests that ALT-PE is "one of the strongest predictors of student achievement in the classroom" (1985, p. 66). Thus, the more time students spend in appropriate activity (which, allows some success, but is

still challenging), the more learning takes place (Metzler, 1989). Siedentop (1994) suggested that the level of success in physical education activities should be 75% or higher. This was seen to be providing tasks at an appropriate level of challenge to the individual. In physical education the best opportunities for motor learning appear to be purposeful engagement in activity while allowing for practice and refinement of skills and games or activities under pressure to simulate competitive situations in sport.

There has been much research on academic learning time in physical education (ALT-PE). The first ALT-PE study was completed by Metzler in 1979, and since then findings have indicated that the time spent engaged in ALT-PE is particularly low. It is apparent that management time, waiting time and transition time clearly take up the majority of physical education lessons. Time spent in ALT-PE range from 10% - 38% of lesson time even though 65.7% - 85% of lesson time is acknowledged as time made available to appropriate physical education content (Beauchamp, Darst & Thompson, 1990). "On average students were found to experience ALT during approximately one third of the class period" (Godbout, Brunelle & Tousignant, 1983, p. 18).

Variables within the physical education class have been shown to impact on ALT-PE. Research indicates that individual activities generally result in higher levels of ALT-PE than games (Metzler, 1990). The time used by participants is said to be a direct result of the activity undertaken (Metzler, 1989). For example, individual drills and small sided games provide more activity time than full sided team games in which waiting time is greatly increased. Watt (1993) states that there is a large disjunction between high and low skilled participants, particularly in netball and basketball. In his research high skilled participants made significantly more skill responses in every activity undertaken. Effective planning and structuring of lessons is therefore needed to provide opportunities to increase ALT-PE through modification of activities which maximise participation.



A number of studies in physical education have compared students of differing abilities and skill levels. Findings have indicated that high ability students generally record higher levels of ALT-PE (Pieron & Concalves, 1987), they have far more opportunities to participate in activities (Pieron & Concalves, 1987; Wuest, Mancini, van der Mars & Terrillion, 1984) and they also learn how to learn better (Placek, Silverman, Shute, Dodds & Rife, 1982). Generally lower skilled students are given less opportunity to actively participate and subsequently accrued lower levels of ALT-PE (Mancini & Wuest, 1987; Telama, Varstala, Heikinaro-Johansson & Utriainen, 1987; Pieron & Concalves, 1987; Placek et al., 1982).

The need to understand which strategies can help promote learning is essential. Physical education needs to be able to demonstrate that student experiences in physical education classes actually impacts on their motor and social skill learning. ALT-PE findings have shown that learning opportunities are often limited. Linking ALT-PE with a curriculum model, such as sport education, should prove to be beneficial in understanding learning opportunities provided and outcomes achieved by students who engage in this new way of teaching sport in physical education.

#### Future research in sport pedagogy

General strategies and intervention packages (Siedentop, 1981, 1994; Siedentop et al., 1986), which focus on the teacher developing planning skills and an understanding of game strategies in order to maximise functional time for students in physical education, have now existed for over a decade. Strategies such as modified games with teams of smaller numbers appear to present opportunities for improved learning, as student participation levels can be increased and time spent waiting for a turn kept to a minimum (Brown, 1989).

Lawson (1990) states that there is an abundance of information related to sport pedagogy, but limited amounts of this information actually becomes knowledge used to improve the practice of physical education and sport in and out of schools. Research on teaching physical education rarely completes the research cycle, as outlined by Lawson (1990), where information generates useful knowledge which can

be integrated into meaningful frameworks for implementation in a sport setting. Taggart (1992a) claims that information needs to be seen as part of a bigger process, where the natural progression of research would be to gain information, construct useful knowledge from the information and develop guidelines for practice so that the knowledge gained can improve the current situation.

Sparkes (1990) states that too much research on sport pedagogy follows the empirical analytical paradigm and Taggart (1992a) claimed that there was not enough descriptive research. He suggested that sport pedagogy research needs to concentrate on doing a few things well and in more detail in order to understand certain situations better, rather than generalising across settings. In response to this call, this study incorporated the interpretive paradigm, as outlined by Candy (1989), to analytically describe motor skill levels and perceptions of four students within a sport education season of netball. As the sport education model has not yet been investigated, this descriptive study can help to promote future research in this area and even implementation of the sport education model by revealing unknown information which may be put into practice in future physical education classes.

#### The need for change in physical education

Recent reports on secondary school physical education (House Report, 1994; Senate Inquiry, 1992) have stated that physical education is on the decline in high schools in terms of curriculum time and status. Reasons for this decline include physical education's lack of ability to show achievement of major goals and outcomes, such as personal development, social responsibility and motor skill acquisition (Siedentop et al., 1986). Devolution in Western Australian government schools has indicated that decision makers did not agree with the smorgasbord philosophy for their physical education programs. School based decision making groups did not have any evidence to suggest that physical education programs were going to achieve their objectives with only two classes scheduled per week. The relevance of physical education was declining with other subjects becoming more appropriate within the crowded curriculum (Garnaut, 1991). "In the most profound

sense of what we mean by the word education, they (current physical education programs) do not work" (Locke, 1992, p. 363).

In the past, traditional models of physical education have assessed students on their behaviour in class rather than actual achievement. Teachers typically fail to hold students accountable for instructional tasks, but for managerial behaviours such as dress, attendance and compliance (Lund, 1992; Placek, 1983). Little emphasis is placed on motor ability or achievement, except for a performance skills test at the end of the unit (Alexander et al., 1993). Social issues within physical education appear to be ignored during assessment. Tinning and Fitzclarence (1992) talk of a crisis in Australian secondary school physical education and that it is "irrelevant and boring for many adolescents" (p. 287), with a "large disjunction between physical education and community sport" (p. 288). Significant numbers of students have reported negative feelings towards the physical education class, physical activity and themselves (Locke, 1992; SPARC, 1994). These factors bring into question the accountability of physical education within the education system.

Locke (1992) claims that neither improving instruction nor upgrading the current curriculum will suffice. He continues to stress the need for program replacement in secondary school physical education in order to secure a place for it within the curriculum. Linking physical education to community junior sport may offer a solution to why physical education has been failing using multi-activity methods. By adopting a program which teaches students how to participate in sport at a number of different levels, purposeful and relevant education of physical participation may take place.

#### Sport education as a curriculum model for skill learning

##### The sport education model

Siedentop et al. (1986) suggest that motor play through sport is an essential component of physical education as it provides opportunities to make skill responses under different circumstances. Traditional, multi-activity physical education has generally limited student's involvement in sport. Games and modified practices

appear to be limited, with a focus on drills and discrete motor skill performances throughout the unit. Short, unmodified games conclude some lessons and a practical motor skills test is often conducted as an assessment tool at the end of the unit (Alexander et al., 1993)

Sport education is a new curriculum model in which physical education classes model sport as it is practised in the community (Siedentop, 1994). The expectations of sport education are that students must do more in physical education classes than to 'show up, dress up and stand up'. In the sport education model students are expected to perform certain skills (within different activities such as skill practices and modified games), know certain concepts (eg. how to umpire) and behave in certain ways (eg. begin activity without instruction). The responsibility for learning is given to the individual with the teacher stepping back to allow students to solve their own problems in their own way, increasing the social involvement of students as well as participation. Teachers take the role of facilitator and what is learnt becomes a function of a devolved level of responsibility for learning.

#### Research on sport education

Sport education research began in New Zealand in 1991. Bevan Grant conducted a collaborative research project involving 34 schools throughout the country. A total of 86 teachers and 2368 year 10 students were involved in 14 different sports within seasons of between 16 and 22 lessons over seasons of 8 to 11 weeks duration. To increase participation within the sport education class some of the 14 sports were modified by changing team numbers, court sizes, rules and length of game time. Teachers were expected to attend in-service courses, monitor their classes and share their experiences through reflective writings. Findings from the project indicate that "the sport education experience impacted students in ways that exceeded teacher expectations" (p. 310) with the most notable achievement for many students being the feeling of being a valued member of a team (Grant, 1992).

From the findings Grant (1992) concluded that students experienced three different stages of development during the season. The first stage, being in the first

few weeks of term, saw students wanting to beat their opposition teams, with the games being the most important aspect for them and no consideration given to skill acquisition or team cohesion. The second stage involved students considering ways in which their team could improve skill levels and tactics used in the games. Teacher input was sought here, a general interest in what the other teams were doing was apparent, and practice time and interactions with team members increased. The third and final stage highlighted student interest in tactics that could be used when playing certain teams and also a personal interest in self-improvement and success. This notion of self-improvement was evident for all students, and of particular note, the lower ability students. Interactions and cooperation within teams also increased as the season progressed. Overall, Grant concluded that sport education "can significantly contribute to student's learning about many things relevant to both sport and physical education" (1992, p. 314).

Sport education research began in Australia in 1992 with the context of improving the state of physical education in Australian schools. Workshops conducted by Grant took place in Western Australia in December of 1992, where 32 teachers were given a resource manual and student role cards. All teachers were invited to trial the program in 1993. This led to the first trial in Term 1, with 27 teachers implementing the program. Teachers were encouraged to implement as many of the characteristics of the sport education model as possible and to implement them at a level which was appropriate to the needs of the class and the school (Alexander, Taggart, & Thorpe, 1995). Some schools adopted all of the sport education characteristics, with others using only a few. Most (eight out of ten) schools chose to adopt the use of coaches, which was either a student or the teacher. Many schools chose not to use modified games in competitions. Only two out of ten schools incorporated modified games during the competition part of the season. Most preferred the use of full sided games (Alexander et al., 1995).

Overall, the sport education experiences were surprising for many of the teachers. Teachers commented that "sport education has produced outcomes that I

have been trying for years to produce in a normal situation" (SPARC, 1993, p. 15). Teachers reported significant changes in attitudes, particularly among "students who had previously been uncooperative" (SPARC, 1994, p. 15). Students commented that "it was just like club sport. Everyone tried harder than in normal physical education" (student survey, from SPARC, 1993, p. 16).

Sadler conducted a study in 1993 which looked at student engagement time within a sport education volleyball class. He revealed that off task figures were remarkably lower than in traditional physical education classes, even though activity time was not increased. Games were full sided and not modified in any way, which may have had an impact on less than impressive ALT-PE data.

Following the success of the first trials in Western Australia, national trials commenced in 1994, where teachers from all over Australia attended workshops and were given resource files to help with implementation of sport education. Following these and other trials, teacher and student stories of their experiences with the sport education model indicated very positive findings in general. Major findings included:

1. All states in Australia (except Queensland) agreed that sport education contributed to greater skill development than traditional models (Carlson, 1995; SEPEP, 1995).

2. Students demonstrated superior knowledge of rules, techniques and game strategies (Alexander et al., 1995; Carlson, 1995; SEPEP, 1995; Siedentop, 1995).

3. Student participation levels and perceptions were positive with a majority of students preferring sport education to general physical education classes for the particular sports undertaken (Alexander et al., 1995; Carlson, 1995; SEPEP, 1995).

4. In general, teachers also preferred sport education to traditional physical education methods because (a) class management was kept to a minimum, (b) students demonstrated better attitudes, (c) increased learning of tactics, as well as skills, was shown, and (d) improved assessment procedures, such as time to accumulate assessment data and time to reflect on assessment techniques, were more readily available due to the student-centred nature of the sport education class

(Alexander et al., 1995; Carlson, 1995; SEPEP, 1995; Taggart, Browne & Alexander, 1995).

"Initial experiences suggest sport education is well placed as a curriculum model within a balanced physical education programme" (SEPEP, 1995, p. 95). It appears to be a useful vehicle for reaching physical education objectives and can also contribute to students' personal growth (Siedentop, 1994). Sport education has allowed people to enter sport in ways that tend to enhance their opportunities and find meaningful ongoing commitments to participation in an attempt to improve the conduct and practice of sport in society.

It must be noted, however, that competition in sport does not always produce positive relations between competing teams. The desire to win can often outway the social benefits of competition (Coakley, 1994). "The success of one participant automatically causes the failure of others" (Coakley, 1994, p. 78, which can do more damage than good when it comes to enhancing self esteem and cooperation among students. Coakley suggests that sport should emphasise pleasure and participation for all and that "success in today's world depends more on the ability to cooperate and maintain intrinsic motivation than on the ability to compete and the desire to dominate others" (1994, p. 99). The sport education program aims to use competition in a sport to emphasise cooperation, problem solving and teamwork within any one team involved competitively. This study looks at one team and how they work together to find ways to improve their skills as a combined unit. The emphasis on how they react to the competitive part of the season will be discussed in the results chapter.

### Summary

The literature review has outlined the current physical education curriculum being implemented in Australian secondary schools. Research has indicated that this curriculum is failing to achieve its objectives, prompting a need for programme change to retain physical education in the school curriculum. Alternative strategies, such as sport education, need to be addressed to determine their capabilities as

replacements for traditional physical education programmes. This study aims to observe and describe the sport education curriculum model during implementation so that an in depth analysis of student behaviour in a sport education class can be undertaken.



## CHAPTER 3: CONCEPTUAL FRAMEWORK

### Introduction

A conceptual framework provides a foundation of understanding that permeates the research conducted, and upon which analysis and interpretation of the phenomenon studied can be justified. It involves the identification of research variables and relating them to the research questions.

This research was undertaken within the operational and perceptual dimensions of curriculum as outlined by Choi (1992). The operational dimension refers to what actually happens within the class as the curriculum is implemented and is described from video recordings of observable events in the physical education lesson. The perceptual dimension takes into consideration what the participants think and feel about their experiences within the curriculum. This dimension is examined with the support of interviews with students and an analysis of their thoughts and experiences in the sport education setting.

Candy (1989) outlines three paradigms from which educational research can be conducted. They are empirical-analytical, interpretive and the critical paradigms. Empirical-analytical, otherwise known as positivism, stresses the power of 'positive knowledge', or 'scientific truth'. Experiments are usually conducted to determine causal relationships between and among variables, which often are expressed in mathematical terms (Candy, 1989). The interpretive paradigm takes a different view of educational research. Intentions, values, attitudes and beliefs that influence people are studied to determine reasons behind their actions. The 'why' question becomes more important in the interpretive paradigm to enable researchers to better understand motive or reason. Case studies and participant observation are examples of methods to collect data within the interpretive paradigm (Candy, 1989). Critical theory, however, takes the notion of educational research in another direction. "The function of critical theory is to understand the relations among value, interest, and action, and to change the world, not to describe it" (Popkewitz, 1984, p. 45). It involves critical

self reflection, coupled with action for change. The final outcome of critical research is change, which is why this paradigm is considered to 'go beyond' other approaches.

The five dimensions of curriculum (Choi, 1992; Eisner & Vallance, 1974) are combined with the three research paradigms (Candy, 1989; Habermas, 1973) to provide a comprehensive framework for the study. Table 1 outlines the study by using the multidimensional, multiparadigmatic conception of curriculum (Choi, 1989), to show which dimensions of curriculum will be examined and the research approach used to examine them.

Table 1.

A Multidimensional, Multiparadigmatic Approach to Studying Motor Skill Acquisition within a Sport Education Model (after Choi, 1992).

DIMENSIONS IN THE SPORT EDUCATION CURRICULUM	PARADIGMS	
	Empirical analytical	Interpretive
Textual		
Operational	X (RQ 1)	
Perceptual		X (RQ 2)
Hidden		
Null		

The dimensions in the sport education curriculum refer to the different parts of any one lesson. For example, the textual dimension involves documented text on what the lesson will involve. Table 1 shows how the sport education curriculum model is studied within the operational and perceptual dimensions of curriculum. Research question one asks 'what are the key behaviours in which students engage within the sport education curriculum model and do these behaviours provide the opportunity for motor skill development?'. This question is looked at during the operational dimension of the curriculum (ie. what is happening during the actual implementation of the sport education class).

Research question two asks 'what are participants' perceptions of their motor skill experiences within the sport education curriculum model?'. This question, as shown in Table 1, is studied in the perceptual dimension of curriculum (ie. revealing participants thoughts and feelings of the sport education class).

The paradigms shown in Table 1 refer to the different research methods that are used to collect the data. It indicates that the empirical analytical and interpretive research paradigms are employed to allow the research questions to be answered. It can be seen by referring to Table 1 that to collect relevant data to answer research question one, empirical analytical methods, such as video recordings of students in the class were used. The data will reveal knowledge of observable class experiences written in quantitative terms (Candy, 1989). Research question two uses the perceptual dimension, via interviews, to collect information on students' thoughts and ideas about the sport education class.

The conceptual framework for this study, presented diagrammatically in figure 1, has been developed with the belief that four variables (key behaviours, perceptions, responses and success) have an effect on motor learning in a sport education context.

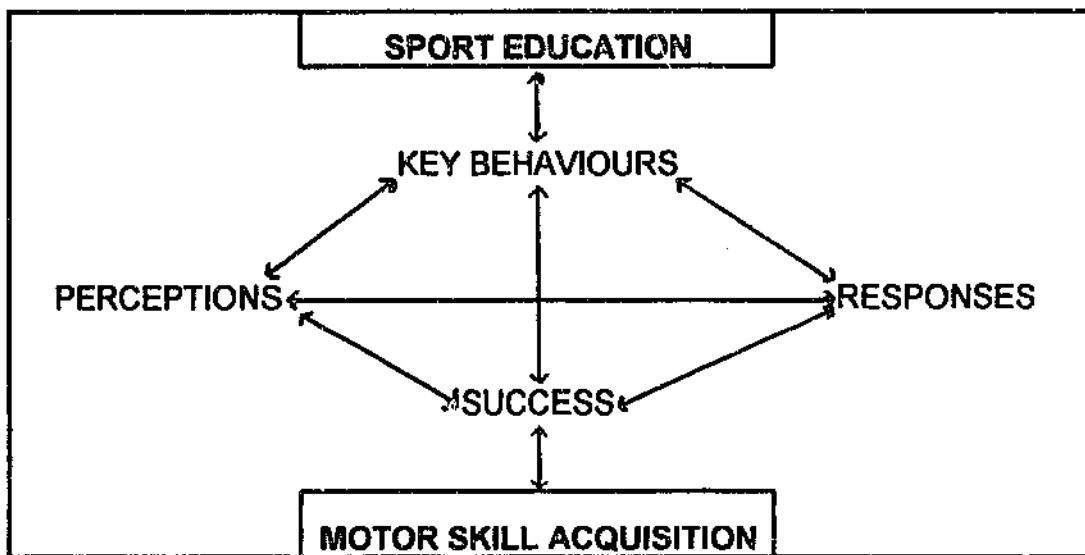


Figure 1.

Conceptual Framework of Key Behaviours, Perceptions and Responses in a Sport Education Curriculum Model.

Research on teaching in physical education has stated that time spent in activity has a direct bearing on motor learning (Watt, 1993; Metzler, 1989; Silverman, 1985). Other factors within the class setting, such as student motivation and perceptions, must also be considered as influential to learning in physical education. The conceptual framework for this study gives a focus for attention within a particular sport education class. Students were monitored in terms of the responses they made, their perceptions of the class and their levels of success. This enabled a description of the extent to which these variables had an influence on the students motor learning experiences.

Within the sport education class, students are engaged in a variety of key behaviours that had a positive or negative effect on learning. Key behaviours that had a positive effect on learning are considered functional and included key behaviours such as knowledge and activity. Non-functional key behaviours, such as management and off-task behaviour are regarded as having a neutral or negative effect on student learning. Waiting is generally a non-functional behaviour, however, it may be considered to have a positive affect on learning. When a student is waiting for a turn

to become active and is watching another student perform a skill, feedback on someone else's performance may help the student to become aware of how to perform a skill correctly even though they were not directly involved in a performance themselves. Although the student is watching and listening to information on someone else's performance, there is only a small likelihood of motor learning being increased and thus they are recorded as being in the waiting behaviour.

As students engaged in the activity key behaviour (ALT-PE) in class, they made motor skill responses. These responses were deemed as either successful or unsuccessful, depending on the purpose and result of the performance. For motor skill acquisition to occur, a student must have high levels of success when performing skills. This does not mean, however, that every attempt has to be successful, but the activity must be at an appropriate level of challenge for the individual. For example, a student may be achieving near one hundred percent success in an activity that is very easy for them. Without an appropriate challenge when performing skills, a student will not improve or learn a skill so that it can be performed on demand and in pressure situations, thus motor skill acquisition has not really occurred, even though the performance is successful.

Before and after students make skill responses they have their own perception of the class, how they view their skills and how they perform in their team or group. These perceptions have an effect on their skill learning in ways that differ from just making a skill attempt in activity. For example, students need to feel comfortable in their surroundings to have the confidence or courage to try new things in front of their classmates. If a student perceives a negative learning environment he/she may feel uncomfortable and shy away from trying to perform skills in case he/she is laughed at or ridiculed. These perceptions of the physical education class may have affected students' motivation towards activity and could have altered the way in which they may have acquired a skill. If a student does not want to perform a skill he/she may not attempt it at all or not try when attempting it. In such situations success levels will inevitably drop, leading to lower levels of confidence, resulting in skills not being

mastered. It is important to understand student perceptions in the classroom and try to keep their experiences positive to give them every opportunity to learn without embarrassment or ridicule.

When students perform motor skills in class the result can be either successful or unsuccessful. In order for motor skill acquisition to occur they must achieve some success. Not every attempt, however, must be successful for learning to occur. How then would they learn from mistakes if they are always successful? Feedback offered from unsuccessful attempts can be offered to students to allow them to learn from their errors and can help them to understand why they were wrong and how they perform better.

These four variables can all have an impact on motor learning. Each variable can interact with the others. Students have perceptions of the sport education class, the key behaviours in which they engage, the responses they make, the successes they have and also whether they can perform motor skills. The conceptual framework shows how these variables are linked promoting motor skill acquisition within sport education. The best scenario for motor learning to occur is for students to be engaged in sport education, performing activity key behaviours, making some successful skill responses, while having positive perceptions of what they are doing.

The conceptual framework shows that the study focuses on these factors individually and the relationship between these factors for target students in the class. The subjects are described in relation to these factors to gain a better understanding of the sport education curriculum model in terms of motor skill learning.

## **CHAPTER 4: METHODOLOGY**

The research questions dictated the choice of method for the study. The questions arose from the statement of the problem and the need to find out particular information about the sport education model.

This chapter describes the research design; selection of the subjects; data collection procedures; the instrumentation involved; data analysis procedures; reliability and validity considerations; methodological limitations and ethical considerations involved.

### **Research design**

This study was essentially descriptive in nature adopting a naturalistic approach to data collection. "Certain kinds of behaviour can only be (or best be) observed as they occur naturally" (Gay, 1990, p.206). A combination of quantitative and qualitative research methods was employed. Quantitative data was collected from video recordings and field notes of observable events in the class as they occurred. Qualitative data was obtained via interviews of student perceptions of events that took place within the class. This research is consistent with "recent developments in the evaluation profession (that) have led to an increase in the use of multiple methods, including combinations of qualitative and quantitative data" (Patton, 1990, p.10). This study used various data sources to integrate findings and to help in the triangulation of results.

### **Subject selection**

Leedy (1989, p. 142) states that "the population for the study must be carefully chosen, clearly defined, and specifically delimited in order to set precise parameters for ensuring discreteness to the population". The research was undertaken at a metropolitan government high school during Term 4 of 1994. The students were chosen from the same sport education team and had all experienced sport education in Term 3 of that year, in a soccer unit. One team out of the sport education class was chosen and within that team four students were chosen as appropriate subjects for the study. Based on observations of their skills in lessons one to three the researcher

categorised the students as high or low ability. From the mixed sex class two females and two males (one high ability and one low ability of each sex) were chosen as subjects. Team selections were completed, with students remaining in these netball teams for the rest of the season. A sports board of four students graded each player on their ability at the levels A, B or C grade. Captains were chosen from the A grade players. These captains then took turns to choose the rest of their team starting from the remaining A grade players and moving down to the C grade players. The captains alternated selection between males and females. This procedure was followed with the belief that all the teams would have the same number of players (9) and would have players of mixed ability to create an even competition.

Competition began in lesson five. It was only when the classes were joined and teams were selected that data could be collected on all four subjects. The subjects for the study were not determined until team selection was completed. One team was randomly chosen and then four students within this team became the subjects for the research. These four subjects were both male and female and also consisted of high and low ability groups. They are discussed in the results chapter under pseudonyms. The two high ability subjects are referred to as Helen and Harry (one male and one female), while the two low ability subjects are referred to under the names of Lionel and Louise. This makes it easy to remember them as high or low ability and as male or female.

A small sample was chosen so that detailed descriptions of one set of events could be made in order to try to better understand the particular situation, rather than to make generalisations from larger samples. The small sample also helped to provide a rich source of information relative to a sport education class which can be used by future researchers to determine the relevance of these findings to their own situation. Research on sport education is quite new and thus detailed descriptions of classroom events may be of benefit in providing a base from which further research could build.



The female teacher of the sport education class had attended workshops and training during the Sport Education I trials in 1993. She had experience in using the sport education curriculum model in a soccer unit the previous semester.

#### Data collection procedures

The data collection methods were chosen in the belief that they were best able to answer the research questions. The two research questions necessitated different methods.

#### Research question one

What are the key behaviours in which students engage within the sport education curriculum model and do these behaviours provide opportunity for motor skill development?

The research methods employed to answer question one were observations from video recordings. Checklists based on the topographical components of the skills specific operational definitions (see appendix 1 and 2) were used to record these observations.

#### Research question two

What are participant's perceptions of their motor skill experiences in sport education?

The research method used to answer question two was interviews. The interviews were tape recorded and transcribed. See appendices 8 and 9 for this information.

#### Instrumentation

Three instruments were used to collect the data for the study. The instruments used in the study were:

1. An adapted Sport and Physical Activity Category Observation System (SPACOS), which was based on an instrument designed by Taggart (1992b),
2. Skill performance checklists, and
3. Interviews using stimulated verbal recall.

These data collection instruments are outlined in more detail below.

### Adapted Sport and Physical Activity Coding Observation System (SPACOS)

The adapted SPACOS instrument applies systematic observation using continuous recording methods to show what learners do within the physical education setting. The SPACOS instrument is made up of discrete categories, or key behaviours in which target students engage during a physical education lesson. These behaviours include activity, knowledge, waiting, management, transition, break and off-task (see appendix 3 for definitions of key behaviours). The amount of time each subject spent in each of these key behaviours was recorded on a data sheet (see appendix 4 for an example). The knowledge and activity key behaviours were considered to be crucial to motor learning and so were split into sub-categories to allow more detailed information to be gathered on these behaviours. The activity sub-categories are warm up, fitness, skill practice, scrimmage and game. Knowledge sub-categories are rules, technique, strategy, social behaviour, general and cognitive behaviours. Definitions can be seen in appendix 3.

The target students chosen for the study were video recorded throughout each lesson. The camera was continually moved around to enable all target subjects to be clearly filmed. This necessitated filming different courts for different games, but generally the camera was positioned near the right hand corner of one baseline on the netball court the subjects were playing on.

Interruptions to recording occurred during break time in lessons. Students were breaking for drinks etc and recording stopped in order to change video recorder batteries and camera position. Time spent adjusting the equipment was not long (up to two minutes maximum), and only occurred once or twice per lesson. Behaviours that would promote motor skill learning rarely occurred at these times.

### Skill performance checklists

Checklists, completed from watching the video, provided detailed information about all netball related motor skills that were attempted by each subject throughout the sport education season. The netball skills observed were passing (including the chest pass, shoulder pass, bounce pass and lob pass), receiving, shooting, attacking

and defending (see appendix 2 for definitions of each type of skill). The checklists enabled the observer to record the topography (critical elements) of the skill. These components were listed on the checklist and the presence of these critical elements were noted (see appendix 1). When all of the critical elements are present the total performance is seen to be technically correct. For example, the components for a correct shooting attempt are:

1. feet apart and balanced,
2. ball above and slightly behind head,
3. bent knees and elbows for preparation, and
4. flick the wrist and let ball roll off fingers as arms extend.

The function, or result, of the performance was also recorded (see appendix 1). For the skill of shooting the function is the successful/unsuccessful attempt at goal. Table 2, below, outlines the checklist for subject two for the skill of shooting.

Table 2

Sample of appendix 1 - Checklist for Harry

CHECKLIST CRITERIA	CORRECT ATTEMPTS					
TOPOGRAPHY AND RESULT	LESSON NUMBER				TOTAL	MEAN
SHOOTING - topography	4	5	6	7	responses	
1. Feet apart and balanced	0	2	5	0	7	2
2. Ball above and slightly behind head	0	4	3	0	7	2
3. Bend knees and elbows for preparation	0	2	2	0	4	1
4. Flick wrist and let ball roll off fingers	0	3	2	0	5	1
Function - goal scored	0	2	0	0	2	0
Total number of attempts	0	11	7	0	18	4

Table 2 shows how many shooting attempts were made by Subject 2 over the season. It can be seen that in lesson 4 no attempts were made at all, but in lesson 5 11 shots were attempted. From these attempts the critical elements show that only 2 attempts were performed with the feet apart and balanced, 4 with the ball above and slightly behind the head, 2 with bent knees and elbows and 3 where a flick of the wrist and a roll off the fingers was demonstrated. Only 2 out of the 11 attempts made in lesson five resulted in a goal being scored. The total number of attempts that recorded each critical element can be seen on the right hand side of the table, with the mean over the season also shown. For example, 7 out of 18 shooting attempts recorded for the whole season were performed with feet apart and balanced, with a mean recording of 2.

This information was detailed for all subjects for each skill attempted over the season. The data analysis section of this chapter specifies how the checklist data is presented and used to answer the research questions for the study.

### Interviews

Interviews, using stimulated recall, aimed to identify the meanings behind student behaviours observed in lessons. Patton (1990, p. 161) states that the purpose of interviewing is to find out "what is in someone else's mind... not putting things in someone else's mind". Each interview was conducted at the conclusion of the final sport education lesson. Each subject was interviewed alone, in a quiet area, with no distractions.

The interviews were semi-structured and conducted from a detailed schedule (see appendix 5). The subjects were initially given an explanation of the purpose of the interview (not tape recorded), in which the interviewer explained that she was interested in their thoughts on physical education, sport education and their netball skill levels. The recorded interview began with simple questions of a demographic nature, such as age. This strategy was intended to help the subjects relax (Goetz & Le Compte, 1984). The semi-structured questions were followed by questions which

addressed the four broad foci:

1. Background of students in relation to netball and sporting experiences.
2. Perceptions of the class and sport education.
3. Perceived netball skill levels throughout the season.
4. Future involvement in netball and other sports.

These questions allowed information to be gathered based on the subjects' perceptions, rather than closing in on certain predicted themes that the interviewer may desire. The semi-structured questions often led to other more probing questions if answers were brief and/or vague (eg. Why do you think basketball is better than netball and where are you going with your basketball?).

The interviews were also aimed at gaining an understanding of subject's perceptions of their motor skill acquisition within the sport education setting. A projection technique of stimulated verbal recall of lessons or events (Patton, 1990) was used to help the subjects to remember certain sport education lessons and key events so that questions were answered easily. The students were verbally reminded of previous performances and situations that occurred and then asked questions on their thoughts at the time of the performance (if they could remember) and also their reflections or thoughts about their performances after recollection.

The responses were tape recorded to enable transcription. This data was analysed by categorising student answers into themes by question.

#### **Data analysis**

Data generated by SPACOS, checklists, video and interviews combined to provide the information to be analysed.

#### **Adapted SPACOS**

The adapted SPACOS instrument revealed data about the events that took place within each lesson. Each key behaviour is presented as the percentage of time spent in the behaviour out of total time recorded. This was not the total lesson time as some parts of the lesson, such as when the students were getting changed, were not recorded.

The knowledge and activity key behaviours, deemed crucial to motor skill acquisition, were analysed in greater detail, with time spent in these key behaviours divided into specific sub-categories, which outlines the specific type of activity or knowledge behaviour observed (see appendix 3). Tables presenting time spent in these key behaviours and sub-categories can be seen in chapter 5.

### Skill performance checklists

Analysis of the video recording provided data, recorded on checklists, on performances for each subject throughout the season (see appendix 1). The checklist for each subject revealed how many netball skills were performed in each lesson, with a mean result for the whole season also shown. The data shows the nature of each performance outlining the number of skill attempts and the topography of the skill. The function of each skill attempt is also recorded. The sample checklist (from appendix 1) reveals that subject two performed the shooting skill 7 times in lesson 6, with 5 of these attempts executed with feet apart and balanced, 3 with the ball above and slightly behind the head, 2 in which the knees and elbows were bent, 2 where he flicked his wrist and the ball rolled off the end of his fingers and overall, 0 where the ball went into the goal. This information is shown for each subject, for each skill and in each lesson.

The data from the checklists is presented in tables for each subject indicating the nature of the performance for each skill attempt made. The first table reveals which activity sub-category each subject was engaged in when they made their skill response. The second table indicates exactly which type of skill was performed, including receiving the ball, passing the ball, shooting, attacking and defending (see appendix 2). Both tables presented these skill responses in terms of:

1. The total number of responses that were made.
2. The percentage of successful responses, based on the result of the performance.
3. The percentage of correctly performed responses, based on the topography of the skill.

4. The percentage of responses that the subject was trying to perform properly.

5. The combined percentage out of total performances in which the subject was simultaneously successful, correct and trying to perform properly.

All video data was tabulated and shown for each subject across each lesson and then combined to reveal averages for each subject over the season. This enabled comparisons to be made across subjects in terms of time spent in key behaviours and frequency and topography of skill responses made. Analysis of this data enabled research question one to be answered.

### Interviews

The interviews were tape recorded and notes were taken (to gain as much information as possible) during the interview. A case analysis procedure was followed for transcription where each interview was fully transcribed. Cross subject analysis within the case analysis was also used to group together common answers into themes.

During analysis, techniques such as convergence and divergence was used to help increase the credibility of information (Patton, 1990). Convergence involved finding out what fitted together into a type of classification system by finding recurring patterns in the data and checking the extent to which these patterns held together (internal homogeneity) and the extent to which differences were clear or bold (external homogeneity). These procedures helped to make the information more reliable and consistent. Divergence involved extending information already known, bridging together different items in the data and surfacing new information that might fit and testing it for its existence (Patton, 1990). This technique helps to 'flesh out' patterns and helps to give a focus to analysis that is related to the research questions.

### Combining data sources - using SPACOS and interview data

The analyses from the SPACOS data and the interview data were then combined to determine if further links existed. This was done by looking at any data that appeared to 'stand out' data from each source of information and linking any other

information based on the lesson context. For example, a student may have been injured during a game, which may have affected development and feelings towards the sport. Video observations and interview responses may be linked during analysis of data in this study.

### Reliability of data collection

Observational research involves providing data that is a true and accurate reflection of what actually happened. Systematic observation requires human interpretation, therefore observers must be able to use systematic observation instruments reliably to ensure that the data is consistent and so objective measurements can be made. To establish reliability the following procedures were undertaken:

#### 1. Observer training

Training for the use of the adapted SPACOS instrument was completed using the SPACOS manual (Taggart, 1992b). Mastery was monitored via intra- and inter-observer reliability checks of video taped physical education settings. The two observers, after completing the self instructional SPACOS manual, obtained an agreement level of 90% and therefore were considered reliable and able to collect data accurately.

#### 2. Intra-observer reliability check

"Intraobserver agreement refers to the situation in which one observer makes an observation of events one day and then comes back at a later point in time to observe the same events" (van der Mars, 1989, p. 54). The Scored Interval Method (van der Mars, 1989, p. 55) was used to compare the recordings made from two separate observations of one lesson. The coinciding recordings that are identical (agreements) are scored. The coinciding recordings that did not match (disagreements) are unscored. The number of agreements and disagreements were placed into the following reliability formula to calculate the scored interval percentage:



Total agreements X 100 = percentage of agreement

Total agreements + disagreements

**OR**

$$\text{IOA} = \frac{\text{A}}{\text{A} + \text{D}} \times 100$$

An agreement level of 91% was obtained between the two recordings of observations (see appendix 6).

### 3. Inter-observer agreement

This refers to "the situation in which the observation records of one observer are compared to those of a second person" (van der Mars, 1989, p. 54). Another coder completed the adapted SPACOS instrument training and agreement percentages were established using the Scored Interval Method for the two coders recording one lesson simultaneously. The agreement percentage was 89% (appendix 7) which allowed coding of the research data to commence.

#### Validity of data collection

Validity refers to the extent to which an instrument measures what it is supposed to measure. The observations and codings need to be a true indication of events as they occurred in the environment. The adapted SPACOS instrument uses a combination of the Academic Learning Time - Physical Education (ALT-PE) and the Systematic Observation of Student Opportunity to Respond (SOSOR) instruments as outlined by Darst et al. in 1989. These instruments have been found valid in naturalistic settings (Brown, 1989) and are used extensively by researchers in the field.

To reduce the possibility of invalid findings, triangulation procedures were undertaken by collecting and analysing data from two different observation systems. The adapted SPACOS instrument combined with the checklists for skill components represents empirical analytical research, while analysis of the interviews represents interpretive research. This ensured that observed events were complimented with interview responses which provided some of the reasons behind the actions seen. Data

from the operational dimension (skills performed) was then related to the perceptual dimension (the meanings behind actions) to produce a wider description of the sport education setting.

Problems and limitations of the method employed: Some reflections

After reflecting on the way that the study was conducted the researcher identified a number of methodological problems. It is important to acknowledge these problems to ensure trustworthiness of the data (Lincoln & Guba, 1985). Highlighting these difficulties also helps future researchers identify potential problem areas and to take steps to avoid or overcome them to improve the conduct of their research.

Some major problems that limited the study included:

1. Only one interview was conducted for each subject. This did not provide extensive data on their perceptions of the sport education model and their skills within the netball class. More time and a follow up interview for each subject would have enabled results to be more thorough and comprehensive. Interviews conducted during the season would provide needed information.

2. The video camera did not allow the entire lesson to be recorded. Time was needed to change the batteries during the lesson and certain parts of the lesson were omitted to make sure the battery allowed the bulk of the lesson to be recorded without running out of charge. In one lesson the video camera only lasted for half of the lesson and the rest of the lesson could not be recorded due to a low battery charge. Field notes helped to provide information on the segments that were not recorded, however this information was not included in the results.

3. No comments or data were provided on teacher behaviour during the season. Teacher interpretation of students skills and perceptions was not sought but may have been included to give another view of the events that took place within the season of sport education. Time constraints limited this extra information being sought.

4. The reaction of subjects to being involved in a study, in which they were video recorded and also interviewed, may have affected results through the Hawthorne effect.

5. The possibility of researcher bias occurring as a result of researcher interactions with the subjects. As the season progressed the novelty of being video recorded and interviewed wore off and students were all comfortable with the researcher being there and watching them perform in class.

#### Ethical considerations

Spradley (1979) highlighted the need to acknowledge ethics when conducting research of an ethnographic nature by stating that "no matter how unobtrusive, ethnographic research always pries into the lives of the informants . . . Interviewing presents a powerful tool for invading other people's way of life. It can be used to affirm their rights, interests and sensitivities or to violate them" (p. 36). Below is a brief explanation of the ethical procedures that were followed in this study to ensure the research was undertaken within the boundaries of moral and ethical behaviour:

1. The aims, goals and procedures of the research were thoroughly explained to all participants in the study.

2. Subjects and their parents/guardians completed consent forms (see appendix 11).

3. Permission was granted by the school principal to undertake the research (appendix 10).

4. The two teachers and head of department gave verbal permission to undertake the research.

5. The right for withdrawal at any time during the study was given to all those involved in the research.

6. The identity of all participants and associated people involved in the study remained confidential at all times.

7. Interviews were conducted in a quiet place where privacy was guaranteed.

8. The data gathered throughout the study will not be used for any purpose other than those outlined by the study. It will only be viewed by the researcher, assistant and honours supervisors and examiners.

9. The findings of the research and feedback will be made available to all those involved in the study and interested in the results.

### Summary

The methodology provides a picture of how the study was undertaken and all the considerations that were carefully employed to ensure ease of research design, data collection and analysis. The findings of the study are shown in chapter 5.

## CHAPTER 5: RESULTS

Having outlined the methodology for the study, the findings are now reported. A detailed description of procedures involved in the sport education unit sets the scene to provide a picture of the teaching and learning process during the study. The results are presented for the four subjects based on observations over seven netball lessons and interviews conducted after the final lesson. Each subject is outlined individually, beginning with a brief overview of each subject's experiences in netball and other sports and their perceptions of physical education and sport education.

How students spent their time in sport education lessons is considered in terms of the different key behaviours that were observed over the season. Individual skill assessment is also shown, indicating frequency and quality of skill attempts made by each subject. Finally, common themes from interviews are linked with data on engaged time in class are then presented for all four subjects. This enabled some comparisons to be made between the high and low ability subjects over the sport education season.

### The sport education setting

The research was undertaken at a metropolitan government high school during Term 4 of 1994. Two Year 8 classes were involved in data collection, with both classes having prior experience in a sport education soccer class in Term 3. The classes had physical education once a week on a Friday from 11:30 am until 1:00 pm with netball being the chosen sport for Term 4.

There was one male and one female teacher responsible for the Year 8 netball unit. As the two classes had physical education at the same time, only one class could be monitored during weeks one to three. Each class was taught separately for skill development in the first three weeks of the season. Half-way through the week four lesson the two classes were combined. Team selections were completed, with students remaining in their netball teams for the rest of the season. When the competition began in Week 5, the teacher organised the class so that each team captain would take their team for a warm up before games commenced. Two games

were played in a lesson, with each game consisting of two ten minute halves on full sized courts with seven per side. Students were also responsible for certain duties such as umpiring, scoring, first aid and publicising results. On the final day of term a grand final and trophy presentation ended the season. Students attended either as supporters or players at the culminating event.

The sport education netball season did not include all of the key characteristics of the sport education model (Alexander et al., 1995). Key characteristics that were present included:

1. A season of sport.
2. A schedule of formal competition.
3. Mixed ability even matched teams, although one team was clearly better than all of the other teams.
4. The students being responsible for their own learning.
5. A record of results being kept, even though no publicity was initiated by students.
6. A grand final and presentations as a culminating event.

The key characteristics that were not included in the study were:

1. The teacher did not take on the role of facilitator.
2. Games were not modified by rules or team sizes.
3. Students were not fully involved in roles other than player.

These characteristics are further examined in the data analysis chapter.

#### The subjects

Each subject is outlined in detail beginning with a brief overview of their background specific to involvement in sport and netball in particular and information on their roles and performances in the sport education class. Next the key behaviours subjects were engaged in, the skill responses that they made and their perceptions of their skills as described during interviews are presented.

### Helen

Helen was a 13 year old high ability female. She was observed in all seven lessons of the season. She had previous experience in netball, basketball and softball. Although not playing netball out of school during the time of the study, she had played competitive netball for five years. This included training on Tuesdays after school and competitions on Saturday mornings. She currently played basketball at a junior state level (State Basketball League) and planned to attend another high school in 1995 on a basketball scholarship.

Helen was the team captain. Her responsibilities as captain included taking the drills for warm ups before games and tossing the coin to determine which team had first centre possession or choice of direction for shooting. She also determined the players' positions and completed the team entry on the score sheet for each game.

Helen played in every game and in a variety of positions including centre (C), goal attack (GA), goal shooter (GS) and goal defence (GD). She was a cooperative team member allowing her players flexibility to play where they wanted and helped out weaker team members enthusiastically with new drills and practices in team warm ups before games. Encouragement was given to every team member during games regardless of their skill levels. Overall, she filled the captains' role very effectively and in a highly responsible manner.

### Perceptions - Helen

The interview for Helen revealed information about her previous netball experiences and her experiences within the season of sport education. When asked about her feelings towards sport education (for a sample of the interview transcript see appendix 8) she did not know what it was. After a brief explanation of the sport education and the physical education programs, Helen commented that she preferred to do physical education the sport education way. The things that she liked about sport education were playing in a team, playing the games and that "when we go to play games we get to do warm ups as well as a game" (p. 2). As the team captain, Helen indicated that in terms of her role as captain she "sort of liked it", but

"sometimes they don't listen and it's hard to control people your own age" (p. 2). However, she "pretty much did what she liked" (p. 3). When asked about what her class did from the beginning to the end of the season, Helen explained that:

The people that already played netball, they already knew what to do, but the people who hadn't played out of school didn't know what to do so we started off and she (the teacher) kind of taught us from the beginning again. It was kind of boring but I didn't really care (p. 3).

Helen considered herself to be at a high skill level at the beginning of the season because she'd "done it (netball) before" (p. 2) and that she did not learn any new skills throughout the season, but "just stayed (at) the same" skill level (p. 3). She had no intention of playing netball after this sport education unit, indicating that she would prefer to concentrate on her basketball, which she competed in at an elite level.

#### Key behaviours

Table 3 outlines the key behaviours that Helen was engaged in over the seven lessons and how much of her time was spent in each. Each number represents percentage of total lesson time that she was engaged in the particular key behaviour. For example, 10% of time in lesson one was spent in transition. This represents approximately 9 minutes of a 90 minute lesson. The final two columns represent the mean and range for each key behaviour over the seven lessons to give a clear indication of how time was spent over the entire season.



Table 3

Percentage Time in Key Behaviours for Helen

KEY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Activity	37	41	14	14	19	16	26	24	14 - 41
Knowledge	33	30	14	25	16	7	6	19	3 - 33
Transition	10	10	21	25	31	25	19	20	1 - 31
Waiting	13	18	49	36	34	5	48	35	5 - 49
Break	6	1	1	0	0	2	1	2	0 - 6
Off task	1	0	0	0	0	0	0	0	0 - 1
Management	0	0	1	0	0	0	0	0	0 - 1

Results from Table 3 highlight that the key behaviour in which Helen spent most of her time over the season was Waiting, with a mean of 35%. This time included waiting for the ball to come into her playing area, and sitting on the sideline during a game. Waiting was highest during lessons three and seven, where nearly half of the entire lesson was spent in this key behaviour. These lessons were game oriented and the specific positions played may have been a reason for such a high level of Waiting.

The Knowledge behaviour comprised 19% of lesson time with the highest level in lesson one (33% of lesson) when rules and techniques were the focus of teacher input. Helen listened attentively while the teacher instructed.

Only 2% of time was spent in break, management and off-task behaviours, which indicated that little time was spent in non-functional time. Activity time was 24% over the season with higher levels recorded in lessons one and two (37% and 41% respectively) during the teacher directed skill development phase of the unit.

Table 4 focuses on the activity key behaviour and presents, through the identification of sub-categories, a more fine grained analysis of how time was spent.

Helen was involved in warm ups, fitness activities, skill practices, scrimmages and games (refer to appendix 3 for definitions).

Table 4

Percentage Time in Activity Sub-categories for Helen

ACTIVITY SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Warm up	51	7	14	21	11	0	4	16	0 - 51
Fitness	8	0	7	0	0	0	0	2	0 - 8
Skill practice	41	7	14	0	0	19	28	16	0 - 41
Scrimmage	0	86	0	58	5	0	4	22	0 - 86
Game	0	0	65	21	84	81	54	44	0 - 84

Of the 24% of time spent in activity over the season, Helen spent most of her activity time in games, with a mean level of 44% over the seven lessons. The game playing sub-category was highest during lessons five and six with 84% and 81% of activity time recorded in games. In these lessons competitions were under way and two games were scheduled per lesson. No game time was recorded for lessons one and two. In these lessons skill development was the focus for activity and no games took place. Skill practices and warm ups dominated lesson one activity (41% and 51% respectively) and scrimmage took up nearly all of activity in lesson two (86%). Warm up time decreased as the season progressed and games became the dominant focus of the lessons. Team warm ups were still completed before the games commenced, however they generally consisted of mini-games, this was recorded as scrimmage time. Fitness activities were observed in two lessons (lessons one and three), with levels of 8% and 7% respectively. This equated to a mean of 2% of total activity time spent in fitness activity over the entire season.

Table 5 breaks down the knowledge behaviour into sub-categories such as rules, technique, strategies, social behaviour, general knowledge and cognitive engagement. Definitions of these sub-categories can be seen in appendix 3.

Table 5

Percentage Time in Knowledge Sub-categories for Helen

KNOWLEDGE SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Rules	49	97	93	24	19	71	0	50	0 - 97
Technique	45	3	0	0	0	0	0	7	0 - 45
Strategy	3	0	0	0	0	0	0	0	0 - 3
Social behaviour	3	0	7	4	0	0	0	2	0 - 7
General	0	0	0	44	56	29	100	33	0 - 100
Cognitive	0	0	0	28	25	0	0	8	0 - 28

Of the 19% of time spent in the knowledge behaviour, the most frequently occurring knowledge sub-category for Helen was listening to the teacher discussing rules. This was 50% of total knowledge time, dominating time particularly in lessons two and three, where almost all knowledge time was spent on rules (97% and 93% respectively). Almost all of the time in the knowledge key behaviour in lesson one was spent in rules (49%) and techniques (45%). The purpose of lesson one was to teach students techniques for the basic skills of netball and major rules so that they could play games and compete during the season. As the season progressed beyond lesson two, no time was spent on techniques or strategies. This was to be expected as Helen was clearly one of the best netball players in the class and needed no help with strategies associated with the game. She demonstrated knowledge of strategies during games, such as zoning and deliberately causing her opponent to foul in order to receive a free pass or shot.

Specific cognitive engagement occurred during lessons four and five (28% and 25%). These lessons involved team selections and teams had to then collectively decide on a team name and their roles within the team. Students were involved in making these team decisions. In lessons four and five students were also involved in discussions on organisational matters such as the format of future lessons and how the

competition would be run for the rest of the season. This was recorded as general knowledge and continued in lessons six and seven, with all knowledge time in the final lesson spent in organisation and general discussion with the class. In lesson seven grand final presentations and best player awards were presented after the culminating event.

### Skill responses

Skill assessment of performance for Helen was quantified using checklists and presented in tables indicating both frequency and quality of skill responses. The complete checklist for Helen can be seen in appendix 1. Tables 6 and 7 highlight overall results from the checklists in terms of number of skill responses, the types of skill responses and in which activity category these skill responses were made.

Table 6 presents all skill responses attempted by Helen over the entire season. It indicates which activity sub-category she was engaged in when these skill responses were made. The bold figure represents the total number of responses attempted in each sub-category, in each lesson. For example, 79 skill responses were made in the skill practice sub-category in lesson one.

Table 6

Number and Percentage Skill Responses Made in Activity Sub-categories by Helen

ACTIVITY SUB-CATEGORY	LESSON NUMBER							TOTAL	% MEAN
	1	2	3	4	5	6	7		
Warm up (No)	0	18	0	0	0	0	0	18	2.5
% Successful -		94.5							
% Correct -		94.5							
% Trying -		100							
% ALL -		94.5						94%	
Fitness (No)	0	0	0	0	0	0	0	0	0
% Successful -									
% Correct -									
% Trying -									
% ALL -									
Skill practice (No)	79	38	35	0	20	34	103	309	42.5
% Successful -	97.5	94.5	97		90	64.5	92		
% Correct -	88.5	97.5	100		100	94	98		
% Trying -	83.5	97.5	100		100	97	98		
% ALL -	81	94.5	97		90	64.5	92	87%	
Scrimmage (No)	0	9	0	13	9	5	3	39	5.5
% Successful -		89		92.5	77.5	100	100		
% Correct -		89		100	100	100	33.5		
% Trying -		100		100	100	100	66.5		
% ALL -		89		92.5	77.5	100	33.5	79%	
Game (No)	0	0	41	22	134	97	64	358	49.5
% Successful -			80.5	82	83	79.5	70.5		
% Correct -			92.5	100	92.5	92	78		
% Trying -			100	95.5	96	97	95.5		
% ALL -			80.5	82	79	78.5	67	77%	
<b>TOTAL ATTEMPTS</b>	<b>79</b>	<b>65</b>	<b>76</b>	<b>35</b>	<b>163</b>	<b>136</b>	<b>170</b>	<b>724</b>	<b>100</b>
<b>X̄ per lesson</b>								<b>103</b>	

The activity sub-categories show more detail about the precise nature of each performance. Results indicate:

1. the % of successful performances from the total number attempted;
2. the % of attempts that were performed technically correct; and
3. the % of attempts in which the subject was deliberately trying to perform correctly and successfully.

The % ALL figure indicates how many of the skill attempts were made with all three of the above components occurring simultaneously. For example, from the 79

attempts made in skill practice during lesson one, 81% were shown to be performances that were successful, technically correct, and involved Helen trying to perform them properly.

This percentage data is recorded for each lesson and then a mean for all lessons shown in the far right hand column. This table helps to determine in which activity sub-categories skills are performed and which of these promote optimal skill development.

Table 6 reveals that Helen made a total of 724 skill responses over the season. The mean number responses per lesson was 103. Lesson seven had the most number of responses with 170, with other game lessons (five and six) recording high levels of 163 and 136 responses respectively. The lesson with the least number of skill responses was lesson four with only 35 responses. This lesson was when teams were selected and general administrative procedures took up more than half the lesson time.

The highest number of skill responses occurred in games and skill practices (358 and 309), making up 92% of all responses. Both of these sub-categories have skill responses as a focus, with responses made during games being in pressure situations and responses made during skill practices typically being repetitive and technique orientated situations. Skill responses made in lesson one only took place in skill practice (all 79), where students revised basic passing, receiving and pivoting skills. A total of 18 skill responses were made in the warm up sub-category, all of which occurred in lesson two. No responses were made in the fitness sub-category with 5.5% of responses (39 in total) occurring in scrimmage.

Percentage ALL figures indicate the three components (ie success, correct and trying) occurring simultaneously over the season for each sub-category. This data can be seen in the total column, second from the right. Results are higher in activities such as warm ups and skill practices (94% and 87% respectively). It was when Helen was placed in pressure situations, such as scrimmages and games, that this figure

dropped to 79% and 77%. These levels are still quite high when considered over an entire season.

Table 7 goes into specific detail on the types of skill responses that were performed by Helen, including receiving the ball, passing, shooting, attacking and defending. Definitions of these skills are outlined in appendix 2. Each type of skill is shown individually over the seven lessons, with the mean outlined in percentage form in the far right hand column of the table. Each type of skill is presented as a total number of attempts, shown in bold print. From this total number, percentages are determined for those attempts that were:

1. Successful.
2. Techniquely correct.
3. Performed when Helen was considered to be trying to perform the skill successfully and correctly.

The final percentage (shown as % ALL) highlights the skill attempts that had all three elements present. That is, the skill attempts were successful, techniquely correct and Helen was deemed to be trying simultaneously (see appendix 2 for definitions). For example, in lesson one, 39 skill responses made by Helen were labelled as receiving. From these 39 attempts, 97.5% were successful, 92% were performed correctly and she was recorded as trying for 87% of these attempts. Overall, 84.5% of responses involved all three performance indicators occurring simultaneously. A mean figure for the % ALL category, shown in bold, is highlighted in the total column (second from the right), and indicates this information for each skill over the entire season (eg. 89% of 307 receiving responses were successful, correct and deemed as trying, for Helen over the whole season).

Table 7

Types of Skill Responses Made by Helen

SKILL	LESSON NUMBER							TOTAL	% MEAN
	1	2	3	4	5	6	7		
<b>Receiving (No)</b>	<b>39</b>	<b>30</b>	<b>13</b>	<b>30</b>	<b>58</b>	<b>58</b>	<b>79</b>	<b>307</b>	<b>42</b>
% Successful -	97.5	93.5	92.5	93.5	93	86	88.5		
% Correct -	92	96.5	100	100	91.5	93	91		
% Trying -	87	96.5	100	100	98.5	96.5	98.5		
% ALL -	84.5	93.5	92.5	93.5	86	86	87.5	<b>89%</b>	
<b>Passing (No)</b>	<b>40</b>	<b>33</b>	<b>25</b>	<b>17</b>	<b>66</b>	<b>48</b>	<b>67</b>	<b>296</b>	<b>41</b>
% Successful -	97.5	94	96	82.5	68	91.5	89.5		
% Correct -	83	94	96	100	94	94	91		
% Trying -	80	100	100	94	100	98	97		
% ALL -	77.5	85.5	96	77.5	82.5	87.5	88	<b>85%</b>	
<b>Shooting (No)</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>21</b>	<b>20</b>	<b>18</b>	<b>64</b>	<b>9</b>
% Successful -			40		15	30	44.5		
% Correct -			100		100	85	89		
% Trying -			100		81	95	89		
% ALL -			40		15	30	44.5	<b>34%</b>	
<b>Attacking (No)</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>15</b>	<b>2</b>
% Successful -			100	100	100	20	66.5		
% Correct -			100	100	100	80	66.5		
% Trying -			100	100	100	100	66.5		
% ALL -			100	100	100	20	66.5	<b>77%</b>	
<b>Defending (No)</b>	<b>0</b>	<b>2</b>	<b>11</b>	<b>4</b>	<b>17</b>	<b>5</b>	<b>3</b>	<b>42</b>	<b>6</b>
% Successful -		100	73	75	88	60	66.5		
% Correct -		100	82	100	94	100	33.5		
% Trying -		100	100	100	100	100	100		
% ALL -		100	82	75	82.5	60	33.5	<b>73%</b>	
<b>TOTAL ATTEMPTS</b>	<b>79</b>	<b>65</b>	<b>76</b>	<b>35</b>	<b>163</b>	<b>136</b>	<b>170</b>	<b>724</b>	<b>100</b>
<b><math>\bar{X}</math> per lesson</b>								<b>103</b>	

Table 7 indicates that the most commonly occurring skills were receiving and passing (307 and 296), making up 83% of total skills performed. More of these skills were performed in lessons five, six and seven when games were the focus for the class than other lessons. Complete correctness (shown as % ALL), over the season, was at 89 and 85% respectively. Attacking and defending responses were the least observed skills performed at 15 and 42 responses respectively. These levels are significantly lower than receiving and passing responses. Attacking and defending



skills occur when the subject was attacking or defending during activity, but did not actually make contact with the ball. For example, a player may be available for a pass by making an attacking skill response, but did not receive the pass, or may be defending an opponent and keeping them out of the game. In these instances the player is still part of the game and performing skill responses, but not making skill responses related to directly playing the ball. Only 8% of skill responses were labelled as either attacking or defending. More often than not Helen did come into contact with the ball, supporting the low level of attacking and defending skills demonstrated.

The remaining 9% of responses were shooting, occurring in lessons three, five, six and seven. In these four lessons subject one played in a shooting position. A total of 64 shooting responses were made, with 34% of these being recorded as completely correct. This % ALL figure is significantly lower for shooting than the other skills, due to the increased difficulty level of scoring the goal compared with success in passing or receiving skills.

#### Harry

Harry was a 13 year old high ability male with previous experience in netball as a fill-in for friends in a community mixed competition. At the time of the interview he did not play netball but did play basketball.

Harry was the vice captain of the team observed and was on court for every game once competitions began, playing mainly shooting positions but with brief moves to centre (C) or goal defence (GD) for half a game. Harry was in the sport education class not observed during skill development, in lessons one to three. As a result he was not observed until lesson four.

#### Perceptions - Harry

The interview with Harry revealed his thoughts on netball and the sport education class. When asked about sport education he did not know what it was. After an explanation on the differences between sport education and traditional physical education, he said that it was "pretty good, some competition is there but after a while if you get a strong team it's not so fair for the other teams" (p. 4). He indicated that

joining the classes for a combined competition was good "because there were more teams to compete against" (p. 4). His team was very strong, winning every game they played. Although Harry was vice captain for his team he did not perform any specific duties associated with that role. The captain (Helen) was never absent and did not call on him to assist in any way. When asked what he did in sport education at the beginning of the unit (lessons 1, 2 and 3), Harry revealed that his class had small games of netball. He indicated that his class did not perform any drills, warm ups or skill practices.

Over the course of the season, Harry learned "a bit, mainly the rules associated with stepping" (p. 5) as he had to adjust from basketball. He considered his own skill levels to be high, but claimed to have "advantages over some because I had played an actual competition before" (p. 4). Harry did not spend any time off court once competition began and suggested that this was because of his previous experience playing netball. Harry declared that some of his skills improved over the season, these included increased concentration during games, playing different positions in different ways and also understanding teamwork, "where the worst player has to be as good as the best player" (p. 7).

Harry had no inclination to play netball again now that the class was over because "it really sometimes gets a bit boring because you are just throwing up and down the court" (p. 7). His intention was to continue to play basketball outside of school.

#### Key behaviours

Table 8 outlines percentage time in the key behaviours over lessons four to seven, with the mean and range over the season shown on the far right.

Table 8

Percentage Time in Key Behaviours for Harry

KEY BEHAVIOUR	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Activity	Not			0	24	24	34	21	0 - 34
Knowledge	observed			33	13	8	6	15	6 - 33
Transition	for			18	31	30	15	23	15 - 31
Waiting	these			49	31	35	44	40	31 - 49
Break	lessons			0	0	2	1	1	0 - 2
Off task				0	0	1	0	0	0 - 1
Management				0	1	0	0	0	0 - 1

Table 8 reveals that most time was spent in Waiting with a mean of 40% over the season. The mean time spent in Transition was 23% over the season, occurring to a large degree in lessons five and six, with 31% and 30% respectively. Of the remaining time, Harry spent 21% in Activity and 15% in Knowledge. Only 1% of this was spent in Breaks. He showed little Management or Off task behaviour (1%).

From the 21% of time spent in Activity, the breakdown can be seen in table 9.

Table 9

Percentage Time in Activity Sub-categories for Harry

ACTIVITY SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Warm up	Not			0	12	5	8	8	0 - 12
Fitness	observed			0	0	0	0	0	0
Skill practice	for			0	0	22	53	25	0 - 53
Scrimmage	these			0	21	5	6	11	0 - 21
Game	lessons			0	67	68	33	56	0 - 68

Table 9 reveals that Harry spent most of his Activity time in games (56%). Game time mainly occurred in lessons five and six during the competition part of the unit. The next most commonly occurring activity sub-category was Skill practice, at 25%, with recordings for lessons six and seven. Exactly how much time that was spent in skill development sub-categories, such as Skill practice, was difficult to determine because the first three weeks of classes were not recorded for Harry. Only data recorded on video was used to determine time spent in class.

No Activity time was recorded for lesson four when Harry's class joined with the other class. The first half of the lesson was devoted to individual class activities, but the second half of the lesson was used for team selections and administrative procedures. There was no recording for the Fitness sub-category in any lesson, and Warm up occurred rarely, 8% overall, before Games in lessons five, six and seven.

Table 10 discloses information on how Harry spent his time within the Knowledge key behaviour in each lesson recorded. Percentage time is outlined, revealing the separate knowledge sub-categories that he was engaged in throughout the season.

Table 10

Percentage Time in Knowledge Sub-categories for Harry

KNOWLEDGE SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Rules	Not			0	15	62	0	19	0 - 62
Technique	observed			0	0	0	0	0	0
Strategy	for			0	0	0	0	0	0
Social behaviour	these			0	0	0	0	0	0
General	lessons			55	70	25	100	63	25 - 100
Cognitive				45	15	13	0	18	0 - 45

The most frequently occurring Knowledge sub-category engaged in by Harry was General knowledge, at 63% of total knowledge time. This was at 100% during

lesson seven, when presentations and best players were awarded. The remaining knowledge time was shared between Rules (19%) and Cognitive (18%). Time spent learning Rules was highest during lesson six, at 62%, when an argument erupted in a game and students listened to the associated rules explained by the teacher. Cognitive time was highest during lesson four when students were making team decisions without teacher input. No time was spent discussing strategies, techniques or social behaviours associated with netball.

#### Skill responses

The skill responses for Harry were recorded for lessons five, six and seven (see Table 11). He was observed during the second half of lesson four, but no Activity time was recorded during this lesson. He was active during the first half of the lesson when the classes were still separated for skill development, however, this was not recorded on the video and could not be analysed.

Table 11

Number and Percentage Skill Responses Made in Activity Sub-categories by Harry

ACTIVITY SUB-CATEGORY	LESSON NUMBER				TOTAL	% MEAN
	4	5	6	7		
Warm up (No)	0	0	0	0	0	0
% Successful - % Correct - % Trying - % ALL -					0%	
Fitness (No)	0	0	0	0	0	0
% Successful - % Correct - % Trying - % ALL -					0%	
Skill practice (No)	0	35	67	76	178	30
% Successful - % Correct - % Trying - % ALL -		71.5 94.5 94.5 68.5	58 76 91 52	79 81.5 92 68.5	63%	
Scrimmage (No)	0	23	5	8	36	6
% Successful - % Correct - % Trying - % ALL -		87 91.5 100 82.5	60 80 100 40	100 100 100 100	74%	
Game (No)	0	166	137	77	380	64
% Successful - % Correct - % Trying - % ALL -		87.5 86.5 94.5 78.5	81 93.5 100 79.5	85.5 100 100 85.5	81%	
<b>TOTAL ATTEMPTS</b>	<b>0</b>	<b>224</b>	<b>209</b>	<b>161</b>	<b>594</b>	<b>100</b>
$\bar{X}$ per lesson					198	

Harry recorded a total of 594 skill responses in the three lessons with an average of 198 responses per lesson. No skill responses were made during lesson four. The highest number of responses in any one lesson was 224 in lesson five, with 209 and 161 responses recorded respectively for lessons six and seven. Games were the focus of these lessons, with most responses occurring in the Game and Skill practices sub-categories with totals of 380 and 178 respectively. No skill responses were attempted in the Warm up or Fitness sub-categories.

Levels of complete correctness (ie % ALL figure shown in column second from right) vary within Skill practice (63%), Scrimmage (74%) and Games (81%). These levels are lower during Skill practices because Harry spent most of this time making shooting skill responses, which are difficult skills to perform completely correct. Overall, these levels were very high, even for a high ability subject, particularly during Games.

Table 12 highlights which types of skills were performed in each lesson.

Table 12

Types of Skill Responses Made by Harry

SKILL	LESSON NUMBER				TOTAL	% MEAN
	4	5	6	7		
<b>Receiving (No)</b>	<b>0</b>	<b>102</b>	<b>81</b>	<b>71</b>	<b>254</b>	<b>43</b>
% Successful -		95	92.5	97		
% Correct -		97	92.5	98.5		
% Trying -		98	100	100		
% ALL -		92	89	97	<b>93%</b>	
<b>Passing (No)</b>	<b>0</b>	<b>59</b>	<b>45</b>	<b>34</b>	<b>138</b>	<b>23</b>
% Successful -		95	84.5	97		
% Correct -		83	93.5	94		
% Trying -		98.5	100	100		
% ALL -		81.5	82	88	<b>84%</b>	
<b>Shooting (No)</b>	<b>0</b>	<b>57</b>	<b>62</b>	<b>53</b>	<b>172</b>	<b>29</b>
% Successful -		58	37	56.5		
% Correct -		82.5	76	79		
% Trying -		86	90.5	90.5		
% ALL -		51	47	47	<b>48%</b>	
<b>Attacking (No)</b>	<b>0</b>	<b>1</b>		<b>1</b>	<b>2</b>	<b>0.5</b>
% Successful -		0		100		
% Correct -		100		100		
% Trying -		100		100		
% ALL -		0		100	<b>50%</b>	
<b>Defending (No)</b>	<b>0</b>	<b>5</b>	<b>21</b>	<b>2</b>	<b>28</b>	<b>4.5</b>
% Successful -		80	81	50		
% Correct -		40	90.5	100		
% Trying -		100	100	100		
% ALL -		40	81	50	<b>67%</b>	
<b>TOTAL ATTEMPTS</b>	<b>0</b>	<b>224</b>	<b>209</b>	<b>161</b>	<b>594</b>	<b>100</b>
$\bar{X}$ per lesson					<b>108</b>	

Table 12 reveals that the most frequently occurring skills performed were receiving (254 responses), shooting (172 responses) and passing (138 responses). Harry played mostly in attacking positions, which explains the high level of responses for receiving and shooting. These skills had a high level of complete correctness (ie. they were successfully performed, correctly performed and he was trying), with receiving the ball at 93%, shooting 48% and passing 84%. Considering most of Harry's attempts were in Games, under pressure, these levels recorded are very high. Although complete success did not always occur, Harry did try for many of the skills attempted. Only 22 attempts out of 594 were labelled as not trying. As his skill levels were high, boredom (which was mentioned during interviews) could be a factor in reasons for not trying on these 22 occasions.

Only 30 attempts were recorded as either attacking or defending with only two defending responses. As a high ability player, Harry tended to be the first option for other team members to pass to, thus most of the time that he made a skill attempt, he received the ball. This would explain why the figures for attacking and defending were so low (see definitions in appendix 3).

#### Lionel

Lionel was a 13 year old male who had prior netball experience before taking this class. He had played netball in year five or six in primary school where he trained after school and played on Saturdays. He only played for one season. Within the sport education class he had no other role apart from player.

Lionel was designated as a low ability player and was recorded in lessons one to three and five to seven, being absent in lesson four. He assumed defending positions in most games, frequently playing wing defence (WD), whilst also playing goal keeper (GK) and wing attack (WA) once. He sat on the bench twice during the tournament and also during practice sessions. He apparently didn't mind sitting out, volunteering to do so on some occasions.



### Perceptions - Lionel

The interview outlines Lionel's thoughts on his experiences in the sport education unit. He guessed that sport education was playing sport in teams and when told what the whole sport education process and the differences from traditional physical education classes were, said that it was better when students had to work in a team. It was good because "people who everyone thought weren't so good went out and tried their best and got some help from our team, made our team score points through good passing and all that" (p. 15). Lionel explained that at the beginning of the season he did "passing drills and stuff" (p. 14) and then "we started games and before the games we had a warm up with our team" (p. 14).

Lionel perceived his skill levels, even at the end of the season, to be low. "If I gave myself a score out of ten it would be a four or five" (p. 13). He did, however, believe that he improved over the season. His skills of passing, shooting and blocking were perceived to be skills most improved. He also learned new rules for playing in higher levels and not sub-juniors.

Lionel also perceived that the netball season improved his basketball skills. "To be more quick is better and to watch out for the player you're defending at all times and not just the player with the ball and staying on them and not just watching and lots of things like ball skills and stuff" (p. 16). Passing drills and games, when the umpires were good, were the activities that Lionel considered best for learning the skills. When asked if he consciously tried to improve he said that he did, but "only when I was told to" (p. 13), by thinking about what he was doing more.

In the games Lionel played mainly wing defence (WD) and goal keeper (GK). He avoided attacking positions because he didn't consider himself any good at them and "if I was to go shooting I would let the team down" (p. 15). He also said that he preferred guarding. After taking this class he said that he was not going to play netball again, but would play basketball instead.

### Key behaviours

Table 13 outlines Lionel's experiences within the sport education class in terms of the key behaviours he exhibited and the time spent in each.

Table 13

#### Percentage Time in Key Behaviours for Lionel

KEY BEHAVIOUR	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Activity	37	40	16	A	13	10	21	23	10 - 40
Knowledge	33	31	14	B	16	7	6	18	6 - 33
Transition	14	10	20	S	30	22	14	18	10 - 30
Waiting	8	18	39	E	41	58	58	37	8 - 58
Break	7	1	1	N	0	2	1	2	0 - 7
Off task	0	0	0	T	0	1	0	0	0 - 1
Management	1	0	10		0	0	0	2	0 - 10

The key behaviour information on Lionel, as seen in Table 13, reveals that most of his time in class was spent Waiting (37%), with up to 58% in lessons six and seven. Waiting time also includes time spent waiting within a game, so the position a person plays is likely to impact on this figure. Lionel's team dominated all of the games and as he was playing a defending role the high amount of Waiting time is understandable.

Lionel spent 23% of his time in Activity, with levels highest during weeks one and two (37% and 40% respectively). These lessons consisted mainly of Skill development practices in which students performed discrete motor skills in small groups. In the game lessons Lionel's Activity levels decreased to 16%, 13%, 10% and 21%. Games were full sided with seven players per team and Lionel frequently moved out of direct involvement in the Activity key behaviour. He would often sit out or not become closely involved in Games.

The Knowledge behaviour was 18% over the season with lessons one and two recording the highest levels of 33 and 31%. It was in these lessons that the teacher took time to explain Rules and Techniques for netball so that students could progress to games in future lessons without confusion. Beyond lesson two, Knowledge time gradually decreased to 6% in lesson seven.

Lionel had low levels of Break, Off task and Management behaviours, with a total of 4% over the season. The Management level for lesson three was 10% of lesson time. It was in this lesson that the class had a relief teacher for sport education and some students, including Lionel, took this opportunity to test the teacher through misbehaviour. When his regular teacher was there, Lionel had 1% of all lesson time spent in Management.

Table 14 outlines specific activity sub-categories that Lionel was engaged in throughout the season and reveals that Lionel spent most of his Activity time in Games, which made up nearly half (48%) of Activity engagement.

Table 14

Percentage Time In Activity Sub-categories by Lionel

ACTIVITY SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Warm up	51	8	11	A	15	0	20	18	0 - 51
Fitness	11	0	7	W	0	0	0	3	0 - 11
Skill practice	38	2	7	A	0	0	38	14	0 - 38
Scrimmage	0	90	0	Y	8	0	4	17	0 - 90
Game	0	0	75		77	100	38	48	0 - 100

Game time was highest during weeks three, five and six, where games ranged from 75 to 100% of Activity time. Two games were played during these lessons, with only one game (the grand final) being played in lesson seven. In lesson seven Lionel took an extended time to do the Warm up and complete Skill practices before the game began.

Games were not played in weeks one and two, with Activity time spent in Warm ups and Skill practice in lesson one, and Scrimmage (90%) in lesson two. This Scrimmage time for lesson two is significantly higher than in any other lesson. It was in this lesson that the students were involved in mini-games organised by the teacher.

Table 15 shows the Knowledge sub-categories that Lionel spent time in over the sport education season and highlights that time spent discussing Rules was the dominant Knowledge sub-category. This sub-category represented 55% of Knowledge time over the season, with the highest levels shown in lessons two (97%) and three (93%), before actual competition began. General knowledge was next highest at 31%, occurring only in lesson five, six and seven. All Knowledge time in lesson seven was spent in the General knowledge sub-category when the presentations and awards occurred after the culminating event.

Table 15

Percentage Time in Knowledge Sub-categories by Lionel

KNOWLEDGE SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Rules	48	97	93	A	19	71	0	55	0 - 97
Technique	48	3	0	B	0	0	0	8	0 - 48
Strategy	4	0	0	S	0	0	0	1	0 - 4
Social behaviour	0	0	7	E	0	0	0	1	0 - 7
General	0	0	0	N	56	29	100	31	0 - 100
Cognitive	0	0	0	T	25	0	0	4	0 - 25

Technique knowledge only occurred in lessons one (48%) and two (3%), with Strategy discussions or involvement occurring only briefly (4%) in lesson one. After these two lessons no time was allocated to these sub-categories, even though as games began Lionel may have improved, through better knowledge of Strategies and Techniques associated with the skills of netball.

### Skill responses

Lionel was observed from the beginning to end of the season, but was absent during lesson four. Results for Lionel can be seen in the tables below.

Table 16 shows the Activity sub-categories that Lionel was engaged in when each skill response was made.

Table 16

#### Number and Percentage Skill Responses Made in Activity Sub-categories by Lionel

ACTIVITY SUB-CATEGORY	LESSON NUMBER						TOTAL	% MEAN
	1	2	3	5	6	7		
<b>Warm up (No)</b>	0	3	0	0	0	0	3	1.5
% Successful -		66.5						
% Correct -		100						
% Trying -		100						
% ALL -		66.5					66%	
<b>Fitness (No)</b>	0	0	0	0	0	0	0	0
% Successful -								
% Correct -								
% Trying -								
% ALL -								
<b>Skill practice (No)</b>	31	24	8	17	0	34	114	50
% Successful -	87	100	75	100		94		
% Correct -	77.5	96	75	88		88		
% Trying -	87	100	87.5	100		94		
% ALL -	71	96	75	88		82.5	82%	
<b>Scrimmage (No)</b>	0	4	0	12	0	1	17	7.5
% Successful -		100		100		100		
% Correct -		100		91.5		100		
% Trying -		100		100		100		
% ALL -		100		91.5		100	97%	
<b>Game (No)</b>	0	0	26	25	30	12	93	41
% Successful -			69	72	90	50		
% Correct -			73	60	70	75		
% Trying -			100	100	96.5	91.5		
% ALL -			65.5	56	70	50	60%	
<b>TOTAL ATTEMPTS</b>	31	31	34	54	30	47	227	100
<b><math>\bar{X}</math> per lesson</b>							38	

Table 16 reveals that a total of 227 skill responses were made over six lessons, with an average of 38 per lesson. Lesson five had the highest number of responses

with 54, with other games lessons (three and seven) recording the next highest responses with 34 and 47 responses respectively.

Skill practices and Games were the sub-categories in which most skills were attempted with 114 and 93 responses being recorded over the six lessons. Skill practices would have given Lionel more of a chance to respond because this sub-category was performed in discrete situations, with no pressure placed on the performer. It was during pressure situations, such as Games, that Lionel tended to shy away from making skill responses.

Success levels for Lionel (% ALL) were higher in Skill practices (82%) and Scrimmages (97%) than in Games (60%). This shows a significant drop in the number of successful responses when he was placed in a game. His level for trying during Games was still very high (98%) over the season even though he was not achieving as much success as in Skill practices or Scrimmages.

Table 17 reveals the types of skills performed throughout the netball season, with the levels of success, correct technique and trying to perform properly shown.

Table 17

Types of Skill Responses Made by Lionel

SKILL	LESSON NUMBER						TOTAL	% MEAN
	1	2	3	5	6	7		
<b>Receiving (No)</b>	<b>15</b>	<b>17</b>	<b>10</b>	<b>19</b>	<b>10</b>	<b>15</b>	<b>86</b>	<b>38</b>
% Successful -	80	94	80	94.5	90	93.5		
% Correct -	93.5	100	80	94.5	90	100		
% Trying -	93.5	100	90	100	100	86.5		
% ALL -	80	94	80	94.5	90	86.5	<b>88%</b>	
<b>Passing (No)</b>	<b>16</b>	<b>14</b>	<b>12</b>	<b>25</b>	<b>13</b>	<b>21</b>	<b>101</b>	<b>44</b>
% Successful -	94	100	91.5	96	100	76		
% Correct -	62.5	93	100	76	61.5	90.5		
% Trying -	82	100	100	100	92.5	100		
% ALL -	62.5	93	91.5	76	61.5	76	<b>77%</b>	
<b>Shooting (No)</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>1.5</b>
% Successful -			0			50		
% Correct -			100			0		
% Trying -			100			100		
% ALL -			0			0	<b>0</b>	
<b>Attacking (No)</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1.5</b>
% Successful -			100	0				
% Correct -			100	0				
% Trying -			100	100				
% ALL -			100	0			<b>67%</b>	
<b>Defending (No)</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>9</b>	<b>7</b>	<b>9</b>	<b>34</b>	<b>15</b>
% Successful -			33.5	55.5	71.5	77.5		
% Correct -			22	44.5	57	55.5		
% Trying -			100	100	100	89		
% ALL -			22	33.5	57	55.5	<b>42%</b>	
<b>TOTAL ATTEMPTS</b>	<b>31</b>	<b>31</b>	<b>34</b>	<b>54</b>	<b>30</b>	<b>47</b>	<b>227</b>	<b>100</b>
$\bar{X}$ per lesson							<b>38</b>	

Table 17 identifies that most of the skills attempted were receiving (86) and passing (101). These skills were evenly distributed among the six lessons, with lesson five recording the highest numbers for both skills (19 and 25 respectively).

A total of 6 skill responses were devoted to attacking and shooting with only 2 of these being deemed as completely correct (shown as % ALL on Table 17). Defending was at a higher level with 34 responses, which is a reflection of the positions played during competition (mostly WD). Only 42% were recorded as

completely correct (ie. % ALL) even though Lionel did try hard to perform the skills, for the benefit of his team, on most occasions. There were only 9 occasions that he did not try to do his best, so for 95% of skills attempted, he was trying to perform the skill to the best of his ability. In pressure situations, such as Games, the result of the performance becomes far more important than how the skill was performed, which reflects the high levels of trying, but lower levels of correctness (88% and 77% respectively). Although Lionel did not always show high levels of success and correctness, the number of responses recorded as trying was outstanding at 95%.

#### Louise

Louise was a 13 year old female with prior netball experience playing on Saturday mornings in year seven. She stopped playing netball in 1993, at the end of primary school. At the time she was interviewed Louise did not play any sport in her own time. In the sport education class her only role was a player. Last term she was a captain for a soccer team and was not permitted to have a role for netball as others needed to be given a chance. She indicated that she would have liked to have been a captain again. She was observed as a low ability subject in lessons four to seven and participated in every game. A variety of positions were played including goal shooter (GS), centre (C), wing attack (WA) and goal keeper (GK).

#### Perceptions - Louise

Louise was interviewed after class on the last day of term. After being told what sport education and physical education were, she said that she preferred sport education because you have to "work yourself" (p. 8) and "do different jobs" (p. 8) and "we worked as a team" (p. 10). At the beginning of the season Louise performed skills with the teacher (even though Harry, who was in the same class at the start, claimed that they played games in a mini-competition and did no drills at all), and then did little games after the skill practices.

Louise claimed that she already knew all of the skills, but "could probably get better" (p. 9). She considered her skill levels to be "alright" (p. 8) and that she improved, but that "probably just playing it again" (p. 9) was the reason she improved.



She mainly played attacking positions and said that she didn't do much defence because she had "played them before" (p. 11). Louise did try to get better by running harder in the games. She was the only subject to comment that netball might be played as a sport after school time, but she was not definite and said "I might because I'm interested in doing netball" (p. 10).

### Key behaviours

The key behaviours that Louise was involved in can be seen in Table 18.

Table 18

#### Percentage Time in Key Behaviours for Louise

KEY BEHAVIOUR	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Activity	Not			0	13	18	18	12	0 - 18
Knowledge	observed			33	14	7	6	15	6 - 33
Transition	in			18	31	28	16	23	16 - 31
Waiting	these			49	42	44	59	49	42 - 59
Break	lessons			0	0	2	1	1	0 - 2
Off task				0	0	1	0	0	0 - 1
Management				0	0	0	0	0	0

Table 18 shows that Louise spent nearly half of her time in class Waiting (49%). Almost a quarter of her time was spent in Transition (23%), with the highest level being 31% in lesson five. An average of 12% was spent in Activity, occurring in lessons five, six and seven, with no Activity time in lesson four. A total of 15 % was spent in the Knowledge key behaviour, occurring mostly in lesson four (33%). In this lesson team selections and teacher explanations of competition procedures took place. Only 1% of the time was recorded as Off task behaviour over the entire season, with no Management time observed.

Exactly how Louise spent her time in Activity can be seen in Table 19, which breaks the key behaviour into sub-categories.

Table 19

Percentage Time in Activity Sub-categories by Louise

ACTIVITY SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Warm up	Not			0	23	0	22	15	0 - 23
Fitness	observed			0	0	0	0	0	0
Skill practice	in			0	0	6	6	4	0 - 6
Scrimmage	these			0	8	6	6	7	0 - 8
Game	lessons			0	69	88	66	74	0 - 88

Table 19 indicates that Louise spent most of her time in Games (74%). Game time was recorded in lessons five, six and seven, with no Activity at all in lesson four. Louise was not recorded at the beginning of the season. Skill practice and Scrimmage time came to 4% and 7% respectively out of total Activity time. These key behaviours were mainly observed as team Warm ups before Games began. Her team engaged in mini-games and Skill practices related to the positions they were going to play in the competition. For example, as a shooter, Louise performed practice shots before a game, while other team members were engaged in passing and defending drills. Warm ups only occurred in lessons 5 and 7, taking up an average of 15% of Activity time, with no Fitness behaviours recorded at all.

The knowledge sub-categories, shown in Table 20, outline how Louise spent her Knowledge time throughout the season.

Table 20

Percentage Time in Knowledge Sub-categories by Louise

KNOWLEDGE SUB-CATEGORY	LESSON NUMBER							Mean in %	Range in %
	1	2	3	4	5	6	7		
Rules	Not			0	14	71	0	21	0 - 71
Technique	observed			0	0	0	0	0	0
Strategy	in			0	0	0	0	0	0
Social behaviour	these			0	0	0	0	0	0
General	lessons			55	64	29	100	62	29 - 100
Cognitive				45	22	0	0	17	0 - 45

The majority of Knowledge behaviour was recorded as General knowledge, with all of Knowledge time in lesson seven devoted to this sub-category. Discussion of Rules was the next most common sub-category that Louise was engaged in, at 21%. This mainly occurred in lesson six (71% of all knowledge time in this lesson). The Cognitive sub-category primarily occurred in lesson four (45%), when Louise was placed in a team and was involved in making decisions with her team. No time was spent discussing or being told about Techniques, Strategies or Social behaviours over the entire season.

Skill responses

Louise was only recorded on video tape in lessons four to seven, with lesson four being team selections, when no Activity time was recorded. Table 21 shows the Activity sub-categories in which Louise spent her time within the netball unit, outlining how many skill responses were made in each.

Table 21

Number and Percentage Skill Responses Made in Activity Sub-categories by Louise

ACTIVITY SUB-CATEGORY	LESSON NUMBER				TOTAL	% MEAN
	4	5	6	7		
Warm up (No)	0	0	0	0	0	0
% Successful - % Correct - % Trying - % ALL -						
Fitness (No)	0	0	0	0	0	0
% Successful - % Correct - % Trying - % ALL -						
Skill practice (No)	0	10	16	16	42	23
% Successful - % Correct - % Trying - % ALL -		90 90 100 80	62.5 68 100 62.5	94 87.5 94 82	75%	
Scrimmage (No)	0	6		4	10	5.5
% Successful - % Correct - % Trying - % ALL -		66.5 83.5 100 66.5		100 75 75 75	70%	
Game (No)	0	49	65	18	132	71.5
% Successful - % Correct - % Trying - % ALL -		73.5 73.5 100 71.5	81.5 70.5 100 64.5	66.5 78 100 66.5	67%	
<b>TOTAL ATTEMPTS</b>	<b>0</b>	<b>65</b>	<b>81</b>	<b>38</b>	<b>184</b>	<b>100</b>
$\bar{X}$ per lesson					46	

The skill responses for Louise, shown in Table 21 above, reveal that she performed a total of 184 responses over four lessons, with a mean of 46 per lesson. The maximum in any one lesson was 81 responses in lesson 6. Most of the responses occurred in Games (132), with the remaining 52 shared in Skill practices (42) and Scrimmages (10). Not one attempt was made in lesson four, or in the Warm up or Fitness sub-categories over the whole season.

Levels of complete correctness for skills ranged from 67% in Games to 75% in Skill practices, suggesting that being placed in a pressured situation had an impact on skill performance. Table 22 outlines the types of skills that Louise performed.

Table 22

Types of Skill Responses Made by Louise

SKILL	LESSON NUMBER				TOTAL	% MEAN
	4	5	6	7		
<b>Receiving (No)</b>	<b>0</b>	<b>26</b>	<b>31</b>	<b>13</b>	<b>70</b>	<b>38</b>
% Successful -		88.5	93.5	84.5		
% Correct -		80.5	87	84.5		
% Trying -		100	100	92.5		
% ALL -		80.5	84	77	<b>81%</b>	
<b>Passing (No)</b>	<b>0</b>	<b>24</b>	<b>40</b>	<b>24</b>	<b>88</b>	<b>48</b>
% Successful -		87.5	82.5	79		
% Correct -		91.5	65	79		
% Trying -		100	100	96		
% ALL -		83.5	60	71	<b>71%</b>	
<b>Shooting (No)</b>	<b>0</b>	<b>11</b>	<b>7</b>		<b>18</b>	<b>10</b>
% Successful -		18	0			
% Correct -		36.5	28.5			
% Trying -		100	100			
% ALL -		18	0		<b>11%</b>	
<b>Attacking (No)</b>	<b>0</b>	<b>2</b>			<b>2</b>	<b>1</b>
% Successful -		100				
% Correct -		100				
% Trying -		100				
% ALL -		100			<b>100%</b>	
<b>Defending (No)</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>3</b>
% Successful -		50	33.5	100		
% Correct -		50	33.5	100		
% Trying -		100	66.5	100		
% ALL -		50	33.5	100	<b>50%</b>	
<b>TOTAL ATTEMPTS</b>	<b>0</b>	<b>65</b>	<b>81</b>	<b>38</b>	<b>184</b>	<b>100</b>
$\bar{x}$ per lesson					<b>46</b>	

The skill responses made by Louise, as shown in Table 22, reveal that passing was the most commonly occurring skill with 88 attempts, in which 71% were performed with all components correct (ie. % ALL). Nearly half of these attempts

occurred in lesson six, with 40 attempts. Attacking was the most successful skill with 100% correct. Only two attempts, however, were made over the season. Receiving was recorded at 70 attempts, with 81% being completely correct.

Shooting was attempted 18 times, but only two of these attempts were recorded as completely correct (% ALL). Although Louise did not achieve very high levels of complete success, it was not through lack of trying. There were only two occasions out of 184 skill responses that she was recorded as not trying.

#### Combined data on all four subjects

A combined description of results helps to compare and contrast subject behaviour throughout the season so that comments could be made on the subjects as a whole. The subjects are described in detail as a group within the sub-headings of perceptions, key behaviours and skill responses.

#### Perceptions

The interviews were analysed using a case analysis procedure (Patton, 1990), where each interview was transcribed from beginning to end. Cross subject analysis within each case was completed to enable responses to be compared from the four interviews. Themes that emerged from the interviews can be seen below.

#### 1. Playing the Games

All interviewees enjoyed playing the games and said that it was the best part of physical education and sport education, "better than doing stuff like gym" (Helen, p. 1). Reasons provided included the fact that when playing games they had to do warm ups and drills before the games began so they had more variety anyway. "When we play games we get to do warm ups as well" (Helen, p. 2). The games also helped them to learn how to be part of a team and all said that they liked the teamwork that their team had established. "People who everyone thought weren't so good went out and tried their best and got some help from our team, made our team score points through good passing and stuff" (Lionel, p. 16).

## 2. Skill Development (first 3-4 weeks)

The students understood what the first part of the season was for but nevertheless thought that they knew the skills well enough to play games from the start. "The people who hadn't played netball outside of school didn't know what to do so we started off and she (the teacher) kind of taught us from the beginning again. It was boring but I didn't really care" (Helen, p. 3). All subjects said that they tried to improve whatever skills they had and to learn others, such as teamwork and captaining a team. Louise believed that she did improve her skills, because she was "just playing it again" (p. 9), rather than learning how to perform them. The high ability subjects (Helen and Harry) both thought that they stayed the same because they were already really good and did not need to improve. They were quite "bored" (Helen, p. 3) with this part of the season as they were 'compliant beginners', but were happy to let the whole class start from the beginning to be with their friends. Most drills were done by the teacher directing activities, which were mainly attacking drills with little defensive content covered.

## 3. Getting a Turn in Games

All subjects were happy with the positions that they played throughout the season (see Table 23 below). They were content because their team was winning and to play a position that they were not very good at would have let the team down. "I would have liked to have played (shooter), but I know I'm not a very good shooter and even if I was to go shooting I would let the team down, but I prefer guarding" (Lionel, p. 15).

The team captain (Helen) allowed players to play where they wanted and thought that it was a bit unfair that some low skilled team members did not get much variety. "I don't think that the wing attack did (get a fair go) because he just went the same position all the time, but I put them in positions that they said they wanted to go" (Helen, p. 3).

Table 23

Positions Played by Subjects During Games

SUBJECT	POSITIONS PLAYED
Helen	C, GA, GD, GS
Harry	GA, GS, C, GD, GK
Lionel	WD, GK, GD, WA
Louise	GS, C, WA, GK

Table 23 shows that the high skilled subjects (Helen and Harry) played the more dominant positions on court. The positions are ordered from most frequently played to least played. Helen and Harry spent most of their time playing GA, C and GS. There were not many circumstances during the games when one of them was not in the play. Harry did mention that he did "play different positions in different ways" (p. 6) and he did not want to play quieter positions (such as WA or WD) "because they are boring and I like sports where you do lots yourself" (p. 6). Lionel, however, did not mind playing such positions because he didn't have to do very much and there would be less opportunity to "let the team down" (p. 15).

By playing a wider variety of positions, which also happened to be dominant court positions, the high ability subjects were given more opportunities to utilise more skills during the games as they played different positions in different ways. The low ability subjects tended to spend less time on court and played in positions which allowed limited use of skills and involvement in games. For example, Lionel spent almost every game playing either wing defence or goal keeper. His opportunities to make certain skill responses, such as attacking or shooting, were limited because he mainly played in defensive positions. His chances of acquiring all of the skills associated with netball were therefore hindered because of the limited nature of positions he played. He thought his skill levels were fine, "could do with a bit of improvement" (Lionel, p. 15), but it did not matter that much.



#### 4. Playing Netball as a Sport

All subjects had played netball before taking this class and knew the rules and basic skills of the game. Three of the four subjects were certain that they would not play netball again after this class apart from in school physical education. Louise said she would consider it, but not in the near future. The three who were not interested in netball all thought basketball was a better game. "I gave it up (netball) to play basketball and I think basketball's better than netball because you get to move around a lot and you can dribble and it's more of a contact sport and you don't have to be too far away and I've got a scholarship at Willetton and I play SBL (state basketball league)" (Helen, p. 3).

Helen and Harry were both involved in basketball outside of school with one at an elite level. Lionel and Louise were currently not involved in any sport outside of school and did not intend to join any community based sport in the near future.

#### 5. Thoughts on Physical Education and Sport Education

All four subjects liked physical education as a school subject particularly when compared to other subjects. They enjoyed the social aspect of physical education. The notion of "playing in a team" (Helen, p. 1) was another advantage that they thought physical education had over other subjects. "It makes you feel good, keeps you fit" (Louise, p. 8).

When each subject was asked about their thoughts on sport education and physical education none knew what the difference between sport education and physical education was. Lionel had a good guess for sport education as "playing in teams" (p. 12), but in the end they all had to be told what differences existed. After a brief explanation outlining sport education as a season of a sport in which the students are put into even teams which they remain in for the whole term, working as players and other roles, the subjects had a better idea of the differences to traditional physical education classes. When familiar with the concept of sport education, all preferred it to general physical education because of the increased game time during tournaments and working in the same team for the entire season. This continuity allowed them to

work on improving their team as a whole through developing team set plays and strategies for game play. The teamwork that they showed during the games was an example of how they used this continuity to make the most of their team in different situations, against opposition teams.

### Key behaviours

The key behaviours that each subject was engaged in are shown in tables 24, 25 and 26. Table 24 outlines percentage time spent by the four subjects in each key behaviour. Skill levels of each subject are indicated.

Table 24

#### Percentage Time in Key Behaviours by All Four Subjects

KEY BEHAVIOUR	SUBJECT				Mean in %	Range in %
	Helen	Harry	Lionel	Louise		
Activity	24	20	23	12	20	12 - 24
Knowledge	20	16	18	16	18	16 - 20
Transition	20	23	18	23	21	18 - 23
Waiting	35	40	37	48	40	35 - 48
Break	1	1	2	1	1	1 - 2
Off task	0	0	0	0	0	0
Management	0	0	2	0	0	0 - 2

Table 24 reveals that all four subjects spent most of their time Waiting, with a mean of 40%. Louise spent nearly half of her time in Waiting (48%). The four subjects recorded similar levels for the Knowledge key behaviour, with time ranging from 16% - 20%, with a mean of 18%.

Mean Activity time was 20%, with Louise recording a significantly lower level (12%) than the other three subjects. Harry and Louise were recorded in Activity in lessons five, six and seven only. Helen and Lionel were recorded from the beginning of the season, during Skill development lessons. It was in these first three weeks of term that Lionel recorded his highest Activity levels, with time dropping off

in lessons five, six and seven (see Table 13). The percentage of Activity time recorded may not be an accurate indication of how Harry spent his time in the first three weeks of term, as he was not observed. Comparisons across other subjects cannot be made and this shows is a limitation of the study.

Off task behaviour did not occur, while the Management key behaviour was only recorded for Lionel (2%) over the entire season.

Table 25 reveals how the subjects spent their Activity time and clearly shows that all four subjects spent the greatest amount of activity time active in Games, with a mean of 47% of total Activity time.

Table 25

Percentage Time in Activity Sub-categories by All Four Subjects

ACTIVITY SUB-CATEGORY	SUBJECT				Mean in %	Range in %
	Helen	Harry	Lionel	Louise		
Warm up	21	10	22	17	18	10 - 22
Fitness	4	0	4	0	2	0 - 4
Skill practice	17	30	17	0	16	0 - 30
Scrimmage	25	10	26	8	17	8 - 26
Game	33	50	31	75	47	31 - 75

Helen and Lionel recorded lower Game percentage levels (33% and 31% respectively). These two subjects were recorded in lessons one, two and three, when Skill developments were the focus and minimal Game time was recorded. Harry and Louise were not recorded for the Skill development phase of the unit, with data only available for these two subjects in lessons four to seven. These lessons had Games as a focus for Activity, which helps to explain their higher results for Game time (50% and 75% respectively). Louise did not participate in many Skill practices or Scrimmages with her team, which accounted for her Game being time so high (75%), Scrimmages at only 8% and no Skill practice time recorded.

Analysis of the Activity sub-categories reveal the same pattern of Activity levels for the subjects who were in the same class before the two classes were combined. Helen and Lionel were in the same class and recorded similar results. For example, the Fitness sub-category was only recorded for Helen and Lionel, with both at a level of 4% of total activity time. Harry and Louise recorded no Fitness behaviour.

Table 26 outlines how this Knowledge time was categorised for each subject.

Table 26

Percentage Time in Knowledge Sub-categories By All Four Subjects

KNOWLEDGE SUB-CATEGORY	SUBJECT				Mean in %	Range in %
	Helen	Harry	Lionel	Louise		
Rules	50	13	61	13	34	13 - 61
Technique	10	0	17	0	7	0 - 17
Strategy	0	0	0	0	0	0
Social behaviour	5	0	0	0	1	0 - 5
General	20	56	17	56	37	17 - 56
Cognitive	15	31	5	31	21	5 - 31

The Knowledge key behaviour had a mean of 18% of total lesson time. Most of Knowledge time, as shown in Table 26, is made up of General knowledge (37%), Rules (34%) and Cognitive behaviour (21%). Lionel had a high amount of Rule time, perhaps reflecting that he was fairly inexperienced at netball and was punished by umpires during games. He also received individual attention on the rules of the game by the teacher during lesson 2 (see Table 13). Cognitive behaviour primarily took place during lesson 4, when teams had to think up names and designate roles within their teams. Lionel was absent for lesson 4, which in part explains why his Cognitive level was significantly lower than the other subjects.

Helen and Lionel were the only subjects to engage in any knowledge of Techniques, which occurred during the Skill development weeks of the season. Harry

and Louise may have received information on Technique during Skill development, but they were not observed during these lessons so this information is not available. Patterns emerged again between the subjects that were in the same class for the first three weeks of term. For example, Harry and Louise recorded the same Knowledge time in all sub-categories they were engaged in (13% for Rules, 56% for General and 31% for Cognitive). Helen and Lionel had similar recordings for most sub-categories, but they were not at exactly the same levels. No subject received any Knowledge on Strategies associated with netball.

### Skill responses

The overall skill responses made by each subject are shown in Tables 27 and 28. The total number of skills performed by each subject can be seen below, in Table 27. These skill responses are shown in terms of the activity sub-category each subject was engaged in when they made skill responses. For example, Helen made 18 responses in the warm up sub-category over the entire season. Percentages of successful attempts, correctly performed attempts and attempts in which the subjects were trying are revealed to give a clear indication of the nature of each skill attempt. The overall percentage of attempts in which all three categories occurred together (ie. successful, correct and trying) can be seen underneath the individual percentages and a percentage mean for the season shown in bold in the column second from the right.

Table 27

**Percentage and Number of Skill Attempts in Activity Sub-categories By all Four Subjects**

ACTIVITY SUB-CATEGORY	SUBJECT				TOTAL	% MEAN
	Helen	Harry	Lionel	Louise		
<b>Warm up (No)</b>	<b>18</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>21</b>	<b>1</b>
% Successful -	94.5		66.5			
% Correct -	94.5		100			
% Trying -	100		100			
% ALL -	94.5		66.5		<b>60.5%</b>	
<b>Fitness (No)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
% Successful -						
% Correct -						
% Trying -						
% ALL -					<b>0%</b>	
<b>Skill practice (No)</b>	<b>309</b>	<b>178</b>	<b>114</b>	<b>42</b>	<b>643</b>	<b>37</b>
% Successful -	89.5	69.5	91	82		
% Correct -	96.5	84	85	82		
% Trying -	96	92.5	93	98		
% ALL -	86.5	63	82.5	75	<b>76%</b>	
<b>Scrimmage (No)</b>	<b>39</b>	<b>36</b>	<b>17</b>	<b>10</b>	<b>102</b>	<b>6</b>
% Successful -	92	62.5	100	83		
% Correct -	84.5	90.5	97	79		
% Trying -	93.5	100	100	87.5		
% ALL -	78.5	74	97	70.5	<b>80%</b>	
<b>Game (No)</b>	<b>358</b>	<b>380</b>	<b>93</b>	<b>132</b>	<b>963</b>	<b>56</b>
% Successful -	79	84.5	70	74		
% Correct -	91	93.5	69.5	74		
% Trying -	97	98	97	100		
% ALL -	77.5	81	60.5	67.5	<b>72%</b>	
<b>TOTAL ATTEMPTS</b>	<b>724</b>	<b>594</b>	<b>227</b>	<b>184</b>	<b>1729</b>	<b>100</b>
<b><math>\bar{x}</math> attempts per subject</b>	<b>103</b>	<b>148</b>	<b>38</b>	<b>46</b>		

The number of skill responses made by each subject ranged from 184 to 724 responses. The two high skilled subjects (Helen and Harry) had mean responses of 103 and 148 respectively compared with mean responses of 38 and 46 respectively for the low ability subjects (Lionel and Louise). Most skill responses were made in the Games sub-category with an average of 56% of responses occurring over the season. Helen, Harry and Louise performed the majority of their skill attempts in the Game sub-category, with all three having Skill practices as their next most frequent sub-

category. In Skill practices Lionel performed most of his skill attempts (50%). Games were next most frequent at 41%. Scrimmages (6%) and Warm ups (1%) made up the remaining skill responses, with no responses being recorded in the Fitness sub-category.

Warm ups and Scrimmages revealed higher levels of complete correctness with 80.5% and 80% respectively. These levels were lower for Skill practices and Games, which were 76% and 72% respectively. The types of skills that were performed can be seen in Table 28.

Table 28

Types of Skill Responses By All Four Subjects

SKILL	SUBJECT				TOTAL	% MEAN
	Helen	Harry	Lionel	Louise		
<b>Receiving (No)</b>	<b>307</b>	<b>254</b>	<b>86</b>	<b>70</b>	<b>717</b>	<b>41.5</b>
% Successful -	92	95	88.5	89		
% Correct -	95	96	93	84		
% Trying -	96.5	99.5	95	97.5		
% ALL -	89	92.5	87.5	80.5	<b>87%</b>	
<b>Passing (No)</b>	<b>296</b>	<b>138</b>	<b>101</b>	<b>88</b>	<b>623</b>	<b>36</b>
% Successful -	88.5	92	93	83		
% Correct -	93	90	80.5	78.5		
% Trying -	95.5	99.5	96	98.5		
% ALL -	85	84	77	71.5	<b>79%</b>	
<b>Shooting (No)</b>	<b>64</b>	<b>172</b>	<b>3</b>	<b>18</b>	<b>257</b>	<b>15</b>
% Successful -	32.5	50.5	25	9		
% Correct -	93.5	79	50	32.5		
% Trying -	91.5	89	100	100		
% ALL -	32.5	43.5	0	9	<b>21%</b>	
<b>Attacking (No)</b>	<b>15</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>22</b>	<b>1</b>
% Successful -	77.5	50	50	100		
% Correct -	89.5	100	50	100		
% Trying -	93.5	100	100	100		
% ALL -	77.5	50	50	100	<b>69%</b>	
<b>Defending (No)</b>	<b>42</b>	<b>28</b>	<b>34</b>	<b>6</b>	<b>110</b>	<b>6.5</b>
% Successful -	77	70.5	59.5	61		
% Correct -	85	77	45	61		
% Trying -	100	100	97.5	89		
% ALL -	72	71.5	42	61	<b>62%</b>	
<b>TOTAL ATTEMPTS</b>	<b>724</b>	<b>594</b>	<b>227</b>	<b>184</b>	<b>1729</b>	<b>100</b>
<b><math>\bar{x}</math> attempts per subject</b>	<b>103</b>	<b>148</b>	<b>38</b>	<b>46</b>		

Table 28 reveals that most of the skill responses were receiving with 41.5% of total skill responses. Passing comprised 36% and shooting 15% of responses. Helen and Harry had very high levels for receiving and passing with Helen receiving the ball 307 times and passing 296 times and Harry receiving the ball 254 times and passing 138 times. Harry shot the ball more often than passing with 172 responses being shots at goal.

Considering netball is a game of passing up and down a court in order to score goals, it is not surprising to see these skills at the highest levels. Receiving the ball typically must be done in order to pass or shoot, explaining why receiving is the most commonly occurring skill response. Lionel and Louise, however, passed the ball more often than receiving it, with 101 and 88 passes made over the season. This was due mainly to the positions that were played during games. For example, by playing defence Lionel was given more opportunities to take free passes for other players in his team, meaning he did not actually receive the ball before passing it off. On numerous occasions Lionel took free passes for the other players, who were playing attacking positions, so that they could move down further into attack while their opponent was out of play. This explains why the number of passing skill responses attempted by Lionel was particularly high in comparison to the other skills that were performed. Also, playing defence for majority of Games and during Scrimmages accounted for lower levels of shooting and attacking responses for Lionel.

Louise took a large number of sideline and baseline throw-ins during games which did not require her to receive the ball, accounting for her higher levels of passing.

Harry made a significantly higher number of shooting skill responses than the other three subject with a total of 172 attempts made over the three lessons. From these 172 attempts over 50% were successful and 43.5% of these were performed completely correctly. Harry was frequently the shooter and in only three or four occasions in fourteen halves of netball he played in a non-shooting position. Louise on the other hand played shooter for only one half throughout the entire season.



Overall percentages for trying were high. All subjects were judged to be trying most of the time with a range from 89% to 100%. This suggests that students were motivated throughout the season.

### Summary

This chapter presented a thorough description of the study's findings for individual subjects and the four subjects combined. Chapter six now builds on these findings and compares them with other studies relating to sport education and secondary school physical education in Australia.

## CHAPTER 6: DISCUSSION OF RESULTS

Discussion of the findings was undertaken in relation to three categories previously outlined in chapter five. The three categories (perceptions, key behaviours and skill responses) provide a structure for the discussion of the data with reference to results from other studies referred to in the literature review in chapter two.

### Perceptions

The findings from interview data were combined for all subjects and the discussion relates to the themes that emerged. Themes are used to relate the findings to literature on student thoughts of physical education, sport education and their skill levels.

#### Thoughts of physical education and sport education

All subjects liked physical education as a school subject because it "makes you feel good, keeps you fit" (Louise, p. 8). This claim supports Grant, who reported in 1992 that "students do have positive attitudes towards physical education" (p. 310). The social aspect, of getting outside with their friends, was another part of physical education that the students liked. Tinning and Fitzclarence (1992), in a study on student perceptions of traditional physical education in Australian schools, indicated that physical education was seen to be boring and irrelevant for many adolescents and that students generally want more entertainment from their physical education class. The sport education class studied did not support these Tinning and Fitzclarence claims.

When each subject was given an explanation of physical education, sport education and the characteristics of both programs, they all had a preference for netball via sport education, rather than netball as part of a traditional physical education program. Traditional physical education was considered not as good as sport education as the students felt that in the sport education program they had a real purpose and they worked towards a shared goal as a team. "It's (sport education) pretty good because you get to work yourself and do different jobs" (Louise, p. 8). Traditional physical education was seen as particularly boring for the high skilled

students who indicated that they had to cooperate while performing tasks and drills that they had already mastered. This reflection supports the Tinning and Fitzclarence findings (1992). It appears that these high skilled students take the role of 'compliant beginners' in traditional physical education, with no access or encouragement to exceed in any way beyond good performance of the skills. Sport education "is better than doing gym and stuff" (Helen, p. 1) because these students get opportunities to become involved in coaching and captaining teams in order to use their high skill levels to help others improve.

The two high skilled subjects in this study did, however, mention "boredom" (Helen, p. 2) with the first part of the sport education season because of repetition of basic drills, which they had learnt before and were already familiar with. However, they indicated that it was not a major problem because they were able to spend time with their friends and also helped them in a more social environment than in the classroom. The importance of the social aspect (eg. working cooperatively with others) inherent in sport education was evident.

The low ability students also had a preference for the sport education environment over traditional physical education. Previous involvement in traditional physical education for low ability students has shown that low skilled players are "often treated differently to others - by teachers and peers" (Carlson, 1995, p. 6). Both low ability students were comfortable in the sport education class and liked their team. The high ability students were able to spend time with their less able teammates and worked to improve the lower skilled players' skills and tactics in game situations. Lionel "got some help from our team" (p.15) which helped him improve his game and feel like he was an important member of his team.

The team cohesion that was developed appeared to come from playing in the same team for the whole season and also appeared to bridge the gap between the high and low ability students during the competition. The "competition is good" (Harry, p. 4) which made everyone seem more motivated than in a traditional physical education

class. Reasons may include the participants having a purpose to attend every lesson, join in and also to look forward to future lessons/games.

Recent findings (Carlson, 1995; Grant, 1992; SPARC, 1995; SPARC, 1994) support the notion that the students preferred sport education to traditional multi-activity physical education and that "it was something more and better than just doing physical education" (Student survey, SPARC, 1995 p. 126). Carlson (1995) reported that 23 out of 24 participants in a sport education program actually preferred sport education to the regular physical education class. One child interviewed after taking part in the Sport Education II trials summed up the advantages of sport education by stating that it (sport education)...

... is better than normal PE because the teacher is not telling you what to do. You weren't under any pressure which made you want to try your best. You learnt how to cooperate with other team members and it was really good all sharing the responsibility with each other

(year 10 student, SPARC, 1995, p. 4).

The positive comments made by students in this and other studies experiencing the sport education program supports the continued development of the model for physical education in Australian schools.

There is growing evidence to suggest that students generally do prefer sport education to traditional models. Students actually see a purpose and relevance of the physical education class and develop cooperation, teamwork and leadership skills (Carlson, 1995; SPARC, 1995) which can benefit them within their school environment and possibly beyond school. It appears that some students in physical education are now beginning to look forward to their physical education lessons and bring along to the class a motivation and desire to do well which other research has indicated has previously been lacking (Tinning & Fitzclarence, 1992). Sport education has highlighted that "student centred teaching may deliver superior

outcomes to those traditionally only pursued through more direct, teacher controlled pedagogies" (Alexander et al., 1995, p. 30).

#### Playing in teams

Results from research on sport education (Alexander et al., 1995; Carlson, 1995; Grant, 1992; SPARC, 1995; SPARC, 1994) have indicated that playing in the same team for an entire sport education season has positive implications for the team members. "The first but most notable achievement for many students was being a valued member of a team" (Grant, 1992, p. 313).

In this study the students established a strong team identity with everyone cooperating and helping each other out whenever they could. Carlson (1995) found with her study of low ability participants that as the season progressed the high skilled players did whatever they could to help their lower skilled teammates. They (the high skilled players) realised that for their team to win they needed all players to contribute to the games. The fact that the team studied were the competition winners may have had an impact on the team cohesion that developed throughout the season. They did not lose a game and get angry which was demonstrated by teams that lost to them on numerous occasions. The competition improved the teamwork of the players as the thought of being the overall winners motivated everyone to try harder not just for themselves, but for their team as well. When games were close, the team actually worked together, with the high skilled subjects encouraging their lower skilled teammates even more. Coakley (1994) suggest that alternatives to highly competitive sports have many advantages for the socialisation of participants. This program appears to show that competition in moderation can have positive effects for participants, especially in team games, where cooperation with teammates becomes more important than dominating others. The sport education program does, however, have the potential to become too competitive for students, but if monitored by the teacher the competition can be used positively and to de-emphasise the importance of winning as being everything and promoting participation and enjoyment as relevant outcomes of sport also.

The video data revealed that peer support was given to the low skilled players, who worked with the high skilled players on improving their skills. This increased their confidence and gave them a willingness to try and improve. Lionel, a low skilled male participant, received peer support from his teammates, but he did not develop the confidence to try and play attacking or shooting positions in the games. He was worried about "letting the team down" (p. 15), which was more important to him than learning how to play every position on a netball court. He did not mind playing defensive positions and thought his team was supporting him, but he just didn't want to stand out and be noticed if he made a mistake. The notion of winning became more important than giving it a go, which can be a potential problem with the sport education model. Low skilled players may become marginalised as team members if two or three high skilled players dominate the games.

All four subjects liked the cohesion that their team had developed and were glad to not only have the same team for the entire season, but also to be playing in a team with people with whom they would probably not normally play and also to be winning every game. Playing in a team with others was mentioned as one of the best characteristics of the sport education season. This was also mentioned favourably in interviews with teachers and students in the sport education I and II trials (SPARC, 1995; SPARC, 1994). Sport education has enabled students to become more mature towards others in their class, assisting people that may not be as skilful as them, learning from peers who may be much more talented than themselves and also cooperating with class members who may not have been friends before the class began.

These observations have implications for promoting social development within physical education. Students are not only learning how to solve problems and cooperate within a team, but also developing the maturity to do these things with people different from themselves. These positive outcomes resulting from the sport education program provide messages to teachers of all subject areas. By shifting the responsibility to the students they have actually welcomed it and developed a maturity

and motivation towards the class that has exceeded teacher expectations. Teachers are beginning to "favour programme models (such as sport education) that are able to effectively pursue the social and emotional development of children without compromising the development of their motor skills" (Alexander et al., 1995, p. 24). Sport education has the potential to provide meaningful assessment of social skill outcomes. The results from this study continue to support this trend.

### Playing the games

As Grant (1992), Siedentop et al. (1986) and SPARC, 1995 suggest, sport education can increase participation and involvement through modified small sided games. Results from this study on time in activity reveal that activity levels were actually lower than shown in studies on activity time in traditional physical education classes (Metzler, 1979). However the netball tournament was not modified through smaller team sizes. The teachers decided to keep the competition games unmodified. Students played two ten minute halves of full sided games, which resulted in two games per lesson. With seven players per side on a full size court and goals at the recommended height for senior games, 3.05 metres, crucial modifications that could make the game more appropriate were not attempted. The fact that the games were not modified helps to explain why waiting was the dominant key behaviour. All four subjects engaged in activity levels that were not particularly high and similar to activity levels reported in traditional physical education classes. By modifying games, through decreasing playing areas and number of players per team, students are likely to become more involved as there are fewer people sharing or competing for the ball in a smaller area. This would have a positive effect on activity levels while decreasing waiting time. By choosing not to implement this characteristic of sport education, the teachers inevitably created an environment which did not maximise participation.

The increased game time, however, was appreciated by all the subjects, which coincides with other student surveys which mentioned that the players "thrived on the competition" (SPARC, 1995, p. 93). One noticeable factor that was apparent in the

games was that the high skilled participants tended to play in the more dominant positions on court (such as GA, C or GD), with the less dominant positions (WA, WD or GK) taken up by the lower skilled team members. When the subjects were asked about the positions they played, their answers varied according to their skill levels. Harry (a high skilled player) mentioned that he was a more experienced player and got bored playing in the quieter positions so he didn't want to play there. Lionel (a low skilled player) stated that playing in a more dominant position, such as shooter, would give him more risk of making a mistake and letting the team down, which he did not want to do. Helen (a high skilled player and also the captain for the team) was responsible for selecting positions played by the team members. She did mention that it was unfair that certain players got to play the quieter positions all of the time, but "I put them in positions that they said they wanted to go" (subject one, p. 3).

Even though the games provided opportunities for teamwork, there still seemed to be a disjunction between the high and low skilled players' involvement in the game. Nearly every game saw students playing in these positions according to their skill level (ie high skilled in dominant positions and lower skilled in quiet positions). If the season had continued over a few more weeks or the teacher had modified the games to ensure everyone played every position on the court, peer support may have been increased to allow the lower skilled players to try these harder positions and become more confident and valued members of their teams.

#### Improving their skills

When asked during the interviews whether the subjects perceived their netball skills to be better as a result of taking the sport education class, answers varied according to the skill level of the subjects. The high skilled subjects both believed that their netball skills did not really get better over the season and that they just "stayed the same" (Helen, p. 3). They claimed that all they really did was adjust their basketball skills to playing netball by concentrating on the different rules, such as stepping and obstruction. Both high skilled players thought that they already could perform all of the skills associated with netball at a high level and did not need to get



much better. They did mention that other skills, not just netball skills, were enhanced through the sport education program. Teamwork was highlighted "where the worst player has to be as good as the best player" (Harry, p. 7), in order for the team to do well. Both high ability subjects offered encouragement and showed positive attitudes towards their teammates who were obviously not as good as themselves.

The peer encouragement given to the lower skilled participants impacted on those players in a positive way. Both lower skilled subjects believed that they did improve over the netball season. "Yeah (I thought I improved)" (Louise, p. 8). Carlson (1995) studied low skilled participants involvement in a season of sport education and found similar results. The low skilled players received peer support, appeared to gain confidence and a desire to get better and in turn they actually showed improvements over the season. Alexander et al. (1995) also reported that sport education "has improved outcomes for many lower skilled students and has generally produced positive results for aspects of students' social development" (p. 23). If activity levels were higher even greater improvements may have occurred.

With the high skilled subjects helping their less skilled team members both lower skilled subjects believed that they improved and made a valuable contribution to their team. Levels recorded for trying to perform the skills to the best of their ability reveal that effort throughout the season were remarkably high for the low skilled subjects. The high skilled subjects also showed similar results. This finding has positive implications for the use of sport education as it appears to be a valuable tool for increasing lower skilled students' motivation and participation in physical education classes. Student motivation, particularly for low skilled students, has previously shown to be at low levels in physical education classes and physical education teachers have not often attended to the problem to cater for lower skilled participants in class (Carlson, 1995). Comments by students and observations throughout the study emphasise the potential of sport education to contribute to motivating youth towards involvement in activity.

### Key behaviours

The results from the video recordings provided detailed information on how the subjects spent their time during the sport education season. The main key behaviours engaged in were Waiting, Activity, and Knowledge, which are discussed in detail below. Waiting and Activity are discussed together to reveal the relationship between the two behaviours.

#### Waiting and Activity key behaviours

Using the adapted SPACOS instrument results indicate that all four subjects recorded Waiting as the dominant behaviour during lessons. Waiting time represented 40% of total lesson time recorded over the entire season. This is consistent with earlier findings (Metzler, 1980) that revealed Waiting, Transition and Management time as behaviours which took up most of lesson time. The combined figures, shown in Table 24 (page 78), indicate that a total of 61% of lesson time was spent in the Waiting and Transition behaviours, with the Management behaviour not recorded. (Note: reasons for no management behaviour is discussed in the non-functional behaviours section of this chapter).

Metzler (1989) found that waiting time and time spent in activity was a direct result of the activity undertaken. For example, small sided games and individual sports provide more Activity time and less Waiting time than full sided games. In this study the games played in competition throughout the season were all seven per side on a full sized court. Reliance on traditional team sizes clearly had an influence on Activity time in the sport education season. Similarly, Waiting time could have been decreased if Games had been modified, with smaller teams, smaller playing areas and no substitutions. These modifications would provide opportunities for all players to become more active within Games. Sadler (1993), observing a sport education volleyball class, found that students recorded particularly high levels of Waiting time. Games were similarly not modified in his study. One of the key characteristics of sport education is the use of modified (small sided) games. Games in sport education need to be modified to allow more participation by all students, instead of having the

high skilled players dominate every game in every lesson. Substitutions may also alter this dominance from high skilled players. Without game modification this situation will be reproduced time and time again.

An analysis of the Activity and Waiting key behaviours reveals a pattern of involvement. High levels of Activity results in a reciprocal lower level for Waiting and vice-versa. The time that the four subjects were engaged in Activity represented 20% of total lesson time over the season. Godbout *et al.* (1983) found that on average about one third of lesson time was devoted to Activity content. These lower level findings could be related to the types of activities undertaken in class. Table 25 (page 79) reveals that the most common type of Activity engaged in was Game play (47% of total activity time). The sport education model encourages games to be modified in both practices and competitions, but teachers have generally tailored the sport education programme to suit their own logistical needs and preferences for programme design (SPARC, 1994). In this case the preferences were to remain with traditional 7 a side games. Recent findings have indicated that only two out of ten schools actually incorporated modified games during competition into their sport education programmes (SPARC, 1994). Low Activity time appears to be a result of the unmodified nature of the games. All were played with seven per side on a full size court.

Games being the most common type of activity occurring in the sport education class contrasts with how students have previously spent their activity time in traditional physical education classes. Alexander *et al.* (1993) claim that in traditional physical education classes students typically spend most of their time in class performing discrete skills and practices, with small games concluding some lessons. Games become the more dominant activity in the sport education model which allows more time for players to use skills in pressure situations and circumstances than they would be in if they were to play the sport outside of the school environment. This could lead to better skills developing as they are used in a real situation and not just performed discretely.

Although the mean Activity time recorded was 20% over the season, there was little difference between the activity levels shown by the high and low ability subjects. Activity time ranged from 12% to 24% of lesson time across the four subjects, which contrasts with previous research on academic learning time in physical education (ALT-PE). Shute et al. (1982) reported that high skilled participants generally record significantly higher levels of ALT-PE than their lower skilled class mates. This was not the case in this study. The main difference highlighted between the high and low skilled players was how they used this Activity time and the number of skill responses that they made. For example, Helen (high ability) recorded 24% of lesson time in activity and in this time made a total of 724 skill responses over the season. This compares with Lionel (low ability) who recorded 23% of class time in activity, but in this time made a significantly lower number (227) of skill responses throughout the season. These results indicate that using ALT-PE as a measurement of learning does not really give a full picture of class events. The time students are engaged in Activity does not reveal information on the frequency or type of activities undertaken or the responses that were made. This study suggests that a closer look at the skill responses made by participants would give a clearer indication of performance and learning within a physical education class.

The positions played by each participant is another factor that may influence skill learning. Activity levels do not reveal the types of skills being performed or the positions played in games. Positions played by the participants in this study have shown that the high ability players tended to play in the more dominant court positions while the less able players opted for the less dominant positions on the netball court. Playing in more dominant positions has previously been shown by Watt (1993) to have a positive effect on learning because of the increased opportunity to make skill responses. Many different types of skills can also be attempted when students play in different positions as compared to playing in quiet positions which allow limited involvement in the games.

The decreased activity time in the sport education class compared to traditional methods is of some concern. It must be noted, however, that the types of activities engaged in within sport education go beyond motor skill development and have shown to be more relevant and purposeful for the students (SPARC, 1995). While the quantity of activity time has not increased, the quality of responses appear to be at a high level. Students have become responsible for their own learning and try hard to be a valuable member of their team, which has shown to have a positive affect on their skill learning.

### Knowledge

Results from this study reveal that students spent a mean of 18% of total lesson time over the season in the Knowledge behaviour. From this knowledge time most was allocated to General knowledge specific to netball and the running of activities and Rules for game play (see Table 26, p 80). This table highlights that no time was allocated to the learning of Strategies. It must be noted however, that the high ability subjects were already adopting strategic game play during competition, so they probably did not need to learn any new strategies to improve their skills. It was the low ability subjects who could have improved their game skills and would have benefited most from time spent learning some basic strategies associated with netball. Team activities organised by the captain was the only student - students interactions observed and they only focussed on Skill practices and would have been better if Strategies had been included.

Strategic game play development does not have to occur as a result of listening to the teacher (or peer) explain. Students can be given opportunities to learn strategies by playing games and watching others. The instrumentation for this study was not designed to collect such data and as a result this type of strategic development was not observed. Findings from other sport education studies have revealed that students have shown strategic development as seasons have progressed (Alexander et al., 1995; Grant, 1992; SPARC, 1995; SPARC, 1994). These studies do

not show any actual recording of observed Strategy work within their seasons, but teachers mentioned that some development had occurred.

Knowledge time should not be simply coded when a student is listening to the teacher or a peer give information or observing a demonstration. Watching others perform during games (even though the player was coded as waiting time in this study) is potentially time in which knowledge gains may be occurring. This is a limitation of the study, as a true indication of how much learning was taking place in the Knowledge behaviour could not be observed and thus was not recorded.

Definitions of key behaviours were altered from the SPACOS definitions to make categories clearer and more useable for this study. Ambiguity may result from coders unclear with the adapted definitions and is also a limitation.

Past research in ALT-PE studies have not used knowledge as a predictor of student achievement. Metzler (1989) and Silverman (1985) both indicated that motor learning is dependent on the amount of time a subject is engaged in appropriate Activity. Knowledge as an indicator of motor learning is apparently not considered. This study suggests that motor skill achievement should not simply be seen as result of Activity engagement in class (ie. ALT-PE), but it should also be attributed to other aspects of the class such as Knowledge time.

A major characteristic of the sport education program is that students have coaches who take them for training sessions, with teachers interacting with the coaches to help with drills and practices that teams should be doing as they train (SPARC, 1994). The sport education class studied was implemented without the use of coaches or training sessions in between competition lessons. SPARC (1994) reported that eight out of ten schools using sport education included student coaches as part of their programmes, with the development of Rules, Techniques and Strategies increasing beyond teacher expectations. Schools were actually forced to rewrite their theory tests for particular sports because of better student understanding of all aspects of the sport. By focussing on coaching and improving skills through training sessions students actually gained a lot more knowledge about particular ways

to improve their games. The students in this study did not have any help from coaches, or any time to train in between games. This meant that the teams were not reflecting on past performances and thus were not focussing on ways to improve as individuals or as a team. Knowledge time may have therefore been increased if the class was set up to allow for time to train and gain knowledge from coach and teacher feedback.

#### Off task and Management Behaviours

Off task and Management behaviours can best be described as those behaviours students engage in within class that are unrelated to the objectives of the lesson. Metzler (1979) outlined that a majority of time spent in physical education classes has typically been spent in these behaviours. In this study the time spent Off task and in Management was particularly low with virtually no time recorded over the season (see table 24, page 78). This is a significant contrast to Metzler's (1979) findings. There are reasons however, for these different results. Management behaviour is essentially time devoted to class business that is unrelated to instruction, content or subject matter. This includes procedures such as taking attendance, moving into class at the beginning of a lesson and changing into correct sports clothes (see appendix 3 for definition). In this study it was difficult to record data at the beginning of each lesson in order to ensure video battery life would last to the end of each lesson. The main procedures at the beginning of classes, such as changing clothes and roll taking, were not recorded during the study. Results for overall management time over the season would therefore be dramatically different if these constant procedures were recorded at the beginning of each lesson. Management time shown in the results can not therefore be considered a true reflection of management time that actually occurred. Results may have been a closer reflection of Metzler's findings (1979) if video data allowed this student behaviour to be recorded.

Even though Management time was not a true reflection of class events, all Off-task behaviour was recorded and results indicate that it was particularly low in comparison to Off-task time in traditional physical education classes (Metzler, 1979).

With no Off-task behaviour recorded throughout the season comparisons can be made with Sadler (1993) who conducted a study on a sport education volleyball class and reported remarkably lower levels of Off-task behaviour when compared to traditional physical education classes. Other studies using the sport education model (Carlson, 1995; SPARC, 1995; SPARC, 1994) have reported similar results, where students demonstrated better attitudes, with low rates of Off-task behaviour and situations where "class management was not a concern" (SPARC, 1995, p. 162).

Sport education has been shown to decrease non-functional behaviours, such as Off-task and Management time. Students in this study were appeared to be highly motivated, creating a positive environment allowing students to stay on task. The students demonstrated a commitment to the team and tried to improve their performance, thus limiting Off-task behaviour. The high levels of Waiting time and the very low levels of Off task behaviour are again indicative of the learner-centred pedagogy of sport education. Sport education shifts the responsibility for learning to the students and it appears they have actually welcomed this change and developed a desire to achieve. This is something that teachers have been trying to accomplish for years using traditional physical education methods with limited success (SPARC, 1995).

#### Skill responses

Checklists from the video data outline the skills that were performed by each subject. Tables present exactly how many skills were performed, the types of skills that were performed and also the nature of each skill performance. These performances are described in detail below in relation to the number of skills attempted, the development of skills and the effort that the subjects put into their performances of these skills.

#### Number of skill attempts

The skills attempted by the subjects show a relationship between the number performed and the skill level of each participant. The high skilled players performed more skill responses than the lower skilled players. For example, Helen and Harry



(high skilled) recorded 724 and 594 skill responses respectively over the season while Lionel and Louise (low skilled) recorded 227 and 184 responses over the same period. Lionel did, however, miss one class due to absenteeism which may have altered results.

These findings coincide with Watt's (1993) claim that high skilled students make markedly more skill responses than their lower skilled team members, particularly in netball and basketball. Watt (1993) also found similar findings regarding the positions played and the skill level of the players. High skilled participants played in the dominant positions, which in turn gave them the opportunity to make more skill responses. "It was obvious that the high skilled children had mastered many of the skills, whilst the low skilled children were still beginning to learn many of them. Some ... lower skilled participants dropped out due to lack of response opportunities" (Watt, 1993, p. 133). The lower skilled participants confidence dropped as the more skilled players progressed and it became harder for these students to match the ability levels of their teammates.

A similar situation occurred in this study with the high ability subjects tending to play in the more dominant positions on court with the less able students opting to play in the quieter positions. The more dominant positions allowed these students to make more skill responses and also a wider variety of responses. For example, the goal attack (GA) had the opportunity to perform more skills than, say the goal shooter (GS) and also more types of skills, such as shooting attempts, than the goal keeper (GK). Playing in quieter positions gives the lower ability players limited opportunities within games to perform all of the skills associated with netball.

Past research on academic learning time in physical education (ALT-PE) (Metzler, 1989; Shute et al., 1982) has indicated that there is a relationship between the number of responses made and motor learning. The more responses that are made, the more chance of motor skill acquisition. In this study the higher skilled students were getting more opportunities to make skill responses. It was, however, the less

able students that needed more opportunities to make skill responses to give them a chance to improve their skills.

The unequal use of time by participants in the sport education model is an area which should be addressed in order to provide more equity within games to ensure participants of all abilities get 'a fair go'. Equal court time and rosters to ensure all participants play in every position may offer a solution to avoid the high skilled players dominating the games and ensuring that the lower skilled players become more involved.

### The development of skills

Recent research in sport education has indicated that students have demonstrated improvements in skills (Carlson, 1995; SEPEP, 1995; SPARC, 1995), with significant developments shown by low ability students (Alexander et al., 1995; Carlsson, 1995).

Skill response tables for each subject (see Tables 7, 12, 17 and 22) highlight the different types of skills that were performed in every lesson over the season. These tables reveal the levels of success, correct technique and when the subjects were trying. To determine whether the subjects showed any improvements, the success and correct technique results were looked at in detail to outline any differences from the beginning to the end of the season.

Results indicate that no subject had shown any major improvements in game play by lesson seven. The low skilled subjects (Lionel and Louise), however, did show slight improvements in basic skills, such as passing and receiving the ball. They both either maintained or increased their levels of success and correctness by lessons six and seven. These lessons involved competitive Games which placed students under pressure to perform skills successfully in order to do well for their team. The success levels for the low skilled subject's were particularly high (all above 76%).

Research in ALT-PE (Beauchamp et al., 1990; Godbout et al., 1983; Metzler, 1989; Metzler, 1980; Shute et al., 1982) has revealed that students need to achieve a certain amount of success for motor learning to take place. This success is suggested

to be at a level of 75% or above and achieved during tasks that are deemed to be at an appropriate level of challenge to the individual (Siedentop, 1994). For example, tasks that are too easy would result in very high levels of success, but the participant would not be challenged in any way and he/she would not be able to perform these skills as successfully under more difficult circumstances, such as in a pressure situation.

The sport education setting uses Games as the main activity in which most motor skills are performed (see appendix 3 for definition). The game situation would provide an appropriate level of challenge for players to make skill attempts as they are placed in a pressure situation as would be experienced were they to play netball in a local competition. As all four subjects achieved success levels of 76% or higher for every skill attempted, mainly performed during games, this sport education class has therefore provided appropriate opportunities for ALT-PE or motor learning to take place. It appears that in games characterised by team commitment, skills can be effectively developed.

Sport education has previously highlighted significant improvements for the low ability participants within the class. Results from this study support recent findings in sport education (Alexander et al., 1995; Carlson, 1995) that students of lower skill levels do show improvements within the sport education model. Low ability students are also indicating that they are more motivated in class and do not feel isolated or uncomfortable because of their lower skill levels. The 'team affiliation' that is experienced has encouraged the low skilled participants to develop more confidence and willingness to improve as they become valued members of a team. This may be a feeling that lower skilled students would have rarely experienced in traditional physical education classes and is clearly a positive aspect for adopting the sport education program in secondary school physical education.

#### Effort shown by participants

Increases in motivation and students demonstrating better attitudes are two of the positive findings from recent research on students within sport education settings (Carlson, 1995; Sadler, 1993; SPARC, 1995). This study showed comparable

findings. The interviews indicated that all four students enjoyed the sport education class. The number of skill attempts support this positive aspect as students demonstrated high percentages of skill responses in which the subjects were trying to perform them to the best of their ability. All four subjects recorded very high levels of trying with only 63 responses (3.5%) deemed to be performed when the subjects were not trying. This level appears relatively low and as 96.5% of responses were performed when the subjects were trying, it can be said that motivation was very high for all subjects.

Past findings on student perceptions of traditional physical education classes (Tinning & Fitzclarence, 1992; Locke, 1992) have highlighted the fact that students do not particularly like their physical education classes. When they do participate secondary students are not motivated, do not enjoy their physical education time and generally do not appear to try. This study revealed a degree of contrast with student perceptions highlighted in traditional physical education classes. The subjects who participated in the sport education class all recorded high levels of trying and were very positive towards each other and spoke of enjoying their time in the netball class. They all stated in interviews that they liked normal physical education also, but "it (sport education) was a lot better" (Lionel, p. 15).

These findings suggest that sport education is a model which helps to keep class management to a minimum and increases motivation and enjoyment, even for the low ability students. Low skilled students, because of the increased peer support and teamwork, do not feel like outcasts among their classmates - perhaps for the first time in their secondary school physical education.

### Summary

This chapter has provided comparisons of the findings in this study to other research into sport education and physical education. These comparisons were highlighted in relation to student perceptions of their experiences in class and also their motor skill learning as a result of participation in a sport education or physical

**education class. The key conclusions and recommendations from the study are presented in the next chapter.**

## **CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS**

This chapter concludes the study and outlines both the major findings and attempts comparisons between the sport education class studied and the sport education model outlined by Alexander et al. (1995). The conclusions highlight the components of the model that were omitted from the sport education class studied and how these omissions may have affected the results in a positive or negative way. Then, reflections from the researcher show the limitations of the study that arose along the journey to completion.

Recommendations from the researcher highlight areas which may be changed in future sport education classes that may improve the learning conditions for students. Finally, recommendations for further study highlight the need for future research in sport pedagogy and especially in sport education with suggestions of topics that may be beneficial to the development of sport education in Australian secondary schools.

### **Comparing the sport education model to this study**

Siedentop et al. (1986) outlined a number of different teaching models that can be implemented in physical education classes that may offer alternatives to the current multi-activity model, which is failing to achieve its objectives and is bringing about a decline in the status of physical education in Australian secondary schools (Locke, 1992; Senate Inquiry, 1992; Tinning & Fitzclarence, 1992). Among these alternative teaching models are outdoor education, fitness, social development and sport education. This study looked at the sport education curriculum model in detail to gain a better understanding of what students do in class when learning under the conditions specific to the sport education model.

The sport education model is a process with a potential for educating children and adolescents into good sporting behaviour and embodies a number of characteristics [see introduction to the study, page 4].

While these characteristics seem central to realising the educational potential of sport education, teachers and students will determine the precise nature of

the instructional arrangements embodied in the social system created by the model (Alexander et al., 1995).

These characteristics are outlined by Alexander et al. (1995) who suggest that teachers implement all characteristics, but at a level that suits the school and its particular needs. To get maximum benefit from the sport education programme all characteristics should be implemented. The program investigated in this study did not incorporate all of the advocated sport education characteristics. Certain characteristics were omitted which impacted on the results of the study. The characteristics that the class did include in the study were:

1. It involved a season of sport, although it was only 7 weeks instead of the recommended 10 weeks.
2. It followed a schedule of formal competition.
3. It had mixed ability teams, although one team was clearly better than the other teams.
4. The students were responsible for their own learning, although a limited number of roles were allocated. Performance of these roles was not monitored.
5. A record of results was kept, however no publicity was undertaken by students.
6. There was a grand final and presentations in the form of a culminating event.

The implementation of these characteristics, nevertheless generated positive findings related to skill achievement and students' perceptions of the sport education class. This is consistent with low level implementation of sport education (SPARC, 1995).

Students enjoyed physical education at their school, but preferred sport education because of the opportunities they were given to play more games in a formal competition. Game play appeared to be purposeful for the students and

allowed them to do things the way they wanted. This increased time spent in active games heightened their involvement and desire to participate.

The students liked being part of the same team for the whole season and believed that this contributed to their skills of netball and teamwork. The lower skilled students were as much a part of the team as the better performers, even though they tended to play the quieter positions in games. Every student in the team was considered important and this helped the lower performers to become involved. The lower skilled students' perceptions of the class were very positive, even more so than the high skilled students. The high skilled students tended to become bored more easily as they were never really challenged. The lower skilled students showed motivation through responding to challenges which, with the help of the higher skilled students, they succeeded in overcoming. This 'team teaching' strategy, increased team affiliation and showed just how well students can perform in groups and that all instruction does not have to come from the teacher. The students responded well to their friends helping them and they seemed to gain a greater sense of achievement when they succeeded together.

In the sport education class students were given responsibility for their own learning. They took charge of this responsibility by doing their own warm ups and skill practices in their team without teacher guidance. This initiative taken by the students was an aspect of the sport education class which may or may not have occurred in a traditional physical education class. The teacher steps back to 'facilitate' while the students take matters into their own hands and do things their way. The expectations of students were increased, which in turn increased their level of responsibility. This is consistent with Mitchell and Chandler (1993) who claimed that if teacher expectations are high, without being beyond reach, students will generally try harder to meet expectations. This occurred in the netball class with students meeting teacher expectation in psychomotor skills as well as an increased desire to do well and be part of a team.

The characteristics of the sport education programme that were omitted were:



1. The teacher did not take on the role of 'facilitator'.
2. Games were not modified by rules or team sizes.
3. Multiple roles for students were not utilised.

These omissions from the sport education programme characteristics are areas which may have resulted in negative outcomes. Without the teacher facilitating students who needed one-to-one attention students were not benefiting from the class as much as they could have been. The teacher could have been helping the less able students to improve their skills so that equal participation in games was possible.

With no modifications to games during competitions students were not all involved equally. Dominant students took over while less skilled players faded to the background and were not as involved as they could have been. The games should have also been modified, to less than seven per side, to decrease the number of players waiting to become involved in the games.

Another omission was the use of multiple roles for students in the class. Umpiring was designated to a few who performed this duty every lesson. None of the selected subjects umpired a game during the study. This may have had a bearing on the development of Rules knowledge which appeared to be lower than in previous sport education studies (Alexander et al., 1995; Carlson, 1995; SPARC, 1995).

Recent findings from research into sport education have highlighted the increased knowledge of Techniques and Strategies for all students, especially lower ability players (Alexander et al., 1995; Carlson, 1995; SPARC, 1995). This increased knowledge in these areas was partially attributed to the use of training sessions run individually in teams by the designated coach. By omitting training sessions and not implementing team coaches into the sport education programme the students missed out on opportunities to increase their knowledge of Skill technique and Strategies for game play. Time spent waiting during games may have given opportunities for increasing knowledge through observation of other players performing skills, but this would be very hard to observe and assess.

Overall, the results indicated that both positive and negative outcomes were achieved in the sport education programme observed. It is learning from the negative reflections, however, that helps improve the implementation of the programme for future users of the sport education model.

#### Research questions

A brief look at the research questions may provide reflections on the conduct of this research.

##### Research question one

What are the key behaviours in which students engage within the sport education curriculum model and do these behaviours provide opportunity for motor skill development?

Students engage in a variety of behaviours in sport education. Waiting was the most frequent behaviour with Activity, Transition and Knowledge making up most of the time remaining. Students, particularly low skilled participants, demonstrated some improvements during the sport education season. The key behaviours that appear to have helped these students improve were Activity, Knowledge and minor amounts of Waiting time. This suggests that sport education can provide opportunities for students to increase their motor learning within physical education.

##### Research question two

What are participants' perceptions of their motor skill experiences within the sport education curriculum model?

All subjects perceived their skills to be at a good level. They enjoyed the sport education class and the competitive nature of the games. The low skilled players believed that they improved their skills during the season with the high skilled players stating that their skill levels remained the same. The high skilled players did, however, mention other areas of the class in which their learning experiences were positive. Coaching, captaining and being in charge of a team for the whole season was a role which they considered important and proud to undertake. All students liked being in a team for the whole season even though they were not with their close

friends and made new friends as a result who they learnt to cooperate with. Although motor learning may not be increasing for all students in the class other skills are also being emphasised as valuable parts of the sporting field. Coaching and administration roles have never been highlighted as important areas to consider until now and provides a much larger scope for learning within physical education.

#### Limitations of the study

When concluding a study, it is necessary to take time to reflect and acknowledge any limitations that may have arisen. This helps to provide valuable information to future researchers as they can use these reflections to enhance their own studies. A number of limitations of this study were noted:

##### Limitation 1

The interviews for the four subjects were conducted at the end of the final lesson, which was the last day of term four. The students were co-operative during interviews, but the impression was given that they really did not want to be there. Answers were rushed and not very comprehensive, and due to lack of time, a follow up interview was not possible. A second, or even third, interview would have given much clearer results and provided more data which could have been referred to throughout the study.

##### Limitation 2

The limited number of lessons that were recorded restricted the amount of data that was collected. Only seven lessons were recorded, with the first three containing data on only two of the four subjects. Disruptions to normal class procedures also limited data collection, which in turn limited the results of the study.

##### Limitation 3

The teacher was not interviewed at the conclusion to the study. Information on teacher perceptions of student performance and also a copy of student grades would have provided additional data that could have been used in triangulation of results. With additional time more information could have been collected to provide more comprehensiveness data.

#### Limitation 4

The use of a video camera enabled observations of class experiences to be viewed at a later date, which provided excellent opportunities to ensure reliability of data analysis. However, the video camera did create some problems which affected the data shown on video tape. Management time at the start and finish of lessons was not recorded.

#### Limitation 5

Knowledge time was difficult to determine when analysing results. Although time spent listening to the teacher discuss knowledge information to the students was easy to record, it was the time spent watching others perform and reflecting on their own performances that was difficult to determine. Knowledge that they gain from watching others and reflecting on their own performances is hard to observe and thus was not recorded as data. This limitation was highlighted after reflecting on the data and other research on learning in physical education and may have been answered in interviews if discovered earlier on in the study.

#### Recommendations

The following section outlines recommendations that arose from reflections on the sport education experience that was observed in this study. Most of these recommendations relate to the particular class described in the study but all may be of use to other classes adopting sport education into their physical education programmes or future researchers investigating the sport education model.

#### Recommendation 1: That the Knowledge key behaviour needs to be valued in terms of promoting student outcomes in sport education classes.

There appears to be a need for teachers to see the provision of feedback as central to their role as the learning facilitator in sport education. Schools can implement strategies into the sport education program to increase Knowledge behaviours, such as Rules, Techniques and Strategies to a level beyond previous expectations. Suggestions to promote knowledge gains in sport education include;

1. The use of high ability students as coaches for teams.

2. The inclusion of training sessions in between competition lessons to provide teams with opportunities to work on their weaknesses and to develop strategies for game play.

3. The use of the teacher, who would have more time in class because of the devolved responsibility given to the students, to work individually with students who need help. Teachers can also work with coaches to provide help with activities and drills that teams could use to increase their skills to improve team performance.

Recommendation 2: That schools incorporating sport education into their physical education programmes implement strategies to ensure maximum participation for all students involved.

For recommendation 2 to be achieved modified games need to be included in competitions with the use of small group/team training sessions and the inclusion of the teacher as facilitator to the coaches. The teacher can cater for less able students or individuals with a problem that could be solved in a one to one situation which could improve team play and better equip students with the skills to play in a variety of positions. Certain strategies that are encouraged to be implemented into a sport education programme were omitted from the class in this study. These strategies, which are designed to increase participation levels in activity, include;

1. The modification of games to allow more opportunities to respond and to decrease waiting time.

2. The inclusion of training sessions so that teams can work individually on improving performance and developing strategies that can be applied in competition.

3. The use of the teacher to help individual students on a one to one basis, while other students work in their teams as a small group. The teacher can act as a facilitator to teams or individuals without taking over the whole show and dominating the class.

All of these strategies can have an impact on the time students spend in activity. If the sport education programme does not implement these strategies, as was the case in this school, time spent available for making active responses class is

limited. When students spend most of their time in games that are not modified by implementing smaller numbers of players, their opportunities to respond are severely decreased.

If team training sessions were provided students would also have more opportunities to concentrate on individual skills that needed improving. Opportunities to practice skills in small groups would greatly increase numbers of responses. Working in small groups would provide more opportunity to make a response and less opportunity to be spent waiting.

Recommendation 3: That sport education promotes the equal involvement for all players through the use of a roster system for participation in competition.

Equal involvement could be supported by team captains, the sports board or even the teacher thus ensuring that all players are given the opportunity to play every position on the court, be given equal umpiring duties and have equal time as a substitute.

Recent findings from research into the sport education curriculum model have indicated that there is greater opportunity for involvement and participation for students. This has particularly the case low ability students who are now more involved in physical education than ever before (Alexander et al., 1995; Carlson, 1995; SPARC, 1995). The results in this study are related in that both high and low ability subjects recorded similar levels of activity time within class. However, when these activity levels are looked at in more detail results show that the way this activity time was used varies greatly between the high and low ability subjects. The number of actual motor skill responses that were made within this activity time indicates that the high ability subjects made far more responses than their less skilled teammates.

The most common activity that all four subjects engaged in was games. The video recordings revealed a pattern which related to the positions that the subjects played when participating in the games. It was determined that the high skilled players tended to play in the more dominant positions on the court giving them far more opportunities to make skill responses and attempt a wider range of skills.

Playing less dominant positions on court would therefore limit a players' opportunities within a game to become involved and make skill responses. This inequality in games would mean that the players in dominant positions (usually high skilled) would have more opportunities to improve as they are making more responses, while the players in the less dominant positions (usually less skilled) fall further behind in skill development.

Recommendation 4: That teachers implementing the sport education model take advantage of their "less up-front role" during class time to ensure that the sport education characteristics are fully implemented.

Certain strategies for teacher use of time include;

1. Teachers should work with captains and coaches of teams to enable these students to be of greater support to their teammates.
2. Resources, such as task cards, should be collected by the teacher and brought to class for the students to use so that they are given plenty of opportunity to improve and also to believe that they achieved these improvements on their own initiative because of the indirect nature of the teachers involvement.
3. Assessment should be completed in class throughout the season so that justification to students and parents is recorded in case of grade queries.

These and other strategies can be adopted by teachers incorporating the sport education model into their physical education programmes to give students opportunities to learn for themselves, with the teacher facilitating when called upon by the students or when they see fit.

The sport education model takes the teacher off centre stage with responsibility for learning being devolved and given to the students. The teacher is then encouraged to step back and take the role of facilitator while most decisions are made by students. This student centred approach to physical education has brought many changes to the way classes have traditionally been run. Students have shown to spend more time on task within class and less time in off task or management behaviours (Sadler, 1993; SPARC, 1995; SPARC, 1994). This has led to an increase

in time for the teacher within class to focus on things other than management or discipline control. Recent findings on sport education trials has highlighted positive teacher feedback because of the increased time made available for them to spend working with individuals and assessing students in class (Carlson, 1995; SPARC, 1995; Taggart et al., 1995).

Although the video data in this study was not concerned with how the teachers spent their time in class, it could be seen that there was a general lack of involvement from both teachers involved in the study. Individual help was rarely given to individual students and formative assessment procedures were not used at all during the season. Once the formal competition had begun both teachers spent every lesson observing games. No help was given to team captains when they were trying to think of warm up activities for their teams or even to umpires who were struggling with the rules of the game. It seemed that these teachers welcomed the idea of the sport education program because it allowed them to step off centre stage. The increased availability of time within the class, however, was not used to the advantage of either themselves or the students. Sport education was used at least in part as a management tool.

Recommendation 5: That undergraduate teacher education and professional development programs skill teachers in the use of alternative teaching strategies, including sport education, so that they are familiar, confident and also competent in implementing student centred approaches.

Pre-service and in-service teachers should be given adequate training to encourage the wide use of sport education throughout schools in Australia. Support should be given to teachers implementing the sport education program via the development of a sport education coordinator who would facilitate a teacher network by providing resources and assistance with teachers starting the program for the first time, or those who are not confident in implementing the program.

Teachers in Western Australian schools have been using teacher directed approaches to physical education for years. Research has shown that this method is



failing to teach children about sport as it is practiced in the community (Siedentop et al., 1986) and also failing to achieve its objectives (Senate Inquiry, 1992). The crowded curriculum has resulted in a decline of time made available for physical education as schools push for a more academic timetable (Garnaut, 1991; Nettleton, 1985), because physical education is not seen as worthy of curriculum time. Locke (1992) claims that the only thing that can save a place for physical education in schools is to replace the traditional multi-activity pedagogy currently being implemented. Perhaps even more than replacing the multi-activity program, it is the related pedagogy that needs replacement.

Many teacher education programmes provide teachers with the necessary skills to be the dominant person in a classroom. Preservice teachers are taught at university to demonstrate and perform in front of the class, to be efficient managers, controllers, even policemen in order to maintain students attention. This method is not successful in achieving physical education objectives (Locke, 1992), and teachers are reproducing these less than effective methods because that is what universities are teaching them to do and what they experienced when they were students. Change in physical education programmes therefore needs to begin in undergraduate teacher training courses so that when teachers graduate they take different skills and teaching methods to their physical education classes to hopefully bring about a change in the perceived value and worth of physical education in Australian secondary schools.

#### Suggestions for further research

Due to the time restraints placed on honours research, there is clearly a need for more extensive research to investigate skill development within the sport education curriculum model. "As the model (sport education) is already diffusing rapidly into Australian schools, there is a need to identify issues and chart an educational course for any further development" (Alexander et al., 1995, p. 42).

The sport education model is still relatively new and little is known or has been documented about what happens during implementation of the sport education programme in different settings.

This research indicated that some key characteristics of the sport education model were omitted. Some future studies involving sport education, as suggested by Siedentop (1995), include:

1. The impact on students of sustained membership with the same team for extended periods of time. This study suggests that improvements in many areas such as skill and social development may occur as a result of long term membership in a team.

2. Research on the teaching of tactics rather than a skill learning focus, which Siedentop (1995) claims has not yet been researched in any physical education programme. This would involve new research in physical education where the learning of tactics and strategies would be more important than skill learning. This may reveal knowledge gains in physical education through sport education.

3. Long term sport education participation (eg. year 8-12). This study suggests little optimism with regard to the achievement of this physical education outcome if it is not well planned in advance.

Other areas of research that could be considered to gain a better understanding of the sport education model in practice are:

1. The teachers role in the sport education programme. This could incorporate the development of resources for teachers implementing sport education.

2. How students undertake other roles (apart from player) in the sport education class. The emphasis on other areas in the sporting field could open career options for many students who may not have considered other roles in sport.

3. The role of the student coach in skill development. This study suggests that students may be able to learn from each other with minimal teacher input.

4. The development of social skills as a result of participating in sport education. This study could look at social development in detail to determine the types of interactions and problem solving skills that can be developed through sport education.

5. Gender issues and equity in the sport education class. The problem of equal participation for all involved may be discussed in relation to sport education to reveal the roles undertaken and participation by students of different genders, ages and abilities.

6. Assessment of participants using the sport education model. This may include the development of a reliable assessment tool that can determine ability within not only the psychomotor domain, but also the cognitive and affective domains.

### Summary

These recommendations and suggestions may be of benefit to teachers wishing to implement or improve sport education programmes into secondary schools. It must be noted, however, that these recommendations are only suggestions from the researcher and not mandatory regulations for the future use of the sport education model. They are, however, outlined by the researcher in an attempt to offer suggestions as to how the sport education model may be implemented in future with greater success.

This study has examined the sport education curriculum model during implementation in a Western Australian secondary school. The results have indicated some positive findings in relation to student perceptions of their experiences within a sport education class for a season. However, not all of the findings were positive. Some results indicated that the time students spent waiting was particularly high with activity levels correspondingly low. All results, however, have highlighted the need to find out much more about the sport education curriculum model as it is implemented in many different environments to help determine its relevance to Australian secondary school physical education in the future.

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CHECKLIST CRITERIA	CORRECT ATTEMPTS IN EACH LESSON							Sub 1	TOTAL	X
	1	2	3	4	5	6	7			
<b>CHEST PASS - topography</b>										
1. Held to body with 2 hands	13	15	9	2	18	12	17	86	12	
2. Steps forward as releasing the ball	14	14	9	2	17	10	16	82	12	
3. Snap of wrist during release	12	15	9	2	16	9	16	79	11	
4. Follow through (hands point to target position)	12	15	9	2	16	10	17	81	12	
Function - ball goes to best receiving position	10	14	9	2	16	9	16	76	11	
Total number of attempts	15	15	9	2	18	12	17	88	13	
<b>SHOULDER PASS - topography</b>										
1. Ball to throwing hand side of body	13	18	8	6	30	23	25	123	18	
2. Elbow to side, with near perpendicular arm bend	10	18	8	5	30	22	22	115	16	
3. Step on release with opposite foot	13	16	8	6	28	22	22	115	16	
4. Wrist snap with ball spinning backwards	13	16	8	6	27	21	23	114	16	
5. Follow through (hand points to target position)	11	17	8	5	30	22	22	115	16	
Function - ball goes to best receiving position	10	16	8	5	27	21	22	109	15	
Total number of attempts	13	18	8	6	30	23	25	123	18	
<b>BOUNCE PASS - topography</b>										
1. Ball in 1 or 2 hands to throw	12	0	2	3	5	5	10	37	5	
2. Wrist snap on release	12	0	2	3	4	5	10	36	5	
3. Ball bounces 3/4 of distance to target	11	0	2	3	2	5	8	31	4	
Function - ball goes to best receiving position	11	0	2	3	2	5	8	31	4	

APPENDIX I  
SAMPLE OF TOPOGRAPHICAL CHECKLIST

<b>Total number of attempts</b>	<b>12</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>37</b>	<b>5</b>
<b>LOB PASS - topography</b>									
<b>1. Ball in 1 hand for throw</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>13</b>	<b>8</b>	<b>15</b>	<b>48</b>	<b>7</b>
<b>2. Wrist snap on release</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>13</b>	<b>8</b>	<b>14</b>	<b>47</b>	<b>7</b>
<b>3. Follow through (hand points to target angle of trajectory)</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>4</b>	<b>13</b>	<b>8</b>	<b>14</b>	<b>45</b>	<b>6</b>
<b>4. Ball travels high in air, not flat</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>5</b>	<b>13</b>	<b>8</b>	<b>13</b>	<b>45</b>	<b>6</b>
<b>Function - ball goes to best receiving position</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>4</b>	<b>13</b>	<b>8</b>	<b>13</b>	<b>44</b>	<b>6</b>
<b>Total number of attempts</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>13</b>	<b>8</b>	<b>15</b>	<b>48</b>	<b>7</b>
<b>RECEIVING THE BALL - topography</b>									
<b>1. Provide a target for passer to aim for</b>	<b>39</b>	<b>30</b>	<b>13</b>	<b>30</b>	<b>51</b>	<b>54</b>	<b>79</b>	<b>296</b>	<b>42</b>
<b>2. Hold hands out to where you want to receive ball and calls for ball</b>	<b>36</b>	<b>29</b>	<b>12</b>	<b>28</b>	<b>58</b>	<b>57</b>	<b>75</b>	<b>295</b>	<b>42</b>
<b>3. On contact, pull ball into body</b>	<b>35</b>	<b>28</b>	<b>12</b>	<b>30</b>	<b>55</b>	<b>58</b>	<b>70</b>	<b>288</b>	<b>41</b>
<b>Function - catch the ball without infringing stepping rule</b>	<b>33</b>	<b>28</b>	<b>12</b>	<b>28</b>	<b>50</b>	<b>50</b>	<b>69</b>	<b>270</b>	<b>39</b>
<b>Total number of attempts</b>	<b>39</b>	<b>30</b>	<b>13</b>	<b>30</b>	<b>58</b>	<b>58</b>	<b>79</b>	<b>307</b>	<b>44</b>
<b>SHOOTING - topography</b>									
<b>1. Feet apart and balanced</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>15</b>	<b>12</b>	<b>14</b>	<b>45</b>	<b>6</b>
<b>2. Ball above and slightly behind head</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>13</b>	<b>16</b>	<b>12</b>	<b>46</b>	<b>7</b>
<b>3. Bend knees and elbows for preparation</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>10</b>	<b>18</b>	<b>9</b>	<b>40</b>	<b>6</b>
<b>4. Flick wrist and let ball roll off fingers</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>9</b>	<b>11</b>	<b>31</b>	<b>4</b>
<b>Function - ball goes into the goal</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>8</b>	<b>6</b>	<b>8</b>	<b>24</b>	<b>3</b>
<b>Total number of attempts</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>21</b>	<b>20</b>	<b>18</b>	<b>64</b>	<b>9</b>

<b>DEFENDING - topography</b>									
1. Side on stance to opposition	0	2	8	3	14	3	1	31	4
2. Move 3ft distance before defending ball	0	2	11	3	15	3	2	36	5
3. Hands over ball to pressure pass/shot	0	2	10	4	17	3	3	39	5
4. Jumps and/or turns on shot/throw to block opposition (i.e. rebounding)	0	2	11	4	16	3	3	39	5
Function - intercept, pressure, reject and/or rebound shot or throw	0	2	8	3	14	3	1	31	4
Total number of attempts	0	2	11	4	17	5	3	42	6
<b>ATTACKING - topography</b>									
1. Leads or clears to space on court	0	0	5	1	1	4	3	31	4
2. Shows awareness of other players	0	0	5	1	1	3	2	14	2
3. Backs up attack with follow up lead calling for ball	0	0	5	1	1	5	3	12	2
4. Provides target to throw to (hands to where the ball is wanted)	0	0	5	1	1	2	3	15	2
Function - receive ball or to back up team mates	0	0	5	1	1	1	2	12	2
Total number of attempts	0	0	5	1	1	5	3	15	2

## APPENDIX 2

### OPERATIONAL DEFINITION OF NETBALL SKILLS

#### CHEST PASS

"As the name suggests, the pass is made from chest height used for passing over short distances. It should be very accurate because of the short distance it travels. Your hands should be in the same position to pass a chest pass as they are for a good catch (thumbs behind the ball and fingers spread out to the sides). Step forward with one foot on release and push the ball to the target. Elbows are kept in close to the body, with the step forward adding force to the pass" (Otago, 1991, p. 15).

#### SHOULDER PASS

"Hold the ball in one (preferred) hand. Take the arm back behind the shoulder with the elbow bent, weight on the back foot and the alternate foot forward to step into the throw. Transfer the weight forward as the arm comes through and push the ball to the outstretched arms of the intended catcher at hip, chest or head height" (Dix, 1984, p.20).

#### BOUNCE PASS

"This pass is most often seen on hard courts and specifically near the shooting area. It is a good variety pass to use against a tall player or any defender who holds their arms high (anticipating a high pass). The bounce pass is just that. With the ball held firmly and body weight behind it, you move forward and direct the pass low and to the ground. The ball should bounce approximately two thirds of the distance between the thrower and catcher and be to the side opposite where the opponent is standing. The catcher takes the pass as the ball bounces upwards" (Martin, 1977, p. 16).

#### LOB PASS

"The lob pass is where the ball travels in a high arc pattern and then drops steeply near the end of the pass. A good lob is hard to develop because of the height plus length judgement. Also, because it is a slow pass, the lob is a prime candidate for interception by a fast moving, high jumping defender.

A lob can be thrown with either one or two hands; it must clear the heads of the opposition placed between the thrower and the catcher and yet, if it is too high, it allows the defenders ample time to move to the target area. Still, when practicing the lob it is better to throw the ball too high than too low. Usually the lob is taken by a catcher who has run forward (trying to give the defender the slip) and then who sharply drops back to receive the ball" (Martin, 1977, p. 15).

## RECEIVING THE BALL

### Catching

"Always move to meet the ball, extending arms and fingertips towards the ball. As you reach for the ball, keep your eyes on it. Allow it to be snatched from the air, preferably with two hands and pull it in towards your body keeping your thumbs behind the ball. Land safely and balance yourself, ready to throw on successfully" (Dix, 1984, p. 18).

### Landing

"The majority of players are on the move when they catch the ball and generally land on one foot before the other. The rule allows the first foot down to be lifted, but it cannot be put down again while the ball is still being held. The second foot down may be lifted and placed in any position any number of times as the player pivots on the first foot" (Dix, 1984, p. 23).

## SHOOTING

"Hold the ball lightly with the fingers of the dominant hand behind the ball. The other hand steadies the ball. The feet should be comfortably apart and balanced with the ball held steadily. The aim is above the goal ring. As the movement starts the knees bend and the drive is initiated from the feet up through the knees, body, arm, wrist and finally the fingers which direct the ball along the line of sight to the goal. The stress of the action is upward and the ball is released at the height of the shooting action with full follow through from the wrist and the fingers. The shooting action should be relaxed, smooth and continuous with the ball aimed in a high arc to fall through the ring. The longer the shot, the higher the arc needs to be" (Brown, 1971, p. 58).

## ATTACKING

"A good attacking move is made when a player breaks clear of an opponent and receives the ball in an open space, moving harmoniously with teammates, in an effort to bring the ball towards the team's shooting goal. Breaking clear of an opponent can be done in many different ways; combining dodging, running and leaping with changes of speed, timing and direction" (Brown, 1971, p. 44). If a player catches or receives the ball they are recorded as receiving and not attacking.

## DEFENDING

"Defending skills aim to counteract attacking moves. Good defending results from anticipating moves of an opponent by guarding her on her attacking zone closely, thus frustrating her attempts to attack to advantage. Man to man defence is employed down the court with each player guarding closely her own opponent when the opposition team is in possession of the ball. In contrast, zone defence is a combined tactic employed by a group of defending players where the emphasis is on defending an area rather than directly against a player. Using these methods a defender aims to intercept or deflect the pass and restrict the attacker's participation in play, or force the thrower into an error or state of indecision" (Brown, 1971, p. 47). If the player intercepts the ball they are recorded as receiving, so defending is only recorded when a player unsuccessfully attempts to intercept or guards their opponent closely in an effort to keep them out of the game.

**SUCCESSFUL ATTEMPT** - when the result of a skill performance achieves its purpose. For example, a successful attempt at a shooting skill would be the ball going into the goal. This category does not refer to the way the skill was performed, only the result.

**TECHNIQUELY CORRECT ATTEMPT** - when the performance of a skill is completed correctly in terms of the technique of the skill. For example, a shot at goal would require a number of stages during the performance of the entire skill to be correct in terms of the technique. These are:

1. Feet apart and balanced,
2. the ball is positioned above and slightly behind the head,
3. bend knees and elbows for preparation, and
4. flick the wrist and let ball roll off fingers.

These stages all must be performed properly for the skill to be deemed technically correct.

**TRYING ATTEMPT** - when a skill is performed when the person is trying to achieve both success and correct technique at the same time. This is observed by the recorder and requires human interpretation.

**COMPLETELY CORRECT** - when a skill response is performed with all three abovementioned components occurring at the same time. This means that the performer is successful, performing with correct technique and is trying simultaneously for the one skill attempt.



**APPENDIX 3****DEFINITIONS OF KEY BEHAVIOURS****ACTIVITY**

Refers to class time when the primary focus is on motor involvement in physical education activities, ranging from warm ups to games. Specific activity sub-categories can be seen below.

**SUB-CATEGORIES OF ACTIVITY**

1. Warm up/down - time devoted to physical activity with the purpose of preparing the individual for engagement in further activity. It is not designed to alter the state of the individual over a long term basis, but includes light exercises to begin lessons, stretching or light exercise to terminate activity at the end of a lesson.

2. Fitness - time devoted to activities with the purpose of altering the physical state of the individual in terms of increasing strength, cardio-vascular endurance or flexibility. Examples include aerobics and distance running. The activity should be at an appropriate intensity, frequency and duration to alter the physical state of the individual.

3. Skill practice - refers to time devoted to the practice of skills with the primary goal of skill development and refinement, such as drills involving passing a soccer ball, dribbling practice for basketball or practicing a dismount from the balance beam. Skills may be practiced in parts and then combined or practiced as a whole skill with technique being the focus for correct performance.

4. Scrimmage - time devoted to extension of skills in an applied setting (one which is like or simulates the setting in which the skill is actually used), such as modified games including 2 on 2 half court basketball or a half court game of 4 on 4 netball. The teacher/coach can often intervene to give feedback or change scrimmage conditions.

5. Game - time devoted to the application of skills in a formal game or competitive setting when the participants perform without help or intervention from the teacher/coach. This includes a volleyball game, junior minkey or performing a folk dance.

6. Attacking - time devoted to attacking within a game. The pupil is making an attacking move, such as leading into space, but they do not actually receive the ball or become part of the play.

7. Defending - time devoted to specifically defending within a competitive game situation. The pupil is defending either an opponent or an area but does not touch the ball. If an interception is made, the skill response is classed as receiving the ball.

## **KNOWLEDGE**

Refers to class time when the primary focus is on knowledge related to physical education content. This includes listening to the teacher or peers discuss skills, watching a demonstration showing correct technique and discussing rules. Sub-categories of specific types of knowledge behaviour are shown below.

### **SUB-CATEGORIES OF KNOWLEDGE**

1. Rules - time devoted to transmitting information about the regulations which govern activity related to the subject matter, such as explaining the rules of a game, a demonstration of a specific rule violation or viewing a film depicting the rules of a game.

2. Technique - time devoted to transmitting information concerning the physical form (topography) of a motor skill, such as listening to the teacher explain the correct way to perform a lay up, watching a demonstration of the Fosbury flop or watching a film on improving volleyball spikes.

3. Strategy - time devoted to transmitting information concerning plans of action for performing individual or group skills, such as zone defence, discussing set plays for moving a ball quickly down a netball court or a demonstration of an idea for the best way to exit stage at the end of a dance performance.

4. Social behaviour - time devoted to transmitting information about appropriate and inappropriate ways of behaving within an activity, such as an explanation of golf etiquette, sportsmanship or abiding by umpires decisions.

5. General - time devoted to discussion of general activity and classroom procedures and results, such as calling out fixtures, discussing the competition ladder and presenting best player awards and trophies.

6. Cognitive - Time devoted to when a pupil is engaged in a cognitive task, not related to active game play. This behaviour includes making cognitive decisions, working in groups performing cognitive tasks, such as selecting team names, completing worksheets or undertaking a written test.

## **TRANSITION**

Refers to time devoted to organisational and instructional activities, such as team selection, changing equipment, moving from one space to another, changing stations or changing an activity within a lesson.

## **WAITING**

The time spent awaiting next instructions or opportunity to respond, such as waiting in line for a turn, standing on the sideline waiting to get substituted into a game, waiting for the teacher to instruct the class or being on a playing team but not actively involved.

**MANAGEMENT**

Refers to time devoted to class business that is unrelated to instructional content or subject matter, such as taking attendance, lecturing about appropriate behaviour in class or collecting money.

(Note: Moving into class before instructions actually begin is coded as management and not transition. When instruction has begun and students are moving around the coding changes to the transition behaviour).

**OFF-TASK**

Refers to class time when a pupil is not engaged in an activity that he/she should be engaged in or is engaged in an activity that he/she should not be engaged in. This includes behaviour disruptions, misbehaviour, talking when the teacher is talking, misusing equipment, fooling around, fighting and disrupting others.

## APPENDIX 4

## SAMPLE OF DATA SHEET ON VIDEO OBSERVATIONS OF SUBJECTS

<b>SUBJECT ONE - LESSON SIX</b>		
<b>LEGEND: 1. *** BEGINNING AND END OF GAMES</b>		
<b>2. (letter inside bracket) POSITION PLAYED IN GAME</b>		
<b>TIME STARTED (HRS, MINS, SECS)</b>	<b>TIME FINISHED (HRS, MINS, SECS)</b>	<b>CONTEXT SUBJECT ENGAGED IN</b>
2:00:50	2:01:46	TRANSITION
2:01:46	2:01:58	OFF TASK
2:01:58	2:01:59	ACTIVITY (SCRIM)
2:01:59	2:02:09	WAITING
2:02:09	2:02:15	TRANSITION
2:02:15	2:02:20	ACTIVITY (SKILL)
2:02:20	2:02:27	TRANSITION
2:02:27	2:02:29	ACTIVITY (SCRIM)
2:02:29	2:02:43	WAITING
2:02:43	2:02:45	ACTIVITY (SCRIM)
2:02:45	2:02:48	WAITING
2:02:48	2:02:50	ACTIVITY (SCRIM)
2:02:50	2:03:10	WAITING
2:03:10	2:03:36	TRANSITION
2:03:36	2:03:59	WAITING
2:03:59	2:04:01	ACTIVITY (SKILL)
2:04:01	2:04:33	WAITING
2:04:33	2:04:58	TRANSITION
2:04:58	2:05:05	WAITING
2:05:05	2:05:29	ACTIVITY (SKILL)
2:05:29	2:05:56	WAITING
2:05:56	2:06:10	TRANSITION
2:06:10	2:06:52	ACTIVITY (SKILL)
2:06:52	2:08:11	TRANSITION
***2:08:11***(C)	2:08:25	ACTIVITY (DEFEND)
2:08:25	2:08:44	TRANSITION
2:08:44	2:08:46	ACTIVITY (ATTACK)
2:08:46	2:08:50	TRANSITION
2:08:50	2:08:54	ACTIVITY (ATTACK)
2:08:54	2:09:03	TRANSITION
2:09:03	2:09:06	ACTIVITY (ATTACK)

**APPENDIX 5**

**INTERVIEW SCHEDULE**

**Focus of interview questions**

**1. BASIC DEMOGRAPHICS**

- age
- gender

**2. BACKGROUND**

- previous sport experience
- current sporting interests
- previous netball experience
- previous SE experience

**3. PERCEPTIONS OF THE CLASS**

- thoughts on PE (eg. What do you think of PE?)
- thoughts on SE (eg. Do you prefer SE to traditional PE?)

**4. SKILL LEVELS**

- own levels at beginning, middle and end of season
- activities undertaken
- thoughts about their team
- thoughts on positions played

**5. FUTURE**

- whether play netball again
- play any other sports in future

**6. CONCLUSION**

- thank for participation

## APPENDIX 6

**CALCULATION OF INTEROBSERVER AGREEMENT (IOA)  
LEVELS FOR THE SPACOS INSTRUMENT**

**SUBJECT ONE  
LESSON 6**

**Total codings = 257**

**Agreements = 229**

**Disagreements = 28**

**Interobserver Agreement =  $\frac{\text{total agreements} \times 100}{\text{agreements} + \text{disagreements}}$**

**Interobserver Agreement =  $\frac{229 \times 100}{257}$**

**Interobserver Agreement =  $\frac{22900}{257}$**

**Interobserver Agreement = 89.11  
= 89%**

## APPENDIX 7

**CALCULATION OF INTRAOBSERVER AGREEMENT (IOA)  
LEVELS FOR THE SPACOS INSTRUMENT**

**SUBJECT ONE  
LESSON 6**

**Total codings = 257**

**Agreements = 234**

**Disagreements = 23**

**Intraobserver Agreement =  $\frac{\text{total agreements} \times 100}{\text{agreements} + \text{disagreements}}$**

**Intraobserver Agreement =  $\frac{234 \times 100}{257}$**

**Intraobserver Agreement =  $\frac{23400}{257}$**

**Intraobserver Agreement = 91.05  
= 91%**

**APPENDIX 8**

**SAMPLE OF INTERVIEW TRANSCRIPT**

**INTERVIEW ONE**

**WHAT IS YOUR AGE?**

13.

**YOUR SEX/GENDER?**

Female.

**DID YOU HAVE A ROLE IN SPORT EDUCATION?**

Yes, I was a team captain.

**OF WHICH TEAM?**

The Mongers.

**HAVE YOU PLAYED ANY SPORTS OUTSIDE OF SCHOOL?**

Yes, basketball, netball, softball.

**YOU PLAYED NETBALL OUT OF SCHOOL FOR HOW MANY YEARS?**

Five.

**DO YOU STILL PLAY NOW?**

No.

**HAVE YOU GIVEN IT UP FOR ANOTHER SPORT?**

Yes, I gave it up for basketball.

**DO YOU LIKE PHYSICAL EDUCATION?**

Yes.

**WHAT DO YOU THINK OF SPORT EDUCATION?**

I don't know.

**DO YOU KNOW WHAT SPORT EDUCATION IS?**

(subject shakes head)

Interviewer explains - That's the one where you've got a team captain and the coaches and everything. Do you know how you do phys ed like that and sometimes you do phys ed in different ways? What do you think of the way where you have coaches, team managers, committees and captains etc?

Subject then answers - It's better than just doing stuff like gym and other things.

**WHY DO YOU PREFER IT?**

Because I like playing in a team.



DO YOU THINK THAT PLAYING TEAM SPORTS IN NORMAL PHYS ED WOULD BE BETTER THAN DOING IT IN SPORT EDUCATION AND HAVING TEAMS THAT ARE PLAYING TOGETHER THE WHOLE TIME?

Yes, I'd rather do it the way we have done it (ie. through sport ed).

WHAT DO YOU THINK YOUR SKILL LEVELS WERE AT NETBALL AT THE BEGINNING OF THE SEASON WITH THIS CLASS?

Pretty high because I've done it before.

DID YOU LEARN ANYTHING IN THE MIDDLE OR AT THE END OF THE SEASON? DID YOU LEARN NEW SKILLS?

Not really.

HAVE YOU DONE GOAL SHOOTING BEFORE?

Yes.

DO YOU THINK THAT YOU LEARNT ANYTHING IN THIS CLASS THAT YOU HAVEN'T ALREADY LEARNT AT NETBALL?

No, not really.

WHAT ABOUT ON THE COACHING OR CAPTAIN SIDE OF THINGS?

Yes, kind of because when we play outside of school we don't have captains and everything so that's the first time I've been a captain.

DID YOU HAVE TO RUN THE ACTIVITIES AS WELL?

Yes.

DO YOU THINK THAT IT HELPED YOU? WHAT DID YOU THINK OF BEING THE PERSON IN CHARGE OF YOUR WHOLE TEAM AND HAVING TO RUN THE ACTIVITIES? DID YOU LIKE THAT?

Sort of because sometimes they don't listen and it's hard to control people your own age.

WHICH ACTIVITIES DID YOU LIKE THE BEST OUT OF ALL OF THE ACTIVITIES THAT YOU DID?

Playing the games.

WHY DID YOU PREFER THAT?

When we go to play a game we get to do warm ups as well as a game.

DID YOU LIKE YOUR TEAM?

Yes.

WHY?

Because they kind of played as a team.

DO YOU THINK THAT THE HANDICAP SYSTEM THAT YOU HAD WORKED?  
WHAT DID YOU THINK OF IT?

I thought that it was alright because we were winning by 15 points every game so I thought that it was good.

DO YOU THINK THAT EVERYONE IN YOUR TEAM HAD A FAIR GO?

No, because I don't think that the WA did because he just went the same position all the time, but I put them in positions that they said they wanted to go and I put them there and then they started arguing so I just let them.

WHAT DID YOU THINK OF YOUR TEACHER AS A TEACHER OF NETBALL?

I think she was alright.

WHY DO YOU THINK SHE WAS ALRIGHT? WHAT WAS GOOD OR BAD ABOUT HER IN A NETBALL SENSE AND THE SKILLS AND ACTIVITIES THAT SHE MADE YOU DO?

Well the people who had already played netball, they already knew what to do, but the people who hadn't played out of school didn't know what do so we started off and she kind of taught us from the beginning again.

DID THAT FRUSTRATE YOU, OR BORE YOU, OR WERE YOU HAPPY TO START FROM THE BEGINNING AGAIN?

It kind of was boring but I didn't really care.

DO YOU THINK THAT THE POSITIONS YOU PLAYED ALLOWED YOU TO GET BETTER OR DID YOU JUST STAY THE SAME.

I think I just stayed the same.

DID YOU GET ENOUGH VARIETY IN YOUR POSITION PLAYING WHEN PLAYING GAMES? DID YOU GET TO TRY ENOUGH POSITIONS OR DID YOU WANT TO TRY MORE?

No, I think I pretty much did what I liked.

HOW OFTEN DO YOU THINK THAT YOU WILL PLAY NETBALL NOW, IN THE FUTURE?

Not very much.

IT HASN'T INFLUENCED YOU TO TAKE UP NETBALL?

No.

WHY NOT?

Because I kind of gave it up to play basketball and I think basketball's better than netball.

**WHY DO YOU THINK BASKETBALL IS BETTER THAN NETBALL AND  
WHERE ARE YOU GOING WITH YOUR BASKETBALL?**

**I think it's better because you get to move around a lot and you can dribble and it's more of a contact sport and you don't have to be too far away and well I've got a scholarship at Willetton and that's alright and I play SBL.**

**THANKS A LOT FOR THE INTERVIEW.**

## APPENDIX 9

## EXAMPLE OF FIELD NOTES

FRIDAY 28/10/94

WEATHER - fine, sunny, 24 degrees with light winds.

CAMERA POSITION - North west area of courts

2 year 8 Sport Education classes in this time slot (class filmed in skill devt named group 1)

The 2 groups to separate for the skill development lessons (weeks 1- and then combine for competition lessons)

SIREN 11.20

Group 1 slow to come to class and line up outside of gym

Students going into change rooms early without permission so time wasted in lesson bringing the whole group back outside the gym and to line up properly before getting changed.

CHANGED, ROLL TAKEN AND OUT ON NETBALL COURTS 11.40

Group 1 outside only

Boys eager to play with netballs on the way outside and needed settling down by teacher.

WARM UP

Slow jog for 2 laps around 2 netball courts

Suicide

Suicide in partners and then race against other partners

Stretching done by helper (year 11 pe studies student learning essentials of coaching)

- some boys tried to show off in front of the year 11 boy

- teacher joined in stretches and set an example of expectations for the boys

QUESTIONING

Teacher questioned students on how much they already know about netball:

- 4 types of passes (chest, shoulder, bounce and lob)

- differences between basketball and netball

- can't move with the ball

- pivoting

- stepping

Teacher explained today's lesson will involve passing, pivoting and stepping drills.

Teacher set up drill with students

Explanation of task with student demonstration given

Students up and into activity

**CHEST PASS (points given to the students)**

- step forward for momentum
- close passes

Passing drills set up - children bored and teacher encourages saying get through the drills and then the class can do something else. Some children lost enthusiasm and their passing skills declined the more activity done.

**SHOULDER PASS**

- side on to target
- step through for momentum
- pass used for distances and speed (drill the same but distance from players is increased)

(INTRODUCED RULE - over a third for longer passes)

Some kids (mainly boys) liked this opportunity to let out some energy and worked well. Others were frustrated and changed activities to what they would prefer to be doing ie. some girls were shooting goals and playing keepy off.

**BOUNCE PASS**

- use in goal circle
  - when playing on a tall defensive opponent
  - aim for the bounce to occur 2/3 of the way from thrower to the intended catcher
- Demonstration by student was incorrect to what the teacher was emphasising about technique. Students carried on with a corner spy drill set up.

Finished most of the drills and the students are getting restless, so the teacher has a word and then a drink break is taken by all students.

**LOB PASS**

- for throwing over short people
  - for throwing over good defenders where the player cannot get front position
- Drill for lob is piggy in the middle with 4 people (2 Piggy's and 2 throwers)  
Boys mucking around with year 11 helper who doesn't seem to be doing much else than interrupting the class by showing off to the boys and trying to chat up girls

**BATTERY ON CAMERA OUT 12.22**

**NO VIDEO RECORDING - JUST FIELD NOTES FOR REST OF LESSON 1**

Generally, the boys passing skills are relatively good. Some girls are experienced netballers and show good skills, but others clearly need practice and attention.

**PIVOT GAME 12.26**

- heel off ground
- pivot on ball of foot
- up and down the court and stop to pivot when whistle is blown

(INTRODUCED RULES - Stepping and dragging. Explanation that the first foot grounded when receiving the ball may not be regrounded while the ball is still in possession of that player and the grounded foot may not drag along the ground.

**CHOOSING TEAMS 12.32**

Game of keepy off - 2 games, 1 with teacher and other with yr 11 helper  
Teachers game good, well organised, into activity quickly and all involved  
Helpers game was a little bit scrappy, people not involved or interested

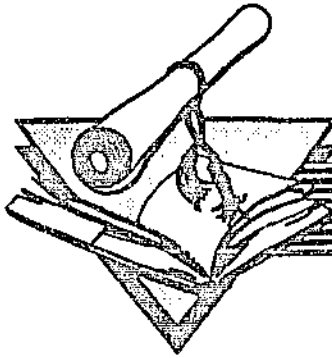
**DRINK 12.45**

Too hot for more activity - students hot, bothered and lost interest  
After drink teacher discuss warm weather safety using sunscreen and hats  
Discussion revised passes done during lesson, effort during lesson was not up to  
scratch - keep up a high standard of previous classes  
Next week - no jeans, proper shoes, changed and ready earlier  
Walk back to change rooms - no talk of lesson, girls gossip and boys no talking

**CHANGE 12.55****SIREN 1.05**

APPENDIX 10

LETTER OF CONSENT FROM PRINCIPAL



THORN LIE SENIOR HIGH SCHOOL

*Education & Preparation For Life*



Ovens Road  
Thornlie W.A. 6108  
Telephone (09) 459 2544  
Fax (09) 493 2750

30 September 1994

Kirsten Scott  
[REDACTED]

Dear Kirsten,

I am writing to advise that you have permission to conduct the research exercise related to Sports Education, as described in your letter, at Thornlie Senior High School during Term 4.

Good luck with your work!

Yours sincerely,  
[REDACTED]

KEITH BRYANT  
Principal

KB:npb

APPENDIX 11

LETTER OF CONSENT FOR SUBJECTS

Kirsten Scott

[Redacted]  
[Redacted]  
[Redacted]

November 18 1994

To parent/guardian

I am a university student from Edith Cowan University undertaking research at Thornlie Senior High School. My research involves observing student activities during a sport education class. I need to interview selected students about their thoughts and opinions of these activities. \_\_\_\_\_ has been chosen as one of these students and I am writing to seek your permission to conduct an interview with him/her. The interviews will be audio taped and interpreted by myself. I may need to ask some more questions to clarify my interpretations at a later date.

Permission has been granted by the school principal and the class teacher, but your approval in writing is also required by my university. Please complete the consent form below and return it to me as soon as possible.

Students who do not wish to participate in these interviews will not be disadvantaged within the physical education class.

If you have any queries please do not hesitate to contact me.

Yours sincerely

Kirsten Scott

\_\_\_\_\_

I, \_\_\_\_\_ give permission for my child \_\_\_\_\_ to participate in sport education interviews.

I am aware that results of the research may be published, providing interviewees and families names are not disclosed.

Participant signature \_\_\_\_\_ Date \_\_\_\_\_

Parent/guardian signature \_\_\_\_\_ Date \_\_\_\_\_