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**A CASE STUDY OF TWO YEAR SIX CLASSES INVOLVED
IN A HEALTH-RELATED FITNESS INTERVENTION**

BY

A. T. Medland B. Ed., Post-Grad. Dip. Ed. St.

**A Thesis Submitted in Partial Fulfilment of the
Requirements for the award of**

Master of Education

at the Faculty of Education, Edith Cowan University

Date of Submission: 5. 10. 92

EDITH COWAN UNIVERSITY

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Abstract

Children are not as active as they may appear and they do not voluntarily engage in moderate to high intensity activity as commonly perceived by the general public. With coronary heart disease risk factors now found to have origins in childhood there is a real need for children to adopt lifestyles that will produce healthier adults.

In Perth the Western Australian Schools Physical Activity and Nutrition project (WASPAN) has been implemented, as a Year 6 intervention, addressing the problems of poor nutritional habits and low activity levels.

The focus of this case-study was to describe the physical activity component of the WASPAN project and to monitor the process of its implementation. The physical activity programme is founded on the concept of systematically increasing children's activity and fitness levels at school in a secure and enjoyable environment, then planning for this and associated activity to generalise into the children's own settings.

Two schools were chosen for the study. One Year 6 class of children at each school was intensively monitored for levels of fitness and physical activity. Their attitudes towards fitness, sports and activity were recorded. At both schools the class teachers and their implementation of the fitness programme became an important area of the study. In addition the influence of the school principal and the children's parents in the promotion of physical activity and their contribution to the behaviour modification of the children's lifestyles was described.

Multiple data methods were utilised, centering on participant observation and combining field notes, document analysis, interviewing, questionnaires, fitness testing, heart-rate monitoring, interval recording and surveys. Within both classes low and high fitness children were targeted for additional indepth investigation.

The study was directed by the data, which revealed that the two teachers implemented the physical education programme in two vastly different ways. This difference in the implementation process impacted on the influence the programme had on the children at the different schools.

Results showed the children were enthusiastic towards the programme and fitness and activity levels increased. Closer analysis revealed that the low fitness/low activity children did not make significant activity increases. These children tended to get little support from home compared with high fitness children. Analysis of the parent interviews indicated that the parents of the low fitness children also tended to live in lower socioeconomic areas than the high fitness children's families.

A second 'at risk' group also emerged in the course of the study. These were the 'average' children whose level of fitness caused the teachers little concern. At the end of the study several of these children were antagonistic towards the fitness programme. They had received little praise or encouragement from their teachers and as a result their motivation and attitude towards the programme had declined. Some had been overtaken by several of the low fitness children in the fitness levels measured.

The attitude of the principal towards physical fitness proved to have a significant effect on the teacher and the children. The two school principals studied also provided a good contrast in levels of enthusiasm and support for the implementation.

Declaration

"I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text."

Signature.

Date.....5.10.92.....

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The principals at Eastwick and Grove Hill schools must be acknowledged for allowing me access to their schools. The teachers at the two schools should also be recognised for granting me unrestricted access to observe and record the different aspects of the curriculum implementation.

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I would also like to thank my wife, Margaret, who has encouraged me to finish this study when the times of despair set in. And who's perceptual behaviour analysis convinces me that there is still a long way to go.

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CHAPTER I

Introduction

Studies over the past 40 years have repeatedly shown that those who are physically inactive have an excess risk of suffering from cardiovascular disease. In 1984/85 the cost of heart disease in Australia was calculated to be over \$1200 million (Gross, 1987). The encouragement of physical activity in the Australian community is one of the central preventive strategies recommended by the National Heart Foundation following the third national risk factor prevalence study in 1989. Humans are created with the natural ability to be physically active. Previous generations needed this ability to survive, but this is no longer the case. The technological influences of our modern society have reduced the amount of time individuals spend engaged in either moderate or vigorous physical activity. There is increasing evidence that coronary heart disease (CHD) risk factors are not exclusive to the adult population. The common impression of schools filled with highly active children is far from the truth. Several studies and reports have found that children are not as active as they might be assumed to be and that cardiovascular risk factors are common in children (Brooks & Fahey, 1985; Hetzel & Berenson, 1987; Vaccaro & Mahon, 1989).

There is now little doubt that compensation for this lack of activity and the possibility of subsequent heart disease is required in the form of regular physical activity of the appropriate frequency, intensity, and duration. If the goal of reducing the incidence of cardiovascular disease is to be realised then increased physical activity patterns should be developed in childhood to such an extent that they become habitual and are then manifested as natural behaviour in adult life.

Attention must be focused on specific fitness components which help to reduce the risk of cardiovascular disease.

Although Physical Education and Games lessons most certainly have a place in the school curriculum at all age levels, the fitness component of these lessons is questionable in terms of cardiovascular benefits (Koslow, 1988). It seems feasible to separate skill development and fitness components as both have their own achievable and systematic objectives. It is a sad fact that most primary school teachers lack the training necessary for them to be able to develop children's physical fitness effectively. Because of this they feel uncomfortable in this teaching role and will often revert to 'games' if the material they are using fails to stimulate the children. According to Kirk, Colquhoun and Gore (1988) the answer to this problem is not solved by employing a physical education specialist, since they report that such specialists are so preoccupied with motor skill development that the time spent teaching appropriate regular fitness training is often minimal.

In order to address the problem of the high incidence of CHD risk factors in young children, school-based fitness programmes have been implemented both here in Australia and overseas. Following the apparent success of the Daily Physical Education (DPE) programme (Dodd, 1984), a team of experts from the Medical, Health Promotion, and Education fields in Western Australia worked together to produce a programme designed to produce a modification of physical activity and diet for 11 and 12 year old children with the intention of reducing CHD risk factors. Physical education and classroom teachers from primary schools who were involved in the pilot study also participated in the design of the programme. In 1989 the Western Australian Schools Physical Activity and Nutrition project (WASPAN) commenced. The objectives of this project are to increase physical fitness and stimulate participation in physical activity both inside and outside school, thus reducing future cardiovascular disease risk. The secondary objectives of the intervention are to reduce the prevalence of obesity and to reduce blood pressure and

blood cholesterol levels. Research has shown these factors to be influenced by increased exercise and diet modification (Brooks & Fahey, 1985).

The WASPAN programme is primarily a quantitative study with six groups of randomly allocated schools from the Perth metropolitan area. The schools were allocated to groups as follows:

1. school physical education only
2. school physical education and school nutrition
3. school nutrition only
4. school nutrition and home nutrition
5. home nutrition only
6. control group

The WASPAN study is currently ongoing and data collection is still in progress.

This study focuses on two schools within Group 1 of the WASPAN project, who were only involved in the physical education programme during 1991. Having allocated schools to each of the six groups, the WASPAN researchers are looking at the inter-relationships between the groups and the effectiveness of the total project in terms of comparisons with the control group.

The Physical Education Component of WASPAN

The physical education component of the WASPAN project is comprised of 3 major areas. The classroom programme, the physical fitness programme and the skills programme.

The classroom programme is a knowledge based series of 6 lessons designed to form a rational basis for the skills and fitness programmes. The lesson content is designed to overlap with the Year 6 Health Education Syllabus and teachers are recommended to teach these in weeks 4 - 9 of term 1 in order to dovetail in with

practical elements of the fitness programme.

The physical fitness programme section is a term by term , carefully sequenced series of class activities. Designed to be conducted 4 or 5 times each week, the sessions have been planned to gradually improve the fitness level of the children by placing progressively greater demands on them. The activities in term 1 are highly structured, but in later terms both teacher and children input is encouraged.

The skills programme is the third area and this involves the teachers taking 2 lessons weekly, each lasting 30 minutes. Teachers select packages of 8 lessons which have been designed especially for use by the non-specialist class teacher. In this way it is possible for teachers to fit in 7 different skill areas in the course of the year.

As illustrated in Appendix A, there are two inservice meetings in the first term. The 9 volunteer Year 6 teachers attended the inservice courses and were fully briefed on programme implementation , including practical demonstrations in activities such as health hustles and the skills sessions. Organisational strategies concerning the leger shuttle run and the 1.6km run were discussed and the teachers were allocated packages which included a teachers' manual, "Health Hustles and Fitness Tests" video, an audio cassette of songs to accompany the example health hustle guidelines and an audio cassette for use in the Leger Shuttle run.

Improvement in the children's fitness levels is not evidence enough to suggest that these same children will then continue to be active in their own free time. Therefore a case study approach has been utilised in order to examine the factors and the relationship between the factors that may have an influence on the children's levels of activity. The physical behaviour of the children is shaped by factors occurring both inside and outside the school and because of this, a case study

approach was the most appropriate method of research to describe these two environments effectively.

While the children's behaviour was the main research emphasis, the class teacher, the school principal and the children's parents were also seen to be important and influential in the ultimate pattern of the children's physical behaviour. As a result, data was collected from each of these sources and a wide range of data collection methods was utilised. In addition, selected individuals within the classes were studied more comprehensively in order to highlight the programme's impact with selected children of high fitness levels and selected children of low fitness levels. Focus on these individual students highlights several factors which might otherwise have become lost in the nature of larger subject studies.

Marsh (1986) believed that studies of curriculum innovation tended to look at knowledge, awareness and adoption decisions. Few penetrated the crucial area of implementation in order to find out how teachers were actually using an innovation. This study takes a close look at the way two teachers adopt the physical activity innovation. The process of this implementation is made the more interesting by the contrasting manner in which the two teachers choose to adopt the physical activity programme.

Statement of the Problem

Recent studies have found that children have substantially higher levels of cardiovascular fitness than adults (Simons-Morton, O'Hara, Simons-Morton & Parcel, 1987). The decreasing quantity of physical activity that children engage in as they get older has become a more immediate concern than increases in physical fitness. As a result the focus on enjoyable moderate to vigorous physical activity with carry-over value to adulthood has been recognised (Sallis & McKenzie, 1991; Simons-Morton, 1987; Taggart, 1990). This focus should be a major goal of the physical education programmes in schools and teachers should see this as a worthwhile educational target.

In 1977 Locke stated that research on teaching physical education was "unique within the enterprises of educational enquiry" (p. 2). One of Locke's main points was that all too often classroom methodology was applied to physical education research. As a result, quantitative procedures commonly ignored the process events which occurred during the teaching of the content.

This study is centered on the observation of the process of the teaching of a fitness programme. It describes the events that take place during the implementation of the fitness intervention which affect its procedure. It acknowledges that the teacher and the children are influenced by their individual experiences and contextual backgrounds. These influences, as well as the influence of the principal, have been considered in relation to the implementation of the fitness programme.

One of the problems with school based interventions is that they typically affect only selected students and others are often lost in group analysis. This study goes beyond general class data and beyond the obvious issues of increased fitness levels. This study analyses changes in the children's behaviour and attitude towards exercise and activity which may be linked to positive lifestyle habits.

The Research Questions

The research questions have evolved from the desire to establish the influence of the WASPAN fitness programme on the attitudes and activity levels of the children in the selected schools.

1. What physical activities do the children in the WASPAN physical education programme engage in, and how much time do they spend engaging in these activities:
 - a) in school, and
 - b) out of school?

2. What attitudes to sport and physical fitness do children in the WASPAN physical education programme have?

3. What attitudes towards the WASPAN programme do the children in the WASPAN physical education programme have?

4. What levels of physical fitness (as measured by tests from the Australian schools fitness test) do students have at the middle and at the end of the programme?

5. What attitudes does the teacher (of the WASPAN physical activity class) have towards:
 - a) the place of the WASPAN physical education programme in the school curriculum,
 - b) the implementation of the WASPAN physical education programme, and
 - c) the benefits of the WASPAN physical education programme to the children?

6. What is the attitude of the principal towards physical fitness and the place of the WASPAN physical activity programme in the school curriculum and what influence does the principal bring to bear on the implementation of the programme?

7. How active are the parents of the children in the WASPAN programme at the 2 schools and what is their potential influence on the successful implementation of the physical activity programme?

Case study research

The choice of method of research is determined by the nature of the problem and the questions that need to be addressed. In this study the diversity of questions and the fact that they are context-related requires a methodology which focuses on the situation. Using case study methodology and particularly descriptive methods in the school setting was suggested by Turney (1972) who claimed: "many research questions in education lend themselves well to descriptive methods, because school problems directly involve people and, therefore, the situations precipitating these problems are constantly in a state of change" (p. 62).

Data collection is driven by the methodology, which in turn must fit the problem in order to generate useful data. Although the collection of data will follow the structure of the design, any research concerned with the observation of change must be flexible enough to change itself in order to study that occurrence. Many researchers believe that the choice of type of inquiry and corresponding methodologies depends upon the nature of the phenomena being studied. The rationale behind the use of a descriptive methodology is the research-based belief that behaviour is significantly influenced by the environment in which it occurs. It therefore follows that a study in which the study of behaviour change is a primary objective must be able to describe and understand the context in which that behaviour occurs. Descriptive research according to Gay (1987, pp. 9-10), "determines and reports the way things are".

While the researcher has formulated a number of research questions a priori (see research questions), the possibility exists that information may be revealed that has not yet been anticipated. Therefore the methodology must be structured but still flexible enough to be subject to change.

Data collection will be made in the natural setting, that is the school and the home, and will utilise the data collection techniques of: field notes, survey, informal discussion, questionnaire, semistructured interview and technological records. These are described in the method section.

A Conceptual Framework

The purpose of the inclusion of this framework is to provide a matrix or organisation of concepts that provides a focus for inquiry. "It is the structure within which a study is developed and links all components of a study together" (Burns & Grove, 1987, p. 52).

The framework used in this study (see figure 1) has been based on the structure explained by Miles and Huberman (1984) and is especially useful for visualising how questions and areas of focus can be inter-related within a single matrix. From this framework the researcher can check progress to ensure that all areas of concern, influence and importance have been covered and included if they are deemed pertinent.

The nature of case study research takes into account the importance of describing anything new or initially unconsidered which may surface during the study. As a result this conceptual framework illustrates the variety of factors which must be considered and, most importantly, the evolution of the behavioural and qualitative paradigm mix which has emerged from an essentially quantitative programme (WASPAN), in order to answer the research questions.

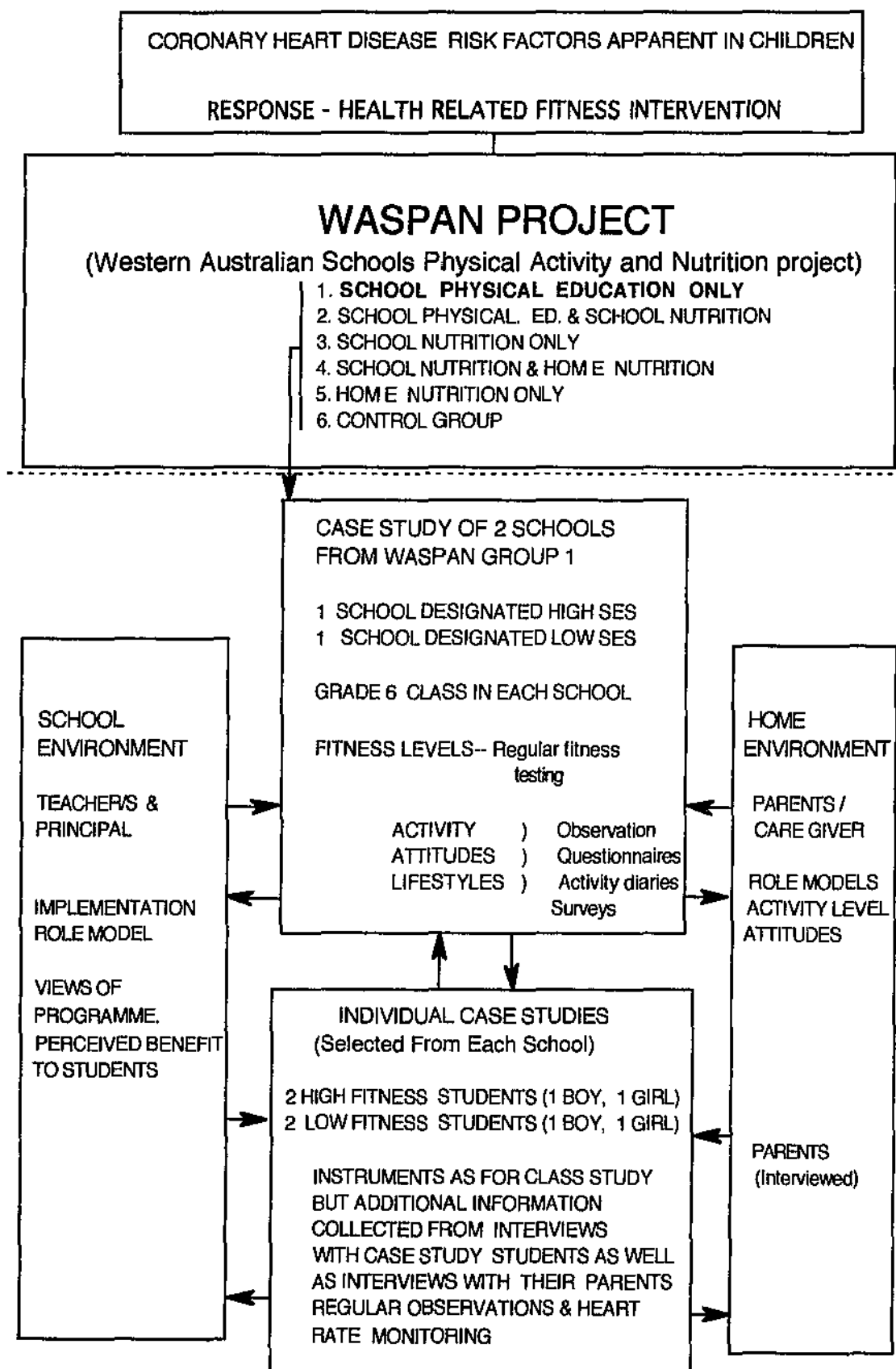


Figure 1. A conceptual framework illustrating the variety of factors for consideration in the study

Significance of the Study

The worthy goal of increasing children's physical fitness is a quantifiable and realistic achievement in the school setting. But whether teachers are able to impart to children the necessary skills and desire to be active outside the school curriculum is questionable. Several studies have shown that children who follow regular exercise programmes indeed become fitter (Braden & Strong, 1990; Mahon & Vaccaro, 1989). Others have looked at physical fitness programmes at their inception, then made comparisons with a follow up visit at a later stage in the programme's history (Kirk, Gore & Colquhoun, 1989; Tinning & Hawkins, 1987). This study looks at the process of implementing a curriculum innovation. Two classroom teachers in two different schools are observed as they implement a physical fitness programme (WASPAN) which has been designed to increase children's participation in activity by giving them enjoyable, regular and systematically developed sessions of physical activity in school. The study also looks more closely at the factors which may influence children's desire to engage in activity in their own time.

It would not be an unreasonable assumption to suggest that low fitness children will become low fitness adults (Corbin & Lindsay, 1983). Low fitness adults are not necessarily in this state through choice, but many lack the ability (often due to low economic and educational levels) to be able to change their lifestyle significantly enough to become active. If this is the case, then increasing the skills and the desire to become more active should be seen as being more intrinsically important than any measured and possibly short-term fitness gain.

If children are to achieve a positive and meaningful attitude towards activity then they will need support and encouragement. After all, it is much easier to sit down and watch the television or video. In school this encouragement comes from the teacher and the principal. Out of school the parents are usually the major influence

on their children's activity levels. The peer group is likely to become more influential as the child reaches adolescence at high school.

The significance of this study is that it goes beyond the collection of data which might illustrate that certain children who follow a regular exercise programme may or may not improve in certain fitness criteria. The study observes the 'process' of the curriculum implementation and gives attention to the context of the school. This aspect includes the attitudes and values of the children, teachers, principals and the parents towards activity. The children have certain characteristics in terms of socio-economic status, social orientation, norms, values and skills. Teachers have their own individual identity based upon their attributes, informal and formal values and norms, leadership traits and organisational climate. The principals' views will influence the attitudes of the teachers, children and parents to a degree. The parents will be a great influence on their children and they may also exert some influence on the school and the school curriculum through parent bodies as well as other forms of communication with the teachers and principal. These factors are not always considered in experimental approaches to educational research, in some studies monitoring the process is ignored in favour of what is often shallow pre and post test data. This study observes the way that teachers actually implemented the physical activity innovation and describes the context in which this process occurred.

Limitations

The study was limited in the following ways:

1. Only two schools were selected to be studied. The schools were selected because of their geographical location in differing socioeconomic areas as designated by the Australian bureau of statistics.
2. The intensive part of the case study began at the beginning of term three and finished at the end of term four, 1991.
3. This is a case study of two specific schools in the Perth metropolitan area. No attempt has been made to generalise findings to other primary schools. The reader's own experience and knowledge in the area of curriculum innovation and physical education programmes will determine whether inferences can be made to other schools.
4. Observer and observee bias is a major problem with any case study. Every observer has a unique individualism and way of seeing the world which will affect the way they view and record different situations. In this study data has been collected using several different instruments. The resultant data has then been triangulated (see methodology) in order to reduce observer bias. Observee bias is the result of the observees in a study behaving differently due to the presence of the observer. This occurrence is more likely in intensive selective observation over a short period of time. For this study the observation period spanned a total of eight months. This time period should adequately 'filter' most abnormal behaviour as familiarisation occurs.

Assumptions

1. That the enthusiasm and motivation of the teacher and principal of a school is inextricably linked to the success of any school innovation.
2. That the teacher's belief in the perceived relative advantage of an innovation will affect his/her enthusiasm and motivation towards it.
3. That children's activity levels can be increased.
4. That the influence of the home environment will ultimately be a major factor in the individual child's attitude and desire to be active.
5. That the relationship between the school and the home is important in the establishment of increased activity patterns.

CHAPTER II

Review of the Related Literature

Coronary Heart Disease in Australia

Coronary heart disease (CHD) is the major cause of death in the Western developed countries (Hetzel & Berenson, 1987). The Australian National Heart Foundation (NHF) figures show that deaths from cardiovascular disease are nearly twice as common as those from cancer and 18 times as common as those from traffic accidents (NHF, 1990). Statistics from an earlier NHF study (1980), showed that in that year 50% of male deaths and 33% of female deaths in Australia for the 30-64 years age group were attributed to cardiovascular related illnesses. Buckley (1988) found that approximately 40% of all Australian deaths are related to CHD, accounting for one death approximately every 10 minutes (p. 48).

Diseases of the circulatory system, which include heart disease, exact a heavy economic and social toll in Australia. A report by Gross (1987) calculated that in 1984/85 the direct cost of treatment of all diseases of the circulatory system in Australia was \$2,147 million. Within that broad category, the total economic costs of treatment of CHD was approximately 1280 million dollars. Although death rates caused by CHD have declined since their peak in 1967-68 it is important to remember that death rates are the most visible but least sensitive index of health in a community and that this reduction does not imply that associated diseases are less prevalent. Prolonged disability, economic hardship and loss of enjoyment of life are also worthy of consideration.

Hetzel and McMichael (1989) have suggested that from the fifteen contributory factors associated with CHD the most significant are: 1) age, sex, race and heredity; 2) hyperlipidaemia; 3) hypertension; 4) cigarette smoking;

5) physical inactivity; and 6) obesity. Their research has shown that regular vigorous exercise can increase protection against CHD as well as specifically lowering the three main physiological risk factors for heart disease: high blood pressure, obesity, and hyperlipidaemia.

Coronary Heart Disease and its Relationship to Exercise

The NHF has recognised that physically active people are less likely to die prematurely from CHD (1990). Regular physical activity and physical fitness are clearly associated with better cardiovascular risk profiles. Research has shown that physical activity favourably alters other risk factors such as blood lipids, blood pressure and body weight as well as reducing stress and displaying other positive psychological benefits such as relieving anxiety and depression (Hetzel and McMichael, 1989; Vaccaro and Mahon, 1989). Roberts, Holmes, Oppenheim and Duc-Thac (1983) studied the research on exercise and its effect on CHD to discover that there was a clear relationship between participation in physical activity and a reduced level of CHD. They go on to suggest that the more active are less likely to suffer from a heart attack, more likely to survive one if it did occur and should be less likely to suffer subsequent attacks.

Questions concerning the duration, frequency and intensity of physical activity necessary to reduce the risk of CHD have received a great deal of attention. In order to develop and maintain cardio-respiratory and muscular endurance the American College of Sports Medicine (1990) recommends that adults should pay attention to the intensity, frequency and duration of exercise in the following detail:

1. Intensity; should be at 60-90% of maximum heart rate (HR_{max}). This has been calculated to be high intensity cardiorespiratory activity sufficient to raise heart rate to 140 beats/minute. This would include activities such as running,

vigorous swimming, playing basketball, chopping wood etc.

2. Frequency; In order to develop and maintain cardiorespiratory endurance the frequency of exercise should be three-five sessions a week.

3. Duration; Calculated to be 20-60 minutes of continuous aerobic activity in which the heart rate is elevated as indicated under intensity. Duration is dependent on the intensity, therefore the lower the intensity the longer the duration needs to be.

The NHF (1990) survey found only 9% of women and 16% of men exercised regularly, and 49% of men and 67% of women reported that they took no exercise. Of those age groups considered 'at risk' of suffering CHD (those aged 30-60) approximately 90% of Australians fail to take exercise above the threshold level for cardiovascular benefit (Hetzl & McMichael, 1989). Many of the controllable risk factors associated with CHD can be vastly improved for a majority of people by increasing their levels of physical activity.

The adoption of regular vigorous physical activity for children has been advocated by Armstrong (1989). Armstrong's data leads him to suggest that British children are "fit but not active" (p. 29) and that school programmes that encourage habitual physical activity are urgently required.

Corbin (1987) states that "children are not little adults" (p. 50) and the type of training they do should depend on the age and developmental level of the individuals. Corbin, among others, believes that regular physical activity of a moderate to vigorous intensity can produce the same benefits for children as for adults.

Simons-Morton, O'Hara, Simons-Morton and Parcel (1987) recommended the need to promote enjoyable, moderate to vigorous physical activity with children in order to produce a carry-over effect to adulthood. A more recent study by Sallis

and McKenzie (1991) suggests that moderate, rather than vigorous, levels of activity are more appropriate for younger people because they are more likely to be sustained in later life. "Moderate levels of activity confer important health benefits, are appropriate for children and adults of all ages and are more likely to be maintained" (p. 132). What is clear in the debate on exercise intensity, is that most people do not exercise at a rate sufficient to elicit cardiovascular fitness gains. The need for school-based exercise programmes to be regular, enjoyable and systematically developed from a moderate to a more vigorous level would seem obvious. The regular practice of these fitness skills and activities will enable the children of today to acquire a repertoire enabling them to confidently use these skills in later activity situations and environments.

Many of the controllable risk factors associated with CHD can be vastly improved for a majority of people by increasing their levels of physical activity.

Coronary Heart Disease and Children

Several researchers have recognised that cardiovascular disease begins in early life (Gliksman, Dwyer & Wlodarczyk, 1990; Hetzel & Dwyer, 1980; Vacarro and Mahon, 1989;). Gilliam, MacConnie, Geenen, Pels & Freedson (1982) stated: "Coronary heart disease (CHD) risk factors such as hypertension, obesity, elevated blood lipids, and physical inactivity are common in children" (p. 96). As health problems associated with sedentary living patterns become more pronounced, the study of the activity patterns of both children and adults becomes increasingly important. Although the clinical symptoms do not usually become apparent until later in life, the recognition that CHD is also a paediatric problem has changed the emphasis of prevention programmes and health interventions during the last 15 years. Some researchers have reported the existence of one or more risk factors in

more than 50% of the children they examined (Gilliam, Katch, Thorland & Weltman, 1977; McArdle, Katch & Katch, 1986). Comments on the problem of the high prevalence of risk factors in Australian children was made by Hetzel and Dwyer (1980) who suggested that "new insights and programmes" aimed at reducing CHD risk factors were "of great importance to the future health of the country" (p. 56).

In Australia a national survey of almost two and a half thousand young school children demonstrated that age, sex, ethnic origin and socioeconomic background can be used as variables to describe mean differences in the levels of CHD risk factors (Gliksman et al., 1990). The implication of environmental as well as genetic factors has influenced the direction for the current health focus in regard to the problem of CHD. It is the interaction of these two factors that ultimately determines the lifelong development of CHD and it is therefore crucial to begin to understand the way in which individual behaviour and attitudes are inextricably linked to the clinical development of heart disease. The strong behavioural component implicit in the adoption of improved lifestyles will depend upon the interaction of genetic and environmental factors. Behaviour patterns, say Vaccaro and Mahon (1989, p. 141) begin at home, largely under parental influence and in most instances remain stable throughout life, only modified to a degree in the school setting. They give the examples of eating, smoking and exercise habits to illustrate this.

Several authors advocate the importance of beginning heart disease prevention programmes in the school (Gilliam et al. 1982; Parcel, Simons-Morton, O'Hara, Baranowski, Kolbe & Bee 1987; Sallis & McKenzie, 1991) and this makes good sense as the school is the most accessible place for all children. These programmes should include practical as well as knowledge based elements and they should be aimed at encouraging long term rather than 'quick fix' modification in children's lifestyle behaviours.

Children's Activity Levels

The recognition that coronary heart disease begins in early life has contradicted the general belief that children are naturally active. Current data now suggests that the activity levels of children in Western culture are alarmingly low (Berenson, 1986; Gliksman et al., 1990; Hetzel & Dwyer, 1980). Studies such as those in the United States (Gilliam et al., 1982; Sallis & McKenzie, 1991), in Britain (Armstrong, Balding, Gentle & Kirby, 1990) and in Australia (Gliksman et al., 1990) have all concluded that children rarely undertake the volume of physical activity believed to benefit the cardiovascular system and that physical fitness programmes need to be more fully promoted in schools.

How then, do young children spend their free time? Figures from the United States, concerning 6 to 11 year-olds, indicated that 85% of the children studied watch television each day, and 98% watch television each week, with a weekly average of 26 hours (Croce & Lavay, 1985). When analysing children's free time in school, Hovell, Bursick, Sharkey and McClure (1978), found that children spent much of their recess time "standing in line waiting their turn to run races or come into bat (in kickball) or casually moving about talking with friends " (p. 471). Only rarely did they report a child engaged in moderate or vigorous physical activity.

Low activity levels have been reported in several recent studies. In Britain, using heart-rate monitors, Armstrong, Balding, Gentle and Kirby (1990), showed that from Monday to Friday, during periods of activity, boys had heart rates above 139 beats per minute (bpm) only 6.2% of the time, while the girls had heart rates above 139 bpm for 4.3% of the time. On Saturday the figures were 5.6% for boys and 2.6% for the girls. Boys had significantly more 5 and 10 minute periods with heart rates above 139 bpm than girls. As many as 63% of boys and 69% of girls had no 10 minute periods of elevated heart rate. (See explanation of exercise

intensity levels in the earlier section on CHD and its relationship to exercise). In the United States Parcel et al. (1987) found that during recess children spent more than 70% of the time in motion, but only 6.9% of the time in moderate to vigorous activity. During physical education classes taught by specialists the average child was vigorously active for only 6.8% of the available time. These figures are most alarming when the common conception of young children is that they 'run around all day' and therefore experience adequate physical activity as a matter of course.

Although research concerning the relationship between young children and CHD is still equivocal, it is important that physical education programmes aim to produce changes in student behaviour that will ultimately result in improved adult health. Sallis and McKenzie (1991) specify that physical education in schools must incorporate the public health goal of preparing children for "lifetime physical activity" (p. 131). For many professionals this goal is implicit in the objectives of physical education. According to Siedentop, Mand and Taggart (1986, p. 22) "health-related fitness is of major importance to the well-being of our society and a necessary element in physical education programs".

Corbin and Lindsay (1983), stated that "children who are inactive in their youth also are more likely to develop a sedentary lifestyle as adults" (p. 62). It is for this reason that we must encourage children to become physically active in pleasurable and stimulating situations which can then be developed and repeated to the extent that they habituate and become a part of the lifestyle of that person.

Research from the United States (Corbin, 1987), Britain (Armstrong et al. 1990) as well as in Australia (Dodd, 1984; Tester and Watkins, 1987; Taggart 1990) has indicated that physical fitness can be achieved in school-based programmes. Siedentop and Taggart (1984) believe that fitness behaviours are learned and that as a consequence behavioural strategies should be utilised in the

selection of the desired activities used to promote and maintain fitness.

Physical Fitness Programmes in the Primary School

In order to address the problem of a sedentary and generally physically inactive population, health-related fitness programmes need to be implemented in the primary schools. As Armstrong points out (cited in Vines, 1988, p. 51) "schools should promote exercise as part of a healthy lifestyle. We need not just more competitive sport for that turns many children off physical activity". Armstrong (1989) strongly believes the primary school can offer the ideal environment in which to foster active lifestyles. "Children's natural curiosity can be used to help them to understand how their bodies function and the importance of physical activity can be emphasised and related to other aspects of education" (p. 31).

Exercise programmes normally have the objective of either improving or maintaining one or more of the components of physical fitness. Physical fitness according to Armstrong (1989), may be conceived as 11 separate components grouped into two broad categories. In this taxonomy agility, balance, co-ordination, power, reaction time and speed are the skill-related aspects of physical fitness. Cardio-respiratory fitness, muscular endurance, muscular strength, flexibility and body composition are the health-related aspects. Armstrong defines cardio-respiratory fitness as "the ability of the circulatory and respiratory systems to supply fuel and to eliminate waste products during physical activity" (p. 28).

School-based programmes which have been concerned with diet and exercise such as the "Heart Smart" health promotion project affiliated with the Bogalusa Heart Study (Gliksman et al., 1990) and the "Go For Health" project (Parcel et al., 1987) have shown increased fitness scores and decreases in obesity. The broader

and more complex question to be pursued is whether or not the exercise programmes can influence the activity levels and lifestyles of the children involved beyond the prescribed intervention, that is, do the children persist with fitness activities in their own time?

Following their 3 month, 4 days a week exercise intervention (25 minute aerobic activity), Gilliam et al. (1982) observed that daily activity patterns could indeed be modified. The children involved in the exercise intervention spent more time in high-intensity activity, not only during the special physical activity classes but also during their free time, than those children in the control group. This result indicated changes in the exercise group's behaviour.

Continuation of activity was the encouraging outcome in the Guildford school where Tester worked (Watkins & Tester, 1988). Tester had noticed that the fitness levels of the students at his school showed a marked decline between the December and February measures - the Christmas break. "Evidently the students were not motivated to maintain their activity levels once the holidays commenced" (p. 11). By the end of the fourth year of the study the student levels of fitness were increasing during the Christmas break, indicating that the programme was starting to affect the student's lifestyles. Tester was using the 'Daily Physical Education' programme (DPE) at his school in Guildford. The DPE programme (1982) is a curriculum resource developed and originally trialled in South Australia in the late 1970's.

DPE was introduced to assist particularly non-specialist primary teachers whose physical education sessions were generally ad hoc and produced little in terms of cardiovascular or educational gains. The DPE programme enjoyed a period of initial success by giving teachers a practical and structured resource pack to use. Since this time the history of the programme has been well documented (Tinning, 1982; Dodd, 1984; Tester & Watkins, 1987; Watkins & Tester, 1988; Pettit &

Robinson 1989). The results of DPE were generally encouraging and according to Watkins and Tester (1988) "the Guildford students were performing at 20% to 30% above the National norms developed from the Australian Health and Fitness Survey" (p. 10). The implementation and perception of the DPE programme in Australian schools has been reported in some depth by Kirk, Colquhoun and Gore in two separate articles (1988, 1989) and Kirk, Gore and Colquhoun (1989). They found that teachers in the Queensland state primary schools surveyed were generally in favour of having the resource material available to them but, in most cases, did not consider it to be prescriptive. Teachers rarely planned their physical education programmes, relying instead on the DPE programme materials to provide inspiration and ideas before a lesson. This lack of planning is a theme discussed by Tinning and Hawkins (1987) who monitored the progression of the DPE programme in one particular school in Victoria. They returned to the school after a 4 year period to see how the programme was progressing. Although the children were still going out on a daily basis, the programme had become rather stale. The teachers lacked enthusiasm for what they were teaching and preparation was minimal. Perhaps the most disturbing observation was the apparent lack of evident progression made by the children. The teachers were not accountable for student gains in DPE as they certainly would be in other areas of the curriculum. As a result of their observations both Tinning and Hawkins (1987) and Kirk et al. (1989) expressed serious reservations concerning the continuation of the DPE programme in its present form.

The average primary school in Australia does not employ a specialist physical education teacher and the physical activity component of the school curriculum is usually taken by the class teacher. As a result the typical physical education lesson is often devoted to large scale, low intensity competitive games which have little relationship to health-related fitness. The rare physical education

specialist teaching in the primary school is often shared between schools and according to Kirk, Colquhoun and Gore (1988) usually becomes so preoccupied with developing motor skills that fitness goals are rarely achieved.

What the primary schools need is a programme which is easy to implement by the average class teacher, achieves the physical fitness objectives in terms of the intensity, duration and frequency explained earlier and is enjoyed by the children. As Weiss stated (1989) "Fun is by far the most prevalent reason given for children's participation in sport (p. 195). If this could be achieved then past studies have indicated that children's attitudes towards physical fitness could be shaped and their behaviour modified to the extent that they may then continue to be fit and active both in and out of school environments.

Lifestyle Behaviours

"Given that hypokinetic diseases have their origins early in life, it is important that active lifestyles be established early" (Siedentop and Taggart, 1984). If one accepts that fitness behaviours are learned, then behavioural strategies appear to be both a relevant and an efficient way to select the desired activities to promote and maintain regular activity. It is especially important to begin these activity interventions early if we assume that behaviour patterns remain relatively stable throughout life and, according to Vaccaro & Mahon (1989) are only "modified to a degree in the school setting" (p. 141).

Gilliam et al. (1982) remark that daily activity patterns can indeed be modified, after their exercise intervention programme contributed to a significant improvement in the daily activity patterns of the experimental children. The fact that the 'experimental' children spent more time in high-intensity activity, not only during the special physical activity classes but also during their free time, indicates

possible changes in their behaviour.

Behaviour change in terms of exercise adoption can only be achieved if children can be given the opportunity to physically respond on a regular basis. Effective teaching can make exercise both physically demanding and enjoyable. Children start to feel good about themselves as they achieve personalised physical goals. If exercise and activity are to become a part of the child's lifestyle repertoire then children must first achieve a basic competence which will enable them to participate in a variety of different physical situations and not feel threatened. In order for this to occur teachers need to be sympathetic to the different environmental circumstances that children have. Whilst teaching regular and systematic fitness skills teachers must not lose sight of the factors that will affect the behaviour change for some children. Peer pressure, poor self-concept and lack of support from home are the kinds of problems that children may find negatively reinforces the desire to remain inactive.

It is important for teachers not only to provide reinforcement for positive behaviours but also to help students recognise 'progress' for themselves. According to McSwegin and Mielke (1989, p. 64) "students should learn to recognise when their behaviour has been appropriate regarding both effort and direction." While students might learn to make such evaluations simply through the examples used by the teacher, it is likely that the teacher will have actually to teach toward that outcome. When this occurs the teacher and each student become partners in shaping the student's fitness behaviour. Fitness prescription and testing is only one part of the fitness behaviour shaping process. By itself, such testing and evaluation does not provide enough information or motivation to assist students in modifying their actions, knowledge, or beliefs. Self-testing experiences and the proper use of reinforcement are ongoing parts of the process to shape fitness behaviours, both

during the school years and for the years that follow. Pemberton and McSwegin (1989, p. 41) suggest that "goal-setting techniques and strategies may help students have positive experiences through movement activities, feel good about themselves in physical activity and carry positive fitness habits into their adult lives". Armstrong (1989) would agree with this principle and states that the major objective for health-related activity should be for children to achieve what he calls "activity independence" (p. 32).

Various authors have indicated that fitness programmes in physical education classes designed to teach the facts about fitness, including self-testing skills, personal fitness planning procedures, and consumer fitness information, can have long-term effects on fitness knowledge, fitness attitudes, fitness performance and fitness behaviours (Downey et al., 1987; Parcel et al., 1987; Simons-Morton, Parcel and O'Hara, 1987; Taggart, Bush, Zuckerman & Theiss, 1990; Tinning, 1991).

Assessment information can pertain to all three stages of behaviour change. If the assessment is done thoroughly students will realize the need to gain fitness knowledge, develop fitness skills, and establish better habits for and attitudes about fitness. It is well-established that learning can be enhanced through proper use of reinforcement techniques (Magill, 1989). But for reinforcement to work, the learner must be stimulated to respond in some way that at least resembles the desired response. For example, if students are being encouraged to develop lifelong exercise activity habits, then the regularity of participation in activity which is pleasurable and reinforced by the teacher at school could be the beginning of a sound lifestyle behaviour.

Lee and Owen (1986, p. 450) state that behavioural research in the exercise promotion field is a relatively new area but "one which shows considerable promise".

Theory and experimental research are beginning to increase the scientific understanding of exercise as a behaviour and they point towards the imperative foundations of "good quality research, theoretically informed program development, and sound program evaluation methods" (Lee and Owen, 1986, p. 451). There exists a dichotomy of behaviour that many children see in school as being totally alien to the kind of behaviour considered normal in the home. Many school-based efforts aimed at behaviour change are unsuccessful due to the disregard for the out of school environment. Most parents are in fact willing to cooperate in school-based initiatives but many feel threatened by the school or else are rarely consulted or given the opportunity to be involved. Thurston and Heggie (1979) among others, linked home parent-tutoring programmes to increased academic performance of students while Taggart, Taggart and Siedentop (1986) found the home environment influential with regard to the children's fitness after a home-based activity programme was developed. This programme was aimed at low fitness children, who were encouraged to be physically active by their parents, who had themselves been previously trained by the physical education teacher to implement and monitor a home fitness programme. Virtually all of these children increased both activity and fitness levels. These studies strengthen the concept of the importance of researching the home environment in relation to children's fitness levels, activity levels and lifestyle behaviours.

A study by Greendorfer and Lewko (1978) concluded that "parents appear to be a significant socializing agent influencing sport involvement of both boys and girls" (p. 146). Godin, Shepherd and Colantonio (1986) state that "the family is initially instrumental in socializing children into sport and physical activity" (p. 515). Lee, Carter and Greenockle (1987) added additional weight to this argument by stressing the importance of teachers and parents presenting themselves as good

role models and trying to instil more positive attitudes towards exercise and fitness in children at an early age. Most parents are in fact willing to cooperate in school-based initiatives but many feel threatened by the school or are rarely consulted regarding school-based programmes. The value of a family approach to encouraging physical activity was endorsed by Armstrong (1989, p. 31) "parents have a prime responsibility to provide a positive role model and to encourage their children to engage in active play, both spontaneous and formal." The ability of parents to fulfill this role is affected by many diverse factors.

Certain studies have mentioned the influence of socio-economic status on the general health and attitude towards physical fitness of the students and their predisposition to adopt health-related behaviours. Marmot, Adelstein, Robinson and Rose (1978), researched the social class incidence of heart disease risk and discovered that the lower social classes were more likely to smoke, have poor nutritional habits and spend less time exercising. However Dwyer, Coonan, Worsley, and Leitch (1980), who studied 10 year-olds in Adelaide, found ethnic origin and sex to be more indicative of CHD risk factors than social status. Measurements for children whose parents were born in Australia or the United Kingdom were similar for all risk factors. Children of both sexes whose parents were born in Italy and Greece were fatter and less fit. Generally girls carried significantly more body fat than boys although their height and weight were similar, and they were less fit. These factors are indeed worthy of consideration in the future research of physical fitness behaviours in children.

Kirk, Gore and Colquhoun (1989) and Tinning (1990) have espoused the dangers of making the assumption that individuals are responsible for their own health and healthy lifestyles. The notion that health can be simply achieved through the triplex: exercise = fitness = health is dismissed as simplistic. Obviously the

formula is influenced by many complex variables and the environment of each individual will impact upon the decisions they are able to make. It is important for educators to be aware of, and sensitive to, the considerable influence of the home environment on children's physical abilities and their attitudes towards physical activity. Tinning (1991) argues convincingly that not all families are equal in their ability to choose to exercise or to adopt 'healthy' behaviour and cites shift workers and the economically impoverished as two examples of groups disadvantaged in this respect (p. 8). Ironically these may be the kind of parents who often feel alienated from the school in terms of academically supporting their children in traditional homework areas. With regards to activity tasks these parents may feel more suitably qualified to assist their offspring with school-set activity tasks. Taggart (1990) acknowledges that home environments will influence children's behaviour patterns. He suggests that teachers should concentrate on getting children to enjoy being physically active in controlled systematically developed lessons at school. Once the children become comfortable physically responding in the school situation their behaviour can be shaped with the aim of generalisation into their out of school environment.

Future primary school programmes should monitor the involvement of parents in the development of their children's activity, without isolating them further from the school environment.

Curriculum Innovation

The establishment of any new programme in schools can be influenced by many factors. Some of these may include; teacher enthusiasm and level of priority afforded, availability and clarity of the materials, support and guidance from other staff, the principal and the community in the stages between surface change and real

change as the programme becomes established (see Figure 2).

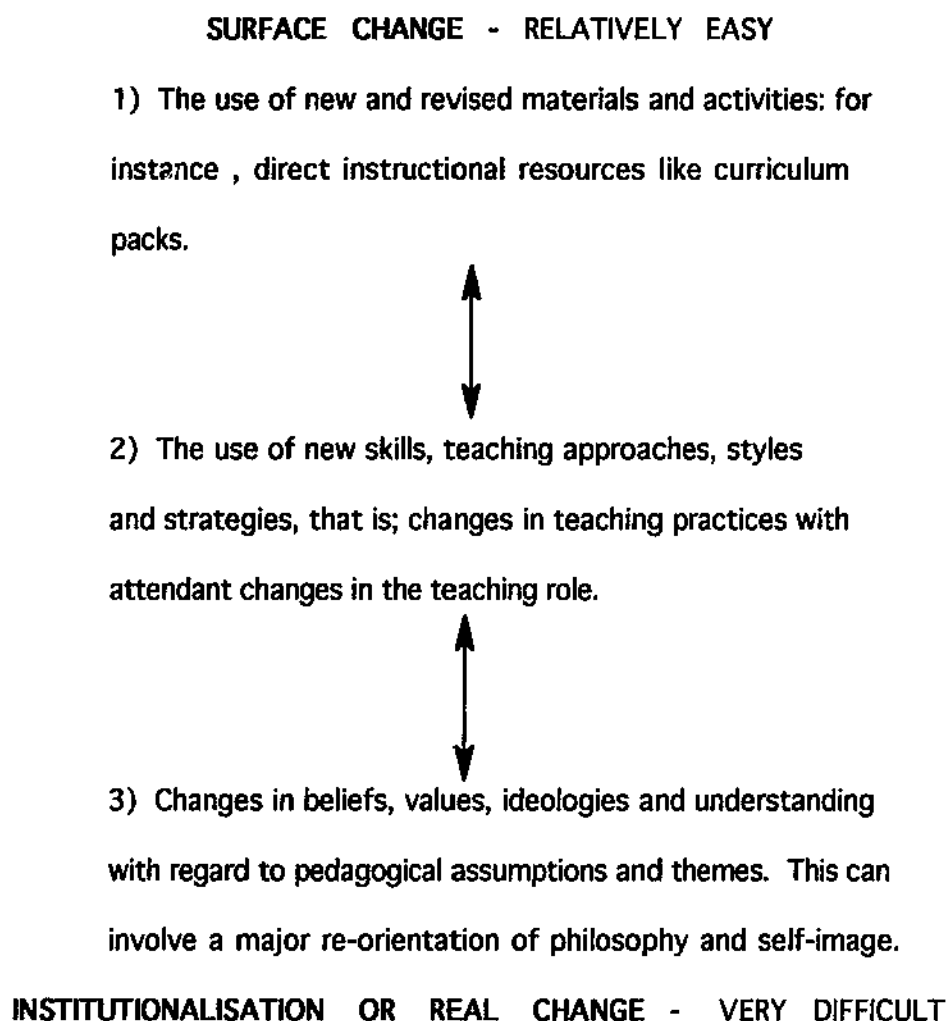


Figure 2. Levels of change in the adoption of new programmes in schools.

(adapted from Sparkes, 1989, p. 60)

Curriculum innovation is by its very definition concerned with change. This change is usually instigated because there is dissatisfaction with the current situation and improvement of some kind is deemed necessary. At this stage new material (e.g. DPE, WASPAN) is often devised either centrally or at the individual

school level (School Based Curriculum Development). The implementation of these resources then begins with a trial period. Marsh (1986) calls this the "initial use phase" (p. 102). This is the time when the innovation is at its most vulnerable and in danger of failing. The teacher must see the new programme as fulfilling a special need. This period may involve a dramatic shift in the teachers philosophy and personal beliefs. Support from the principal and other staff at this stage (between stages two to three in figure one) is highly desirable. Institutionalisation can only occur if the innovation becomes inter-woven and formalised within the school curriculum (usually after a two year period). According to Tester and Watkins (1987), in order for any project to become institutionalised it needs to become "part of the normal operation of the school" (p. 18), and for this to happen the strategy of involving staff, the principal and parents in mutual adoption within the particular school environment is essential.

Watkins and Tester in a second article (1988), reaffirmed the value of 'ownership' (of the DPE programme) by the teachers, to whom the underlying principles and ideals of the package were explained and who were not simply left to work with it when it was presented as a document. "Guildford has demonstrated the power of a shared idea, and what can be achieved when that idea is supported over time" (Watkins and Tester, 1988, p. 11). The concept of 'a shared idea' is of vital importance to the ultimate successful institutionalisation of any innovation. If the teachers who will ultimately be implementing the programme have not been consulted or had the new curriculum discussed with them, it would be little wonder if they lacked enthusiasm for the new material. Conversely the teachers who are able to make even superficial contribution to the new curriculum may ultimately become involved to the extent that they perceive themselves as having a vested interest in the success of the innovation.

This is the theory behind successful school based curriculum development. Many innovations are implemented in schools without regard to the specific school and the school's environment. Every school is different and this is why school based curriculum is often more successful than centrally administered programmes. Marsh (1986, p. 106), acknowledges the "large number of teachers who argue that their major task is to be a skilful classroom teacher and not be involved in sharing and planning activities" but says that teachers ultimately prefer to be consulted and feel involved in the design of new curricula. This observation would be true in instances such as Tester's school in Guildford where centralised curriculum material was developed and modified by a group of interested 'change agents' (teachers and parents) resulting in very positive learning outcomes.

The last decade has seen a great deal of interest in the change agent activities of the school principal. Acknowledgement has been made as to the degree of encouragement and incentives that principals can provide for curriculum change. The role of the principal in the success or failure of an innovation in school is a critical one. Pettit and Robinson (1989) found principals in Darwin gave low priority to in-service in physical education. Besides authorising in-service leave the principal will often decide if the teacher's time-table will accommodate the new programme and, most importantly, whether or not they decide either to support or neglect the innovation during the various stages of implementation (see Figure 2). The changing role of the principal from the 'boss' to the 'team leader' (Nadebaum, 1990, p. 7) now means that the principal must be more aware of the classroom content being taught. The development of the curriculum has become a shared task of both teachers and principal. Although the teacher is bestowed with the delivery of the material to the children, the principal has the ultimate responsibility and accountability for the quality of the education the children receive. The principal has

the legitimate power in the school and ultimately decides if a curriculum innovation succeeds or fails by the level of his/her support.

Fitness Interventions and the WASPAN Project

The ultimate aim of the Western Australian Schools Physical Activity and Nutrition project (WASPAN) is to encourage students to pursue an active and healthy lifestyle both in and out of school. An important part of this lifestyle is the adoption of fitness behaviours into the student's lifestyles. In order for this occurrence to manifest itself, the children will need to habituate the fitness behaviours they develop and learn as a part of the intervention at school into skills that can be utilised in many different social contexts.

The WASPAN project was an intervention introduced in 1989 as a response to studies of Australian primary school children which indicated that cardiovascular disease risk status was high and that children in primary schools were receiving insufficient physical activity of the kind likely to have either short or long term effects on the cardiorespiratory system. The WASPAN project has attempted to address the problems that teachers have been facing in their planning of physical education lessons. Drawing heavily on the successful aspects of the DPE programme, the WASPAN designers have been able to produce a programme with more structure and developmental sequencing to enable class teachers to follow a clear step by step progression towards clear fitness goals. The primary objectives of the physical activity intervention are to increase physical fitness and stimulate participation in physical activity both inside and outside school. As well as becoming fitter the children learn simple 'fitness skills' which they may then utilise in their own time. Teachers follow a programme guide and time-table which includes set days for simple fitness testing to enable both teachers and students to see progress (Appendix

A). Teachers are asked to complete a daily log sheet on the activities covered which is sent into the WASPAN project office to enable the designers to monitor the implementation of the programme.

Because of the systematic nature of the programme it is vital that teachers are able to make a commitment to a daily practical session. Tinning and Hawkins (1987) and Kirk et al. (1989) both saw a lack of commitment with regard to the DPE programme following its initial implementation. Teachers eventually became bored teaching the same content each year and desperately sought new ideas and inspiration. In the case of the WASPAN programme two early in-service days were held. Teachers were introduced to the programme material and the objectives of the programme were carefully explained. At the second in-service day (by which time the teachers had spent two weeks implementing the programme) initial teething problems were discussed and further teaching ideas and methods were demonstrated.

It is important for teachers to provide reinforcement for positive behaviours and to help students recognise 'progress' for themselves. It is well-established that learning can be enhanced through proper use of reinforcement techniques (Heward, Dardig & Rossett, 1979; Taggart et al. 1986). But for reinforcement to work, the learner must be stimulated to respond in some way that at least resembles the desired response. For example, if students are being encouraged to develop lifelong exercise activity habits, then the regularity of participation in activity which is pleasurable and reinforced by the teacher at school could be the beginning of a sound lifestyle behaviour. If teachers using this programme can regularly exercise their children so that they are huffing and puffing for about 15-20 minutes, four or five times each week, then fitness behaviours should begin to appear (Taggart, 1990). The main objective must be for these fitness behaviours to develop and then be shaped so that they generalise in the child's non-school environment.

Conclusion

Since the introduction of Daily Physical Education, many schools have reduced their time allocation or lost sight of the objectives on which the particular programme is founded. This is a common problem with new curriculum innovations. The WASPAN project has come into the ring as a challenger to the current system. It is an innovation which aims at nothing less than modifying children's lifestyles to incorporate regular activity. The WASPAN manual enables teachers to effectively teach children to physically work hard (huffing and puffing) during a school-based programme of developmental and sequential physical fitness activities. Short-term fitness gains can be a worthwhile motivator for both children and teachers. However the longer term goal of increased activity leading towards a potentially healthier lifestyle should be the main aim for teachers. This can be achieved through regular, varied and enjoyable physical activity so that it becomes a natural part of children's lifestyle behaviour.

The measurement of fitness gains is an important outcome and one which is relatively easy to observe and measure. The assessment of changes in attitude and behaviour however, are more time consuming and require a more descriptive form of methodology and a wider system of data collection. The outcomes will be of the greatest importance to our children, our future adults and to the designers of future physical education curricula.

CHAPTER III

Method

This chapter is divided into four sections. The first describes the subjects and setting. This is followed by the design of the study, a description of the instruments and their reliability, and finally the procedure.

Subjects and Setting

Two schools have been included in the study. Year 6 classes were selected from each of the schools, which corresponds with the WASPAN target age group (11 and 12 year olds). A total of nine schools were involved in the implementation of the WASPAN fitness intervention programme in 1991 and the two schools included in this study were selected from this group. Using the National Bureau of Statistics data (1989) for the Perth metropolitan area, one school was selected from a high socioeconomic area (group five on a scale of one to five). This school was given the pseudonym Grove Hill. The second school was selected from a low socio-economic area (group one) and was given the pseudonym Eastwick. This selective form of sampling was chosen to account for the possible effect of socioeconomic status which has been found to be an important cardiovascular risk factor status indicator (Marmot, Adelstein, Robinson & Rose, 1978). The two schools were chosen from others in the same socioeconomic category on the basis that both the Eastwick and Grove Hill principals and class teachers were the most amenable to a period of research taking place in their schools. The teachers and children studied were all given pseudonyms to conceal their identity. The teacher at Eastwick school was called Ms. Thomas and the teacher at Grove Hill school was called Mr. Kent.

A multi-case study approach similar to that employed by Bogdan and Biklen (1982), was used to research the in school and out of school activity patterns of

each complete Year 6 class at each school. In order to go beyond the scope of general class data four children from each school were chosen for a more in-depth investigation. Based on the results of fitness tests (detailed later) two boys and two girls of high fitness and two boys and two girls of low fitness in each Year 6 class were selected. A reserve for each child was also selected to cover for any late drop out. Data was therefore collected for all eight children from each school (see Table 1). The fitness tests, which are detailed in the Australian Schools Fitness Tests manual (Pyke, 1986), measured the students for ability in cardiovascular endurance, abdominal strength and flexibility of the lower back and hamstrings.

Table 1

The Selected Target children at Eastwick and Grove Hill

<u>Eastwick School</u>	<u>Grove Hill School</u>
1 boy high fitness	1 boy high fitness
1 boy high fitness (reserve)	1 boy high fitness (reserve)
1 girl high fitness	1 girl high fitness
1 girl high fitness (reserve)	1 girl high fitness (reserve)
1 boy low fitness	1 boy low fitness
1 boy low fitness (reserve)	1 boy low fitness (reserve)
1 girl low fitness	1 girl low fitness
1 girl low fitness (reserve)	1 girl low fitness (reserve)

The Australian Schools Fitness test describes the following six tests and the corresponding components of fitness:

1. 1.6km run -cardiovascular endurance
2. sit and reach -lower back and hamstring flexibility
3. sit-ups -abdominal muscular strength and endurance
4. standing long jump -leg power
5. push-ups -Upper body muscular strength and endurance
6. 50m run -sprinting speed

The three highlighted tests are the ones that were included in this study because of their potential to be influenced by a systematic fitness programme rather than favour individual genetic capabilities. The three together reflect a measure of health related physical fitness.

The three fitness tests were administered in June and again in November to gauge the improvement of each individual's fitness in the areas the tests measure. The June testing results were also used to identify the high and low fitness children for more intensive study. Based on the national percentile ranges from the Australian Schools Fitness Test Manual (Pyke, 1986), the target children were identified as being of either high or low fitness. High fitness was determined as being above the 80th percentile in two of the three tests (administered in June). Low fitness was determined as being below the 20th percentile in two of the three tests.

Prior to the fitness testing taking place the teachers at both schools were given details of the proposed case study. In both cases their response was enthusiastic. The researcher also discussed the nature of the research with the principals of both schools. Both agreed that the research explained to them could be carried out and that any communication with the families of the children should be checked with them beforehand.

Instruments

Data was collected in the natural setting, that is, the school and the home. A multiple methodology system of data collection (sometimes called triangulation) was employed. Techniques included: field notes, survey, questionnaire, interview, activity diaries, heart rate monitoring, systematic interval recording, documental records and fitness testing. These are outlined in Table 2 on page 42.

Templin is one researcher who used a triangulation system in order to enhance the validity and reliability of research (1983). Triangulation, states Dobbert (1982), serves to "enhance validity and reliability through increasing the number of perspectives employed. Multiple perspectives permit cross-checking of all types of data for accuracy and completeness. They also add to depth and breadth of interpretation" (p. 265). Multiple methodology will not make up for inaccurate or badly collected data but by using different combinations of methods and subjects reduced error and a greater understanding of the situation can often be achieved.

Reliability or 'replicability' is established by demonstrating as accurately as possible that the measurement instrument will elicit the same or similar results over time, providing that the situation or person being observed or measured is unchanged. In other words "the degree to which a test consistently measures whatever it measures" (Gay, 1987, p. 135). The more reliable the test and procedure the more likely it is that the data obtained would be essentially the same as data obtained if the test or survey were re-administered. This is fine when carrying out the testing in a laboratory or scientific setting where tests can be readministered for this purpose. It becomes more difficult when utilizing methods such as observational analysis or self-reporting where the interpretation of criteria to be recorded can differ dramatically between individuals and when the environmental influences are continually changing. As a result data was collected using

several different methods in order to produce a more complete and accurate picture.

Table 2

Data Collection Techniques and Sources

METHODS OF DATA COLLECTION	CLASS	TARGET CHILDREN WITHIN THE CLASS	TEACHER	PRINCIPAL	PARENTS
naturalistic observation (field notes)	√(1)	√(1)	√(5)	√(6)	
survey (hands up) responses	√(2,3)	√(2,3)			
informal discussion	√(2,3)	√(2,3)	√(5)	√(6)	
questionnaire	√(2,3)	√(2,3)	√(5)		√(7)
semi-structured interview	√(2,3)	√(2,3)	√(5)	√(6)	√(7) (parents of target children only)
activity diaries.	√(1)	√(1)			
fitness testing	√(4)	√(4)			
heart rate monitoring.	√(1,4)	√(1,4)			
ALT-PE Fitness	√(1,4)	√(1,4)			
teachers' log			√(5)		

√ = administered (1) = corresponding number of research question

1. Field notes

Field note recordings were completed using structured and unstructured formats. The recordings focused on the teacher and the children before, during and after the fitness session. Times of visits, duration of the activity sessions, weather, equipment used and number of children present were all noted. Less structured recordings reflected the teacher's enthusiasm, degree of participation and confidence with the programme as well as comments made by the teachers' and the children. It is the process of the day to day machinery of the school that constitutes the "real world" and can be influenced by a myriad of variables. The regular interruptions and problems that occur on an almost daily basis are often missed by studies that measure variables at prearranged intervals. Following the fitness session the researcher would observe recess activity. The children were initially curious about the researcher's note taking but by the second or third visits, the researchers presence had become a normal part of the fitness session and recess environments. During terms 3 and 4 the researcher was able to visit the schools without an appointment. This unrestricted access was most valuable in limiting reactivity effects on the children and teachers. It was also important in noting both the duration and regularity of the fitness sessions.

The field notes were continually analysed for emerging patterns and themes which were documented.

2. Happy Face Class Survey

The 'happy face' class survey (Appendix B) is a simple and effective method of finding the children's attitudes towards the various activities that comprise the fitness sessions. The surveys were administered on two separate occasions (see procedure) and because they formed a part of the programme they

were administered by the teachers. On both occasions the children were asked by the teacher to think about the activities they had been involved in during their fitness class that term. The teacher wrote these up on the board. The children were told they could choose either "love", "okay" or "hate" for each activity. The children were then asked to close and cover their eyes with one hand and raise their other hand in response to the teacher asking the class if they 'loved' 'hated' or thought the activity was 'okay.' By closing their eyes the children were not biased by their classmate's responses. The results were written onto the board and transferred onto a chart (Appendix B). The children could only vote once for each activity. This simple survey technique supplied immediate feedback to the teacher concerning the children's attitudes towards the programme's activities. It also provides information for the WASPAN programme designers and because the survey was held at the end of both terms 3 and 4 (see procedure) any change in the children's attitudes towards the various activities could be gauged.

3. Questionnaires

Identical questionnaires were administered to both classes on two occasions, once in term 3 then again at the end of term 4. The questionnaire concerned research questions 1, 2 and 3 (see Appendix C). The questions were multiple choice with a space for alternative responses. On both occasions that the questionnaires were administered, the researcher carefully explained to the children the procedure for answering the questions. For each question the children were instructed to select the answer that they thought best suited their feelings, and circle that answer. The children were told to make an individual response to each question and that there was no right or wrong answer. The researcher explained that questions 5 and 6, which asked when the children engaged in out of school fitness and sport, gave opportunity

for more than one response if required. The same questions asked the children to estimate the amount of time they were spending engaged in fitness and sport. The researcher clearly explained the procedure the children should follow when completing this question:

1. Include all activity that makes you huff and puff.
2. Include all activity that lasts for a continuous period of 10 minutes or more.
3. Include all activity that is done out of school lesson time

The children asked questions about the different activities that might be included and the researcher clarified them according to the above criteria.

The children also took home a short questionnaire (Appendix D) with an accompanying letter to their parents (Appendix E). The questionnaire related to research question 7. The letter and questionnaire were shown to the school principal for his approval prior to being sent home to the parents. Both teachers coordinated the distribution and collection of the letters/questionnaires which were enclosed in an unsealed envelope which could be sealed with the completed questionnaire and returned. All parental questionnaires were completed and returned within one week.

The questionnaire administered to the teachers was the questionnaire included in the WASPAN teachers manual (Appendix F). The researcher read the questions through with the teacher at each school and recorded the teacher's responses in their presence.

5. Interviews

A semistructured interview was conducted with the the target children in September, this interview concerned research questions 1-3. The interview questions were designed to obtain more informative responses concerning exercise, fitness and activity attitudes, influences and values. By using a semistructured

format the researcher was able to follow questions with clarification and pursue directions which may have emerged as a result of the interviewee's responses (Appendix G). The interviews with these children served as a form of reliability (triangulation) check on the information collected from the questionnaires. They were conducted mid-way through the fourth term and took place in the library of both schools.

Only the parents of the target children were interviewed. These interviews were based on the parent questionnaires and concerned research question 7. Interviews were arranged by letter explaining the nature of the proposed interview. The letter (Appendix G) made the point that parents had no obligation to become involved in the study and that if they did, confidentiality would be maintained. Interviews could be held either at the school or at the parents' home, depending on parent choice.

Separate interviews with the class teachers and the principals were conducted. The interviews were all arranged for term 4 and the dates are detailed in the procedure. In all cases the interview was tape recorded with permission, transcribed and then shown to the interviewee, who declared it to be an accurate representation of the interview. The interviews followed a semi-structured format.

6. Activity Diaries

Activity diaries (Appendix H) were distributed to all children in the Year 6 class of both schools and were completed each day during a 7 day period. The diary was developed from the exercise diary used by the National Heart Foundation (WA) and was administered on two separate occasions during the study. The measures of children's activity levels were of great importance to this study. The protocol used to ensure the information collected was as accurate as possible is included as

Appendix I.

Self reported activity diaries have been a commonly used technique to measure children's unobserved physical activity levels. Because of difficulties encountered when attempting to measure large groups of children's out-of school activity, self-report methods have commonly been utilised. Physical activity self-reports says Sallis (1991) have "convenience of administration, low cost and an ability to collect a variety of variables over time" (p. 215). Their disadvantages include them being "memories of the behaviour of interest that have decayed, been filtered through perceptions and biases and been tainted by competing memories, social desirability and misunderstanding of instructions" (p. 215). In order to satisfy validity and reliability criteria experimental approaches have commonly been used in previous studies involving activity self-report. This has involved the researchers either interviewing the children to collect activity data or distributing and analysing the diaries themselves. The literature has established that children above the age of 10 can be expected to provide useful information concerning their physical activity. Also measures that reduced the delay between the activity and its report generally were more valid (Sallis 1991, p. 218). Teacher's time is limited and it is therefore useful to involve parents or other primary caregivers in maintaining children's activity. This serves the dual function of authenticating the children's reported activity as well as explaining and involving parents/caregivers in the process of establishing their children's activity habits. Parents are an important element in the process of supporting children's activity opportunities and encouraging them to be active. Research has highlighted the positive role children can play in this area (Taggart et al., 1986).

As a form of reliability check, the second set of activity diaries utilised a two week period of recording. This was used to account for any dramatic abnormality

which might have occurred in a shorter time scale (e.g. a week of rain). The other change from the first set of activity diaries was that on this occasion the children's parents were asked to sign each days activity entry as a true record of the activity the child had engaged in. Seasonal differences in activities undertaken by the students during their out-of-school free time were also considered.

The diaries also formed part of a reliability measure by triangulating the data with questions 5 and 6 on the student questionnaires. The children were required to record their activity and sport time using the same criteria as the activity diaries.

At Eastwick the teacher arranged for the diaries to be attached into the children's homework books. These books go home with the children every day and the teacher checks them each morning. At the end of the 7 day period the activity diaries were photocopied allowing the children to keep the originals. There was no homework book issued at Grove Hill. Therefore, the children were given 5-10 minutes each morning to complete the diaries. At the end of the 7 day period the diaries were collected by the teacher and passed on to the researcher.

7. Systematic Interval Recording

The Basic ALT-PE coding instrument (Wilkinson and Taggart, 1985) was used to record the selected children's activity patterns during periods of physical activity. Before the morning fitness sessions a student would be randomly selected using a random number table (Gay, 1987, pp. 520-523). The activity level of the individual/s wearing the monitor was recorded every 5 seconds, followed by a 5 second interval to allow time to record the relevant observation code. A small tape recorder containing a tape with 5 second prompts was used. Coding of the target student began when the teacher announced the commencement of the session. Using

this method of interval recording 6 observation codes were entered each minute (Appendix J). All physical activity was coded (A) unless it was activity in which the individual was more vigorously active (e.g. running, hopping, skipping, jumping). In this case the recording would be activity fitness (AF). These were the main criteria that needed to be distinguished in this study. Other coding criteria are explained in Appendix J. Following the activity session the total percentages of activity fitness, as well as the other defined behaviour was calculated. Individual children were systematically recorded during the daily fitness sessions, at recess and at lunch break.

Systematic observation can be carried out in a variety of ways. The establishment of observer reliability in this method is achieved by using the inter-observer reliability formula. This involves two or more independent observers watching the same episode of action and separately recording the significant occurrences. The observers then calculate the percentage of agreements using the formula illustrated in Table 3. Prior to the observation observers should qualify the coding definitions to an acceptable format and through discussion eliminate any conscious or unconscious bias that one or other observer may hold. They must be sure that coding reflects what actually occurs and not what the observers would like to see.

Table 3

Calculating inter-observer reliability

$$\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100 = \% \text{ of Agreement}$$

Example : If the two observers agreed 96 times and disagreed 4 times the percentage agreement would equal 96%.

8. Heart Rate Monitoring

Heart rate monitoring was conducted using the Polar 4000 which is a light weight transmitter with a wrist watch receiver. The selected student (the same student who had been randomly selected to be observed) would then have the heart rate monitor fitted to them by the researcher. If a girl was selected, the transmitter which is fitted around the chest next to the skin, was fitted by a female teacher or with the help of a friend. The receiver is a microcomputer worn on the subject's wrist like a watch. The receiver would be set and fitted to the student's wrist by the researcher. To coincide with the monitoring, the activity level of the selected student was recorded by the researcher using the ALT-PE method detailed in the earlier section. The selected children wore the monitor for the fitness session and kept it on to record their heart rates during recess and lunch break. This information was particularly useful to correlate with activity codes of the same subject in order to match patterns of activity and corresponding heart rate responses.

9. Documental Evidence

Teacher's logs are included in the WASPAN teachers physical activity manual and provide a record of the fitness activities the class had completed and a record of how long each session lasted (Appendix K). There is a separate log for each term with a space for each day's activity. The logs provided the researcher with a record of how much of the programme each teacher had been able to cover and how much time they had allocated to the programme.

At Eastwick school there was additional documental evidence in the form of End-of-the-Year Reports. These reports were completed by the children themselves and then signed by the teacher and principal. These reports included a section for fitness (see Appendix L).

10. Fitness Testing

Fitness testing is a method of performance analysis and a crucial step in the eventual self monitoring of fitness levels by individual students (Corbin, 1987). Of the 6 tests detailed in the Australian Schools Fitness Manual, 3 tests were chosen because of their potential to be influenced by a systematic fitness programme rather than discriminate in favour of individual genetic capabilities. The 3 test items chosen were:

sit and reach	-lower back and hamstring flexibility
sit-ups	-abdominal muscular strength and endurance
1.6km run	-cardiovascular endurance

The tests are detailed in the Australian Schools Fitness Test manual (Pyke, 1986).

Their administration is detailed in Appendix M.

Design

The following section details the design of the study. It describes the methods that were chosen in consideration of the research questions and recognising the constraints of the school and home contexts. Certain methods of data collection overlap and may provide answers to more than one research question. The methods of data collection are outlined for each group involved in the study. The research questions are then addressed together with the methods used to answer these questions. The procedure contains details of the order in which the data was collected.

The Children

The children in both classes were given questionnaires at the beginning of term 3 and again at the beginning of term 4. These questionnaires (Appendix C) contained mostly multiple choice questions except for two questions which allowed space for the children to estimate the time they spent engaging in activity and sport out of school time. These two questions are applicable to research question 1. Other questions concerned the children's attitudes towards sport and physical activity as well as the WASPAN physical activity programme and are applicable to research questions 2 and 3. The children were surveyed once in term 3 and once in term 4, to find out their attitude towards the different activities that comprised the WASPAN physical activity programme. This was accomplished using the "happy faces survey" which is included in the WASPAN teachers manual for all teachers to administer during the year. The survey included activities that regularly featured in the WASPAN programme as well as any others the teacher may have included.

In response to research questions 1, 2 and 3, observations recorded as field notes were taken of the children's activity during the fitness sessions and in their

free time during the researcher's weekly visits throughout terms 3 and 4. These notes, as well as conversations with the children, helped to validate the information supplied by the children in the questionnaires, surveys and the activity diaries.

Activity diaries (Appendix H) were completed over a one week period in the last week of July in term 3, and for a two week period (last two weeks in November) in term 4. This was done to establish a picture of the kinds of physical activities the children engage in during their free time and for how long they spend engaging in them (research question 1). After the activity diaries were administered to the children the researcher carefully explained the correct method of completing them.

With regard to research question 4, the children's fitness levels were tested in term 2, and again in term 4. All changes in fitness levels of the children could be seen from these results. Based on the results of the first fitness tests, the target children were selected.

At the morning fitness sessions in school the researcher used random number tables to select different children to monitor their levels of activity and heart rate. The selected students would continue to wear the heart rate monitor after the activity session to record their heart rate during the recess and lunch periods. This information was particularly useful to correlate with activity codes of the same subject in order to elicit patterns of activity and corresponding heart rate responses. Activity levels of the children in their free time could be observed and monitored by this method.

The Target Children

The target children were observed during periods of activity and free time in school. They were interviewed at the end of term 4, and their parents were also interviewed. This additional information enabled the researcher to produce a more detailed description of these individuals and therefore gain an insight into the factors

that influence their attitudes and values concerning health related fitness and ultimately guide their behaviour.

The Parents

The parents of the children in the study in both schools were sent questionnaires to find out their activity levels. The parents were asked to respond to questions concerning their attitudes towards the value of physical fitness and physical activity (Appendix D). This questionnaire relates directly to research question 7. Parents of the eight target children were interviewed in term 4 to find out more detailed information on these same areas and to establish the kind of support the home environment provides. Because these interviews were with the parents of selected high and low fitness children, differences and patterns between and within the two groups could be explored.

The Teachers

The two teachers were observed throughout the study. Field notes were documented following any relevant conversation with the teachers.

In the first week of September (term 3) the researcher asked each teacher all the questions on the WASPAN fitness programme evaluation questionnaire (Appendix F) and recorded their responses. From this, a number of semi-structured interview questions were constructed to ask the teachers at the end of term 4 (Appendix N).

The Principals

Research question 6 concerned the principal's attitude towards physical fitness as well as the WASPAN physical activity programme and its place in the

school curriculum. Casual conversations held with the principal of each of the two schools were recorded as field notes. In term 4, interviews were conducted with each principal in order to acquire information concerning research question 6 (Appendix N).

Research Questions (RQ) and Methods of Data Collection

RQ 1. What physical activities do the children in the WASPAN physical activity programme engage in, and how much time do they spend engaging in these activities

- a) in school
- b) out of school?

The children's activities in school were assessed by means of: observation, activity diaries, questionnaires, teachers logs. Target children were also interviewed and their heart rates monitored.

Observations were made from the time the researcher began the study in Term 3 and were documented as field notes during the weekly visits.

Activity diaries (Appendix H) were completed in term 3 and in term 4. In term 3 a 7 day period was used. On the second occasion a 14 day period was used. These diaries recorded activity sessions which were not part of the normal school timetable. The diaries recorded each period of activity lasting 10 minutes or more in which time the child was exercising at an intensity which made them huff and puff and perspire a little. In order to take into account any seasonal differences in activities undertaken by the children, the data was collected on four separate occasions at the beginning and end of each term (3 and 4). From these, the target student's activity levels could be seen in the general class context.

Questionnaires (Appendix C) were distributed to all children and were completed in class, once in August (mid programme) and again in December (end of programme). Teacher's WASPAN log sheets were another source of data and together with discussions with the teachers, formed an important picture of the student's activities. Changes in quantity and intensity of activity were compared with pre-intervention levels (measured by the teachers as part of the WASPAN programme in term 1).

The target children were interviewed concerning the physical activities in which they participated. Their activities were closely monitored to determine frequency of intensive activity (heart rate above 140 b.p.m.) and these were related to activity coding (Basic ALT-PE, Wilkinson & Taggart, 1985).

Children's activities out of school were recorded by activity diaries, questionnaires and interviews. In-school activities were recorded using field notes, activity recording, heart rate monitoring, happy face class survey and interviews.

RQ 2. What attitudes to sport and physical fitness do children in the WASPAN programme have?

This information was collected from questionnaires, interviews with target children, informal discussion and observations recorded as field notes. Informal discussion and observations occurred throughout the study and reflected the children's feelings about physical activity and fitness. Questions concerning sports and physical fitness are included in the student questionnaires. Because these were distributed to all children in August (mid programme) and again in December (end of programme) the results could be analysed to determine if there were any change in children's attitudes over this five month period.

RQ 3. What attitudes towards the WASPAN programme do children in the WASPAN physical education programme have?

This information was collected from the following sources: semi-structured interviews, informal discussion, 'happy face' class survey (Appendix B), and questionnaires. The semi-structured interviews were held with the target children only.

Informal discussion and observations throughout the study provided information concerning the children's feelings about the WASPAN programme. The happy face class survey was administered at the beginning and end of each term (terms 3 and 4). These surveys gave an immediate response to the children's attitude towards the different components of the physical activity programme.

The student questionnaire also contained questions concerning this research question. Because these were distributed to all children in August (mid programme) and again in December (end of programme) the results could be analysed to determine if there were any changes in children's attitudes over this five month period.

RQ 4. What levels of physical fitness (as measured by the Australian schools fitness test criteria) do the children in the WASPAN physical education programme have at the middle and at the end of the programme?

All students were tested for lower back and hamstring flexibility (sit-and-reach test), abdominal muscular strength and endurance (sit-ups test) and cardiovascular endurance (1.6km run). These tests were carried out in term 2 and 4 using the protocol described in the Australian Schools Fitness Test manual (Pyke, 1986). This protocol is described in Appendix N. From these tests students, teachers and parents were able to compare levels of fitness with national norms as well as

gaining information on individual progress.

RQ 5. What attitudes does the teacher have towards:

- a) The place of the WASPAN physical education programme in the school curriculum?
- b) The implementation of the WASPAN physical education programme?
- c) The benefits of the WASPAN physical education programme to the children?

This information was collected through a number of informal discussions and interviews with the teachers. A formal interview was held in term 3 and another in term 4. Any changes they may have seen in the children's attitudes, activity levels and performance before, during and after the programme were recorded. Teachers were questioned as a part of the interview process using semi-structured questions (Appendix O) which were developed from the earlier questionnaire (Appendix F).

Additional information concerning the teachers' commitment and enthusiasm towards the programme was collected from the teachers logs (Appendix K) at the end of each term.

RQ 6. What is the attitude of the principal towards physical fitness and the place of the WASPAN physical education programme in the school curriculum?

The principals' views were clarified during semistructured interviews which took place early in the fourth term. The enthusiasm and support of the principal for such a regular and 'time-consuming' programme can determine whether or not the innovation succeeds. The progression of the programme from the first stage of surface change to becoming institutionalised in the school curriculum is critical. The questions to the principals concerned their (school) philosophy and the place of physical activity in that philosophy.

RQ 7. What are the activity levels of the parents of children in the WASPAN physical education programme and what is their attitude towards physical fitness?

Questionnaires were sent to parents early in the third term. The questionnaire targeted the level of parental activity and the support that parents gave to their child's activities and the school physical fitness programme. This questionnaire was phrased in a short, clearly presented format. The questionnaire items required the circling of the respondent's choice of answer, or gave a place to write an alternative response (Appendix D).

The target children's parents were contacted by letter in November (Appendix G). Interviews were arranged either at the school or at the parents' home at the convenience of the parents. This semi-structured interview involved questions concerning the value placed on activity and support of the children's activity in terms of: transport, financial support, watching sports, role modelling, diet, healthy life-styles and other parent determined areas.

Procedure

The procedure describes the steps that were followed in conducting the study and the sequence in which they were performed. Although it repeats methodology explained earlier it gives the reader the chronological order of events and explains how the study progressed. A summary is outlined in Table 4 on page 64.

Term Two (April 29-July 5)

Working as a research assistant for the WASPAN project, the researcher spent the second term of 1991 visiting the nine primary schools in Perth that were taking part in the physical activity component of the WASPAN project. The classes were all Year 6, as this corresponded with the WASPAN target age group (11 and 12 year olds). Heart rate monitoring and ALT-PE recording was conducted at these schools. Written observations (field notes) were also made of the exercise sessions. When the design of this case-study was finalised and approved two schools were chosen based on the socioeconomic location of the school and the approval of the principals and year 6 teachers.

On June 10th at Eastwick and June 12th at Grove Hill fitness testing was carried out. The protocols for the fitness testing followed the guidelines detailed by the Australian Schools Fitness Test (ASFT). Of these three tests only the 1.6 kilometer run forms part of the WASPAN programme. The protocol for the administration of these tests are explained in Appendix M.

As a result of the fitness testing in June, high and low fitness children were identified for more intensive study. Based on the national percentile ranges from the Australian Schools Fitness Test Manual (Pyke, 1986), the target children were identified as being of either high or low fitness. High fitness was determined as being above the 80th percentile in two of the three tests (administered in June). Low fitness was determined as being below the 20th percentile in two of the three tests.

Term Three (July 22-Sept.27)

At the commencement of term 3 extensive field notes were taken during every school visit until the end of the study (the end of term 4). The visits were scheduled to observe a variety of daily activities in the WASPAN manual. The teachers did not necessarily adhere to the manual due to assemblies, wet weather and occasionally substituting one activity for another.

On July 25th at Eastwick and July 29th at Grove Hill, the Year 6 children took questionnaires home to their parents with accompanying letters (Appendix D & E). Return envelopes addressed to the school were included and most of the questionnaires were returned within 5 days. The results are displayed in chapter 4 and discussed in chapter 5.

On August 1st at Eastwick and August 2nd at Grove Hill children's questionnaires were administered (Appendix C). The researcher gave the children clear instructions to enable them to complete the questionnaire. This has been previously explained in the instrument section.

On Friday 25th of July at Eastwick and Monday July 29th at Grove Hill the researcher distributed activity diaries (Appendix H) to the Year 6 students. The diaries were designed for a consecutive 7 day period which began on the day they were first distributed. The correct method of filling in the diaries was carefully explained to the class and the researcher wrote up on the board the three main criteria for the diary entries. This criteria was the same as for questions 5 and 6 in the student questionnaire. The children were encouraged to ask questions about the different activities that might be included in the diaries and the researcher clarified them using the three criteria stated.

A questionnaire was conducted with the teachers on September 2nd at Grove Hill and September 4th at Eastwick. This questionnaire is included in the WASPAN

teachers manual (Appendix F). The researcher read the questions to the teacher at each school and recorded the teacher's responses allowing the teachers to see the recordings.

The happy faces class survey supplied by the WASPAN programme manual is designed to ascertain the children's preferences for the different activities they have been taking part in. The first of these surveys took place at the end of the third term (September 18th at Eastwick and September 19th at Grove Hill). The children were asked by the teacher to think about the activities they had been involved in during their fitness class that term. The teacher wrote these up on the board. The children were told their possible choices were: "love", "okay" or "hate." The children were then asked to close and cover their eyes with one hand and raise their other hand in response to the teacher calling out the choices. By closing their eyes the children were not biased by their classmate's responses. The results were written onto the board and transferred onto a chart (Appendix B).

Term Four (October 14-December 18th)

A second happy faces class survey was completed on November 3rd and November 6th at Eastwick and Grove Hill. The procedure for this was exactly the same as the previous happy faces survey conducted in September (see term 3).

On November 11th at Eastwick and November 12th at Grove Hill, letters were sent home with the target children (previously identified as either high or low fitness). All the target children's parents agreed to be interviewed. Interviews were conducted with parents from both schools between November 19th and November 26th. These interviews were either held at the school in the staff room, or at the parents home depending on the parents preference. All the parents agreed to the interview being tape recorded.

The Grove Hill principal was interviewed on November 14th and the Eastwick principal on November 15th. These interviews were conducted in the respective principal's offices at their schools.

The second set of activity diaries was administered on November 16th at Eastwick and the November 18th at Grove Hill. Details of the appropriate method for completing the diaries were again explained to the children. On this occasion, a two week period was used to account for any dramatic abnormality which might have occurred in a shorter time scale (e.g. a week of rain). The other change from the first set of activity diaries was that on this occasion the children's parents were asked to sign each day's activity entry as a true record of the activity the child had engaged in.

The class teacher interview was arranged for term 4 at the convenience of the teacher. The interviews took place on November 26th with Ms. Thomas at Eastwick and on November 18th with Mr. Kent at Grove Hill. The interviews were tape recorded, and a copy of the transcription was shown to the teachers. Both teachers declared it to be an accurate representation of the interview.

The second set of fitness testing took place on November 26th at Eastwick and November 27th at Grove Hill. The testing was organised and administered in exactly the same way as the original testing carried out in June (Appendix M).

The target children were interviewed late in term 4. The Grove Hill target children on December 3rd and 4th, the Eastwick target children on December 10th and 13th. These interviews were developed on semi-structured questions and with the permission of the children, were tape recorded. The tape was played back to each child following the interview and each child agreed the recording to be a true record of the conversation. A final questionnaire was administered to the class on December 9th at Eastwick and December 10th at Grove Hill.

Table 4 displays the chronological procedure of the data collection term by term.

Table 4

Chronological Procedure of Data Collection

Term 2	<ol style="list-style-type: none"> 1. All Year 6 classes in the 9 WASPAN physical fitness schools are visited by the researcher. ALT-PE recordings and heart rate monitoring carried out on children in the fitness sessions. 2. One school is selected from a high socioeconomic area and one from a low socio-economic area. 3. Both Year 6 classes are fitness tested using the selected tests from the Australian Schools Fitness Test. 4. From the data collected in the fitness tests target children within the 2 classes are selected.
Term 3	<ol style="list-style-type: none"> 1. Questionnaire administered to Year 6 children in both schools. 2. Parents of Year 6 children sent a questionnaire. 3. Activity diaries completed with year 6 children for 7 day period 4. Observations of the target children are made; informal discussion with children.
Term 4	<ol style="list-style-type: none"> 1. Teacher questionnaire administered. 2. Happy faces class surveys conducted. 3. Parents of the target students interviewed. 4. Re-administer activity diaries to the children. 5. Fitness test both classes again. 6. Class teacher interviews. 7. Happy faces class surveys conducted. 8. Target student interviews. 9. Final student questionnaire administered.

Data Analysis

It is important when conducting descriptive case study research that the researcher is careful to avoid interpretations being prematurely overstructured by theory or previous research. The researcher must be ready (perhaps more than in other kinds of research) to accept the possible uniqueness of the various settings, groups and individuals studied (Wilson, 1977). A careful distinction must be made between fact and opinion, as with other forms of research, and all conclusions drawn only from the population and circumstances for which the evidence has been collected.

It is important to be as systematic as possible even when collecting descriptive data. The researcher always described the environmental conditions including the weather, time of day and the specific location. All conversations concerning the fitness programme or activity in general were recorded. Field notes were continually reduced by extracting from the original notes all conversations and remarks made by the principals, teachers and children. These were then grouped under their more specific headings. For example, a table of the activities the children engaged in during recess and lunch time was tabulated. Following each fitness session the interval recordings of the target student's activity was matched to the heart rate monitoring data. This reduced the data and provided the class with feedback on the principle of increased activity corresponding to increased heart rate. The fitness testing provided data which was tabulated and then compared with the Australian Schools Fitness Test (Pyke, 1985) National norms. From this, percentile rankings were easily recorded for each child and the target students for more in depth study were identified.

The interviews held with principals, teachers, children and parents were all tape recorded. These tapes were later transcribed into note form and analysed for emerging patterns and themes.

Teacher's logs were checked by the researcher at the end of each term. These logs were completed by the teachers as a record of each activity session completed.

CHAPTER IV

Results

Introduction

This chapter presents the results of the data collection carried out in two schools selected from a total of nine who were taking part in the WASPAN physical fitness programme during 1991. This involved the six month period from mid July, term two week one, until mid December, term four week eight, a total of 18 weeks. Prior to this period of intensive data collection the researcher was employed as a research assistant for the WASPAN physical fitness programme. In this capacity he observed all nine of the schools involved in the programme. Some of the data collected in the two schools later selected for this study has been used. Data at this time concerned levels of activity and heart rates of children during the fitness programme.

The nature of case study research involves focusing an inquiry around an instance. In this study the 'instance' in question is the fitness programme. In order to effectively 'inquire' into the results of the programme's implementation the study has incorporated the school environment and the home situation into its bounded system. The results of the two schools selected for the study have been presented separately as each forms a separate case study. Although it is widely believed that case studies are not a suitable basis for generalisation, Stake (1978) claims: "They may be in harmony with the reader's experience and thus to that person a natural basis for generalisation" (p. 5).

Pseudonyms have been used for both schools, teachers and children in the study. Eastwick primary school was selected as a school in a low socioeconomic area (designated group one in the scale of one to five), while Grove Hill is designated as being in a middle to high socioeconomic area (designated group four).

The chapter is divided into the following sections:

- 1. Results from Grove Hill School**
 - a) The principal**
 - b) The parents of the children in the Year 6 class**
 - c) The teacher**
 - d) The Year 6 class**
 - e) The target children**

- 2. Results from Eastwick School**
 - a) The principal**
 - b) The parents of the children in the Year 6 class**
 - c) The teacher**
 - d) The Year 6 class**
 - e) The target children**

Grove Hill School

Grove Hill Primary School was selected from the nine schools participating in the physical education component of the Western Australian Schools Physical Activity and Nutrition project (WASPAN) for 1991. The school was defined by the 1986 census (Australian Bureau of Statistical Information) as being in a high socioeconomic status area. The student population in 1991 was 220 with 10 full-time teachers, one non-teaching principal, one library teacher and one music teacher. The school is situated in a well established suburb of Perth with expensive housing and a high percentage of professional and middle to older-age parents. This is reflected in the diminishing number of young children enrolling at the school and consequent reduction of staff for 1992. The school buildings are positioned to one side of a large grassed area which includes an oval, a small hockey field and formal gardens. There is a very well constructed fitness (obstacle) course around the perimeter of the school boundary which was built, and is currently maintained, by the parents.

The Principal

The principal at Grove Hill school is a 55 year old male with 30 years teaching experience. He has been working at Grove Hill for 8 years.

The researcher first spoke to the principal in the capacity of WASPAN research assistant on April 9th 1991. It was two months later that the researcher spoke to the principal about the implications of Grove Hill being included in this case study. The principal was positive about the school's involvement in the programme. He stated that the Year 6 class teacher had his complete confidence in all matters involving that class and that the teacher concerned was the "ideal person to be crusading a new physical education programme" (field notes, 10/5/91).

On many of the 27 visits made to the school the researcher spoke with the principal. Besides consulting him on matters including parent questionnaires and school and home-based interviews there were also several more informal discussions.

The principal showed a caring manner towards the children as demonstrated by his interest in them around the school. He would be seen stopping, stooping to their height and talking to them (field notes, 5/8/91 & 22/10/91). He mentioned that the school was changing its curriculum emphasis all the time but the basic responsibility of the school and the staff was still to the individual (interview, 14/11/91). He made the comment:

In the primary schools we are still looking at the individual. Trying to ascertain the individuals' strengths and talents. Yes, they still need the basic reading, writing and mathematical literacy, but what other talents do they have? Maybe it's artistic, or sporting, or musical. Whatever it is, the primary school has to recognise it and begin to nurture it. This is in some way due to the emphasis on vocational education in the high schools now (field notes, 31/10/91).

This theme was again emphasised during the interview when the principal related the school ethos as simply "the best possible education appropriate to all children and their abilities and interests" (interview 14/11/91). He explained that because of this ideal, the school was stretched to its limits in providing a programme which catered adequately for all the different strengths and weaknesses of the children. He mentioned that Grove Hill had a tradition in music which had developed over a 10 year period. At the same interview he commented: "The parents and the school tradition have determined that the school has a music specialist, ...most schools opt for the music specialist; its a shame we can't have all three" (art and

physical education and music).

What is the Attitude of the Principal Towards Physical Fitness?

The principal appeared to have a genuine interest in fitness. The researcher would arrive at the school on a bicycle and this was commented on by the principal. He discussed intensity and duration of exercise with the researcher and decided that his regular gardening at the weekends was not enough to keep him fit during the term (field notes, 23/7/91). It transpired from a later conversation that the principal was a keen walker, and spent a large proportion of his holiday time walking in Australia and overseas. He supported physical education in the school and was keen to emphasise the non-competitive aspect of sports. "There is an emphasis on participation rather than competition. The broad aim is to develop children in a holistic way. A balance including their physical development is a very important part of this" (interview, 14/11/91).

The school held occasional inter-school sports fixtures, and it depended on the teacher/parent expertise available as to what sport was played. The principal relied heavily on the parents who took most of the sports coaching responsibilities. One parent held athletics coaching sessions before school and at weekends. Netball and cricket were also taken by parents. The principal remarked: "the kids obviously enjoy these activities as they attend voluntarily" (interview, 14/11/91).

Parents had also played the major role in the planning and building of the fitness track, or obstacle course, which surrounds the school's playing fields. This course was devised and built by the parents at minimal cost to the school. In another project, children ran a lap-a-thon to raise money for playground equipment. Neither of these projects was initiated by this principal.

The principal explained that the teachers were aware of the importance of

fitness. "The fitness is a daily thing, that's very important. There has to be activities that are challenging, yet that the children enjoy and can cope with. Daily fitness is built into the programme" (interview, 14/11/91). Here the principal was talking about morning fitness, which observations showed the other classes in the school performed somewhat infrequently. On the occasions when classes did come out, there was very little sustained physical activity taking place. Discussions with other teachers at recess, highlighted a general lack of motivation towards fitness. "I do as much as I can with them. Considering the weather we've had lately, I don't think we've done badly" (Year 5 teacher, field notes, 4/9/91).

The principal saw the real area of concern to be in skill development, claiming: "It's the skills, and this is where we could benefit from the expertise of a specialist. You need the skills before you can play the games. Many classroom teachers, they don't have the expertise to teach the skills. Sometimes they don't have the skills themselves but bundle along. A specialist would know the correct way (of teaching skills)" (interview, 14/11/92).

The principal mentioned that there was insufficient support for the teachers in physical education from the Ministry now that advisory teachers had been withdrawn. Although third year student physical education teachers came into the school from the nearby University their lessons were rarely observed by the class teachers. The principal admitted that he usually scheduled staff meetings when the students came in (interview, 14/11/92).

The principal thought that 'games', could be played in the children's free time both inside and outside school. " With daylight saving there is more time for children to be active after and outside school hours" (field notes, 23/9/91). During one particular fitness session, the principal approached the researcher and mentioned that the activity level of the children made him feel that he should be doing

more activity himself (field notes, 23/9/91). In another situation the principal declined a second biscuit at morning tea in the staff room. He looked over at the researcher and said "no, I shouldn't be having another biscuit, should I?" (field notes, 26/8/91).

In summary, the principal thought children should "receive more fitness activities to prepare them for out of school time", but he was unsure of the expertise of the staff and their ability to be able to teach it effectively (interview, 14/11/91). "It needs to be worked into the school development plan and put to the school decision making group, who should take it on board. This year the focus has been on maths, but next year who knows, it's a very real concern" (interview, 14/11/91).

The Principal's Views on the WASPAN Physical Education Programme, and it's Place in the School Curriculum.

The researcher spoke to the principal about the WASPAN project during his first visit to the school (9/4/91). At this time the researcher was working in the capacity of research assistant to the WASPAN project. The principal was supportive of the programme. He later commented that he thought it was "a balanced and complete package. The sort of things that teachers like" (field notes 4/9/ 91). During the interview in November, the principal told the researcher that he felt the programme had been very well received. "I think because it was initially well presented and organised. People came in and explained it very clearly and having the in-service going as well was worthwhile."

The principal explained that he was confident in the Year 6 class teacher's ability to pursue the programme and that being an active sportsman Mr Kent was a

good role model for the children. He also felt that the teacher's confidence was maintained because the programme had been well-presented and explained. "Mr Kent is a good person to be doing it, because he sees it as valuable, and he's a good role model. The children have certainly enjoyed it. I think it has given them something to look forward to" (interview, 14/11/91).

The researcher asked for the principal's views on the development of a physical education programme such as the WASPAN at Grove Hill. "I think this kind of programme (WASPAN), will quite clearly become institutionalised. It is the sort of thing teachers like. It would appeal to teachers. I think that one way of doing it is with Mr Kent, because he's had the experience, he would be the resource person for the school as I see it. He's the coordinator of the school bike ed. programme. You need one person who really understands and he's been on the in-service" (interview, 14/11/91).

The principal told the researcher that he would like the teachers to receive more support from the Ministry. "There are no advisory teachers any more. They were excellent in so far as they would take a class but also give ideas to the classroom teacher to use. I thought they were especially useful in physical education. That was valuable in-service training on the spot which seems to have gone" (interview, 14/11/91). One area of in-servicing that the principal had not taken up was the feedback from the class teacher on the two WASPAN inservice courses. The principal explained that following any inservice course the teacher usually reported the event to the other staff members at the next staff meeting. Mr. Kent had not done this following the two WASPAN in-service courses early in term one (February and March).

Besides timetabling problems, the principal also acknowledged the fact that most teachers were expected to be experts in each and every subject area, and most

The Results of the Grove Hill Parental Questionnaire (continued)

Q.3	Where born:	W.A.	= 9
		Other States	= 5
		Overseas	= 6

	NO	YES	MEAN
Q4			
In the past 2 weeks did you engage in vigorous exercise, i.e. exercise which made you breathe harder or puff and pant?	12	8	383 mins.
Q5			
In the past 2 weeks did you engage in less vigorous physical exercise for recreation, sport or health-fitness purposes which did not make you breathe harder or puff and pant?	3	17	4.5 times
Q6			
In the past 2 weeks did you walk for recreation or exercise?	5	15	3.6 times
Q7			
In the past 2 weeks did you engage in vigorous activity, apart from exercise, which made you breathe harder or puff and pant?	10	10	23 times
Q8			
How fit are you?			

VERY FIT	QUITE FIT	AVERAGE FITNESS	NOT THAT FIT	NOT FIT
1	2	7	9	1

Q9 How important do you consider fitness to be to your own lifestyle?

VERY IMPORTANT	QUITE IMPORTANT	AVERAGE	NOT THAT IMPORTANT	NOT IMPORTANT
6	6	8	0	0

Q10 How important do you consider fitness to be to your children's lifestyle?

VERY IMPORTANT	QUITE IMPORTANT	AVERAGE	NOT THAT IMPORTANT	NOT IMPORTANT
9	7	4	0	0

Q.11 Are there reasons preventing you from exercising more?

1. Time	11
2. Weather	3
3. No partner	2
4. Costs	2
5. Medical reasons	4
6. Rather not	3
7. Other	4

Questions (4-11) indicated that 3 (15%) of the parents had taken no exercise of any kind during the preceding 2 weeks. They did not walk for recreation or exercise or take part in vigorous or less vigorous exercise.

Seven males and 8 females (total 75%) stated they had walked for recreation or exercise during the preceding 2 weeks.

Seven males and 1 female (40%) exercised regularly at a vigorous level, i.e. at least 3 sessions a week at an average of at least 20 minutes each session.

A higher percentage of males (64%) were exercising at a vigorous intensity than the females (11%). Of the females, 8 (89%) were exercising at a lower frequency for 6.3 sessions per week. Of the males, 9 (82%) were exercising at a lower frequency, an average of 2.7 sessions a week.

Seven respondents, (35%) thought they were of average fitness, while 3 males (27%) and no females rated themselves above average fitness. 4 females and 6 males rated themselves below average fitness (50%).

Seven males and 5 females (60%) thought fitness was of above average importance to their own lifestyle. Six males and 3 females (45%) thought fitness was very important to their children's lifestyle.

The main reason parents gave for not exercising more was 'time'. A total of 11 (55%) stated this reason. The next most common response was medical reasons

(20%). Three parents stated they were "too lazy" and one responded "poor habits developed lately".

In 1990 the National Heart Foundation released the results of a national survey conducted in 1989. The Risk Factor Prevalence Survey (RFPS) gives a picture of the level of risk factors in Australia and this includes levels of activity. The limited results from the Grove Hill compared favourably with the national figures (9309 respondents). Only 15% of the Grove Hill parents recorded no exercise of any kind during the preceding 2 weeks of the questionnaire compared with 27% nationally. Seventy five percent of the Grove Hill parents said they had walked for recreation or exercise during the preceding 2 weeks compared with 55% nationally. The percentage of people who said they exercised at a vigorous level i.e. at least 3 sessions a week at an average of at least 20 minutes a session was 85% from Grove Hill and 40% nationally.

The Class Teacher

Mr. Edward Kent is the class teacher at Grove Hill Primary School. A teacher with 15 years experience, Mr. Kent appears very relaxed and comfortable in the teaching situation. Mr. Kent has an ecto-mesomorphic build and would be considered moderately active, playing soccer every Sunday and training one evening a week as well as cycling and occasionally playing golf. During the 1990 academic year Mr. Kent had been involved in the nutrition component of WASPAN.

The researcher met with Mr. Kent at both of the WASPAN in-service meetings (12/2/91 and 7/3/91). Subsequent contact was made at the school twice during the first term in the capacity of research assistant working with the WASPAN project.

For 1991 Mr. Kent had scheduled the practical fitness programme into the time table from 10.15 to 10.30 every day. The 6 lesson theoretical component of the fitness programme was scheduled to be taught during the health education hour on Wednesday afternoons, starting in mid February. This 6-lesson component has been designed to provide a rationale to support the practical element of the programme.

The following narrative has been compiled from 27 meetings with the teacher over a 20-week period. Twenty-one visits were made to the school to observe and record the fitness programme and the morning and lunch breaks. On five of these visits the fitness programme did not take place, on two occasions due to wet weather, and on three occasions the teacher explained the children had too much class work to finish. The remaining six visits made to the school were to administer or pick up completed questionnaires, arrange parent interviews, conduct the happy face survey and interview the teacher and the principal. On each of these occasions the researcher spoke with the teacher for differing periods of time ranging from 3 to 40 minutes. Any significant comments made by the teacher were recorded as field notes during these visits. The interview with the teacher on the 18th of November was recorded on audio tape and later transcribed.

What Attitude does the Teacher have Towards: the Place of the WASPAN Physical Education Programme in the School Curriculum?

Mr. Kent related the place of the fitness programme in the school curriculum to his philosophy of priorities. He said: "is spelling more important than fitness? It comes back to the age-old dilemma of time on the time table to cover everything adequately" (interview, 18/11/91). He found that earlier in the year there was less pressure on teachers and they had more freedom to allocate their time in class as they wanted. However, he said that "by mid year there are reports, parent open

days, this and that and everyone screaming more mathematics, more English, more writing!" (field notes, 14/8/91). He said the WASPAN in-service meetings had been useful in giving teachers the positive start they needed. Also he remarked that the manual was a good resource and gave information about "where the kids should be for their age in the 1.6 kilometer run, and kids like to know that" (field notes, 25/7/91). On one occasion he remarked: " they seem to be taking the competition out of the schools these days. But kids like to compete" (field notes, 5/11/91).

During the interview (18/11/91) the researcher asked how other teachers might receive a programme based on similar lines to WASPAN, and whether or not he thought there was a place for a higher profile for fitness time in the school. Mr. Kent thought that several staff members would complain if too much emphasis was placed on fitness, explaining:

We would need to educate them. Most of the staff wouldn't have a clue about this programme (WASPAN), but I think they should be starting something more organised from year one. By year six it should be 20 minutes every day, with 15 minutes of that, flat out. It takes 5 minutes getting out there, putting out cones, putting kids in teams and explaining what they have to do.

(interview, 18/11/91)

Ideally, Mr. Kent believed that in addition to 20 minutes of fitness each day, there should be 2 x 30 minutes of gross motor skill development each week in order to concentrate on team game skills. This culminates with the one hour of sport on a Friday afternoon. Currently there are no physical education lessons. Mr. Kent stated "the school is geared towards music and with a mathematics priority for 1991 physical education gets the short straw. This has been the philosophy of the school for some time" (interview 18/11/91).

What Attitudes does the Teacher have Towards: the Implementation of the WASPAN Physical Education Programme?

The response to this question has been divided into the 4 school terms in order to show the clear development of the teacher's attitude towards the implementation of the physical education programme during the course of the study. Most of the information was collected during terms 3 and 4, when the researcher completed more frequent field notes.

Term 1.

During earlier talks Mr. Kent appeared quite committed to the fitness programme, following the scheduled activities more or less as they appeared in the teachers' manual. On an early visit in term 1, week 11 he explained "the kids are really getting into this programme, they get quite competitive with activities like this shuttle run" (field notes, 9/4/91- term 1, week 11). On this occasion only the girls completed the leger(shuttle) before the rain became too intense to continue. When the boys heard they wouldn't be going out to run they moaned and complained. One boy actually cried.

Analysis of the teacher's log for this term showed that if there had been any wet weather the teacher had written 'rain' and no activity. Health hustles were never attempted and the teacher later admitted that the class didn't usually participate in any fitness if they couldn't go outside. Simple relays were usually substituted in place of activities such as health hustle. The duration of the sessions had all been '15 minutes' according to the teacher's log.

Term 2.

By the start of term two Mr. Kent was still using the activities from the

WASPAN manual but he no longer consulted the manual for the sequence of activities. On a visit made to the school in term 2, week 7, the teacher revealed that he had disregarded the programme manual in favour of choosing his own activities to suit the occasion. He was actually using the manual on this occasion to remind himself of the procedure to be followed for the 1.6 kilometer run. "I only really use this (teachers' manual) now to jog my memory about something or to get the National percentiles" (field notes, 12/6/91). Mr. Kent said he hadn't completed the teacher's log this term because there had been so much disruption. He added; "such a lot of other things going on. Most of them [children in his class] have been involved in the music concert and that's taken up a lot of time"(field notes, 12/6/91).

Three visits were made by the researcher this term, and only on the first occasion did the teacher follow the teachers' manual. On this occasion it had been arranged with the teacher for two researchers to be present at the fitness session to check recording reliability. This session lasted 20 minutes. The two subsequent sessions observed this term, ran for 10 and 12 minutes each.

Term 3.

By the third term, when field visits became more frequent, it became increasingly difficult to contact Mr. Kent in order to arrange visits. By the second visit in term 3 (week 2), the researcher suggested that he should visit the school without making an appointment. Mr. Kent was a little wary of this arrangement saying; "well, if you come in and we're not doing the fitness it's a waste of your time" (field notes, 29/7/91). On the next occasion after this (week 3), the researcher arrived at the school 5 minutes before the scheduled start of the fitness session. The teacher appeared to look rather anxious about the arrival. "Oh good, does this mean

we get fitness?" was a reaction from one child, suggesting the researcher's presence was something of a catalyst for a non-regular work-out.

On the fourth week of term 3, instead of going into the class on arrival at the school the researcher waited on the oval ready to meet the teacher and class as they came out for their scheduled 10.15 fitness session. When nobody had appeared by 10.20 the researcher went into the class where he was told: "I think it's too wet, so they're carrying on with their projects". The teacher was asked if the class ever did inside sessions, to which the teacher answered: "we don't bother doing anything inside, it's too much trouble moving desks, and by the time that's done it's time to move them back again. Then we have to hunt down a cassette recorder and find the tape, so we usually don't bother. You should have come in on a dry day" (field notes, 9/8/91).

Mr. Kent continued to lose enthusiasm for the programme. His teacher's log was not kept up to date and he explained that it was "not realistic" (field notes, 9/8/91) to spend the time the programme required to keep to the schedule of activities. "You know we have all these other projects to work on. Tomorrow the kids have to give a presentation to the rest of the school on the underwater theme, so that takes precedence" (field notes, 9/8/91). This was another occasion when the researcher had arrived to observe a fitness session which was cancelled. By the end of the third term it had become obvious that the teacher was no longer following the scheduled activities from the WASPAN teacher's manual, even as a reference guide.

In week 6 of the third term the researcher visited the class to find a relief teacher taking written work that had been set. No fitness had been included in the relief teacher's brief. She commented "I could have taken them out for a run or a game I suppose, but I wouldn't know where to start with fitness-exercises" (field notes 26/8/91). On another occasion (term 3, week 9), the researcher waited on the

oval and again entered the classroom at 10.20. Mr. Kent explained "it's been a busy week and they've got behind with their written work. They've got sport this afternoon so they can do without fitness this morning" (field notes 20/9/91). Again there were comments from the children who expected to go out because the researcher had arrived. The following week (term 3, week 10), the class came out at 10.19 for what amounted to 9 minutes of relays by the time the teacher had explained what to do to the class and set them off. Eight minutes later they were getting very confused. Throughout the duration of the relays Mr. Kent was 50 metres away from the children, talking to the researcher and explaining that they didn't really have time for fitness today and the ground was a bit damp, but they had kept on "nagging me" so he brought them out for "a quick 10 minutes" (field notes 23/9/91). No comments were made to the children throughout the relay work until the siren for recess at 10.30.

Term 4.

The fourth term's activities bore no resemblance to the WASPAN programme and the researcher questioned the teacher about this diplomatically during the interview. Mr Kent explained his digression as follows:

I only followed what I wanted to follow. It's not in my nature to follow everything to the letter. The in-service and programme manual gave me a lot of ideas. It also gives an incentive to do something every day. After the in-service I went back and followed everything from the book. There's no way in the world I could continue to do that. You've got to do what you feel like doing at the time (interview, 18/11/91).

Mr. Kent had explained that he felt that his strengths were in getting the kids moving, running and keeping active and "not in the hustles and things like that" (field notes 5/8/91). This supported earlier observations that health hustles were never taught. Later he commented on the same theme, "The activities became repetitive for some kids. I might say; 'O.K. time for fitness', and some kids would moan...It's difficult to be continually creative in 15 minutes. To do something new takes detailed explanation, which can be very time consuming." (interview, 18/11/91). Activities in the fourth term became increasingly similar and repetitive. All sessions involved the minimum of preparation and involvement by the teacher. Continuous running and the obstacle course were the regular activities for the class.

When the researcher asked the teacher why he was no longer following the schedule he explained that he found that the class enjoyed the relays the most and so he tended to give them more relays than anything else. "They like the relays and I combine them with some coordination skills like skipping, or throwing and catching so they get the benefit of both [fitness and skills]. They got bored with some of the other activities so we scrapped them" (field notes 22/10/91).

No comments were made to the children throughout the relay work until the siren for recess at 10.30. This session perhaps typifies Mr. Kent's enthusiasm for the fitness programme by this stage.

What attitude does the teacher have towards: the benefits of the WASPAN physical education programme to the children?

During the course of the programme the teacher would point out different children and explain how they had shown improvements in their fitness. These improvements were usually in terms of stamina, and a more positive attitude

towards fitness. One example was Wayne, who was being observed by the researcher during the third week of term 4. The children were running laps in preparation for the school lap-a-thon. The teacher said "Wayne has shown a radical improvement since the beginning of the year. He's visibly lost weight and developed a passion for running during the last few weeks" (field notes, 31/10/91). Reinforcing the value of the programme he stated "Generally there has definitely been an improvement in certain children's stamina, and children's attitude towards fitness has been more positive" (interview 18/11/91).

With regards to the fitter children the teacher commented; "the better, fitter kids have definitely improved their ability, but whether or not they would have done so without the programme is difficult to know. They have also gained in leadership and social value. They've been examples to less fit kids who tend to look up to them. They also display an enjoyment of all the activities, regardless" (interview 18/11/92).

The potential of a programme such as the WASPAN to the less fit or 'at risk' children was discussed and Mr. Kent thought that these 'at risk' children had gained the most. "The biggest improvement has been with the kids who couldn't run around the oval and are now doing the 1.6 km. run without stopping. As a result of getting fitter, these kids have improved their self-esteem. Instead of being ridiculed by others for being slow, they enjoy a sense of achievement"(interview, 18/11/91).

The researcher asked if there was a middle group of children who were possibly in danger of being overlooked? Mr. Kent answered:

The middle ones still get enjoyment. It doesn't really bother them, because they don't have to succeed. They know they won't get better than the fit ones, and they know they won't come last. They still feel good if they do well and when they're praised (interview 18/11/91).

Observations taken during fitness testing sessions (12/6/91 and 4/9/91) had indicated that the teacher was motivating a broad cross section of the ability range during the 1.6 km run, but very little praise and motivational communication occurred at other times (general observations).

Mr. Kent did have one difficult child who was a constant discipline problem. Success with this child was for him to finish the exercise session without having caused distress to other children and being excluded from the class. This child demanded a great deal of the teacher's attention. On most occasions when he played up the teacher excluded him from the session and sent him back to the classroom. This boy enjoyed physical fitness but he had very serious problems sustaining his concentration more than ten minutes or so. He sought attention and needed to be continually challenged with varied activities if he was to maintain reasonable behaviour. When this occurred he behaved in an appropriate manner. On other occasions his off-task behaviour usually meant he was sent back to the classroom.

Mr. Kent began the fitness programme in an enthusiastic manner, although he didn't physically join in the activities at any time. By the beginning of the second term he had discarded the WASPAN manual in favor of selecting activities he thought most suitable at the time. These may have been activities selected from his own experience or WASPAN activities modified by the teacher. By the third term Mr. Kent's fitness sessions bore no resemblance to the WASPAN activities. Mr. Kent thought the daily fitness sessions had greatly benefited the children's fitness, which he tended to think of as cardiovascular endurance as measured by the 1.6 kilometer run. He thought that the first two terms was the best time to implement the fitness programme because of less pressure on the timetable at that time.

The Year 6 Class

The Year 6 class at Grove Hill began with 23 children; 14 girls and 9 boys. During the year one boy and one girl left the class.

Situated with the windows looking across the school oval, the classroom was at the end of the block of classes with easy access to the outside areas. Cones, skipping ropes, balls and wickets were all kept in the class room. The tape cassette recorder belonging to the class had been stolen during a break in and a substitute had to be borrowed from another class if it was needed. The sports store was situated at the other end of the classroom block and housed larger pieces of equipment such as mats and gym boxes.

School started at 8.50 and finished at 3.15. The weekly time table included 15 minutes of fitness, scheduled from 10.15 to 10.30 a.m. each morning. This was the last period of class time before the school broke for a 15 minute recess. Every Wednesday a 55 minute period of 'health' was scheduled. This was a knowledge based lesson. On Friday afternoons the last hour of the day was reserved for 'sport'. Sport, as in many primary schools consisted of team games led by the teachers. The sports played were totally dependant on what the teachers could lead. In many cases this involved organising two teams and umpiring.

The class fitness sessions were often disrupted by other school events such as church service and concert practice (these both occurred at some stage during the researchers visits). The timing of the fitness sessions at 10.15 a.m. was quite crucial. Being just before recess might suggest that if the children were still involved in a physical activity the teacher could carry on into recess for a minute or two. In fact the reverse occurred. If the class was working on a project in the classroom at 10.15 the teacher would tell the children to finish it during fitness. When the class did get out for their fitness session, the bell at 10.30 signalled the end of the period and there was never any overlap into the recess period.

The class soon became comfortable with the presence of the researcher, often coming over to talk during recess and lunch break. The children called the researcher the 'fitness man' (field notes, 9/8/91). One problem that arose from this perception was that the arrival of the researcher appeared to be the catalyst for a fitness session to take place. The class teacher often looked surprised at the researcher's arrival and on two occasions several children exclaimed words to the effect; "Oh good, does this mean we get fitness now?" These comments suggested that the fitness sessions were not as regular as suggested in the teachers' manual.

Levels of Class Fitness

The children were tested on 3 measures; the 1.6km timed run was used to measure cardiovascular fitness, the sit and reach test was used to measure lower back flexibility, while sit-ups were used to measure muscular endurance. All testing was carried out according to the Australian Schools Fitness Test protocol as detailed in the methodology. Testing was carried out by the researcher aided by the class teacher. The scores for the three fitness variables are summarised in Table 6. The mean percentile figures indicate the high general fitness level of the class when compared to national averages. The scores for the 1.6km run showed a marked improvement for both the boys and the girls (see Figure 3). The slowest girl improved her time from 11.04 in June to 9.00 in November. The new low of 11.35 is from a girl who ran 11.00 in June and this score is one of two decreases in this test for the girls. The other girl ran 10.04 in June and 11.17 in November.

Table 6

Summary of Grove Hill Children's Fitness Testing Results

Girls Tests	<u>June 1991</u>				<u>November 1991</u>			
	Low	High	Mean	% ile	Low	High	Mean	% ile
1.6km	11.1	7.4	9.2	55th	11.3	6.3	8.2	85th
Sit & Reach	-50	155	7	60th	-20	198	6	55th
Sit-Ups	24	100	64	80th	10	100	55	80th

Boys Tests	<u>June 1991</u>				<u>November 1991</u>			
	Low	High	Mean	% ile	Low	High	Mean	% ile
1.6km	9	6.4	7.4	55th	8.5	5.5	7	85th
Sit & Reach	-60	129	4	70th	-65	123	3	65th
Sit-Ups	24	100	47	60th	32	100	59	70th

There were 12 girls and 8 boys present for both testing days. Means are calculated for each group. 100 sit-ups are maximum. Sit-up scores are maximum number of repetitions. 1.6km run times are in minutes. Sit and reach scores are in centimeters. % ile = percentile.

The mean percentiles indicate the high general fitness level of the class when compared to national averages. The mean scores for the 1.6 km run for both girls and boys were above the national averages in June. At the second testing period in November both girl's and boy's mean scores had improved dramatically. The mean improvement for the girls in the 1.6 km run, was exactly one minute for the five month period. The boys showed a mean improvement of 2.68 minutes in the 1.6 km. run (see Figure 3).

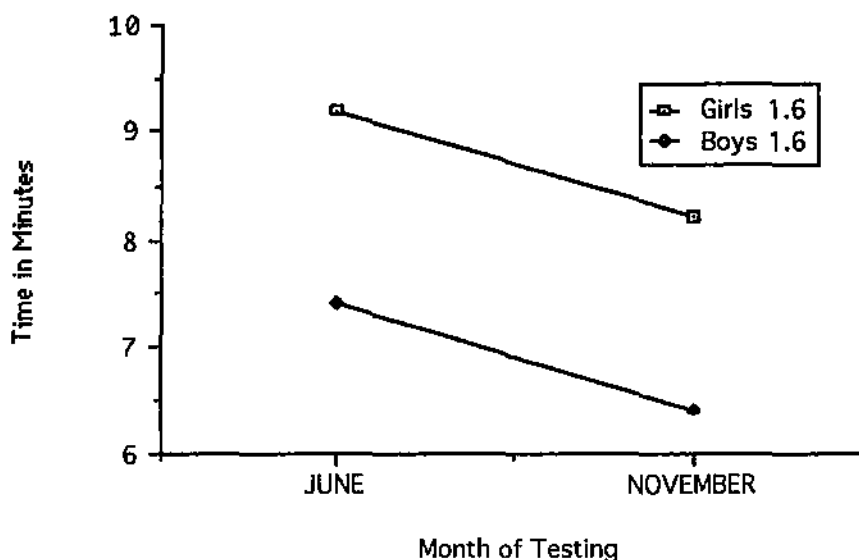


Figure 3. Grove Hill class mean 1.6 kilometer times for June and November.

The slowest girl improved her time from 11.1 in June to 9.0 in November. The new low of 11.3 in November was from a girl who ran 11.0 in June. This girl was asked, by the class teacher, why she had run so much slower than in her previous run. The girl shrugged her shoulders and offered no excuse (field notes 12/6/91). The fastest girl improved from 7.45 to 6.31. The slowest boy improved by 10 seconds between tests, while the fastest boy improved by 48 seconds to record a time of 5.55 in November. This boy lived opposite the school and made use of the school oval to train 3 or 4 times a week specifically for the 1.6 km. run.

Muscular endurance (abdominal) was measured by a cadence controlled sit-up test. Mean scores increased over the 6 month period from 47 to 59 for the boys. The girls mean decreased from 64 in June to 55 in November. This represented a decrease in performance from 7 of the 12 girls tested. However the group mean is

still above the mean individual national percentile score for this test. Figure 4 clearly shows the increase for the boys and decrease for the girls in the data paths of the two groups.

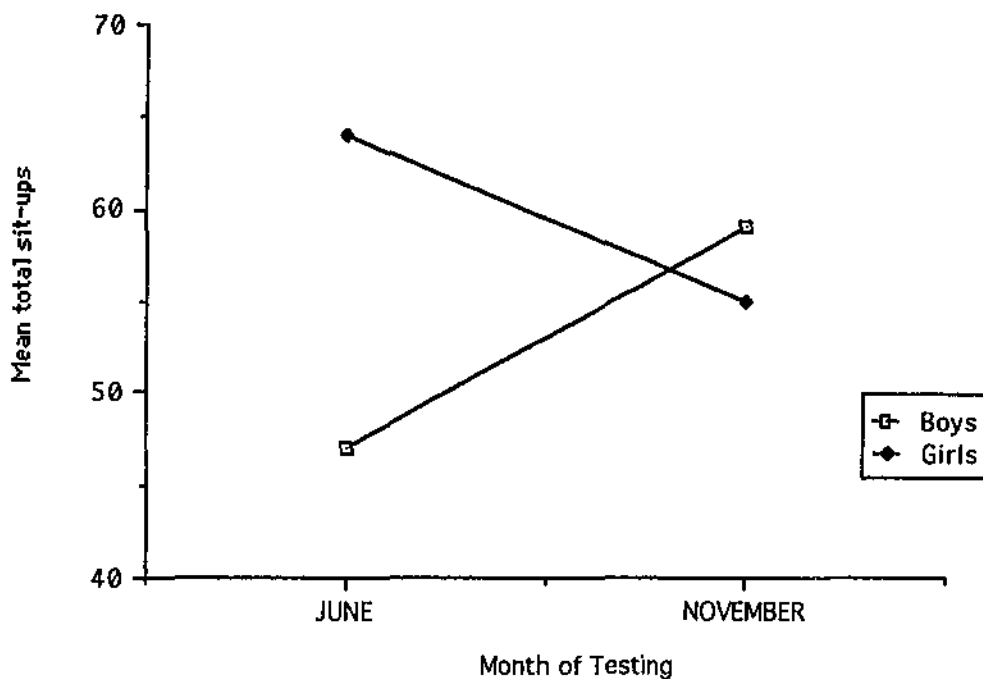


Figure 4. Grove Hill class mean abdominal muscular endurance (sit-ups test) scores for June and November.

Only one of the 8 boys showed a decrease on the sit-up test. This represents an improvement of 1 sit-up per individual for the class and illustrates how a group of decreased performances (girls) can be hidden in total class statistics.

Flexibility was measured using the sit and reach test showed an overall class decrease for both girls and boys (see Figure 5).

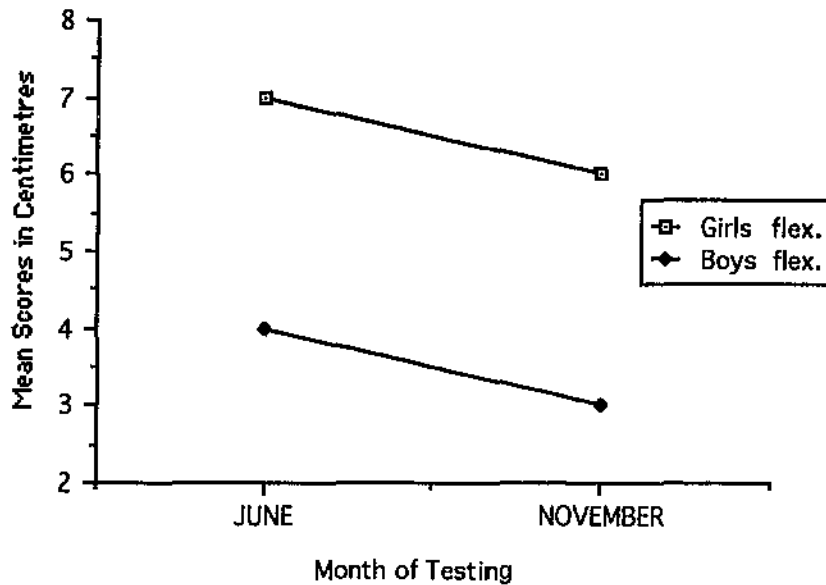


Figure 5. Grove Hill class lower back flexibility scores (sit and reach test) for June and November.

The girls flexibility score decreased from a mean of 7 in June, to 6 in November.

The boys mean of 4 in June, decreased to 3 in November.

The percentile tables from the Australian Health and Fitness Survey of 1985 (Pyke, 1986) showed the class to be above average fitness (above the 50th percentile) for their age group at the first set of tests in June. In the November tests all the scores for both boys and girls were also above the 50th percentile. The most noticeable increase being the the 1.6 km. run.

The range of scores as shown in Table 6, when matched to the percentile tables reveal that individual children's percentile scores are widely spread between the 5th to the 95th percentile in June. In November this range was very much the same, apart from the sit-up range, which had closed (from a bottom range of 35th to the 50th to the 95th).

The results from questions 1 and 2 (Table 7) show that all the children enjoyed playing sports in both August and December. There was a slight increase in those who enjoyed fitness activities from August to December. The 2 children who were negative about fitness activities in August responded more positively in December.

The two questions concerning the children's perception of their state of fitness and how fit they would like to be are displayed in Table 8. This table shows that by December none of the children thought they were below average fitness. The majority of the children perceived themselves to be of above average fitness (58%). The responses to question 10 indicated that by December 26% of the children were content to be the same fitness and less children wanted to be much fitter, 32% as opposed to 53% in August.

Table 8

The Results of Students Questions 3 and 8

3. What do you think your current state of physical fitness is?

10. In terms of fitness; would you like to be?

	<u>QUESTION 3</u>				<u>QUESTION 10</u>			
	Aug.	%	Dec.	%	Aug.	%	Dec.	%
Unfit	1	5	0	0	Less fit	0	0	0
Quite unfit	2	11	0	0	Unfit	0	0	0
About average	10	53	8	42	The same	1	5	26
Quite fit	5	26	10	53	A little fitter	8	42	42
Very fit	1	5	1	5	Much fitter	10	53	32

Questions 5 and 6 asked the children when they did their sport and fitness.

These results are displayed in Table 9.

Table 9

The Results of Students Questions 5 and 6

5. Out of school when do you do your fitness?

6. Out of school when do you do your sport?

	<u>QUESTION 5</u>					<u>QUESTION 6</u>			
	Aug.	%	Dec.	%		Aug.	%	Dec.	%
Before school	0	0	0	0	Before school	0	0	0	0
After school	3	16	2	11	After school	3	16	5	26
Weekends	0	0	0	0	Weekends	3	16	1	5
None of above	0	0	0	0	None of above	5	26	1	5
A mixture	14	73	15	78	A mixture	8	42	12	63

Table 9 shows that no children exercised or played sport before school only. Those that did exercise or play sport before school did so at other times also and so entered their activity as a mixture. Most children chose a variety of times to exercise or play sport, and these numbers rose by the December questionnaire.

Question 4 asked the children when they thought the most suitable place to exercise would be. In both questionnaires 84% of the class thought that both in and out of school were the most suitable places to exercise. This question is not represented by a table.

Questions 7, 8 and 9 all concerned the exercise programme and the responses are shown in Table 10 on page 97. Table 10 reveals a consistent 69% response ('quite good' and 'excellent') in favour of the exercise programme with 90% of the class certain it had improved their overall fitness. There was also a more positive response in December to question 9. All 19 children were positive that the programme had given them more energy to help them with other activities.

Table 10

The Results of Students Questions 7, 8 and 9

-
7. What do you think about the exercise programme you have been doing this year?
8. Do you think the exercise programme has improved your overall fitness?
9. Has the fitness programme given you more energy to help with other activities?

	<u>QUESTION 7</u>					<u>QUESTION 8</u>			
	Aug.	%	Dec.	%		Aug.	%	Dec.	%
It's awful	1	5	0	0	Not at all	0	0	0	0
Don't like it	1	5	2	10	Hardly	0	0	0	0
It's O.K.	4	21	4	21	Perhaps	4	21	2	10
Quite good	9	48	9	48	Quite a lot	10	53	12	64
It's excellent	4	21	4	21	A great deal	5	26	5	26

	<u>QUESTION 9</u>			
	Aug.	%	Dec.	%
Yes	12	64	13	69
Some things	4	21	5	26
Maybe	2	10	1	5
I don't think so	0	0	0	0
No	1	5	0	0

Questions 5 and 6 contained two additional areas in which the children are asked to estimate the time they spent engaged in sport and fitness for that week period. These results of questions 5 and 6 (displayed in Table 11 on page 98) showed that there were more children taking part in physical fitness activities in August than in December. However those children that were exercising in December were exercising for longer. More than twice as many children were playing some kind of sport after school in December than in August. Mean individual time spent in sport activity also increased.

Table 11

The Results of Students Questions 5 and 6-the Time the Children Spend in Fitness and Sport

-
5. Out of school time, when do you do your physical fitness?
 6. Out of school time, when do you do your sport?
-

	<u>QUESTION 5</u>			<u>QUESTION 6</u>		
	No. of Children	Total Time (mins.)	Mean Minutes per child, per day	No. of Children	Total Time (mins.)	Mean Minutes per child, per day
Before school (Aug.)	13	1470	23	2	300	30
Before school (Dec.)	8	965	24	6	780	26
After school (Aug.)	17	1515	18	9	910	20
After school (Dec.)	17	2255	27	19	2200	23
Weekends (Aug.)	18	2665	74	11	1080	49
Weekends (Dec.)	15	2400	80	14	1850	66

Process Observations

The activity sessions were scheduled at Grove Hill between 10.15 and 10.30 a.m. A total of 15 sessions were observed, during which individuals were monitored for both heart rate and activity intensity.

Interval recordings were made of the fitness sessions to correspond with the heart rate monitoring. Coding of the target student began when the teacher announced the commencement of the session. The purpose of these recordings was to observe the amount of time the children were active (huffing and puffing) at an intensity likely to produce a training effect. A summary of these observations is

presented in Table 12 on page 110. In addition the researcher was observing how the children and the teacher reacted to the content of the WASPAN programme, how the programme was implemented by the teacher, and how much the children appeared to enjoy the activities.

The descriptive data that follows has been compiled from field notes and data recorded during the fitness sessions. The method of establishing between-observer reliability is detailed in chapter 3 under Instruments. Three different observation reliability checks were carried out with three different independent observers also trained in the ALT-PE Fitness activity coding method. The following results were obtained:

1. 1/5/91. 81 agreements. 4 disagreements: $81 \div 85 \times 100 = 95\%$ observer reliability.
2. 29/5/91. 117 agreements. 3 disagreements: $117 \div 120 \times 100 = 97\%$ observer reliability.
3. 12/9/91. 80 agree. 12 disagree: $80 \div 92 \times 100 = 87\%$ observer reliability.

A reliability of 80% or above is usually considered necessary for research purposes (Siedentop, 1983, p. 266).

The following reports integrate a more descriptive account of the implementation of the WASPAN daily physical fitness programme together with heart rate and ALT-PE Fitness data. Each account includes incidents from these sessions as transcribed from the researcher's field notes. Pseudonyms have been used throughout the narrative. The activity scheduled in the WASPAN programme is presented at the top of each report.

9/4/91. term 1, week 11. Activity - Leger Fun run. Selected child: Louise.

The fun run was scheduled in the WASPAN teachers' manual, however the teacher wanted the class to do the Leger shuttle because it had been cancelled last week due to wet weather. The teacher left the boys in the class room to carry on with their work (mathematics) while the girls came out to the netball courts to warm-up. The warm-up was 4.5 minutes of jogging followed by 1.5 minutes of stretches. The girls ran the leger shuttle as a group, keeping pace with the recorded cadence for 8 minutes. By the end of the leger run, light rain was falling. Several of the girls complained about the rain, and asked to go in. This suggestion was ignored. After the shuttle the teacher again gave the girls a short jog and some low impact stretches as a cool down.

Before school the target girl had attended intensive swimming training. During the Leger run her heart rate peaked at 215 beats per minute (bpm). At the conclusion of the exercise session her heart rate decreased quickly. During the main leger run component of the lesson (8 minutes), the heart rate of the selected student was continuously elevated above 140 bpm. Taken over the whole 22 minute session of the class Louise's heart rate was above 140 bpm for 52% of the time.

The rain became heavier and the teacher decided not to bring the boys out for their Leger run. Many of the boys complained at this news.

1/5/91. term 2, week 1. Activity-Fitness Relay. Selected child: Daniel.

This session lasted 20 minutes and by the expressions on the children's faces enjoyed the activity. The teacher placed relay markers while the children were completing a warm-up jog around the oval. The remainder of the 3 minute warm-up involved calf and hamstring stretches. The relays consisted of 8 sets of the file relay and 8 sets of the shuttle relay but only 4 of each were completed. The children

ran a total of 8 times during 17 minutes of relay work. Although there was a long period of waiting in line for a turn (50%) the subject's heart rate remained above 120 bpm throughout the relays and above 140 bpm for 62 % of the time.

One boy remarked to the researcher "I'll need to get fit again, I didn't do anything during the holidays."

12/6/91 term 2, week 7. Activity-Relays. Target children: Adie & Kathy.

Relays were scheduled for this lesson but the teacher wanted to carry out a 1.6 kilometer run test.

He divided the class into two groups for the 1.6 kilometer run. After a 2 minute warm-up, Adie ran the 1.6 kms. in 7 minutes 45 seconds. She then passed the monitor to Kathy, who ran the distance in 10.04. The whole class walked for 2 minutes as a cool down. There was only one warm-up and one cool down so the first group waited 10 minutes for their cool down while the second group had their warm-up 10 minutes before they ran. The students waiting for their turn to run cheered the others on. Most of the children put a great deal of effort into the run, apart from one boy who started walking about half way through. When the teacher tried to encourage him to continue, he shouted abuse at the teacher and was sent back to the classroom. Kathy didn't appear to be interested in the run. Mr. Kent explained she was very hard to understand and was prone to moods of indifference.

The two 1.6 km runs and the warm-up took a total of 25 minutes to complete.

29/7/91 term 3, week 2. Activity-run/walk. Selected child: Colin.

This 25 minute lesson was taken by a second year student physical education teacher who had taken a similar session last week. This student teacher is taking the

class every Thursday morning for an 8 week period. He had arrived early and was putting out equipment ready for a fitness circuit. The class teacher had explained to him that the researcher might be in school on occasions to observe the class during their morning fitness work. He was advised to try and "keep them moving as much as possible". The class teacher did not ask the student teacher to follow the WASPAN programme. When the class came out they were led by the student teacher for 3 minutes of stretching. During this time, Colin's heart rate remained mostly between 120 and 140 bpm. Following the stretching the student teacher spent 8 minutes explaining the circuit, demonstrating different exercises and organising teams. The class then spent almost 10 minutes working through the circuit, 30 seconds on each activity with a 60 second break between each activity to record their scores and move around to the next activity. The remaining 5 minutes was used by the student teacher to go through the scores with the children. During the 25 minute observation the selected child was recorded in Activity Fitness for a low 12% of the time. His enthusiasm and work rate was sufficient to elevate his heart rate above 140 bpm for 40% of the time.

31/7/91 term 3, week 2. Activity-Continuous Relays. Selected child: Anna.

A small 100 meter track was set out by four children before the class came out for fitness. After a 2 minute warm-up taken by the teacher (not student led as advised in the manual) the teams were organised for the continuous relay. Each team completed 4 sets before resting and this was repeated 4 times (the manual states 3 sets of 8). The teacher then instructed the class to run around the far goalposts to warm down. Several of the lower fitness children complained the relay was boring. The teacher commented that the relays were O.K. but took time to set up by sending kids out to measure and set out the track. Continuous relays require teams of 5 and

the teacher mentioned that it was lucky that the numbers were divisible by 5. Anna, although inactive for 73% of the time, had recorded heart rate above 140 bpm for 81% of the lesson.

5/8/91 term 3, week 3. Activity-Running Games. Selected child: Louise.

This session ran for 14 minutes and although running games were scheduled the class teacher explained that the class was involved in a 'run/walk to Albany' event for charity. This would involve the children spending the next couple of weeks covering the equivalent distance from Perth to Albany in kilometers on the school field. The children were encouraged to run as much as they could and told that if they had to walk then it should be as briskly as possible. They were all asked to count their laps. A permanent track had been marked on the school oval in preparation for the event. There was no warm-up and the target student was typical of the activity engaged in by most students. She ran for a majority of the time (39% AF) and walked the remainder (49% A). The remaining 12 % of inactivity was waiting during periods of general organisation either end of the activity. Heart rate was above 140 bpm. for 77% of the session and above 120 bpm. for 95 %.

22/8/91 term 3, week 5. Activity-JRFH . Selected child: Judith.

The student teacher took this class (his 5th Thursday class). The class appeared enthusiastic towards the student teacher's lessons, running to the school oval to meet him. The warm-up was a 5 minute jog around the school perimeter. Following this run, the children were organised into teams for relays. There were 3 teams of 6 and one of 4. Straight forward shuttle runs were followed by relays which involved running out with a ball and leaving it at the cone. After running back to the team the ball is then retrieved by the next person and so on. Running

backwards and hopping with the ball were other themes used. The relays lasted 10 minutes, after which time the student teacher spent 4 minutes explaining the procedure of the obstacle course to the children. They set off at intervals to complete the course around one side of the school field. The target student took 6 minutes to complete the course. The children all appeared to enjoy the lesson, which was varied and quite exciting to them. During the relays several children jumped up and down while cheering for their team mates to finish. The obstacle course was also successful with most children. At 2 or 3 of the obstacles the children had to wait for up to 40-50 seconds for others to go through before they could start. Judith was recorded in Activity Fitness for 38% of the class with 60% of inactivity. Heart rate was above 140 bpm. for 53% of the session and above 120 bpm. for 86%.

The class teacher was working in the classroom during this lesson. He later said "the kids seem to enjoy the student's lessons. I think because he has time to set it all up and then gets a full half-hour with them helps" (field notes 22/8/91).

4/9/91 term 3, week 7. Activity-running games. Selected child: Andrew.

The 1.6 kilometre run was held a week later than scheduled due to the class involvement in the 'run/walk to Albany' charity event. This was a 15 minute session, before which Andrew approached the researcher and asked if he could wear the HR monitor. The children were instructed to complete a short jog across the oval and back to the teacher. Then they did some simple stretching exercises. This warm-up lasted 3 minutes. The boys ran the 1.6 km. first, all bettering their previous time including the selected student who ran 8.44 as opposed to the 9.05 which he ran in June. Colin, who usually finished in first place, was beaten into third position by a boy who ran himself into the ground, completing the run in 6.40. Another boy, who usually did not finish any form of running without misbehaving and being

excluded, completed the run for the first time in 6.42. The teacher was particularly pleased with this boy's performance and praised him for it. Everyone was praised in a general sense for the effort that was made and the previous times that had been decreased. Andrew was recorded in Activity Fitness for 58% of the class with 42% of inactivity recorded at the end of Andrew's run while he was waiting for the girls to run. Heart rate was above 140 bpm. for 100% of the session.

12/9/91 term 3, week 8. Activity-Leger shuttle. Selected child: Colin.

This was the student teacher's last week and he had decided to organise a game of kickball for the class. The lesson, lasting 30 minutes, was enjoyed by the majority of the children in the class, however it was noticeable that the more active members of the class were restless while waiting in line to bat (kick) and while fielding. This included the target child, Colin. Andrew was recorded in Activity Fitness for 7% of the class with 19% Activity and 74% of inactivity recorded. Heart rate was above 120 bpm. for 34% of the session and above 140 bpm. for 13%.

At the end of the class the researcher spoke to the student teacher who said he had been told by the class teacher to "get the childrens' heart rate up. He said "I'm not real impressed, it's not a real phys. ed. lesson if that's (keeping the heart rate up) the main goal."

20/9/91 term 3, week 9. Activity-JRFH. (no fitness taken).

There was no fitness session observed on this visit. When the researcher spoke to the teacher he said "it's been a busy week so they have to catch up on other work. They've got sport this afternoon so they'll get a run about"

23/9/91 term 3, week 10. Activity-relays. Selected children: Candice and Adie.

The class came out late with only 12 minutes before recess. The teacher quickly organised 5 teams of 4 and asked 2 children to set out cones. While these were being set out the remainder of the class ran to the edge of the field and back (approximately 30 meters). The teams were then positioned and the procedure of the relays explained. These were not the relays detailed in the WASPAN programme, they were the teacher's own design.

After the teacher set the children off he walked over to the researcher and explained "I wasn't going to bring them out because the ground was wet (it had rained earlier that morning) but they kept on, so I thought, well, 10 minutes is better than nothing." The relays lasted until recess despite several of the children getting a little confused about what they should be doing. The teacher was standing 25 metres away from the class next to the researcher throughout the session.

The children worked quite well on their own for a little more than 5 minutes, but became bored after that. As can be seen from Table 13 on page 108 the heart rates of both target girls were maintained above 120 bpm for 82% and 98% of the session which compares favourably with other activities. Achieving a heart rate more likely to produce cardiovascular strengthening (140 bpm) was less successful (64% and 72% of the session).

16/10/91 term 4, week 1. Activity-non-stop relays. Selected student: Stuart.

This session again bore no resemblance to the WASPAN programme as the teacher was no longer referring to it. The 16 minute session began with a short warm-up run of 3 minutes, followed by 2 minutes of stretches. The class was then divided into 3 teams, two of 7 children and one of 8. The relays involved short sprinting runs to and from a 15 and 20 meter mark with a ball, skipping rope or

bean bag, either placing it or retrieving it. Three teams were too few and as a result there were several children in each team spending a large proportion of the time waiting for their turn. The observations recorded inactivity at 55% and only 32% AF and 13% A. Heart rate was above 120 for 82% and above 140 bpm for 64%.

31/10/91 term 4, week 3. Activity-JRFH. Selected child: Wayne.

Again this was not the scheduled WASPAN activity. The class teacher was preparing the class for the following week's school lap-a-thon. The children were asked to run as much as possible and only to walk to recover before running again. The target student performed very well. Rather than running in a small group as several others did, stopping when the others in their group stopped, Wayne ran individually and tried very hard. During the 11 minutes of activity Wayne walked a total of 3 minutes and ran for 8 minutes. In this session he recorded 75% AF with 100% of the session with an elevated heart rate of 140 bpm. or more.

5/11/91 term 4, week 4. Activity- JRFH or h.h. Selected child: Analie.

The teacher held another lap-a-thon practice consisting of a full 15 minutes of running or walking with no warm-up or warm-down. Analie walked 8 minutes of the 15 minute session. She was recorded in 48% of activity fitness, and a HR above 140 bpm for 40% of the 15 minute session. Observation of the session revealed Analie to have walked for more of the time than anyone else in the class. Analie complained of feeling unwell at the end of the session.

12/11/91 term 4, week 5. Activity-10 minute run. Selected children: Adie and Russell

Russell found his monitor strap to be too tight and came back to have it

adjusted. This reduced his recording by 3 minutes.

The class were working their way around the obstacle circuit. This generally involved waiting in a line for the apparatus area to clear before proceeding through. Having completed the obstacle the children ran to the next apparatus area and began the same procedure.

Russell spent 66% of the 11 minutes in activity fitness while Adie was recorded in activity fitness for 31% of her 14 minutes. Although they both spent the same percentage of time with HR above 140 bpm (39%), Adie maintained her heart rate above 120 for 95% of the time with Russell's figure 87%. This is most likely to be caused by the differing levels of fitness of the two children.

19/11/91 term 4, week 6. Activity-Leger 2-speed. Selected child: Andrew.

Again this was not the WASPAN activity. Due to a late start, only 11 minutes remained before recess for any activity. It took one minute to secure the monitor to the selected student, who then had to catch up the others with a 1 minute fast run. Following this Andrew was involved in a high level of activity. The school's parent body, who built the obstacle course, has recently placed a large amount of fine sand beneath each obstacle for safety. This has had the effect of speeding up the course. During the 9 minute session activity fitness was recorded for 74% of the time. Heart rate was above 140 beats per minute for 95% of the 9 minutes. These are some of the highest percentages recorded during the study.

Summary

From the observations and HR recordings taken during the year at Grove Hill School certain themes and patterns emerge. There is a gradual reduction in the amount of time that the teacher affords to the fitness sessions. The first two sessions

that were observed lasted for 22 minutes and 20 minutes. There then followed a gradual reduction in time until by the fourth term sessions were regularly lasting only for 11, 10 and even 9 minutes.

The timing of the fitness sessions from 10.15 to 10.30, immediately before recess was not expedient. It often meant the class was involved with work which was not finished at 10.15 and so encroached on the time allocated for fitness.

The activities that Mr. Kent selected became repetitive after the second term. By the third term he was no longer following the WASPAN teachers' manual or using it for reference. Besides three lessons taken by a P. E. student teacher, the only activities the class took part in were running, relays and the obstacle course.

The results summarised in Table 12 highlight the difference in activity fitness and heart rate for the different activities recorded. The running activities are clearly the most effective in terms of activity fitness percentage and corresponding elevated heart rate recordings. The relays, although low in activity fitness, have a high percentage of time with the heart rate over 140 bpm. For example the 16 minute session of relays in the second week of term three, showed that although there was only 24% activity fitness recorded, the heart rate remained elevated above 140 bpm for 81% of the time. The other activities did not show consistently effective results in terms of activity fitness and elevated heart rate. The last obstacle course session in which the student's HR was above 140 bpm for 95% of the session was partly due to the overweight student running to catch the other children up after having the monitor fitted. Overall the mean percentage of activity fitness was 42.5%. Activity was 14.55% and inactivity was a mean 42.92% taken over the 19 sessions. The duration of the fitness sessions showed a range between 9 minutes and 30 minutes with a mean of 16.3 minutes.

Table 12

Results of Activity Coding and Heart Rate Monitoring at Grove Hill School

The fitness activities have been grouped with similar activities to allow for easier analysis.

ACTIVITY	TERM & WEEK	DURATION OF SESSION	ACTIVITY			HEART RATE	
			FITNESS	ACTIVITY	INACTIVITY	>120	>140
RELAYS							
Relays	T2-W1	20 mins.	23%	4%	73%	92%	62%
Relays	T2-W8	17 mins	19%	12%	69%	66%	47%
Relays	T3-W2	16 mins	24%	3%	73%	81%	81%
Relays*	T3-W5	30 mins	38%	2%	60%	86%	53%
Relays	T3-W10	11 mins	41%	0%	59%	82%	64%
Relays	T3-W10	12 mins	24%	0%	76%	98%	72%
Relays	T4-W1	16 mins	32%	13%	55%	82%	64%
RUNNING							
Leger	T1-W11	22 mins.	47%	40%	13%	73%	52%
1.6 Km	T2-W7	10 mins	78%	14%	8%	100%	100%
1.6 Km	T2-W7	12 mins	72%	19%	9%	100%	81%
Run/walk	T3-W3	14 mins	39%	49%	12%	95%	77%
1.6 Km	T3-W7	15 mins	58%	0%	42%	100%	100%
Run/walk	T4-W3	11mins	75%	20.5%	4.5%	100%	100%
Run/walk	T4-W4	15 mins	48%	52%	0%	68%	40%
OTHER							
Circuit*	T3-W2	25 mins	12%	10%	78%	60%	40%
Kickball*	T3-W8	30 mins	7%	19%	74%	34%	13%
Obstacle course	T4-W5	11 mins	66%	4%	30%	87%	39%
Obstacle course	T4-W5	14 mins	31%	4%	65%	95%	39%
Obstacle course	T4-W6	9 mins	74%	11%	15%	95%	95%

* denotes activities taken by the student teacher.

Happy Face Class Survey

The happy face class survey is designed to assess the children's preferences towards the different activities included in the WASPAN physical fitness programme. A copy of the survey chart is included in Appendix B. Two copies of the survey are included in the WASPAN teachers' manual, one at the end of the third term (week 9), and the other at the end of term 4 (week 8). There are nine weeks between the surveys. In the case at Grove Hill, Mr. Kent was not following the WASPAN manual after the second term and he did not come across the surveys. Mr. Kent was asked by the researcher to administer the survey on each occasion they were scheduled in the manual. The procedure for carrying out the survey is clearly explained in the WASPAN teachers manual. Health hustles were deleted from the survey because the teacher had not included them in his programme. The obstacle course and dodge ball were added to the list because they had been completed on several occasions in term 4. The teacher recorded the results in the chart in the manual and these are displayed in Table 13.

There were 23 children present when the first survey was conducted and 21 on the second occasion. Due to these differences in numbers, the results in Table 13 (page 112) have been presented as percentages next to the raw scores.

Table 13 shows that running as a fitness activity was preferred by more children in the December survey than in September. The relays showed less obvious changes. Jump rope for heart (JRFH) was more popular in December than it had been in September. Although the researcher attempted to observe a JRFH session by visiting on the appropriate day the teacher always substituted a different activity on these occasions. The teacher's log and conversation with the teacher provided evidence that jump rope sessions had occurred but not in the WASPAN format.

Table 13

Student Preferences Towards Fitness Activities for September and December

ACTIVITY	MONTH	LOVE	O. K.	HATE
RUNNING	Sept	2 (9%)	11 (48%)	10 (43%)
	Dec.	4 (19%)	16 (76%)	1 (5%)
JRFH	Sept.	3 (13%)	15 (65%)	5 (22%)
	Dec.	3 (14%)	18 (86%)	0 (0%)
RELAYS	Sept.	7 (31%)	10 (43%)	6 (26%)
	Dec.	5 (24%)	11 (52%)	5 (24%)
OBSTACLE	Sept.	8 (35%)	10 (43%)	5 (22%)
COURSE	Dec.	7 (33%)	12 (57%)	2 (10%)
DODGE	Sept.	20 (86%)	2 (9%)	1 (5%)
BALL	Dec.	16 (76%)	4 (19%)	1 (5%)
FITNESS	Sept.	3 (13%)	13 (57%)	7 (30%)
TESTING	Dec.	3 (14%)	10 (48%)	8 (38%)

September n=23

December n=21

Free Time Spent in Activity at School

Recess and Lunch Time Activity

At Grove Hill the students had scheduled breaks in the morning between 10.30 and 10.45 and at lunch time from 12.00 until 12.50. In order to discover what kinds of activities the children were participating in during their free time at school, the researcher made 9 visits to morning recess and 8 to lunch time breaks.

Activity observations were made using the Basic ALT-PE Fitness recording instrument that was used for recording the fitness sessions (Appendix J). Table 14 presents the data recorded at the recess periods.

Table 14

Recess Activity Levels and Heart Rate Recording at Grove Hill School

Subject	Term & Week	Dominant Activities	Moderate Activity	Activity Fitness	Inactive	Heart Rates	
						>120 b.p.m.	>140 b.p.m.
Colin	T3-W2	W. R.	18%	7%	75%	17%	7%
Louise	T3-W3	P. W.	81%	0%	19%	74%	16%
Andrew	T3-W7	W. P.	48%	13%	39%	100%	100%
Candice	T3-W9	N.	53%	0%	47%	25%	11%
Anna	T3-W10	W. R.	9%	4%	87%	62%	5%
Wayne	T4-W3	W. R. P.	53%	16%	31%	0%	0%
Andrea	T4-W4	W. R.	27%	21%	52%	57%	33%
Robert	T4-W5	R. P.	20%	0%	80%	73%	20%
Andrew	T4-W6	W. P.	72%	0%	28%	0%	0%

W= walking: R= running: P= playing (general): B= basketball: S= soccer:N=netball.

Any running activities were recorded as 'Activity Fitness' while activities performed at a slower walking pace were recorded under 'Activity' (moderate). In addition, the dominant activities were also recorded. All other behaviours, for example sitting, eating, standing talking, etc. were coded as inactivity. Table 15 presents the data recorded during the lunch periods.

Table 15

Lunch Time Activity Levels and Heart Rate Recording at Grove Hill School

Subject	Term & Week	Dominant Activities	Moderate Activity	Activity Fitness	Inactive	Heart Rates	
						>120 b.p.m.	>140 b.p.m.
Colin	T3-W2	W. S.	10%	34%	56%	44%	36%
Louise	T3-W3	W. P.	78%	00%	22%	30%	00%
Andrew	T3-W7	W. B. P.	24%	30%	46%	58%	27%
Candice	T3-W9	W. P.	48%	3%	49%	57%	34%
Anna	T3-W10	W. R.	6%	5%	89%	28%	16%
Wayne	T4-W3	W. P.	34%	0%	66%	11%	0%
Robert	T4-W5	W. R.	52%	6%	42%	68%	31%
Andrew	T4-W6	W. P.	72%	0%	28%	37%	21%

W= walking: R= running: P= playing (general): B= basketball: S= soccer: N=netball.

The results from both Tables 14 and 15 show that these children are quite inactive during their break times. The only child to show a period of extended elevated heart rate was Andrew in week 7 of term 3 following the 1.6 kilometer run. Because the recess period immediately followed the run his heart rate remained

elevated over 140 beats per minute throughout recess despite being 'inactive' for 41% of the recess time. There appeared to be no real pattern. The designated high and low fitness children (Colin, Louise and Candice) engaged in spasmodic bouts of activity, usually of only moderate intensity.

Out of School Activity

The difficulty of making valid and reliable recordings concerning children's activity levels has been explained in detail at the beginning of this chapter. However with the cooperation of the teacher and careful instruction procedure to the children during the administration of the diaries quality data was collected from the children.

The 21 children returning diaries in August took part in 15 different activities. This constituted 7 different team games and 8 individual activities. In November the 20 children that completed diaries participated in 16 different activities. There was little difference in the numbers of boys and girls who were active. Participation in individual activities was more common than team activities with 20 children participating in individual activities in August and a mean of 34.5 participating in November.

In August bicycle riding was the most common activity with 16 participants. The next most popular activity was running/jogging with 6. In November bicycle riding was still the most popular activity with swimming now the second most popular. The number of participants for several activities fluctuated indicating the seasonal nature of certain activities (water sports, soccer, football, rugby and running for example).

Table 16 displays the range of activities the children at Grove Hill were participating in and the time they were spending during the week engaged in them.

Table 16

The Activities and the Weekly Allocation for Grove Hill Children

ACTIVITY	# of children engaging in the activity (August)	Mean time (mins)	# of children engaging in the activity (Nov.1)	Mean time (mins.)	# of children engaging in the activity (Nov. 2)	Mean time (mins)
<u>Team Activities</u>						
Soccer	6	70	0	0	0	0
Football	4	30	0	0	1	30
Rugby	1	150	0	0	0	0
Basketball	2	40	3	52	4	27.5
Netball	3	158	3	47	2	47.5
Tennis	1	120	3	170	2	265
Cricket	0	0	1	150	3	100
Baseball	0	0	1	120	1	60
Playing games	10	54	5	46	8	59
Water Polo	0	0	1	60	2	60
TOTALS	27	23	17	38	23	28
<u>Individual Activities</u>						
Bicycle riding	16	143	14	64	13	59
Swimming	2	452	10	198	6	193
Walking	3	20	5	58	3	55
Running/jogging	6	125	1	60	1	30
Dancing	1	570	1	705	2	300
Aerobics	1	50	0	0	0	0
Trampolining	1	150	2	70	2	85
Gymnastics	0	0	2	150	2	285
Roller skating	1	40	1	40	0	0
Self-defense	0	0	2	130	2	180
TOTALS	31	50	38	39	31	38

Closer inspection of the diaries showed that the least active children in August were still the least active in November. Of the 8 children with the lowest activity patterns, 4 were doing less activity in November than they were in August. It appeared to be the more active children who were increasing their activity levels.

The boy's activity time decreased by 126 minutes in total between August and November. This is a mean decrease of 16 minutes per boy during the week of

activity. The most active boy (Colin) showed a decreased activity time from 70 minutes a day in August to 62.4 minutes a day in November. Colin's activity pattern had changed from soccer and running in winter to swimming and bike riding in summer. These activities were equally intensive but less time consuming. The second 'most active' boy's activity improved from 51 minutes a day in August to 62.5 minutes in November. Daniel had the least active activity pattern in August. In November his activity had increased by 24 minutes a day.

The girls' weekly activity time increased by 385.5 minutes in total or 32 minutes per girl between diaries. Louise, a State swimmer, spent a mean time of 118 minutes per day in the pool in August. By the November period she was averaging 122 minutes. The two 'least active' girls both increased their activity time between August and November. The 'least active' girl increased from 12 minutes per day in August to 18.21 minutes per day in November. The second 'least active' girl increased from 21 minutes per day in August, to 27 minutes a day in November.

The diaries revealed that there was a great spread in the amount of time that the children were spending engaged in activity out of school time. In August, for example, the most active girl was completing nearly 14 hours of activity a week (840 minutes) while the least active was reaching 85 minutes. The boys range was not as wide, with the least active boy active for 2 hours while the most active boy was active for 13 hours (785 minutes) in August.

The Target Children

In studies concerning children it is important to develop an understanding of the background and general context which will influence these children and largely determine their behaviour. This study selected individuals within the group to study more closely. In this way a clearer insight into the way individuals think and act towards activity has been obtained. The targeted children were observed more closely and more often than their class mates.

In November and December, towards the end of the study, the target children and their parents were interviewed. The children were all interviewed at school. The parents were interviewed at the home or at school. With the permission of the parents, the interviews were tape recorded. An interview guide approach was used (Patton, 1980).

Target children were identified as being of either high or low fitness, based on the percentile ranges from the Australian Schools Fitness Test manual (Pyke, 1986). High fitness was determined as being above the 80th percentile in two of the three tests administered in June. Low fitness was determined as being below the 20th percentile in two of the three tests administered in June. The 1.6 km run, sit-ups and sit and reach testing was carried out by the researcher using the Australian Schools Fitness Test protocol as detailed in the methodology.

This criteria could not be fulfilled for the low fitness children, because few of the children in the class had two scores below the 20th percentile. As a result, the two boys and two girls whose scores were in the lowest percentile range for the three tests were selected. An initial 8 children were then identified, comprising one low fitness boy and girl and one high fitness boy and girl with a reserve for each.

The Target Children at Grove Hill School

As for the target children at Eastwick School, target children at Grove Hill were identified as being of either high or low fitness, based on the percentile ranges from the Australian Schools Fitness Test manual (Pyke, 1986). High fitness was determined as being above the 80th percentile in two of the three tests administered in June. Low fitness was determined as being below the 20th percentile in two of the three tests administered in June. The 1.6 km run, sit-ups and sit and reach testing was carried out by the researcher using the Australian Schools Fitness Test protocol. Table 17 lists these children together with their fitness scores and equivalent percentile rankings.

The design of the study included selecting one boy and one girl from the high and low fitness group, with a reserve for each. This criteria could not be fulfilled for the low fitness children, because none of the children in the class had three scores below the 20th percentile. As a result, the two boys and two girls whose scores were in the lowest percentile range for the three tests were selected. An initial eight students were then selected. Six of these returned agreements for their parents to be interviewed and of these six, one was excluded due to home circumstances, (as explained by the class teacher). This left five students; one low and one high fitness boy and two high and one low fitness girl. The additional high fitness girl was also included, (see Table 17). A profile of each of these has been compiled, based on the following information; fitness testing, activity diaries, student questionnaires, interviews with the individual target students, interviews with the individual target students' parents, results of heart rate monitoring and observations of the individuals during the fitness sessions (systematic interval recording) and during selected recess and lunch periods (systematic duration recording).

Table 17

The Fitness Scores and Percentile Rankings of the Selected Target Children

CHILDREN	1.6 KM RUN	SIT & REACH	SIT-UPS
<u>Colin</u>			
June	6.43 (90th %ile)	+40 (95th %ile)	24 (30th %ile)
November	5.55 (95th %ile)	+15 (95th %ile)	37 (45th %ile)
<u>Louise</u>			
June	7.50 (90th %ile)	+155 (95th %ile)	100 (95th %ile)
November	6.41 (95th %ile)	+103 (95th %ile)	100 (95th %ile)
<u>Candice</u>			
June	8.14 (85th %ile)	+44 (95th %ile)	32 (50th %ile)
November	6.47 (95th %ile)	+44 (95th %ile)	50 (75th %ile)
<u>Andrew</u>			
June	9.05 (20th %ile)	-60 (5th %ile)	27 (35th %ile)
November	8.55 (20th %ile)	-5 (15th %ile)	32 (40th %ile)
<u>Adie</u>			
June	11.04 (20th %ile)	+5 (50th %ile)	25 (40th %ile)
November	9.00 (60th %ile)	+7 (60th %ile)	32 (50th %ile)

%ile = percentile

The out of school activity patterns of the selected children were reviewed in two ways. The first was by looking at their responses to questions 5 and 6 in the student questionnaire (Table 18). The second method was to use the information collected from the activity diaries (Table 19).

Table 18 has been compiled from the data supplied by the children in the two student questionnaires: the first administered in July and the second in December. In these identical questionnaires questions 5 and 6 asked the children to indicate how much time they spent in fitness activities and how much time in sports activities out of school time. Table 18 shows that the two designated low fitness children (Andrew and Adie) spend the least amount of time in the group engaged in fitness activities in July. In December they have become more active in this area. With the exception of Louise, the low fitness children's activity and sport time is comparable with the designated high fitness children.

Table 18

Time the Target Children Spend in Fitness Activity and Sport (from Questionnaires)

NAME	<u>TIME SPENT IN FITNESS ACTIVITY</u>		<u>TIME SPENT IN SPORT</u>	
	(in minutes)		(in minutes)	
	July.	December.	July.	December.
Colin	330	270	330	140
Louise	915	1110	915	1110
Candice	435	570	80	135
Andrew	240	420	180	270
Adie	85	270	90	120

The second record of out of school activity was collected using activity diaries. The information obtained from the target children is similar to that obtained from the questionnaires. The activity diaries were completed on a daily basis. This required the children to remember the past 24 hours activity rather than a full 7 days as in the case of the questionnaire. The activity diaries may therefore be considered the more accurate of the two methods of data collection. The results from the activity diaries are displayed in Table 19.

Table 19

Time the Target Children Spend in Fitness and Sport Combined (from Activity Diary)

	<u>August</u>		<u>Nov./Dec.</u>	
	Mins. 7 days	Mean mins. Per day	Mins. 7 days	Mean mins. Per day
Colin	495	71	315	45
Louise	825	118	855	112
Candice	540	77	290	41
Andrew	360	51	448	64
Adie	320	46	370	53

The results of the activity diary data show that, with the exception of Louise, the amount of combined activity the children are doing is quite similar. The 2 designated low fitness children have increased their activity time between August and the November/December diaries while the three designated high fitness children have decreased their activity time.

The following reports expand on the information displayed in Tables 17, 18 and 19 and draw on the additional areas of data collection to provide a more detailed profile.

Colin

Colin is a small boy, noticeably the smallest in the class. From the first observations of the class in the first term, Colin was conspicuous by his constant movement and 'hyperactivity'.

After the exercise testing on June 12th, the researcher spoke with Colin about his scores. Colin was pleased with his 1.6 km time because he had been doing some running in his own time and enjoyed it. He was concerned that his sit-up score was so low. He stated; "we didn't do any sit-ups with Mr. Kent, and I prefer running to doing exercises" (field notes, 12/6/91).

Colin usually looks forward to the daily fitness lesson as the highlight of the day. During the interview (3/12/91), Colin expressed a great enthusiasm for what he called the daily fitness sessions. He believed that the activities were all part of the "special fitness thing" the class had started in term one when Mr. Kent had gone away to "learn about the exercises" (interview, 3/12/91). According to his responses on the questionnaire Colin thought the "daily fitness" was excellent and had helped his overall fitness quite a lot. He hadn't found any of the programme difficult and only thought that the skipping element was boring when it was part of the relays. When Colin was asked what he thought the benefits of the programme were, he considered he had become generally stronger. He believed the programme was fun and had given him the energy and confidence to help with other activities. This included soccer and the surf club, where he was now one of the fastest, from being only "one of the average ones last year" (interview, 3/12/91).

In both the August and December questionnaires, he answered that he considered himself 'quite fit' and that he would like to be 'a little fitter than he is now'. When the researcher asked him to rank himself out of 10 in for his level of fitness, Colin thought he was "about 7"(interview, 3/12/91).

During conversation Colin related the benefits of fitness and activity to healthy lifestyles. He included a good diet and not smoking to his formula for good health. Colin explained the importance of maintaining an elevated heart rate; "try to get over 150 beats per minute for about 20 minutes" in order to make any cardiorespiratory gains. He had a grasp of how to increase his exercise output gradually in order to increase his general fitness. Colin saw fitness as "being important for you as you get older and it helps your confidence if you can keep up with the others"(Interview, 3/12/91).

Colin was observed and his heart rate monitored twice during the fitness time;

i) Term 3, week 2. This session was taken by a P.E. student teacher who did not follow the teachers' WASPAN manual, but had been briefed by the class teacher to keep the children "running around." He took an exercise circuit lasting for 25 minutes. Colin was recorded in 'activity fitness' for 12% of the time, 'activity' for 10%, 'transition' for 43% and 'knowledge' for 35%. Colin's heart rate was elevated above 140 bpm. for 40% of the 25 minutes.

Colin worked hard at the circuit as did most of his class mates. He still had plenty of energy at the end of the session.

ii) Term 3, week 8. Kickball. This session was taken by the same student teacher who had decided to give the class a game because it was his last week at the school. The activity was very static, with only limited episodes of activity coming from a few individuals at a time. 'activity fitness' was recorded at 7%, and 19% 'activity' was recorded during the 17 minute session. Colin's heart rate was above 140 beats per minute for only 13% of the time during this session.

Colin had enjoyed the circuit, but not the kickball, which he explained was: "too slow and a bit boring standing around" (field notes, 12/8/91). The figures from the two sessions show very short periods of activity and activity fitness (see Table 12). They reveal the difficulty of keeping children in moderate to vigorous activity for a sustained period of time in a game situation.

Colin was observed during a recess and lunch break in the second week of term 2. During the recess period he was inactive for 75% of the time. This constituted sitting and standing eating and talking with friends. At lunch, after sitting and eating for the first 15 minutes (which all the children are required to do), Colin wandered off to play soccer on the oval. A total of 44% activity (moderate and activity fitness) was recorded for the 50 minute lunch break. (See Table 15)

Out of School Activity

The out of school activity data was collected from the student questionnaires and the activity diaries. The figures are displayed in Tables 18 and 19. The questionnaire data reveals Colin to be more active in July than in December. This trend was verified by the activity diary data figures. In the winter period Colin was playing a great deal of soccer. He played and attended training for the school soccer team and for the local district team. 110 minutes of the 495 minutes of activity in the first week was soccer. The remaining 385 minutes was spent riding his bicycle and running training on the school oval (he lived across the road from the school) in preparation for the November 1.6km run test. In the summer (Nov/Dec), Colin had stopped the running training, having run the 1.6km run in 5.5 minutes (95th percentile). His main activity was now surf lifesaving activities (155 minutes a week, average) and some bike riding

Colin's activities were verified by his parents during a short interview at their home on November 20th. Most weekends during the summer were spent at the family's beach house, where Colin swims and rides his bike as well as taking part in the structured surf lifesaving activities. The beach house is also used on weekends in the winter. Colin would be driven home to play soccer on Sundays when there was a match. Colin's parents were both supportive of his activity and commented that he required no encouragement with his physical activities. Instead they had to get him to complete his homework before he went out 'to play'. Because of this Colin's father was rather sceptical of the amount of sport and P.E. done at school. "We only did P.E. once a week when I was at school and that seemed to be alright. I'm 47 now and I think I've done alright with it." Both parents thought sport could be played out of school time and that only fitness and sports skills had a place in the school curriculum.

According to Colin his favourite seasonal activities are soccer and surf club activities. Bicycle riding is the activity he enjoys all year round. He likes to exercise both in and out of school. His father has been a big influence on Colin's activity. They often go on bike rides together or kick the ball at the park or at the beach. Dad is currently teaching Colin (who is an only child) how to water-ski behind the family boat. Colin enjoys being active but often finds it conflicting with his school work. "Sometimes I say Mum, I'm going for a run, and she says; What about your homework Colin?" (interview, 3/12/91).

Andrew

Andrew would be considered visually overweight, but not grossly so. Being one of the tallest boys in the class means that Andrew is quite easily located. Andrew was living much of the time with his grandparents and only just recently with his mother. The teacher commented that these changes in home circumstances were reflected in his performance at school and subsequently in the fitness sessions. The teacher thought that Andrew tried harder when he was staying with his grandparents and then visibly deteriorated in effort and performance when he was back with his mother (field notes, 4/9/91).

During the fitness sessions Andrew would usually tire earlier than the other boys, but always tried to do his best and keep going. He told the researcher that he liked the fitness programme although he found the running hard and the relays boring on occasions. The obstacle course and the skipping activities were his favourite activities. Andrew commented; "we haven't done skipping for ages"(interview, 3/12/91). The skipping activities in the teacher's manual were not done after the second term.

Andrew was observed and heart rate recorded twice during the fitness sessions;

- i) Term 3, week 7. 1.6km run. Andrew ran continuously for the 1.6 kilometers taking 8.44 minutes to complete the distance. Because of the warm up and organisational procedures 58% 'activity fitness' was recorded. A large 42% was spent in transitional procedures. Andrew's heart rate was recorded as being above 140 bpm. for 100% of the session and above 200 bpm. for 37% of the time.
- ii) Term 4, week 6. Obstacle course. This session lasted a short 9 minutes. Despite this the session was effective in terms of work rate, with 'activity fitness' recorded

at 74% and 'activity' at 11%. The combined total activity was 85% with heart rate measured above 140 bpm for 95% of the session. The teacher set the children off at short intervals to work around the permanent course, jogging between each obstacle until they had completed the 10 obstacle areas and returned to the start. Andrew was a minute behind the others at the start (while the heart rate monitor was being attached). This meant he had to run to catch the others up, pushing his heart rate up to 180 bpm in the first minute of recording. Andrew thoroughly enjoyed this session, working extremely hard from start to finish.

Neither of the activities had been scheduled in the teachers' manual. The teacher explained that he included the 1.6 km run in order to gauge the cardiovascular performance of his class. All the boys in the class bettered their previous 1.6 km time, including Andrew, who ran 11 seconds faster than in June.

Observations showed Andrew to be more active than many others in the class at recess and lunch-time. He played foursquare (a ball bouncing game) for prolonged periods on each occasion that the observer was present. In term 3, week 7, after the 1.6km run, Andrew went straight to recess with the heart rate monitor still functioning. During the 15 minute period of recess, Andrew spent the first 6.5 minutes eating a snack and then took part in a low activity game of foursquare. Throughout the 15 minutes of recess Andrew's heart rate remained elevated above 140 b.p.m. On the second occasion that he was observed (recess and lunch time in week 6, term 4), his heart rate decreased to less than 120 b.p.m. two minutes following fitness (fitness obstacle course), and was below 120 b.p.m. throughout the lunch period. During both of these periods Andrew spent approximately one third of the time sitting and eating and the remainder in a low activity foursquare game or walking from one group to another.

Out of School Activity

Out of school time Andrew's activity appeared to fluctuate depending on his home circumstances. During conversation with Andrew's Mother, she admitted that she was very inconsistent in her support and interest in his activities. She admitted that she had; "been slack with him, and I should do more because I used to be very fit when I was younger, swimming all the time, and I think he realises how important it is to be fit."

When the researcher asked if Andrew's Mother had heard anything about the physical activity programme the children were doing at school she said; " He talks about it more now. He was talking about wearing that heart rate thing the other day, and he told me it stored his heart beats. He said it showed he went pretty well." Andrew's mother was asked if she knew the children in Andrew's class were involved in a trial 'physical activity' programme. She replied; "I didn't know they were doing a special programme, I knew they were running every day but I thought it had to do with Mr. Kent" (interview, 20/11/91).

Andrew's mother said she did take him to his rugby and baseball and paid the fees from her Supporting Mother's pension because she believed he should be doing 'sports'. Andrew's activities changed from rugby and BMX biking in the winter (August) to self-defence and baseball in the summer (November). He had lost interest in rugby because his friends no longer attended. Andrew believed that he was not active, and told the researcher that he was distracted by the T. V. and chores like cleaning up his room and doing home work before he went to bed (interview, 3/12/91).

Based on the student questionnaires, Andrew calculated that he was spending 420 minutes in activity in July (60 minutes each day). In December this figure increased to 690 minutes a week (98.7 minutes each day). The figures from the

activity diaries averaged 51 minutes a day in August and 64 minutes a day in November.

Andrew believed that he wasn't very active. He was easily distracted by T. V. and sometimes had to be in bed early after cleaning up his room. He felt good after exercising except when he had rugby and self-defence on the same day, as happened last year. Andrew liked the fitness programme his class was following and thought it was "that new programme" (interview, 3/12/91) that Mr. Kent was using. He found the running hard going sometimes and the relays boring on occasions. He felt that 30 to 45 minutes four times a week would be an ideal amount of time to be able to keep himself fit.

The messages that Andrew was receiving from home about activity were inconsistent and confusing. This has been stated by his mother. Much of the time Andrew lives with his grandparents who spoil him and overfeed him. The researcher's interview with the mother was at the grandparent's home. The grandparents were seen to be constantly offering Andrew biscuits and sandwiches. The researcher asked the grandparents if they encouraged Andrew to be physically active and they both said they did "as much as they could" (interview, 3/12/91).

Louise

Louise is an athletically built, confident girl who, according to her Mother, has always been physically active (interview, 20/11/91). The student questionnaire revealed that Louise enjoyed sports and fitness and considered herself to be 'very fit'. Although she thought the fitness programme had been quite good she wasn't sure if it had improved her overall fitness. Earlier, in the August questionnaire, she thought it had improved it quite a lot. Louise believes that the

class fitness programme had made all the children in her class much fitter than they were, especially the less fit children. She didn't like the running sessions because she found it hard to run as she had usually been involved in a hard swimming training session earlier that morning (interview, 3/12/91). Relays, jump rope and exercises were her most enjoyable activities. Following a fitness session of running in October, Louise suggested the sessions should be first thing in the morning rather than just before recess because of the hot weather. She also said that she enjoyed the relay-type of activities the most because they allowed her to rest regularly (field notes, 31/10/91).

Louise was observed and monitored twice during the class fitness sessions;

i) Term 1, week 11. Leger Shuttle. This lasted for 20 minutes with Louise recorded in 'activity fitness' for 47% of the session and 'activity' for 40%. This is a total of 87% of combined activity. Heart rate was elevated above 140 bpm. for 52% of the 20 minutes.

ii) Term 3, week 3. Run / walk. On this occasion Louise was recorded in 49% 'activity fitness' and 39% 'activity'. This is a combined total of 88% of activity for the 14 minute session. Heart rate was above 140 bpm. for 77% of the time.

Both of these fitness sessions show high levels of activity and reasonable amounts of elevated heart rate. Louise never appeared to over exert herself during the morning fitness. It is important to note that Louise had spent 120 minutes in swimming training prior to school on both occasions.

Louise was observed during recess and at lunch time once during term 3, week 3. At recess she was engaged in activity for 81% of the 15 minute break. This was considered moderate activity and included walking and playing 'foursquare' on the playground. Her heart rate was above 140 bpm. for 16% of the break.

During the 50 minute lunch break, Louise spent 22% of the time sitting and eating lunch. The remaining 78% was mainly spent playing foursquare and walking. Both activities were of a moderate intensity. Louise's heart rate did not reach 140 bpm at any stage during the lunch period.

Out of School Activity

Louise is a dedicated competition swimmer who spends 90 minutes swimming laps every morning before school. Three afternoons a week she does an additional 120 minute session, plus 120 minutes on Saturday. In the 'build up' to the State Championships in January, she will be doing five afternoons a week. Louise is keenly supported by her parents, who transport her to and from the pool every morning at 5.00 a.m. Her Mother says the enthusiasm comes from Louise, who is "in the car 5 minutes after we switch her light on at 5.00 a.m. ready to go" (interview, 20/11/91). Louise was originally enrolled in gymnastics and acrobatics, but changed to the swimming programme because of weak ankles and knee joints. Although her coach is very single minded and tells Louise she shouldn't be doing any school P. E. or sport, her mum says "we've told her that if it interferes with school, then it's goodbye swimming". With regard to the fitness programme, Louise's mother felt that fitness should be incorporated into the school's curriculum.

Both parents are still physically active and play tennis, golf, run and swim. They feel that being active and having plenty of options and things to do can keep their children busy, and out of trouble in later years. Louise's mother stated;

If they have a healthy respect for their bodies, the less likely they are to think about using substances that abuse the body. Physical activity is a great way to unwind the brain as well as the body. Louise gets a great buzz out of her fitness level, last year she wasn't as fit. That test you gave (1.6km, sit

and reach and sit-ups) she was quite thrilled with the results she got. I really believe that in terms of social development, physical development is a forerunner to a healthy attitude towards a lot of things (interview, 20/11/91).

Besides swimming, Louise also enjoys playing tennis, netball, rollerskating and trampolining. Louise is worried about spoiling her chances of doing well in the State championships by getting injured doing other sports. She told the researcher; "a friend of mine was doing fitness running at school and her foot went down a hole and she broke her ankle, now she can't swim. I like netball, but it's taking a big chance. I have to be really careful I don't run into anyone and injure myself" (interview, 3/12/91). Louise said she quite liked physical fitness, which she called 'exercise' and said it should be fun. Louise claimed that:

Fitness is important because if you don't do it you get lazy, put on weight and won't do anything. That's what Dad tells me every morning. Dad says he'll buy me 50 pairs of bathers if I win the State Championships. Being fit is good for your confidence because you can do more things. You can join in more things and you get picked (interview, 3/12/91).

Louise sees her swimming as both physical fitness and sport. She considers that she is doing enough fitness work already, but is keen to increase her training to five afternoons a week in order to win the State championships. This attitude is reflected in the time Louise spends in the swimming pool each week. The questionnaires showed a weekly total of more than 900 minutes in July and 1110 minutes in December.

The results from the activity diaries administered in August and November,

actually produced higher totals in August than in November. Louise told the researcher she had not been training in the evenings during the last two weeks because she had been "feeling a bit burnt out"(field notes, 13/12/91).

Candice

Candice is a slim girl of average height and weight. During observations of the fitness sessions, Candice appeared to maintain a good pace and still run strongly at the end of the sessions. Generally Candice enjoyed the fitness activities with only running and leger shuttle marked as dislikes in the survey. When the researcher asked Candice what her 'ideal' fitness programme might include she said "only have running once a week and only do relays twice a week." She explained that running was boring, tiring and too hot. "Relays can also get boring sometimes" (interview, 3/12/91). These comments reflect the pattern of activities the children were following for the latter part of the year.

In the last two months of the last term the teacher had introduced dodge ball as a Friday morning 'fitness' activity. This activity is not in the WASPAN teachers' manual. Unfortunately the researcher did not get the opportunity to observe a dodge ball session. It was not until near the end of the year that it came to light that the class were doing this activity and when the researcher did come in to observe a Friday lesson, it was cancelled by the teacher because of rain. By definition, dodge ball involves two teams of children who throw a ball to hit members of the opposite team below the waist, in order to get them 'out'. An enjoyable game, especially for the stronger, more dominant children. In terms of activity, it would not be any more than moderate to low intensity. Candice would include dodge ball into her ideal programme twice a week; "because everyone likes it and it doesn't tire you out"

(interview, 3/12/91). Candice thought fitness was a good thing "it gives you the chance to live longer, it does your heart good and it makes you more confident and durable" (interview, 3/12/91).

Candice was observed and recorded twice during fitness sessions.

i) Term 2, week 8. Relays. This lesson began with 4 minutes of stretching, followed by 70 seconds of sit-ups. The relays began one minute later, and lasted a further 10 minutes. Four different relays were organised by the teacher and the children worked hard each time their turn came around. Candice was recorded in 'activity fitness' for 19% of the time and in 'activity' for 12%. Although this is only a combined total of 31% of activity, the heart rate was elevated above 140 bpm. for 47% of the time and above 120 bpm. for 66% of the 17 minutes. This shows the effect of relays in keeping the heart rate elevated

ii) Term 3, week 10. Relays. Again this was not the scheduled activity. The class was instructed to run across the oval and back (a 30 second run) as a warm up. The relays were then explained to the children, who worked continually until recess, a total of 12 minutes. 41% of 'activity fitness' was recorded with no moderate to low activity. This leaves a total of 59% of inactivity for the 12 minute session. Heart rate was above 140 bpm. for 64% of the time and above 120 bpm. for 82%.

Candice was also observed during the recess and lunch period in term 3, week 9, (see Table 15). During the recess period she shot a netball for just over half of the 15 minutes (53%). This elevated her heart rate to more than 140 bpm for 11% of the recording. At lunch time she played foursquare for just over half of the 50 minute period. This recorded a heart rate of over 140 bpm. for 34% of the break.

Out of School Activity

In August Candice was playing a great deal of netball which included 2 x 90 minutes training per week and 80 minutes of playing in matches on Saturday. The netball season had finished by December and Candice was then training only once on Saturdays. She was walking, riding her bike and trampolining during the week.

Candice's mother was very supportive of the school 'fitness programme' and claimed:

Academic achievement is important in terms of future income earning capacity etc. Physical fitness and physical development are equally important because if they can develop good fitness habits as a child, then that gives them a very solid basis for their adult life, where if they develop bad habits or don't learn what good habits are, then they don't have a very solid basis for future adult life (interview, 21/11/91).

Candice's mother went on to say that although she was not at the height of fitness herself, she thought that active lifestyles were vitally important for her children and explained that Candice has always been encouraged to be active and eat a healthy diet. There were other benefits of being fit, she explained;

It carries on to other things, like their ability to relate to other people, the ability to be able to work as a group or team as well as an individual. They learn that you can be competitive without having a killer instinct and this provides another aspect of their development which is equally important in later life." It's very important for them to develop a level of confidence in their fitness and skills for them to be able to transfer and apply them to other contexts, sporting or whatever. If they play netball for example, they can turn round and try indoor cricket, which isn't a normal school sport" (interview, 21/11/91).

The family has a beach house and they go there to swim and run around on the beach. There are extensive school fields across from the house and the three girls spend quite a lot of time there. Candice's mother said: "They're always over there running around, flying kites or whatever." They walk or ride their bikes wherever they're going. Candice and her two older sisters obviously had a supportive home situation and were encouraged to be as active as possible. "My two oldest girls work part-time at Kentucky Fried Chicken, five 'k's' from home. We make them walk to work, and we pick them up if it's late (interview, 21/11/91).

Table 18 displays the results from the questionnaire which show the time Candice spent in out of school activity. In July Candice estimated that she was engaged in activity for 515 minutes during the week or a mean of 73 minutes a day. These figures were very close to the activity diary figures for August of 540 minutes per week or a mean of 77 minutes per day (see Table 19). The activity diary figure for November was 290 minutes per week or a mean of 41 minutes per day. This was much less than the 705 minutes a week in the December week (101 minutes a day) recorded in the questionnaire.

From the student questionnaire Candice had changed her response to 'what is your current state of fitness?' from 'about average' in August to 'quite fit' in December. The results of the November fitness testing placed Candice at the 95th percentile in the 1.6 km run and the sit and reach tests and at the 75th percentile for sit ups.

Adie

Adie was the lowest fitness girl in the class in June, according to the fitness tests. She was doing very little structured physical activity or sport and was

slightly overweight. She played some netball, rode her bike and swam occasionally. Table 19 shows that Adie was able to make a substantial improvement in her fitness on the 3 measures tested between June and November. When the researcher asked Adie what she thought about the fitness programme the class had been doing at school, she said; "It used to be hard when I was unfit but it's okay now. It's got me fitter and encouraged me to do more after school." She thought there were too many soccer relays and would like more variety. On the 'happy face' survey of student preferences for the different activities Adie responded that she really liked the jump rope work, the exercises, and the obstacle course. The other activities were all 'okay'. She remarked that the fitness programme had improved her fitness 'A great deal', and had given her more energy to help with other activities. She would like to be a little fitter than she is now (interview, 3/12/91). During term 3 Adie had told the researcher that she liked some of the activities, but found others painful depending on what they were doing. "Long runs are difficult and I'm not keen on relays" (field notes 31/7/91).

Adie was observed, and her heart rate monitored, twice during the fitness sessions;

i) Term 3, week 2. Relays. A 16 minute session with Adie recorded in 'activity fitness' for 24% of the time. 'Activity' was recorded for 3% of the session. Although this is only a combined total of 27% of activity, the heart rate was elevated above 140 bpm. for 81% of the 17 minutes. Each individual ran 4 times in rotation before the team rested and then went through a second set (2 sets of 4). After this the teacher instructed the class to run around the far football goal posts and back. The figures for Adie's heart rate again show the effect of relays in keeping the heart rate elevated while the participants are resting.

ii) Term 3, week 10. Relays. 24% Activity fitness was recorded for the 11 minute session. Heart rate was above 140 bpm. for 72% of the time and above 120bpm. for 98%. This was a very short session of relays with the class only coming out to the oval with time for 11 minutes of activity. The class ran approximately 15 meters to the edge of the field and back, as a warm-up. The children were left to complete the relays almost unattended, with little or no motivation from the teacher. There was a noticeable drop in the target student's heart rate as the children became confused with their instructions towards the end of the session.

Observations and heart rate monitoring during recess and lunch time was carried out during week10 of term 3. The observations showed Adie to be engaged in very little activity of any intensity during either break (13% and 11% respectively). As a result Adie's heart rate reached 140 bpm. for only 15% of recess and 16% of the lunch break.

Out of School Activity

Adie enjoys playing netball. She also rides her bike, and swims occasionally. She told the researcher that she likes the beach, and explained that she used to be in the surf club but isn't any more. She particularly likes riding her bike, especially if mum comes along. She would like to do more exercise which could include gentle jogging or walking or riding her bike. Adie ranked herself 5 on a scale of 1-10 for fitness despite her great improvements in the fitness testing. She sees fitness as being important and good for her health and her confidence (interview, 3/12/91).

Adie's Mother says that Adie was a late developer and went to uni-gym before she started school, in a successful attempt to improve her poor co-ordination. Adie's parents perceive themselves to be fairly active, taking a walk every morning in

which Adie sometimes joins them. Both parents also play tennis and ride their bikes. Adie's brother is very active and spends most of his spare time playing basketball.

"Adie gets a bit outshone by him." Adie's mother admitted:

He's much more entertaining to watch than Adie so we tend to spend more time supporting his activities. We tell her she'll be a big fat slob if she doesn't get moving. Last year she played tennis and swam a lot and there was the surf club, but we haven't kept up the registrations this year because they (the two children) are going to Queensland to visit the relatives for the Christmas holidays" (interview, 21/11/91).

Adie's questionnaires and activity diaries revealed an increase in the time she was spending in physical activity during the period of the study. This corresponds with her improvement in fitness and a more positive attitude towards physical activity.

Eastwick School

Eastwick school is situated in a well established suburb of Perth approximately two kilometers from the city. A mixed background of ethnic origins is represented in the student population of two hundred. In the Year 6 class, for example, only 8 of the 24 parents who returned the parent questionnaire were born in Australia (one third). The school has only very small grassed areas either end of a hard surfaced basketball court. The small park adjacent to the school is a resource the school depends upon for school sport and fitness activities.

In 1991 the school had a student population of 150 with 5 full-time teachers, a teaching principal, and part-time library, music, and art teachers. The gardener/ caretaker was a very active member of the school staff and often helped out with the children's lunch time activities, particularly cricket in the summer.

The Principal

At Eastwick the principal, aged 46, was in his first year at the school. Previously the principal of a country school, this was his first appointment as principal in the city. A tall, well built man, he had always played a great deal of sport and was still playing cricket and running regularly to keep himself fit.

The principal at Eastwick related the school ethos as: "Centered around the individual child". This he expanded as the pursuit of educational excellence for each child. He stressed the parallel development of the teacher as being integrally involved in this process and the notion of the team, teachers, children, parents and Ministry all working together effectively, to achieve the same thing. He stressed the philosophy of individual enhancement and the concept of personal goal setting which he thought could be achieved in physical education no matter how athletic or otherwise the child was (interview, 15/11/91).

What is the Attitude of the Principal Towards Physical Fitness?

The principal was extremely positive towards active lifestyles and provided a good role model for the children. He was regularly seen helping and encouraging the children's involvement in games and activity during recess and lunch break. He personally trained a school cross-country team to participate in the inter-schools athletic carnival, the first time that Eastwick had been entered. The principal felt that these children, both boys and girls, had benefited enormously in terms of self-esteem as well as fitness levels (field notes, 25/7/92). The principal enlarged his general fitness philosophy with the following statement:

I see physical education and fitness as an excellent way in which children can set goals, measure performance and gain the satisfaction of knowing they've done well. To me although you can do this in many subjects, physical progress in particular is quite easy to measure, and is a very worthwhile measure. I also believe that fit kids are happy kids. Simple and effective. Self-esteem is enhanced. I was here and now I'm there and I'm really pleased with myself scenario. I see fitness as being a lifeskill, important to every individual regardless of whether they will play sport or not. (interview, 15/11/91).

This positive view of fitness as a lifeskill is very much in line with the philosophy of the WASPAN programme. The principal saw the physical education of the child in holistic terms; "Sport and skill acquisition I see as one and the same, they should not be learnt in isolation. There should be opportunities to develop skills into games situations; to develop enthusiasm from the children rather than didacticism from the teacher" (interview, 15/11/91).

The principal had spent a large proportion of time during his first year at the school dealing with the problems he had inherited when he arrived at the school. These were, to a large extent, student discipline and general school unity. According to Ms. Thomas, the Year 6 class teacher, he had achieved his aims by running a very tightly managed operation. She said he worked very closely with his staff, including them in the policy and decision making wherever possible. By doing this he had gained their respect and they felt they had input as to the direction the school was taking (field notes, 4/12/91). The principal told the researcher that the discipline problems had taken some time to 'iron-out' but he thought they (the staff and himself) had at last succeeded. "Much of the credit must go to the teachers," he said, "we formulated strategies for keeping the children occupied, especially during lunch and play time. This involved activities, and resources like balls and bats. At first these activities were supervised, but as time went on the supervision was slowly withdrawn" (field notes, 30/10/91). The principal was always ready to praise the staff and credit them for any achievement. The researcher, who would sometimes arrive at the school at 8.15 before the start of school at 8.45, always found the principal in attendance. This reflected the time and commitment the principal was devoting to the school. The relationship between the principal, the teachers and the children is most important and is reflected to some degree in these last extracts. The implications of the manner in which the principal involves himself in the various aspects of the school are explored in the discussion.

The Principal's Views on the WASPAN Physical Education Programme, and it's Place in the School Curriculum.

The principal at Eastwick was very conscious of the WASPAN programme and the amount of time it was taking on the Year 6 time table. The Year six class teacher

(Ms. Thomas), who was taking the programme, had been on two WASPAN inservice days during the first term. Mid way through the third term, the principal advised Ms. Thomas to drop the second of the two p. e. skills lessons and the theoretical 'health-hour' in favour of maths and writing time. The principal explained that he was aware of the importance of physical education, but he was very aware of the pressure for a balance in the time table. He said that there needed to be an emphasis on the areas which had been prioritised in the school development plan for that year (field notes, 24/10/91).

The researcher asked the principal what he thought about the implementation of the WASPAN fitness programme in 1991. He replied:

I have no doubt that the fitness programme has been successful - there's no question. It's been a good team building exercise - that hasn't as much been said but it's been implicit in many remarks and I've picked that up a number of times. The children are getting personal satisfaction out of it and that's enhancing classroom image and corporate self-esteem if you like. The kids think it's worthwhile - they definitely have given that feedback as a group, as well as individually, and I've had personal feedback from kids. Ms. Thomas has often pointed out individuals who couldn't do "that" and who now can. Others have come to me of their own initiative, sometimes it just crops up in conversation. A number of kids come up to me for stickers to say "I can now do this". Nadine, Mandy and David for example. At the other end of the scale I've had kids in the running programme [cross country] that I introduced, saying they couldn't have participated in the running programme if they hadn't already had the fitness they had gained from the class fitness programme (interview, 15/11/91).

The researcher discussed the possible ramifications of a more structured fitness programme beginning further down the school and developing as the children progress through the school, culminating in the WASPAN programme currently operating in the Year 6 class. The principal replied that it very much depended on the staff and their belief and motivation for such a programme.

At one school I was teaching at I had to sell the concept to the staff, and the problem was keeping it up, it tends to slacken off. You have to keep them in focus and keep coming up with new activities. It comes back to the teacher time you've got available for them to be supportive and if that fits into the whole curriculum (interview, 15/11/91).

Could the principal foresee the possibility of a remedial programme which would target the low fitness children for a more emphasised programme of activity? he made the following statement:

I can see a case for it. It's a much more difficult thing in phys. ed. and teachers are not trained for it as they are in other areas. It's important for each kid to reach their potential in p.e. no matter where they are on the continuum. Much of your problem would come from lifestyle. You don't have to sell it to us, you have to sell it to them. It's like child beating, it's self perpetuating (interview, 15/11/91).

This comment from the principal suggests that he is very aware of the home context and the influence of the family background in shaping children's behaviours. This point is expanded in the discussion.

The principal was asked what he saw as the 'ideal' fitness programme?

I would like to see an across the board school fitness programme like the

1979/80 one [at a previous school] which was based on 15 minutes. Nine minutes of hard activity with 3 minutes each side to warm up and warm down. Games, circuit, health hustles etc. Perhaps 20 minutes daily, more than that becomes an imposition. Three minutes warm-up, and 15 minutes activity (interview, 15/11/91).

It would appear that the principal has revised his session duration from 15 to 20 minutes during the course of this last statement. His comments were modified by his earlier comments regarding a belief in the importance of a fitness programme on the one hand and his worry about time and staff expertise on the other (field notes, 24/10/91 & 15/11/91).

The researcher asked the principal if he had received any comments from the parents of the target class concerning the fitness programme or physical education in general? He replied:

Feedback from parents is very rare unless its negative. The fact that there has been no negative feedback is in itself significant. One boy's mother did say "Cade will never be a great athlete, but by participating he is learning a lot about himself." In a recent parent questionnaire from the school, parents prioritised literacy and numeracy but after science and computing, phys. ed. was raised as a 'significant other' subject. It was significant to me that phys. ed. got a guernsey (field notes, 12/12/91).

The Parents

Questionnaires were sent out to all parents. Table 20 displays the results of these questionnaires. The first three questions ask the general characteristics of the respondents. Of the 24 questionnaires returned, 15 were from females and 9 from males. 8 respondents were born in W.A., 6 in other states and 10 overseas. 12 parents were aged between 30 and 39, 10 were aged between 40 and 49 and 2 were aged between 50 and 59.

The responses to the remaining questions indicated that 6 (25%) of the parents had taken no exercise of any kind during the preceding 2 weeks. They did not walk for recreation or exercise or take part in vigorous or less vigorous exercise. This is lower than the national figure of 27% recorded in the Risk Factor Prevalence Survey (National Heart Foundation, 1990). Five males and 10 females (total 62%) stated they had walked for recreation or exercise during the preceding two weeks. This is a slightly higher figure than the RFPS of 55%.

Three males and 4 females (29%) exercised regularly at a vigorous level, i.e. at least three sessions a week at an average of at least 20 minutes each session. This was again lower than the RFPS figure of 40%.

A higher percentage of males (33%) were exercising at a vigorous intensity than the females (26%). There were more females exercising at a lower frequency, 11 or 73% and for more sessions. 7 males were exercising an average of 5 sessions a week. Fourteen respondents, 7 males and 7 females (58%) thought they were of average fitness, with 3 females, 2 males (21%) rating themselves above average, and 5 females rating themselves below average (21%)

Twenty five percent of the parents thought fitness was very important to their own lifestyle (3 males, 3 females). Five males and 6 females (46%) of the parents thought fitness was very important to their childrens' lifestyle.

Table 20

The Results of the Eastwick Parental Questionnaire

Q.1	Total number of returns:	Male=9. Female=15. Total=24		
Q.2	Age group of respondents:	30-39 = 12 40-49 = 10 0-59 = 2		
Q.3	Where born:	W.A. = 8 Other States = 6 Overseas = 9		

			NO	YES
				MEAN

Q4	In the past 2 weeks did you engage in vigorous exercise, i.e. exercise which made you breathe harder or puff and pant?		17	7
				121 mins.
Q5	In the past 2 weeks did you engage in less vigorous physical exercise for recreation, sport or health-fitness purposes which did not make you breathe harder or puff and pant?		6	18
				5.7 times
Q6	In the past 2 weeks did you walk for recreation or exercise?		9	15
				5.8 times
Q7	In the past 2 weeks did you engage in vigorous activity, apart from exercise, which made you breathe harder or puff and pant?		9	15
				3 times
Q8	How fit are you?			

		VERY QUITE FIT	AVERAGE FITNESS	NOT THAT FIT
		NOT FIT		

		1	4	14
			3	2

Table 20 continued

Q9 How important do you consider fitness to be to your own lifestyle?

VERY IMPORTANT	QUITE IMPORTANT	AVERAGE	NOT THAT IMPORTANT	NOT IMPORTANT
6	7	9	2	0

Q10 How important do you consider fitness to be to your children's lifestyle?

VERY IMPORTANT	QUITE IMPORTANT	AVERAGE	NOT THAT IMPORTANT	NOT IMPORTANT
11	10	3	0	0

Q.11 Are there reasons preventing you from exercising more?

1. Time	16
2. Weather	6
3. No partner	2
4. Costs	3
5. Medical reasons	4
6. Rather not	3
7. Other	2

The main reason parents gave for not exercising more was 'time'. A total of 16 (66%) stated this reason. Six respondents (25%) thought the weather was a major factor that deterred them from exercising.

The Class Teacher

Ms. Wendy Thomas has been teaching at Eastwick school for 12 years. She is usually moderately active but this year she has been preoccupied with the burden of chronic family illness and subsequent extra responsibilities. As a result she admits that her own health has suffered. During the previous year (1990), Ms. Thomas conducted the WASPAN nutrition programme with her Year 6 class. At the end of the year she approached the principal and asked to be included in the WASPAN physical activity programme for 1991.

The researcher initially met Ms. Thomas at two separate WASPAN in-service courses, held in term one. On these two occasions teachers from all nine schools involved in the WASPAN physical activity programme were present. Further contact was made with the Year 6 teacher at Eastwick while the researcher was working in the capacity of research assistant for WASPAN. During term two, three visits were made to Eastwick to record the fitness sessions for WASPAN.

Ms. Thomas was extremely helpful with all aspects of distribution and collection of material and did her utmost to keep the researcher informed about the fitness programme and its implementation. The weekly programme of fitness activities was displayed in the classroom so the children could see the activities they would be doing that week. In the first and some of the second term Ms. Thomas took part in the activity sessions herself. However, due to family illness and associated responsibilities she took no further part after May 23rd (term 2, week 4).

Innovations, introduced by Ms. Thomas, included a child's mother coming into school to take a step-up session. This work-out was extremely well received by the children and produced effective results in terms of heart rate elevation. The target student spent 94% of the session with heart rate above 120 beats per minute and 69% above 140 beats per minute (see process results, 10/6/91). If Ms. Thomas

was not taking the class she would leave the relief teacher details of the fitness work to be covered. In week 7 of term 3, the researcher observed a relief teacher's jump rope lesson (see process results, 3/9/91). This lesson went very smoothly. This would be partly credited to the children's familiarity with the lesson content and the procedures the class knew as routine.

What Attitude does the Teacher have Towards: the Place of the WASPAN Physical Education Programme in the School Curriculum?

What did Ms Thomas think about the way WASPAN fitted into the present curriculum structure? She made the following comment:

With the sport on Friday there's always the ones who run like crazy backwards and forwards - but they're not the ones we're worried about, it's the others. So I think it's important to have the two (fitness and sport) with the sport teaching them the social aspects of team games and at least one p.e. lesson to teach them the skills, plus fitness every morning. The skills are essential because there are all these kids who are left out of the big game because they can't play it. That's why the in-service was so good for me. I'd never had a soccer ball at my feet before, so I needed that non-threatening skills lesson so I could practice the skills that are basic for somebody else but an Everest for me (interview, 26/11/91).

Ms. Thomas thought that health and fitness were inseparable and should have a pronounced emphasis in the school curriculum. This she said was because "in many cases healthy lifestyles received little to no attention in the home" (interview, 26/11/91). She thought fitness should be introduced at kindergarten level to get a regular habit established. However, she did have reservations about a

comprehensive, whole-school programme as she was unsure of the level of teacher motivation she thought would be necessary to carry it through successfully. "It would worry me in classes where teachers are not motivated to do fitness. I've noticed other teachers watching us and coming out more regularly, like we do. Some have also incorporated some of the things we do into their sessions" (field notes, 30/10/91). But she explained they did not have the resources, training or motivation that she had. This comment was substantiated by the researcher's observations at the school. Other teachers were very poorly organised in their fitness lessons, keeping many children standing for prolonged periods of time (field notes, 16/9/92 & 30/10/91). If the weather was wet, there was no alternative activity arranged in other classes (field notes, 29/5/91).

Ms. Thomas thought that the WASPAN package was excellent, and that even if she was not, as she said "carrying it out perfectly", the children were improving their activity and fitness. "The resources (teachers' manual, video and cassette for health hustles), are first class, and if there's been a problem I've been able to talk to you (the researcher) about it. It would have been good to have talked to a couple of other teachers who are following the programme, because I'd have liked to have said: What did you find with that relay, did you find it hard too?" (interview, 26/11/91).

Ms. Thomas was asked how the physical fitness component of the WASPAN programme was integrated with the class time table:

Really its part of the overall physical package the children get. Twenty minutes fitness, although it's more like 25-30 minutes every day and we try to do that no matter what. Plus their hour's sport on Friday afternoon, which is a tradition and the children don't want you to interfere with that. Then there's supposed to be the two other half-hour phys. ed. lessons. One I've

always managed to get in, but I've had to drop the other one. We do it now whenever I can fit it in (interview, 26/11/91).

What Attitude does the Teacher have Towards the Implementation of the WASPAN Physical Education Programme?

The response to this question has been divided into the 4 school terms in order to show the clear development of the teacher's attitude towards the implementation of the physical education programme during the course of the study.

Term 1

The class was scheduled for a 20 minute fitness session first thing each morning. One 35 minute physical education (skills) lesson was scheduled each Monday and there was an hour of sport on Friday afternoon. In the first two terms there had been a health-hour. This hour had been the time when the classroom component of the WASPAN programme had been taught (a six week package designed to tie in with the practical component).

Ms. Thomas followed the WASPAN teachers manual day by day. The weekly fitness time-table was posted up on the wall next to the classroom door so the children could see the activities they would be following each week. If there was rain a health hustle would be substituted for the programmed activity. The missed activity would then be caught up in place of the next health hustle in the programme.

Ms. Thomas joined in with the activities during this term. She would run with the slower children and encourage them to complete each task.

Term 2

In the second term Ms. Thomas had started to develop strategies to ensure the smooth implementation of the programme. The time-table was displayed each week and various children were allocated specific tasks depending on the activity taking place. Certain children developed health hustle routines, others were responsible for equipment. All the children were included in these tasks, not just the more enthusiastic in the class. The researcher observed a very well rehearsed health hustle led by a girl and a boy in synchronisation. The desks and chairs had been cleared allowing adequate space. Ms. Thomas joined in at the back of the group. (field notes, 23/5/92). On another occasion a mother came into school and led the class in an aerobic step-up session. This was an outside session with taped music selected by the students (field notes, 10/6/91). During this session the target student maintained an elevated heart rate (above 120 beats per minute) for 16 of the 20 minute session.

Ms. Thomas stopped joining in with the activities by week 4 of the second term. Family illness was taking up much of her energies and she often looked physically drained by the time she arrived at school in the morning.

Term 3

Ms. Thomas was often tired on arrival at school and had usually not been able to review the WASPAN manual prior to the sessions. The children knew what activity to expect each morning and if Ms. Thomas was a few minutes late arriving at school the class would start a warm up led by a previously selected child.

Ms. Thomas sometimes approached the researcher to ask for clarification on some of the activities. She later explained: "I thought that the manual really needed to be studied before each week's programme. I've usually left it until the day, and

there have been a couple of things that perhaps I haven't read properly and perhaps I've been lazy because I knew you (the researcher), were coming in and so I've asked you. The relay change-overs for instance. But it's probably that I haven't read it (the manual) properly" (interview, 26/11/91).

In consultation with the principal mid-way through the third term, Ms. Thomas had decided that other areas of the curriculum were suffering as a result of the emphasis that had been placed on physical education. As a consequence the skills lesson and the health-hour were dropped and replaced by extra mathematics. Ms Thomas was very aware of the pressure on her for time. "I have been struggling for time, but that's because of all the other demands. Last year I would have taken some time from fitness and maybe given it to reading or music lessons whereas this time I've cut it from other things because you've got to get it from somewhere" (interview, 26/11/91). Ms. Thomas had become quite worried about the amount of time the sessions were taking. "I think it's a lie to say it's a 15 minute fitness programme. In reality it's a 30 minute session and some of the relays took us 50 minutes." Ironically she added: "If the programme had originally been explained as 30 minutes daily, there's no way I would have done it because I know I couldn't have spared that much time" (interview, 26/11/91).

Term 4

In the fourth term Ms. Thomas had found that the fitness sessions were taking longer to accomplish than she had at first envisaged. Part of the reason for this was that the activities had become more complicated as they developed through the year. Ms. Thomas was not reviewing each day's lesson beforehand and working out strategies for its implementation. As a result, she sometimes got herself confused by

trying to rush through the instructions on the morning of the session. On one occasion (30/10/91) while the researcher waited out on the oval Ms. Thomas spent 30 minutes covering the fitness circuit with the class on the black board. At the end of the circuit she explained that the time had been needed to go over the 8 different activities with the class. The researcher explained that the manual states that 4 should be done in the first session and the other 4 in the next session. In this way the children do not need to remember so many activities.

In consideration of the time allocation what did Ms. Thomas think she would do with the fitness programme next year? "I've thought about next year and I've seen the benefits with the children. By putting it up on the board (the fitness timetable), they know they've got it every day, they know what to expect and when. As I said before, there have been a couple of times when it's been a real pull and I've had to make a choice. I hope to get a better time-table next year" (interview, 26/11/91).

What Attitude does the Teacher have Towards the Benefits of the WASPAN Physical Education Programme to the Children?

The researcher and the class teacher discussed the programme's outcomes the teacher had noticed. During this conversation Ms. Thomas spoke about the effect of the home as being an important factor influencing the children's behaviour towards health and fitness:

One of the low fitness girls has lost weight and she's thrilled. That could be linked to the nutrition emphasis I've carried over from last year's programme. I've found that they know the answers to what we do at school, but then they say "but mum said..." and if mum's on one of these special crash diets from 'Dolly' magazine it can counteract all you've been doing and the same's true to some extent with the fitness. So I'd say that although the

programme has been excellent with these low-fitness children, some haven't improved due mainly to all these other problems. Another child I'm thinking of is receiving psychiatric counselling every week so he has plenty of problems. The mere fact that he runs around should be a bonus, but I still feel he should do more. The other low fitness boy I would count as a failure, he's fat, got bad eating habits, and is lazy, but he's starting to make an effort and has turned the corner. There's only mum at home and she spoils him rotten" (interview, 26/11/91).

The researcher and Ms. Thomas spoke about the low fitness children, and what the best way to motivate them might be. Ms. Thomas said that besides the encouragement and motivation she offered them during the fitness work, it was important to recognise each and every individual's achievement. She expanded on this point saying:

I always get the whole class to read out their results and I'll say well done, you've improved, even if its a small improvement it doesn't matter. My philosophy is don't worry about how the others are doing, it's how much you have improved. I tell them about how I keep my golf card to see how much I improve, then it doesn't matter if I have different partners I can still check my improvement. I would hope, if you asked the children they would all know their last 1.6 scores (interview, 26/11/91).

Another example of the way children have indirectly benefited from the programme was explained by the teacher. "The socialization that occurs even if I'm not out there, I see them cheering the slower ones and helping them along and I think that flows into the classroom" (interview, 26/11/91). Ms. Thomas said that many

of the children, and not just the fitter ones, had improved their self esteem. "When children come up and say 'look I've improved, look at my results' you can see the positive effect that's had upon them" (interview, 26/11/91). One particular case in point was Judith. Ms. Thomas explained: "Judith was a bit of a misfit at the beginning of the year, until I was able to latch her onto the fitness programme. She has really taken off with it, and that's been a real boost for her"(interview, 26/11/91).

Ms. Thomas pointed out that the fit children have certainly got fitter, "and they are very conscious now, they all want to take their heart rate and improve their times and all the rest of it, without any motivation from me. Carol, for example, trained very hard for the cross country and has pushed herself up into the very fit group by her determination and image of herself. They feel good about themselves- yes, but they certainly haven't made themselves elite" (interview, 26/11/91).

One boy who began the year being one of the most naturally fit boys, was soon caught up by the others. Ms. Thomas explained:

Look at Peter, he was one of the fittest boys at the beginning of the year, and he has just been swept from the field, and now he's lost in the crowd. He's aware of that because children have actually said to him 'you used to be good at running and you're not now' and he's sort of coped with that by being blasé and not doing much about it" (field notes, 21/8/91).

Later in the school year Peter improved his efforts and the teacher commented "he did some training for the interschool sport and I noticed he really gave it his best shot in the race. Although he didn't do any good, I thought, at least he's trying" (field notes, 6/11/91).

The researcher discussed with the teacher the importance of recognising the middle ability children, and not forgetting about them. "The middle range are important and I always try to give them equal feedback" (interview, 26/11/91). She again mentioned the importance of recognising each and every individual's achievement.

During the interview the researcher commented on the importance of teacher enthusiasm and the fact that she had joined in with the activity when she could. Ms. Thomas said she would have liked to have kept her participation up, and was sorry she wasn't able to. Carrying on from this, the teacher brought up another point: "even though I wasn't able to continue my activity with them, because it was me taking it, and being out there with them, it's helped build the relationship in the classroom. I think that's been an important by-product of the programme. Often their behaviour for the day is influenced by the way they respond to the exercise programme first thing. Including some days when they're ratty or something" (interview, 26/11/91).

Were there any negative outcomes for the children? "No, not that I can think of. There are a couple who haven't improved as much as I know they could improve. That's David and Peter - both due to lack of application" (interview, 26/11/91).

Ms. Thomas had made a very real effort to follow the WASPAN programme as closely as possible. As a non-physically oriented teacher she needed to use the manual each step of the way. Personal problems had meant that she wasn't able to continue her own participation in the activities. Strategies were developed so that the children rarely missed a session. The pressure of the overcrowded curriculum meant that one skills session and the health-hour were eventually eliminated from the programme.

The Year 6 Class

The Year 6 class at Eastwick Primary School contained 28 children; 13 girls and 15 boys. During the year the class gained 2 boys and 1 girl. The Year 6 classroom was situated at the eastern end of the school, one classroom from the end of the block of classes. All classes had good access to the outside areas. Witches hats, coloured cones, skipping ropes and balls were all kept in the class room. Larger apparatus was kept in a central store. The class had its own tape cassette recorder. School started at 8.45 and finished at 3.15. The weekly time table included 35 minutes of fitness, scheduled from 8.45 to 9.20 a.m. every morning except for Mondays which was school assembly day. On Mondays fitness was from 9.00 to 9.25. There was a weekly physical education (skills) lesson, a two-term, hour-a-week health lesson and Friday afternoon sport (65 minutes). The class fitness sessions were held 5 days a week and if there was an extra assembly, school concert or class trip the children would plead with the teacher to squeeze the fitness session in later that day (field notes, 25/7/91).

The class soon became comfortable with the presence of the researcher, coming over to talk during recess and lunch break. Several of the children (not just the fitter children) were interested in the activity of the researcher and asked how much fitness training the researcher did weekly.

Levels of Class Fitness

The children were tested on 3 measures; the 1.6km timed run, the sit and reach stretch and sit-ups. All tests were measured using the Australian Schools Fitness Test protocol and this is detailed in the methodology. The scores for the class on all three fitness variables are displayed in figures 6, 7 and 8. They are summarised in Table 21.

Table 21

Summary of Fitness Testing Results

Girls Tests	<u>June 1991</u>				<u>November 1991</u>			
	Low	High	Mean	% ile	Low	High	Mean	% ile
1.6km	13.4	8.3	11	20th	12.5	7.4	9.4	40th
Sit & Reach	-22	125	-3	10th	-20	125	2	30th
Sit-Ups	19	100	29	45th	22	100	66	80th

Boys Tests	<u>June 1991</u>				<u>November 1991</u>			
	Low	High	Mean	% ile	Low	High	Mean	% ile
1.6km	14.4	7.5	9.9	10th	16	7.1	9	20th
Sit & Reach	-110	95	-8	5th	-100	121	5	75th
Sit-Ups	11	100	33	45th	27	100	80	80th

There were 13 girls and 15 boys present for both testing days. Means are calculated for each group. 100 sit-ups are maximum. Sit-up scores are maximum number of repetitions. 1.6km run times are in minutes. Sit and reach scores are in centimeters. % ile = percentile.

Table 21 shows that the scores for the 1.6km run showed a marked improvement for the girls. This is also clearly displayed in figure 6. The mean individual time decreased from 11 minutes in June to 9.4 minutes in November. The slowest girl decreased her time almost a full minute. The boys mean performance, although showing a minimal mean decrease in time was greatly influenced by one boy who walked several laps in the November run, recording a time of 16 minutes. This lowered the class mean time.

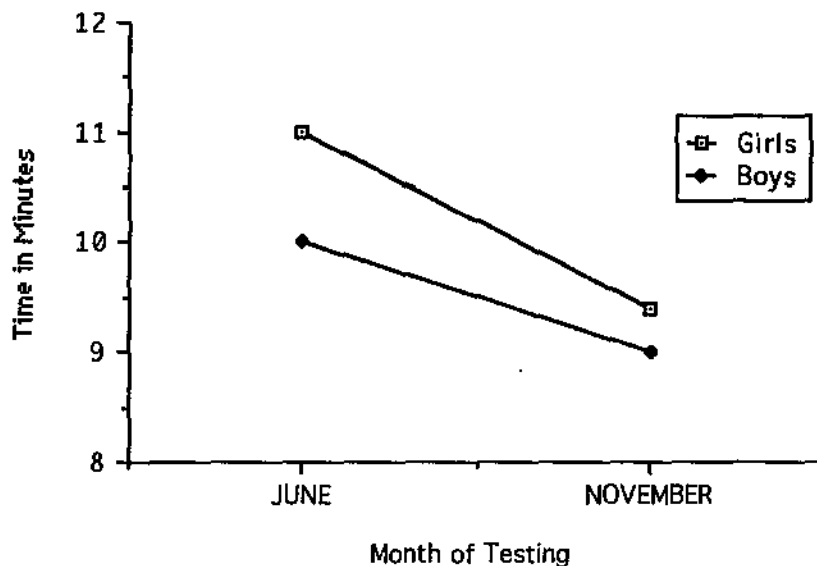


Figure 6. Eastwick class mean 1.6 kilometer times for June and November.

Abdominal muscular endurance performance, as measured by carefully monitored sit-ups, improved over the 6 month period by an average of 16 sit-ups per child. The girls made an average gain of 29. The largest improvement was a gain of 69 from one of the girls. The boys made an average gain of 7 sit-ups per individual. The lowest performers for both boys and girls in June improved their scores in December. Figure 7 shows the mean class improvements.

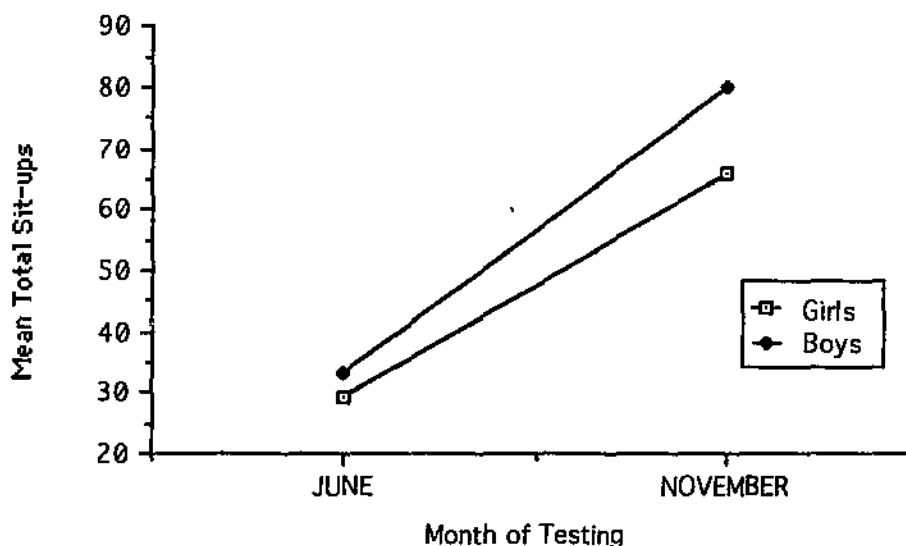


Figure 7. Eastwick class mean abdominal muscular endurance (sit-ups) scores for June and November.

Flexibility measured by the sit and reach test (in centimetres) showed a large improvement for both boys and girls with 86% of the class improving on their June scores (Figure 8). The June scores were very low with 9 of the class scoring below -20 and one boy actually failing to reach the measuring box. By the November tests the girl's improvements had increased their mean score from the 10th percentile to the 30th while the boys mean increased from the 56th to the 75th percentile.

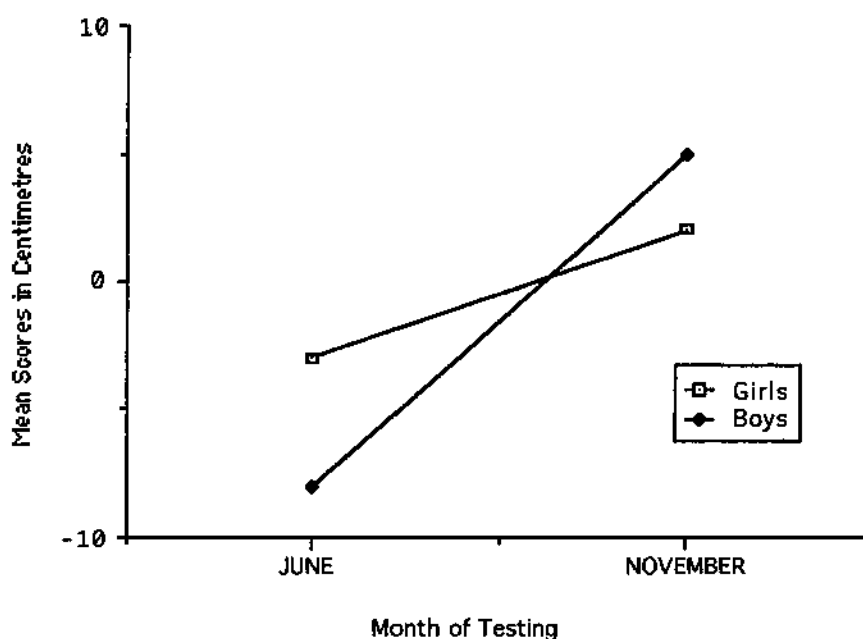


Figure 8. Eastwick class lower back flexibility scores (sit and reach test) for June and November

Although the mean scores have been matched to the national percentiles and show a marked general improvement between the tests, it is important to remember that percentile tables are designed for individual scores and not for group data.

Figures 6, 7 and 8 show a very distinct trend emerging. In all three tests general improvements have been made by both boys and girls. In the 1.6 kilometer run the girls have made more increased gains by markedly decreasing their overall

time. The girls also made more pronounced gains in the sit-up test used to measure muscular endurance. The boys made more significant gains than the girls in the sit and reach test for lower back flexibility but remained less flexible than the girls.

Year 6 Class Questionnaire - Eastwick School

An identical questionnaire was administered to the class as a group on August 6th, and then again on December 9th 1991 (Appendix C). On both occasions there were 27 children present, 15 boys and 12 girls. Questionnaire results should always be viewed cautiously and with some understanding of the influence of the particular contextual situation. The results of the two class questionnaires show fairly stable responses to the questions between August and December.

The results of the first two questions show that enjoyment of sports and fitness was high in both questionnaires as shown in Table 22.

Table 22

The Results of Students Questions 1 and 2

1. Do you enjoy playing sports?
2. Do you enjoy taking part in physical fitness activities?

	QUESTION 1				QUESTION 2			
	Aug.	%	Dec.	%	Aug.	%	Dec.	%
A great deal	13	48	11	41	6	22	5	19
Quite a lot	7	26	12	44	12	44	13	38
Sometimes	7	26	3	11	8	30	9	33
Not that much	0	0	1	4	1	4	0	0
Not at all	0	0	0	0	0	0	0	0

Only one child answered negatively in August (to fitness) and one in December (to sports). The children generally became more positive about enjoying physical fitness activities between August and November.

The two questions concerning the children's perception of their state of fitness and how fit they would like to be are displayed in Table 23.

Table 23

The Results of Students Questions 3 and 8

3. What do you think your current state of physical fitness is?

10. In terms of fitness; would you like to be?

	QUESTION 3				QUESTION 10			
	Aug.	%	Dec.	%	Aug.	%	Dec.	%
Unfit	1	4	0	0	Less fit	0	0	0
Quite unfit	1	4	0	0	Unfit	0	1	4
About average	11	41	10	37	The same	2	0	0
Quite fit	11	41	13	48	A little fitter	11	15	56
Very fit	3	11	4	15	Much fitter	14	11	41
		*					*	

(Asterisk [*] denotes percentages do not add to 100% due to rounding)

By December none of the children thought they were below average fitness. By the December test the majority of the children perceived themselves as of above average fitness (63%). The responses to question 10 indicated that by December 97% of the children wanted to be fitter than they were. One child marked 'unfit' "to be funny" (field notes 26/11/91).

Questions 5 and 6 asked the children when they did their sport and fitness. According to the results from these questions (see Table 24 on page 166) there were 3 children not exercising and four not playing sport in August. In December they were all doing some kind of fitness and sport at some time in the week. The majority of the children exercised and played sport at different times of the day and weekend. One child played sport only before school. Those that did exercise or play sport before school also did so at other times as well. Most children chose a variety of times to exercise or play sport.

Table 24

The Results of Students Questions 5 and 6

5. Out of school when do you do your fitness?

6. Out of school when do you do your sport?

	QUESTION 5				QUESTION 6				
	Aug.	%	Dec.	%	Aug.	%	Dec.	%	
Before school	0	0	0	0	Before school	1	4	0	0
After school	1	4	3	11	After school	2	7	3	11
Weekends	2	7	6	22	Weekends	6	22	11	41
None of above	3	11	0	0	None of above	4	15	0	0
A mixture	21	78	18	67	A mixture	14	52	13	48

Questions 7, 8 and 9 all concerned the exercise programme. The responses are shown in Table 25.

Table 25

The Results of Students Questions 7, 8 and 9

7. What do you think about the exercise programme you have been doing this year?

8. Do you think the exercise programme has improved your overall fitness?

9. Has the fitness programme given you more energy to help with other activities?

	QUESTION 7				QUESTION 8			
	Aug.	%	Dec.	%	Aug.	%	Dec.	%
It's awful	1	4	0	0	Not at all	0	0	0
Don't like it	4	15	3	11	Hardly	3	11	0
It's O.K.	8	30	6	22	Perhaps	6	22	5
Quite good	10	37	11	41	Quite a lot	11	41	13
It's excellent	4	15	7	26	A great deal	7	26	9

	QUESTION 9				(Asterisk denotes percentages do not add to 100% due to rounding)
	Aug.	%	Dec.	%	
Yes	12	44	15	56	
Some things	7	26	8	30	
Maybe	2	7	2	7	
I don't think so	5	19	2	7	
No	1	4	0	0	

There was an increase in the number of children who were positive about the exercise programme (question 7). The 52% response ('quite good' and 'excellent') in August had increased to 67% by December in favour of the exercise programme. A total of 81% were certain the programme had improved their overall fitness while the remaining 5 children (19%) thought that 'perhaps' it had.

There was a more positive response in December to question 9 with 86% of the children answering that they were positive that the programme had given them more energy to help them with other activities.

Question 4 asked the children where they thought the most suitable place to exercise would be. In the August questionnaire 70% of the class thought that both in and out of school were the most suitable places to exercise. This increased to 81% in December with only 2 children who thought that school was the most suitable place to exercise and 3 preferring out of school. There is no Table for this question.

Questions 5 and 6 contained two additional areas in which the children are asked to estimate the time they spent engaged in sport and fitness for that week period. These results are displayed in Table 26. The accuracy of these questions will depend on the children's ability to recall not only the duration of their sport and fitness activities but also determine the intensity of activities they may have been doing a week before. The larger sample size may serve to account for regression to some extent. The results show that there were more children taking part in physical fitness activities and sporting activities in August than in December. Those children participating in physical fitness activities and sporting activities in December were doing so for a greater period of time (See Table 26).

Table 26

The Results of Students Questions 5 and 6: The Time the Children Spend in Fitness and Sport

5. Out of school time, when do you do your physical fitness?

6. Out of school time, when do you do your sport?

	<u>QUESTION 5</u>			<u>QUESTION 6</u>		
	No. of Children	Total Time (mins.)	Mean Minutes per child, per day	No. of Children	Total Time (mins.)	Mean Minutes per child, per day
Before school (Aug.)	7	240	7	2	45	4.5
Before school (Dec.)	7	210	6	2	45	4.5
After school (Aug.)	22	1310	12	15	920	12
After school (Dec.)	18	2570	29	12	1510	25
Weekends (Aug.)	21	2115	54	20	97	48.5
Weekends (Dec.)	20	2840	71	18	165	82.5

Process Observations

As previously mentioned, the activity sessions at Eastwick school usually took place between 8.45 and 9.15 a.m. These sessions often ran on until 9.20 and even 9.30. If a school assembly or other event was scheduled at this time the fitness session would be held later in the day. A total of 19 visits were made to observe activity behaviour and monitor heart rate.

Interval recordings in the form of ALT-PE Fitness (see methodology) were made of the fitness sessions to correspond with heart rate monitoring. The activity levels of the individuals wearing the monitor was recorded every 5 seconds, followed by a 5 second interval to allow time to record the observation code. Coding of the target child began when the teacher announced the commencement of the session. The purpose of these recordings was to observe the amount of time the children were active (huff and puffed) at an intensity likely to produce a training effect. A summary of the recordings is presented in Table 27 on page 180.

Besides making these interval recordings the researcher was also making systematic empirical observations relating to the way both the teacher and the children were reacting to the WASPAN physical fitness programme. Was the activity description easy to understand? Did it keep the children interested? Did the teacher/children find certain lessons difficult to implement/complete, etc? This section integrates a more descriptive account of the implementation of the WASPAN daily physical fitness programme, together with heart rate and ALT-PE Fitness data. Each account includes the incidents from these sessions as transcribed from the researcher's field notes. Pseudonyms have been used throughout the narrative.

The scheduled activity is presented at the top of each report. Collated information concerning activity and heart rate levels for each lesson can be seen in Table 27 which follows the descriptions.

2/5/91 term 2, week 1. Activity-run/walk. Selected child: Mandy.

Mandy is a low fitness female who definitely did not want the heart rate monitor fitted to her. She coughed and spluttered, complaining that she wasn't well and her asthma was bad. The class teacher explained to the researcher that she had been in contact with the child's mother who said that Mandy had no asthma, it was an excuse to get out of p.e. and that she should do all sport and fitness work. The class teacher then told the child that she would phone the child's mother about the problem. The child said "no, don't phone my mother, I'll be alright." The teacher fitted the monitor to the child, and the session proceeded.

The session started with a 10 minute gentle warm-up, stretching, jogging on the spot and jogging with knees-up. This was followed by seven sets of running for one minute, broken up with seven sets of walking for 30 seconds. The teacher joined in and encouraged the children to run during the prescribed times. Five or six low fitness children found the running very difficult and the target student only ran the first 2 of the runs and walked the remaining five. During her second run her heart rate reached 203 b.p.m. and it stayed above 130 b.p.m. for the whole 20 minutes of the session including the gentle warm-up period.

23/5/91 term 2, week 4. Activity-Leger shuttle (health hustle). Selected child: Ted

The scheduled activity for the day was the Leger shuttle but because of the rain the teacher organised two students (one boy, one girl) to lead a health hustle.

These students had previously arranged a tape and worked out moves to accompany the music. The teacher joined in at the back of the class.

Ted (the target child) was a new boy to the class, and being a little self-conscious and lacking in confidence, he was rather stifled and unsure about the exercises. His movements were flat footed and robotic rather than mobile and energetic. His recorded activity fitness and heart rate recordings were low (see Table 27). The majority of the class, and certainly the two leaders, would have recorded a far greater percentage of activity fitness than the target student. The teacher commented "they all quite like doing this (health hustle) and it seems to keep them going for a good 20 minutes. We tend to use it as a wet weather activity so we just swap it with whatever we've missed out on. Setting up the tape recorder outside is time consuming and can affect the other classes."

10/6/9 term 2, week 7. Activity-jog/walk (step-ups) Selected child: Corrie.

The scheduled activity for the day was running (jog/walk) but a parent had agreed to come in to take a step-up aerobic class. The children had organised the music (Bart Simpson and Batman) which the parent had checked for suitability. The class was taken outside using a low (40 centimeter) bench which surrounds a large tree in the school yard. The children, teacher and the parent were able to fit around the bench. The class lasted 22 minutes and included a 3 minute warm-up and 2 minute cool down, both taken by the teacher. Several children stopped for 30 seconds or so during the session to catch their breath. They all started exercising again after encouragement from the teacher. Corrie worked well throughout the session. He made no stops during the step-ups. The recorded activity fitness was very high (71%) although the period when his heart rate was above 140 bpm was only (69%).

and lead them around a mark 20 metres away until the whole team is joined on. This means that all individuals need to be involved regularly, in order for the relay to be completed. Although each team went only 3 times this took 20 minutes (the manual says 4 times). Judith was recorded in 56% activity fitness and a heart rate above 140bpm for 77% of the 32 minute session.

13/8/91 term 3, week 4. Activity- relays. Selected child: Donna.

The scheduled activity for the day was health hustles but again because it was a fine day the teacher decided she would take the class out in the fresh air. (Much of July had been spent in the classroom doing health hustles due to the rain). The teacher wanted to show the researcher the relays because she had been having difficulties with them. The warm-up took 9 minutes, which the researcher later explained was one of the reasons that Ms. Thomas' sessions were taking so long. The idea of incorporating some simple stretches and exercises in a one lap warm up was mentioned to the teacher. It then took the teacher 5 minutes to organise the relays after the warm-up. The continuous relays require five children in each team, not five teams as the teacher mis-read. When this was eventually realised there were two children left over. This caused another problem, and by this time the teacher was getting a little stressed. Eventually the two 'extras' were tagged up with partners of similar ability and told to "run together". The relays were completed in approximately 30 minutes making the whole session 45 minutes, which the teacher was most concerned about.

Considering the stop-start nature of the session (50% of the time was recorded as 'waiting'), Donna's heart rate was above 140bpm for 74% of the 45 minutes.

21/8/91 term 3, week 5. Activity-relays. Selected child: Peter.

The scheduled activity for the day was relays. A six minute warm-up taken by the teacher included stretches and partner sit-ups. The organisation for the relays was much smoother this time, with 4 teams of 5. This left 3 extra children who ran beside partners. Each person ran 10 times before resting for one minute, this was then followed by a further 9 laps. The relays had taken 20 minutes to this point and although another 8 laps were scheduled the teacher decided that it was enough. All children completed the two sets, although the low fitness students struggled towards the end of each set. Five of the class did not participate as they were practising for the schools cross country on Friday.

Peter worked within his capacity without really looking as if he was working hard. The nature of relays determines that children will be waiting for a great proportion of the time. In this case Peter was recorded as waiting for 49% of the 23 minutes. He also spent 49% with his HR above 140bpm. This constituted 11.5 minutes.

28/8/91 term 3, week 6. Activity-1.6Km run. Selected children: Rose and Larry.

The 1.6 kilometer run had been done with half the class yesterday while the others counted a partner's laps. Today the other half were doing the run. The teacher took a six minute warm-up and a five minute warm down at the end. All the children ran the 8 laps without stopping. The HR figures are calculated for the full period of the session including the warm up and cool down. They were calculated above 120 bpm for 70% and 83% of the time and above 140 bpm for 49% and 74% of the 28 minute period. Rose ran 11.53 for the 1.6 km, bettering her last time by 79 seconds. Larry ran 10.51, a 2 minute 35 second improvement on his time in June.

Following this session two students approached the researcher and said how pleased they were with their run yesterday. One of these was a target low fitness boy, David. David had actually run 12.11 for the 1.6 km run as opposed to 14.36 at the June 10th testing.

3/9/91 term 3, week 7. Activity-JRFH. Selected children: Bryce and Colette

The scheduled activity for the day was jump rope for heart. The teacher was involved in staff meetings all day but left the fitness programme for the relief teacher. The children worked hard with only minor intervals of 'off-task' behaviour (not following the designated instruction). Familiar with the lesson content, the children responded at once to the relief teacher's notes (prepared by the class teacher). Two students were observed and monitored. The target girl's monitor failed to work for the first minute. The results for the 17 minute session showed 33% and 37% of observed activity fitness, with 53% and 59% of elevated heart rate (over 140 bpm).

12/9/9 term 3, week 8. Activity-Leger shuttle. Selected child: Bryce.

The scheduled activity for the day was the Leger shuttle. This was a well organised 25 minute session which included a 10 minute warm-up. Teams were organised in groups of three with two at one end, and one at the other. The tape recorder was set up and the teacher encouraged the children to race the tape count. Most of the children ran to the 125th lap before stopping. This was 10 minutes of almost constant running. The teacher sent the class for a gentle lap around the field to cool down. 40% activity fitness was recorded with 40% of activity. Elevated H R was above 140 bpm for only 36% of the 25 minutes but above 120 bpm for 68%.

The teacher had commented on how difficult the class had found the continuous

relays yesterday with two sets of ten minute running. She wondered if it was the aim of the programme to push them hard at this stage or if there was another reason, perhaps something they had all watched late on television. When the researcher checked the programme it was discovered that the teacher had mistakenly jumped 2 weeks of the programme from week 8 to week 10.

16/9/91 term 3, week 9. Activity-pursuit run. Selected child: Jessie.

The scheduled activity for the day was the pursuit run. Unfortunately the heart rate monitor failed to record during this session. The teacher led a 9 minute warm-up which did not include sit-ups as detailed in the manual due to the wet ground. During the warm-up two children were detailed to set out the 200 meter track for the run. It then took the teacher 3 minutes to organise the children into four groups which they selected themselves; 1) super fit, 2) very fit, 3) quite fit, 4) fit. The 'super fit' group of 10 started first, followed a minute later by 7 children in the 'very fit' group, 6 in the 'quite fit' group a minute later and a minute after them 10 in the 'fit' group. All groups finished 10 minutes after the first group had set off. The teacher encouraged all runners and asked them to remember how many laps they completed. Jessie spent 41% of the 22 minute session observed in 'activity fitness'.

25/9/91 term 3, week 10. Activity-relays. Selected children: Adrian and Judith.

The scheduled activity for the day was 2 sets of 10 minute continuous relays with a two minute break. Following an 8 minute warm up the class ran two sets of 5 minute relays with a 2 minute break. At the completion of the lesson the researcher asked the teacher why she hadn't followed the manual which stated 2 sets of 10 minute relays. The teacher explained that she had done Monday's lesson because

it had been missed on Monday due to bad weather and she didn't feel the children would be able to manage 2 x10 minutes as they had done it two weeks ago and "even the very fit ones found it really difficult".

On this occasion the lesson was enjoyed by the class as a whole and, in fact, they found it relatively easy. One low fitness girl commented "the relays are better now Ms. Thomas, I'm finding them easier". Adrian and Judith recorded 76% and 79% for HR above 140 bpm.

30/10/91 term 4, week 3. Activity-aerobic circuit. Selected children: Larry and David.

The scheduled activity for the day was the aerobic circuit. The teacher spent 30 minutes in the class explaining the circuit to the children. When the class came out the teacher appeared rather agitated and explained to the researcher that she had needed that much time to go over the circuit with the class. Because of the time already taken the heart rate monitors were not used.

The children set out the equipment for 8 different areas for the exercises. This was a major error on the teacher's part, there should have been only 4 exercises for this first aerobic circuit. The children were given a 12 minute practice, going to each exercise area in their groups one after the other. The teacher then started the class on the circuit. Several children performed the exercises badly. Because there were 8 exercises to get to the teacher could not see everyone and did not have a chance to correct the mistakes. Both Larry and David had short periods of off-task behaviour during the activity. There was no warm up or cool down period.

Ms. Thomas later explained that she had used up her P. E. time to explain the circuit to the class which took 30 minutes. When the researcher explained that she

had taken 8 instead of 4 exercises she was shocked and commented that the diagram in the manual was confusing. On a bright note she mentioned that David had brought her in a note that morning from his mother to say he was sick and she would have kept him at home if she didn't have to go to work. The boy gave the note to the teacher then said to her "I still want to do fitness." The teacher commented: "This boy would not have said that earlier this year."

6/11/91 term 4, week 4. Activity- aerobic circuit. Selected children: Donna and Mandy.

Both Donna (high fitness) and Mandy (low fitness) worked hard at their own pace. Circuits demand that a fair proportion of the time is spent in transition between activities. This proved to be the case, but despite this Donna and Mandy maintained elevated heart rates (above 140 bpm.) for 75% and 80% of the session.

The first 15 minutes of this session were spent setting out materials and organising teams. The groups then worked on each activity for 30 seconds before stopping, writing their scores down and moving around to the next activity. This should have allowed a 30 second break between exercises but the teacher found this was insufficient time to record and move to the next activity and she allowed a 60 second interval between each activity. The children worked well on the activities, especially the relays. Mandy later told the researcher that she thought this was the most enjoyable of the activities the class had done so far this year in the programme.

14/11/91 term 4, week 5. Activity- relays. Selected child: Garry.

Ms. Thomas told the researcher that the class had done this relay last week and many of them had found it extremely hard. The children, it eventuated, had been doing the session out of sequence and going to three separate markers (10 meter

then 15, then 20) instead of just one each time. The researcher explained this to the teacher and she was able to reorganise her schedule.

After a 5 minute teacher-led warm-up (which included the prescribed sit-ups) it took 2 minutes to organise the teams and start. There were five teams of five and one of four. The team of four, although they were a fit group, found it difficult to continue sprinting for the whole 5 minutes. Other individuals had also stopped sprinting by the 3 minute mark. After one minute's rest, the 15 meter mark was used and again, and although the teacher encouraged the tired ones, the last 2 minutes were difficult for many. After a further minute's rest the 20 meter mark was used for a final five minutes. After the first sprint probably 50% were no longer sprinting to the mark but just jogging through the exercise. However, the general feedback from the children was a feeling that they were enjoying the relays although perhaps they were glad to finish them.

Garry had spent 26% of the 27 minute period in activity fitness. His heart rate had been above 140 bpm. for 60% of the time.

21/11/91 term 4, week 6. Activity-relays. Selected child: Bill.

The scheduled activity was a student choice between the Leger run or relays. The children opted for the relays rather than the Leger two speed. This was an interesting choice because they had all appeared to enjoy the Leger. They were obviously enjoying the relays too. The teacher led 2 minutes of stretching, before the relays. There were seven teams of four and one team of six which included two of the low fitness girls and one low fitness boy who had found this activity difficult last time. It was explained to them that because their team was bigger they wouldn't have to run so many times. There was quite a competitive atmosphere on this cold, clear morning. By the end of the 24 minute session there were some very tired children in

the group. Bill worked as hard as anyone in the group, as he always did. He was recorded in activity fitness for 41% with heart rate above 140 bpm. for 78% of the session.

3/12/91 term 4, week 8. Activity-Leger 3-speed. Selected child: Nadia.

The scheduled activity was the Leger 3-Speed relay. This followed a thorough 3 minute warm up which was completed with far more urgency than had been evident previously. Stretches included calf-raises and knee-bends together with jogging on the spot and sit-ups.

During the Leger relay the class worked hard and managed to keep up with the tape recording, apart from two low fitness girls (Nadia and Mandy), who both walked on the third to last stretch but were encouraged to jog the last two by the teacher. David (a low fitness boy) complained of a sore knee during the warm-up and asked to sit out. As this made the teams work out the teacher agreed to him jog/walking around the perimeter of the field.

Nadia, although struggling to reach 24% of activity fitness still spent 82% of the time with her heart rate above 140 bpm.

Table 27 presents a summary of the fitness sessions at Eastwick. A total of 22 observations were made and there was no pattern to the visits made by the researcher. On five visits, 2 different subjects were observed by alternating each 5 second interval of recording between each subject. During these sessions one heart rate monitor was used on each subject. These sessions are marked with an asterisk. The recordings listed in Table 27 are arranged in groups of similar activities and then chronologically.

Table 27

Results of Activity Coding and Heart Rate Monitoring at Eastwick School

ACTIVITY	TERM & WEEK	DURATION OF SESSION	ACTIVITY FITNESS	ACTIVITY	INACTIVITY	HEART RATE	
						>120	>140
<u>RELAYS</u>							
Relays	T3-W4	45 mins	13%	14%	73%	89%	74%
Relays	T3-W5	23 mins	10%	33%	57%	70%	49%
Relays *	T3-W10	25 mins	22%	0%	78%	86%	76%
Relays *	T3-W10	25 mins	25%	0%	75%	96%	79%
Relays	T4-W5	27 mins	26%	17%	57%	78%	60%
Relays	T4-W6	24 mins	41%	8%	51%	24%	24%
Leger shuttle	T3-W8	25 mins	40%	40%	20%	68%	36%
Leger shuttle	T4-W8	15.5 mins	24%	17%	59%	95%	82%
<u>RUNNING</u>							
Run/walk	T2-W1	20 mins	16%	40%	44%	100%	94%
Running	T3-W2	27 mins	46%	31%	23%	81%	81%
Running games	T3-W3	32 mins	56%	12%	32%	91%	77%
1.6 Km *	T3-W6	28 mins	44%	26%	30%	70%	49%
Run	T3-W6	28 mins	48%	26%	26%	83%	74%
Pursuit run	T3-W9	22 mins	41%	32%	27%	Failed to operate	
<u>OTHER ACTIVITIES</u>							
Health hustle	T2-W4	20 mins	47.5%	46.5%	6%	85%	5%
Step-Ups	T2-W7	22 mins	71%	20%	9%	94%	69%
JRFH *	T3-W7	17 mins	33%	22%	45%	79%	53%
JRFH *	T3-W7	17 mins	37%	26%	37%	85%	59%
Aerobic circuit *	T4-W3	30 mins	23%	5%	72%	No monitoring.	
Aerobic circuit *	T4-W3	30 mins	26%	4%	70%	No monitoring.	
Aerobic circuit *	T4-W4	17 mins	22%	10%	68%	83%	75%
Aerobic circuit *	T4-W4	17.5 mins	24%	7%	69%	87%	80%

Happy Face Class Survey

The happy face class survey is designed to assess the children's preferences towards the different activities included in the WASPAN physical fitness programme. A copy of the survey chart is included as Appendix B. Two copies of the survey are included in the WASPAN teachers' manual, one at the end of the 3rd term (week 9), and the other at the end of term 4 (week 8). There are 9 weeks between the surveys. At this school the class teacher was following the WASPAN manual very closely but did some additional activities. The teacher administered the two surveys at the scheduled time. She added two activities to the existing list because the children suggested including them in the survey even though they were really only used as warm up activities. These activities were side race and chain tag.

There were 30 children present on both occasions that the survey was administered. The results, presented as both raw scores and percentages in Table 28, show a general move in a positive direction over the 4 month period. Of the four main activities, jump rope and health hustle were the activities that 100% of the children were positive towards in December. The running and relay activities showed the highest increase of the children who 'loved' to run (from 23% increasing to 50%). The health hustle was the activity that most of the class (77%) thought was okay.

Table 28

Student Preferences Towards Fitness Activities for September and December

ACTIVITY	MONTH	LOVE	O. K.	HATE
RUNNING	Sept	7 (23%)	21 (70%)	2 (7%)
	Dec.	15 (50%)	14 (47%)	1 (3%)
JRFH	Sept.	20 (67%)	10 (33%)	0 (0%)
	Dec.	17 (57%)	13 (43%)	0 (0%)
RELAYS	Sept.	13 (43%)	13 (43%)	4 (13%)*
	Dec.	19 (63%)	9 (30%)	2 (7%)
HEALTH	Sept.	7 (23%)	19 (63%)	4 (13%)*
HUSTLE	Dec.	7 (23%)	23 (77%)	0 (0%)
SIDE	Sept.	11 (37%)	16 (53%)	3 (10%)
RACE	Dec.	11 (37%)	17 (57%)	2 (7%)*
CHAIN	Sept.	22 (73%)	5 (17%)	3 (10%)
TAG	Dec.	20 (67%)	10 (33%)	0 (0%)

(*) Asterisk denotes not adding to 100% due to rounding.

Free Time Spent In Activity

Recess and Lunch Time Activity

The morning break at Eastwick school was 10.30 until 10.50. Lunch time was between 12.00 and 12.50. In order to discover what kinds of activities the children were participating in during their free time at school the researcher made 9 visits to morning recess and 8 to lunch time breaks. Because the children became familiar with the researcher anonymity was difficult to maintain.

Heart rate monitoring at recess and lunch time was usually carried out by leaving the heart rate monitor on the individual who had been recorded during the fitness session. Before each break the monitor was reset to ensure accuracy with the visual observations. This saved refitting the body strap and did not unduly disturb the individual.

The results of the recess and lunch break activities are seen in Tables 29 and 30. Using the ALT-PE instrument running activities were recorded as 'activity fitness' while activities performed at a slower walking pace were recorded under 'activity' (moderate). All other behaviours for example sitting, eating, standing talking, etc., were coded as 'inactivity'.

The results from Table 29 reveal that during recess the high fitness children (Donna and Bill) were generally more active than the low fitness children (Mandy and Larry). The exception was David who was still low in activity fitness. Three boys played some basketball at a moderate level of activity. The heart rate recordings were quite low with only two children elevating their heart rates above 140 bpm. for a short period of time. One girl who was doing some long jump practice with a group taken by the principal had a recorded heart rate over 120 bpm for 100% of the time but did not reach 140 bpm. Of the 12 children observed 7 were inactive for more than 50% of the recess period.

Table 29

Recess Activity Levels and Heart Rate Recording at Eastwick School

Subject	Term & Week	Dominant Activities	Moderate Activity	Activity Fitness	Inactive	Student heart rates	
						>120 b.p.m.	>140 b.p.m.
Nadia	T3-W2	W.	10%	10%	80%	26%	0%
Judith	T3-W3	W. P.	30%	0%	70%	45%	10%
Donna	T3-W4	W. P.	20%	26%	54%	80%	17%
Pat	T3-W5	W. R.	47%	20%	33%	47%	0%
Carol	T3-W7	W. P. A.	35%	12%	53%	100%	0%
Bryce	T3-W8	B.	53%	39%	8%	49%	16%
David	T3-W9	B.	59%	11%	30%	*	*
Alan	T3-W10	W. P.	40%	0%	60%	62%	15%
Larry	T4-W3	W. B.	37%	8%	55%	66%	42%
Mandy	T4-W4	W.	0%	0%	100%	19%	0%
Garry	T4-W5	R. P.	22%	51%	27%	67%	52%
Bill	T4-W6	W. C.	64%	18%	18%	81%	23%

n=12

(*) Asterisk denotes subject would not wear monitor.

Dominant activity has been coded as follows: W=walking: R=running:

P=playing (general): B=basketball: A=athletics practice

Table 30

Lunch Time Activity Levels and Heart Rate Recording at Eastwick School

Subject	Term & Week	Dominant Activities	Moderate Activity	Activity Fitness	Inactive	Student heart rates	
						>120 b.p.m.	>140 b.p.m.
Nadia	T3-W2	W. P.	4%	2%	94%	12%	2%
Judith	T3-W3	W. R.	11%	24%	65%	34%	11%
Donna	T3-W4	W. P. A.	35%	14%	51%	62%	20%
Pat	T3-W5	W. R.	44%	15%	41%	54%	21%
Carol	T3-W7	W. P. A.	39%	8%	53%	68%	16%
Bryce	T3-W8	B.	48%	19%	33%	65%	38%
Jessie	T3-W9	W. P.	25%	6%	69%	49%	10%
David	T3-W9	B.	52%	18%	30%	*	*
Alan	T3-W10	W. P. B.	20%	7%	73%	52%	9%
Larry	T4-W3	W. B.	15%	4%	81%	22%	3%
Mandy	T4-W4	W.	10%	2%	88%	10%	3%
Garry	T4-W5	R. P.	19%	45%	36%	78%	34%
Bill	T4-W6	R. C.	38%	18%	44%	81%	23%
Nadia	T3-W8	W. P.	25%	2%	73%	12%	2%

n=14

(*) Asterisk denotes subject would not wear monitor.

Dominant activity has been coded as follows: W=walking: R=running:

P=playing (general): B=basketball: A=athletics practice: C=cricket

The children at Eastwick are required to spend the first 15 minutes of the 50 minute lunch period sitting quietly before any activity is allowed. Table 30 reveals that the

same children who were active and inactive at recess behaved in a similar way during the lunch period. Nadia, Mandy and Larry were most noticeably inactive, all recording less than 5% of vigorous activity (activity fitness) during the 60 minute lunch period. Of the 14 children observed, a total of 7 returned heart rates above 120 bpm for more than 50% of the lunch period. The highest period of time spent with heart rate elevated above 140 bpm was 38%.

Out of School Activity

Documentation of the children's out of school activity was collected using 7 day activity diaries. Two sets of activity diaries were distributed to the Year 6 class at Eastwick. The first set of diaries was administered in July, at the beginning of the study and the second set in November. The November diaries consisted of two consecutive 7 day periods. A total of 26 children completed the activity diaries on both occasions (12 girls and 14 boys). The teacher arranged for the diaries to be attached to the children's homework books. These books went home with the children daily and were looked over by the teacher each morning.

Table 31 shows the different activities the children pursued and how much time they spent engaged in these activities during the 7 day period in July, and the two November diaries (A and B).

Table 31

The Activities and the Weekly Allocation for Eastwick Children

ACTIVITY	Children engaged (July)	Mean time (mins.)	Children engaged (Nov.A)	Mean time (mins.)	Children engaged (Nov. B)	Mean time (mins.)
<u>Team Activities</u>						
Football	9	182	0	0	0	0
Rugby	1	160	0	0	0	0
Basketball	15	134	17	146	14	203
Netball	0	0	1	100	1	90
Tennis	1	120	3	160	1	180
Cricket	0	0	4	102	2	100
Baseball	0	0	1	90	0	0
T-ball	0	0	1	10	2	75
Playing games	5	33	4	65	4	109
TOTALS	30	629	31	672	24	757
<u>Individual Activities</u>						
Walking	5	33	10	61	9	90
Running/jogging	15	50	10	57	9	74
Bicycle riding	8	67.5	12	94	17	75
Swimming	3	17	8	114	6	60
Dancing	0	0	4	45	3	63
Home exercise	1	50	3	48	2	47.5
Skipping	0	0	2	125	0	0
Trampolining	0	0	2	25	2	35
Self defense	0	0	1	60	1	180
Roller skating	1	210	2	82.5	1	75
Hiking	1	480	1	330	1	58
X-Country	1	145	0	0	0	0
Horse Riding	2	345	1	900	1	840
Squash	1	60	0	0	0	0
Ice Skating	1	120	0	0	0	0
Working in garden	1	20	3	60	3	78
Skate boarding	0	0	1	20	0	0
Golf	0	0	0	0	1	180
TOTALS	40	1597	60	2021.5	56	1855.5

The totals show the number of children who indicated that they engaged in each activity and the mean minutes per week during which these children were active.

The team activities showed that certain activities were clearly seasonal (e.g. football, rugby), while basketball in particular was popular at both periods of the diary. Closer inspection of the diaries revealed that of the 30 participants in team games in July, 5 were girls and 25 were boys. The girl that was playing tennis was hitting the ball against a wall and this should strictly have been counted as an individual activity. In the November periods the boys stopped their football and rugby activities but increased the time they were playing basketball. The girls were still doing far less team activities than the boys although 2 were now playing cricket, 1 netball and 1 T-ball besides the 4 who indicated they were 'playing games' (chasey and brandy at the park).

The individual activities the class pursued were more varied and included more children. Jogging was the most popular activity in July followed by bicycle riding. In November bicycle riding had become more slightly more popular than jogging. The number of children participating in individual activities increased quite steeply from 40 in July to a mean of 58 for November.

Combining the team and individual activities showed that in the July period the girls engaged in 12 different activities and the boys 11. In the November period the girls engaged in 15 different activities, the boys engaged in 14. The boys were far more team activity oriented than the girls.

Close analysis of the diaries revealed that the least active children in July were still the least active in November. Five of the 12 girls and six of the 14 boys were doing less out of school activity in November than they were in July. The five boys with the lowest activity time in July all increased their weekly activity by the November period. These were still the lowest scores among the boys. The girls as a group were more active than the boys. Apart from one very low activity girl whose activity decreased from 30 minutes a week to 20 minutes a week, most of the girls were quite consistent in their activity levels between the two months of recording.

The Target Children at Eastwick School

All 8 of the identified children and their parents cooperated fully with the research involved including interviews and questionnaires. Therefore the original 4 children have been included in this presentation as well as one additional case. This was a low fitness boy. The final 5 children's fitness scores and percentile rankings are displayed in Table 32.

Table 32

The Fitness Scores and Percentile Rankings of the Selected Target Children

CHILD SELECTED	MONTH	1.6 KM RUN	SIT & REACH	SIT-UPS
<u>Bill</u>	June	7.50 (50th %ile)	+4 (70th %ile)	100 (95th %ile)
	Nov.	7.11 (75th %ile)	-9 (5th %ile)	100 (95th %ile)
<u>Donna</u>	June	8.30 (75th %ile)	+11 (80th %ile)	59 (80th %ile)
	Nov.	7.42 (95th %ile)	+12 (85th %ile)	100 (95th %ile)
<u>Mandy</u>	June	13.40 (5th %ile)	+3 (35th %ile)	19 (25th %ile)
	Nov.	12.50 (5th %ile)	+5 (50th %ile)	30 (50th %ile)
<u>David</u>	June	14.36 (5th %ile)	-100 (5th %ile)	30 (40th %ile)
	Nov.	16.00 (5th %ile)	-60 (5th %ile)	34 (45th %ile)
<u>Larry</u>	June	13.24 (5th %ile)	-64 (5th %ile)	35 (45th %ile)
	Nov.	10.14 (5th %ile)	-23 (5th %ile)	41 (55th %ile)

Asterisk (*) denotes the high fitness children. %ile = percentile

The profiles of the 5 children that follow have been compiled based on information from; direct observation, fitness testing, activity diaries, student questionnaires, interviews with the individual target students, interviews with the individual target student's parents, results of heart rate monitoring and systematic interval recording of the individuals during the fitness sessions and during selected recess and lunch periods.

One of the areas of the student questionnaire was designed to ask the children how much sport and how much physical fitness activity they completed during the 7 day period prior to the questionnaire. For this question sport was defined as activities such as playing basketball, netball, tennis etc., while physical fitness activity was considered to be jogging, riding a bicycle, doing aerobics, skipping activities etc. This data is displayed in Table 33.

Table 33

Time the Target Children Spend in Fitness Activity and Sport (from Questionnaire)

NAME	<u>TIME SPENT IN FITNESS ACTIVITY</u>		<u>TIME SPENT IN SPORT</u>	
	July.	November.	July.	November.
Bill	60	150	120	240
Donna	660	1150	720	1320
Mandy	30	20	30	20
David	420	30	240	900
Larry	150	0	0	0

Table 33 shows that with the exception of David, whose activity time was very high,

the designated high fitness children are active out of school while the designated low fitness children are much less active in their free time.

The second measure of out of school activity was collected using activity diaries. The diaries were administered on two separate occasions (August and November). The information obtained from the target children is similar to that obtained from the questionnaires. The diaries contain more detailed information about the specific activities the children engage in. The activity diaries were completed on a daily basis. This required the children to remember the past 24 hours activity as opposed to a full 7 days as was the case in the questionnaire. The total time the children spend engaged in activity taken from the activity diaries is displayed in Table 34.

Table 34

Time the Target Children Spend in Fitness and Sport Combined (from Activity Diary)

	<u>August</u>		<u>November</u>	
	Mins. 7 days	Mean mins. Per day	Mins. 7 days	Mean mins. Per day
Bill	385	55	540	77
Donna	855	122	1330	190
Mandy	30	4.3	20	2.8
David	345	49	840	120
Larry	85	12	240	34

Table 34 serves to verify the data from Table 33 in showing that Donna to be the most active of the children, with David, a low fitness boy, the second most active of the group.

Bill

Bill is a slender boy of medium build. He is a popular person among his classmates and he is held in high regard by the class teacher, who gives him extra responsibilities such as photocopying and organising duties. He is a studious boy, who works hard on his class work as well as his physical pursuits. He is a talented musician and plays the trumpet at a high standard. Bill had a very positive attitude to physical activities and his classroom work. If playing a game he would always play to win. When running the 1.6 km run, for example, he would not be satisfied unless he bettered his previous time. During the fitness testing on June 10th he appeared pleased with his performances. He had run the fastest time in the class and reduced his previous best time by 17 seconds. The researcher later learnt from Bill's mother, that Bill was so disappointed with his back flexibility score, that he had been in tears when he got home that night (interview with parents, 19/11/91).

Bill always appeared to enjoy the fitness sessions, and would often be asked by the teacher to set up cones or other equipment. Bill was regularly asked to lead the warm-ups and if the teacher was a few minutes late he was seen to lead the stretches with the class without the teacher (field notes, 23/5/91, 16/9/91, 6/11/91). He enjoyed all the activities and explained to the researcher that he had found the 1.6 km run difficult at the beginning of the programme but it became easier and by the fourth term he was enjoying it. He thought that the programme had been good for developing fitness, allowing the children to go at their own pace until they became fit (interview, 13/12/91). "It has been good because it isn't the same thing every week," he remarked. He had liked the student choices and would have liked them to have been introduced earlier in the programme. Bill thought that fitness was very important to him and thought he had improved a great deal over the year. "It will encourage you to do more things and people won't laugh at you. It will keep you healthy." These two comments concern two very different themes. The first deals

with the self confidence and peer popularity question, while the second is a reference to the health benefits of fitness. When questioned further he explained that because he was "quite fit" he was either always picked for teams early or asked to be captain when he was playing games with his friends. He expanded that he thought some of the less fit kids got laughed at if they couldn't keep up, particularly in running or basketball. Bill thought that being fit made him healthy because his body would be stronger to resist illness and that being fit made him feel good and made his heart stronger. He had been quite shocked to learn that flexibility was a component of fitness and that he was so poor at it. During Bill's interview he was asked to rank himself out of 10 for his level of fitness. Bill saw himself as a modest 8 out of 10 and explained that although he thought he possessed a "reasonable level of stamina and strength" (interview, 13/12/91) he felt his flexibility was poor.

During his free time at school Bill preferred playing cricket the most in summer and basketball in winter.

Bill's parents said they approved of the fitness programme but they would have liked more feedback from the school about what was going on. Bill's mother suggested that the pay back of having children involved as guinea pigs in a new programme was finding out how they were doing. She went on to say "It tends to be the same story of parents only getting information if there's a problem. If there's no problem we hear nothing. It's a real shame because the family need reinforcement. They need to know if they're doing the right thing as a family unit."

The researcher asked both parents if they had noticed a change in Bill's fitness or attitude to activity. Bill's mother said "He's certainly developed his fitness this year. He's gained more understanding about the development and maintenance of health and having a healthy body. He's certainly improved his running and he's able to go on longer." Bill's father commented "His fitness has improved dramatically this

year and that's implicit in his increased activity and endurance level." He went on to make an interesting supposition: "Having a supportive principal was a big factor in the success of the physical education programme. He's from the country, where sports activities are so central to the life of the community that there's a bigger commitment to a sporting philosophy" (interview, 13/12/91). This comment reflects this parent's ability to be able to see beyond the mere product of the process to the less obvious influences that impact on the shape of that process.

Bill was observed and monitored during week six of the fourth term. This was a 24 minute relay session which was prefaced by a brisk two minute warm-up. The class was divided into groups of four and worked very hard, the different teams had been matched well and competed against each other. Bill was very competitive during the session, verbally encouraging the others in the team and running as fast as he could. The session was a highly popular one with the class, which reflected the teacher's enthusiasm and good organisation in team size, selection and choice of relay activities from the WASPAN teachers manual. Bill's heart rate had been elevated above 140 bpm for 78% of the session, with activity fitness recorded at 41% of the 24 minutes. At the end of the session Bill remarked to the researcher that at one stage he was running so fast that he thought the heart rate monitor was going to explode (field notes, 21/11/91). He asked the researcher if this meant his heart was normal or not. The researcher explained to him that it was good to elevate the heart during exercise, and to keep it elevated for long enough to achieve the positive effect of strengthening the heart and the breathing system.

Following the fitness session at 9.20 Bill left the monitor on and went to class. At 10.30 he came out for recess, collecting the cricket gear on the way out of the classroom. Together with a couple of class mates, the cricket game was set up and by 10.34 they were playing. Other boys came over with snacks they had obviously

just purchased from the canteen and joined in. Bill had a turn at batting and then later bowled. Next to the boy's game the girls from Ms. Thomas' class were also playing cricket. The standard of play by the five or six key players in the girls game was similar to the standard of the boys. Both games were unsupervised but the children were changing batters and bowlers with an obviously rehearsed method. Bill was recorded as being in 'activity fitness' for 18% and 'activity' for 64% of the recess. Heart rate was above 140 bpm. for 23% and above 120 bpm. for 81% of the 15 minute break.

The monitor was left on and checked as Bill came out for lunch at 12.00. As usual the first 15 minutes was spent sitting and eating lunch. Bill's group was dismissed at 12.16 and he then queued for the canteen. At 12.20 he ran to join a full scale cricket match that was just starting on the main field next to the school. The school gardener/caretaker was umpiring and helping the boys to prepare for an inter-school match the following week. Bill took a turn at bowling and managed a quick turn batting before the end of lunch at 12.50. During the 50 minute lunch period Bill was in 'activity fitness' for 8% and 'activity' for 38%. Heart rate was above 140 bpm. for 27% of the lunch period and above 120 bpm for 81%.

Out of school activity.

Bill lives at home with his parents and two other brothers. He receives a great deal of encouragement from home to be active. During the summer Bill's father coaches Bill's cricket team. Work hours mean that Bill's father is home early and able to join Bill and his brothers at the nearby cricket nets. At weekends Bill's mother transports the boys to and from the various cricket matches (all three boys played in different age range teams). "The family taxi service is alive and well" she commented (interview, 19/11/91). In the summer Bill played more basketball than other sports. He played on the successful Eastwick Eagles team who practised

every Friday and played on Saturdays at the school. Both parents were active themselves and encouraged their boys to be the same. They were aware of putting the boys into physical situations that they could cope with and not those in which they would continually fail. Bill's father said: "Others need a good kick up the backside when they become lazy," (interview, 19/11/91).

Table 33 displayed the amount of activity that Bill calculated he was doing in December had increased from 180 minutes a week in July to 420 minutes a week in December. This is an average of 60 minutes a day in December. Sports activities rose from 150 minutes a week to 240 minutes a week. The activity diary showed that Bill's activity was taken in regular episodes rather than all in one or two sessions. The questionnaire displays the time that Bill was active, but it does not give a breakdown of the activities Bill was engaged in for these times. For this information the activity diary is more useful.

In August, Bill was playing 80 minutes of basketball a week. At this time Bill was training for the inter school cross-country carnival and was training for 125 minutes a week. In addition he was playing 135 minutes of rugby and 45 minutes of football. In December the rugby and football had been replaced by 365 minutes of cricket, 150 minutes of basketball and 25 minutes of running. The activity diary totals are displayed in Table 34.

Donna

Donna is a slim, dark haired girl. She is the fastest girl in the class over the 1.6 km. run and at the 80th percentile nationally for the flexibility and muscular endurance tests. A fiercely competitive girl, she always wants to be the best or first at whatever the class is doing. Donna is liked and respected by both her class mates and the teacher. This is easily noticed by her popularity around the school and in the

classroom. The teacher also thinks highly of her and gives her extra responsibility. She is above average in the class academically but not in the top five (teacher communication 21/11/91).

Donna loves all forms of sports and activity and this is reflected in her answer to the question the researcher asked her regarding what she would like to change about the fitness programme. She replied; "It needs to be a little longer, about 45 minutes would be better and that would help to settle everyone down to work afterwards,"(interview, 9/12/91). Some of the activities she found a little too easy, but she indicated that she enjoyed them all. Donna had a reasonable understanding about physical fitness and it's place in the formula for healthy lifestyles. She remarked that being healthy was the most important thing to her and that, living on a farm, her family ate fresh vegetables all the time. Being fit, she said, gave her confidence to try her hardest at different things without feeling silly. On her End-of Year Report, (which the children wrote themselves), Donna reported; "My fitness would have to be my best. I like to compete in school fitness games. I think the school fitness programme has taught me a lot" (Taken from class End-of Year Report, December 1991).

Donna's parents were supportive of the emphasis on fitness at school during the year. Donna's mother said "It's really good for her because she is such an active kid. She would go mad if she couldn't run around" (interview, 19/11/91). Donna said that the fitness programme had been good fun and she had found that she could cope with all of the activities, all of which she indicated she "really liked a lot" during the interview. Donna explained that she was lucky because she lived on a 20 acre block and had her own horse to keep her active.

Donna was observed twice at fitness sessions and her heart rate monitored.

i) Term 3, week 4. Relays: This turned out to be a 45 minute session due to a 9 minute warm-up and difficulties in organisation. When the relays started, Donna sprinted each stretch, competing with anyone else who was nearby at the time. Her heart rate was above 140 bpm. for 74% of the 45 minute session. This is a very high figure, especially if it is considered that only 13% of the time was recorded as 'activity fitness' and 50% in 'waiting'. This can be quite a common occurrence for relays if the participants have worked hard, as clearly Donna had. Because of the length of this session a 75% elevated heart rate meant that Donna was in a training phase for 33 minutes of the 45 minute session. This is the longest period of elevated heart rate of all the fitness sessions that were observed.

ii) Term 4, week 4. Aerobics Circuit: The children came out at 8.47, this was 3 minutes before the teacher arrived. Bill and Donna managed to persuade 60% of the class to begin stretching before the teacher arrived. The teacher was pleased to see the class stretching when she arrived and decided to go straight into the circuit. Donna worked around the eight activities with Mandy, a low fitness child. With Donna working so hard at each activity her partner was inspired to work her hardest as well. The 60 second break between each activity was too long for Donna, but for Mandy every second counted. Donna was recorded in 'activity fitness' for 24% of the 17 minute session, with her heart rate above 140 bpm. for 75%. Although this was again a high percentage of elevated heart rate the elevated heart rate constituted only 13 minutes of the session.

Donna showed obvious enthusiasm for the fitness sessions. She was attentive during instructions, energetic during the warm-ups and very active throughout the session. She helped to bring in cones or mats, usually without being asked. Other children in the class were encouraged by her performance.

Donna was observed once at recess and once at lunch time. This was in the fourth week of the third term (13/8/91). At the beginning of recess (10.30-10.50 a.m.) she headed for the school shed (outside shelter) to play 'stationary', a running game, with some friends. Most of this group, including Donna, had a snack of some kind with them. The group of four girls and one boy played stationary until the end of recess. During this time Donna's heart rate had been elevated above the 140bpm mark for 17% of the 20 minute break with 26% activity fitness recorded. At lunch the same day Donna sat and ate lunch before heading for the shed. After playing two games of stationary she appeared to realise with some shock, that she should be somewhere else and sped off. The researcher followed her to the school field where the principal was coaching individuals in the long jump. Donna apologised for being late and joined in. The principal was showing six or seven children how to run away from the sand pit to mark a run up. After this the children took turns to practise their jumps. The lunch period record shows Donna had been in activity fitness for 14% of the time with her heart rate elevated above 140 bpm for 20% of the 50 minutes.

Out of school activity

Donna's parents told the researcher that all the family was active. Her father explained that after Mathematics, English and then Science, children should be encouraged to follow what they are naturally good at and enjoy. In Donna's case, he said this was sport.

These figures in Table 33 show that Donna calculated that she was doing 660 minutes of weekly activity in July. She included her horse riding as both sport and physical fitness. In December this weekly figure had increased to 1320 minutes. The questionnaire gives no indication of the make-up of this activity time.

The activity diary shows that in August Donna's total activity time was made up as follows; 630 minutes of horse riding, 195 minutes of running/cross-country run and 30minutes tennis. In November horse riding totalled 900 minutes, running/jogging 170 mins, skipping 210 minutes and walking 50 minutes. Donna had been training for the schools' cross-country during the August week and although no cross-country was mentioned in the diary she was still doing a substantial quantity of running. The horse riding had increased in the November period because she was becoming more involved in competitions. The activity diary totals are shown in Table 34.

Donna admitted that she sometimes rides her horse for two or three hours a day and, according to her activity diary, she averages over two hours a day on the horse. Both of Donna's parents ride horses around their property and spend time transporting her to pony club events. Donna's mother admitted that she spends anything up to 20 hours a week helping her daughter with her horse preparation and riding with her (interview19/11/91). Donna said that she loves running and goes out running every other day, sometimes with her Dad. Donna regrets not being able to do more activities but the horse riding takes up so much of her time. She explained that because she has to get a lift home from school (she lives 30 minutes away by car), she is unable to stay behind for some of the activities, such as basketball, that go on after school.

Mandy

On the researcher's first visit to the school the class teacher pointed out that Mandy was overweight and self-conscious about her size. She was the teacher's biggest concern regarding fitness in the whole class. Mandy constantly made excuses

to miss fitness in the mornings. In the early stages several strategies were tried to get out of taking part in daily fitness. These included coughing bouts, complaints of asthma and injured body parts. The teacher made a special effort to encourage Mandy to participate and try her hardest when she did take part. Mandy told the researcher that at first she really didn't like the fitness programme. But by the fourth term she had accepted it and had "got more used to the running" (interview 19/11/91).

Mandy's mother was aware of the fitness programme the children were doing at school and said "I know she found it tough at first. She was a bit sore when she got home after some of the exercises" (interview 19/11/91). The researcher asked Mandy if there were any of the activities that she had enjoyed doing, to which she replied "Not really. I quite liked the aerobic circuits at the end," she conceded. Besides these Mandy had not really enjoyed the fitness programme, she had simply tolerated it. Mandy was particularly vulnerable in the distance running activities and the leger shuttle, where she usually came last and looked self-conscious. At the end of one earlier fitness session (relays) where Mandy had tried hard and appeared physically exhausted at the end, the researcher asked her if she had enjoyed the session. She replied "Not really, I don't like getting hot and sweaty" (field notes, 6/8/91). Mandy thought the fitness programme had made her fitter but she would not like to be involved in anything similar next year. She realised that being fit was good for her health and heart, but didn't enjoy running around. She also thought that if she was fitter she would have more confidence. She would know she could do things and wouldn't back off. She might get picked first for teams (interview, 10/12/91).

Mandy's mother was not sure if she thought the fitness programme was a good thing or not. She said that she wasn't aware that Mandy was any more active than she had been before (interview 19/11/91).

Mandy was observed and recorded in two activity sessions by the observer;

i) Term 2, week 1. Run/walk. This was a 20 minute activity session. When the researcher arrived at the school the teacher asked if Mandy could wear the heart rate monitor as it might help to motivate her. On hearing this Mandy coughed and wheezed in a display of acted illness, complaining that she had asthma. The class teacher said she would just contact Mandy's mother to find out exactly what the problem was, because Mandy's mother had never mentioned asthma before to her. Upon hearing this Mandy said "No, don't phone Mum, I'll be alright." The researcher explained how lucky she was to be wearing the monitor and the teacher fitted it on to her. Wearing this monitor must have been quite a traumatic experience for this child who really wanted the minimum of fuss and attention drawn to her during a time when she obviously was uncomfortable and self-conscious about fitness.

After a gentle 10 minute warm-up, the teacher started the class off around the track marked with cones. After one minute she signalled the class to walk for 30 seconds. This was done seven times by most of the children. Some of the less fit children only ran on two or three occasions and this included Mandy, who ran twice. Although her 'activity fitness' was only 16% for the 20 minute session, her heart rate was above 140 bpm. for 94% of the time.

ii) Term 4, week 4. Aerobics circuit. During this 17 minute session Mandy was working with Donna, the fittest girl in the class. Encouraged by Donna, Mandy tried very hard, completing as many repetitions as she could at each activity. The teams spent 30 seconds at each activity before getting a 60 second break to write down their scores and move around to the next activity. After each activity Donna would jump up and race around to the next area while Mandy would crawl to her feet sucking in air and looking the worse for wear. Interestingly, this was the only activity that Mandy later revealed to the researcher that she had enjoyed. Mandy was

recorded as engaging in 24% 'activity fitness', with heart rate above 140 bpm. for 75% of the 20 minute session.

Following this last fitness session, Mandy kept the monitor on until after lunch. At the start of recess she went to the canteen to buy a snack. From here she walked across the school yard with some friends, eating and talking. The four girls sat down on the grass and continued deep in conversation until the end of recess. No 'activity fitness' was recorded and heart rate did not rise above 140 bpm.

At lunch time, after Mandy had finished eating she wandered around the school with her friends. On occasions they would run a few meters to join another person and talk with that person for a while before moving on around the school grounds. She recorded 'activity fitness' for 2% of the 50 minute break. Her heart rate was above 140 bpm. for 3% of that time.

Out of School Activity

Mandy is not very active out of school. Her mother said "She does go out and play, but sometimes she won't go out. It's awful, you can't get her out of the house. She just stays in front of the T. V. Sometimes if her friends come over they go out, but I don't know what they do." The researcher asked Mandy's mother if she or other members of the family played sport or joined in Mandy's activities. She replied that she took Mandy everywhere by car, "But not sporting things" (interview 19/11/91). Later Mandy was asked if her family ever encouraged her to play and be active, to which she replied; "Well, maybe Mum or Dad will come out and hit the ball with me (tennis). Usually they say go outside, go and run around" (interview, 10/12/91). Mandy said she sometimes played tennis but she hadn't played for a while.

Table 33 (on page 190) reveals that Mandy calculated that she was doing 60 minutes of weekly activity in July (this was all at the weekend). In December this weekly figure had decreased to 40 minutes (again all at the weekend). The questionnaire gives no indication of the make-up of this activity time but after studying the activity diaries for the similar periods it would seem that Mandy is counting her activities as both fitness and sport. This was verified in conversation with Mandy (interview 10/12/91). Other questions on the questionnaire show Mandy to have made a positive change in her attitude towards activity. Responses changed from 'Don't like the programme much' to 'It's okay' and from 'I dont think the programme has given me any extra energy to help with other activities' to 'Yes, I think it has'.

In August Mandy's total activity consisted of two sessions of tennis, both of 15 minutes duration. In the December diary she reported 10 minutes of 'running around' then later in the week 'jumped on the trampoline for about 10 minutes'.

In Mandy's End-of-Year-Report she wrote; "I am much better at fitness now than at the beginning of the year. So I know I've improved " (Dec. 91). However, in her interview with the researcher (interview, 10/12/91), she said that she thought she was not at all physically active, and had no ambition to become more active than she was. Mandy was quite anti-activity. She disliked physical exertion and the possibility of an embarrassing situation in which she might be laughed at. She regularly tried to excuse herself from participating in the fitness sessions. Although her level of fitness improved slightly her level of out of school activity decreased slightly according to her activity diary. On the positive side, the teacher worked very hard with Mandy, giving her more support and encouragement than any other child in the class. Some days Mandy would make a big effort and was given extra praise from the teacher and quite often from the principal as well.

David

David was the only really overweight boy in the class despite a great deal of his time being taken up with activity. According to the teacher David's main problem was that he was lazy (field notes, 6/8/91). This was evident in all aspects of his class and p.e. work she said. His 1.6 kilometer run test for example decreased from 14.36 seconds in June to 16.00 seconds in November. On some occasions during the fitness programme he would stop running (sometimes after only a few seconds) and was asked by the teacher why he had stopped. His reply was usually; "Couldn't be bothered" (field notes, 29/7/91). He thought the fitness programme was "okay" apart from the longer distance running. Although he knew the daily fitness programme had helped him with his other sports, especially basketball, he thought there was "No point to running. Sometimes I can do it; it depends on my mood." David explained that he often stayed up late watching television. "If I've had a late night and I'm tired I can't run" (interview, 10/12/91). He considered himself to be active but thought he probably needed to lose some weight and train harder to improve.

David's mother supported the idea of the fitness programme but expressed concern for the children who found sports and exercise difficult. "If schools are not careful it could have the complete opposite effect to what you want. If what comes out of it are children who feel put down because they happen not to be all that good at it or all that interested in it." She went on to explain that she had been one of those children herself when she was at school; "It was probably the most put down experience of my life and I've never forgotten it." She continued this theme at some length with a great deal of eloquence and conviction. "David is just one of the children whose confidence is three quarters of the battle. If that gets undermined, you might as well give up on a lot of them." There are constant messages getting through, she told the researcher, "If you're the All-Australian type of image, then you're okay, if your strengths are not the ones they prize at school, or even in the media, you can

have a real tough time." She said she had been pleased with the way the class teacher had tried to emphasise that competition was within individuals, and the main aim was to improve on what you did last time. "But David has still come back with an experience of how he was the last one and how he felt when some comments were made that made him feel bad about that" (interview, 19/11/91).

David's mother related these very real concerns with a great deal of feeling. She had undoubtedly framed the problem as being school based. She was reinforcing the social pressures that David will continue to face both inside and out of school. She regularly wrote him notes to excuse him from fitness and he admitted that he overate.

David was observed once during the study. He refused to wear the heart rate monitor.

i)Term 4, week 3. Aerobic circuit. This was a 30 minute session which had been preceded by 30 minutes in the classroom with the teacher working out the circuit with the children. When the circuit did commence, instead of doing just four activities as the manual stated, the teacher had organised eight by misreading the manual. The children found this difficult and many performed the exercises badly. David performed the activities without really trying too hard, possibly pacing himself. He was recorded in 'activity fitness' for 23% of the session.

One positive aspect was when the teacher explained to the researcher that at the beginning of the class David had handed her a note from his mother to say he was sick and she would have kept him at home if she hadn't had to go to work. As David had handed Ms. Thomas the note he said "I still want to do fitness Ms. Thomas." The teacher thought this was a great change in the boy's attitude and remarked that he wouldn't have said that earlier in the year.

David was observed playing basketball at every break time the researcher

was at the school. He quite often refereed the others instead of playing himself. In the ninth week of term 3, David was recorded at recess and lunch using observation coding only. During the recess break David was recorded in 'activity fitness' for 11% and in 'activity' for 59% of the 15 minutes. At lunch on the same day he recorded 18 % 'activity fitness' and 52% 'activity'. David was actually one of the most active boys during the recess and lunch times. He could always be found on the basketball courts shooting the ball with others in the class. Except for the last part of the lunch time when a game was sometimes organised amongst themselves, the activity level was not usually much above a low to moderate intensity. However this was usually a continuous period of activity and was regular. David refused to wear the heart rate monitor when asked, saying simply that he didn't want to.

Out of School Activity

David spent a great deal of time playing basketball. During a 60 minute interview with his mother at the family home David shot baskets in the hoop on the garage. Besides practising in his free time at home and in the school breaks, David also played in the school 'Eastwick Eagles' basketball team. This involved training on Friday evenings and playing on Saturday mornings. David's mother would normally take him to basketball and sometimes score for the team. In the summer David worked at a windsurfing hire business on Sundays and mid-week during the school holidays. These were his main activities at the present time.

Table 33 shows that David calculated that he was doing 660 minutes of weekly activity in July (fitness and sport). This is nearly 11 hours in total or 94.3 minutes daily. In December he had decreased his physical fitness and increased his sport to a combined total of 930 minutes a week or 132.9 minutes daily.

David's activity diary revealed that in August David's total activity consisted of playing basketball every day of the week except Friday, when he was unwell. This was a total of 300 minutes of basketball. The remaining 45 minutes were made up of a walk and a bike ride. In December the whole week of activity was basketball. The activity diary totals are displayed in Table 34.

David was desperate to be one of the crowd with his friends and greatly resented being shown up in any way especially in sports and fitness. He also had a protective mother in whose eyes David could do no wrong (conversation with teacher, 25/7/92) . He saw physical fitness as hard work and explained; "If you exercise your heart you'll live a healthy life, but you can't let fitness rule your life."

Larry

Larry is a loner at school. He spends most of his free time working in the classroom or in the school library. "Larry is more creative than physical," his teacher said (field notes, 13/8/91). In terms of build he would be described as podgy rather than overweight. The principal described him as having a "typical fast food physique"(field notes, 3/9/91). The kinds of activities he likes tend to be individual activities such as bike riding, swimming and tennis.

Larry said the morning fitness programme was O. K. but he had found much of it tiring, especially the long distance running. He found the running and the Leger boring and "too difficult at first, but that got better" (interview, 10/12/91). In the student questionnaires Larry said that he liked sports 'quite a lot' but did not enjoy taking part in physical fitness activities that much. By December the response

to; 'do you enjoy taking part in physical fitness activities?' had changed to 'sometimes' indicating a positive change of attitude

Larry's mother told the researcher that Larry hadn't said much about the fitness programme, except that it was going on, and that he found the running around the oval difficult and he didn't like that part much." She went on to say that she supported the development of fitness in the children and thought it would enhance academic achievement (interview, 26/11/91).

Larry was observed once during a fitness session:

i)Term 4, week 2. Aerobic circuit. This was the same lesson in which David was observed. This was relatively easy to accomplish because both children were working together. At the beginning of the session there was some confusion about the different activities and what the children should be doing. They were given a 12 minute practice before starting the actual circuit. Larry became quite enthusiastic about the circuit and had a smile on his face as he proceeded around the activities. For the 30 minute session he was recorded at 26% 'activity fitness' with 4% 'activity'. The majority of the remaining time was spent in 'transition' (62% of the remaining 70%). No heart rate monitoring was carried out during this session.

Larry was observed at recess and lunch time during term 4, week 3. At recess he played some basketball, mostly shooting at low intensity. He recorded 37% activity and 8% activity fitness during this time. The monitor recorded a high heart rate above 140 bpm. for 42% of the 15 minute break. At lunch Larry tried to get involved in the basketball group after eating his food. The group playing appeared already to have teams organised and Larry was excluded. He threw a couple of shots with another younger boy who had also been excluded before being told to get lost by one of the older boys. After this Larry went into the classroom and did some drawings.

Out of School Activity

Larry said that he liked to ride his bike and go swimming out of school time. He had played golf with his Father when he visited on the weekend and quite liked cricket but didn't get to bat much.

The figures in Table 33 (page 190) show that Larry calculated he was doing 150 minutes of physical fitness a week in July but no sport, and nothing at all in December. Despite these figures there were some positive changes in the December questionnaire. Larry's response to his feelings about the fitness programme had changed from 'don't like it much,' in July to 'it's okay,' by December. The biggest change in his responses was in question 8 where the children are asked if they think the fitness programme has helped their overall fitness. Larry's response changed from 'hardly' in July, to 'a great deal' in December.

The activity diary data revealed that in August Larry had played two sessions of basketball. One lasted 60 minutes, and the other 25. In the December week he had played 3 hours of golf with his Father, which made up the majority of the 240 minutes. The remaining hour was a bike ride. The activity diary totals are displayed in Table 34 (page 191).

Larry quite enjoyed playing sport and doing the less vigorous fitness activities. The problem was that he found it difficult to join in with groups because, as he said; "When I mess up, the other kids won't pass the ball to me" (interview, 10/12/91). The researcher saw this happen on more than one occasion at school. In fact Larry's Mother commented; "He used to be worried about the team thing. He felt he was being left out and the kids didn't throw the ball to him during lunch break. It's been a real concern for him" (interview, 26/11/91).

The researcher asked Larry's Mother if she had been able to support his activities in any way. She replied that she had been very busy, but that she took him

rollerskating sometimes. When the researcher asked Larry about support from parents for his activity he said "I've played golf with Dad, and Mum comes swimming sometimes" (interview, 10/12/91).

CHAPTER V

Discussion of Results

This study has investigated the implementation of a curriculum innovation (the WASPAN fitness programme), in two primary schools. The study, during the course of 8 months, observed the teaching of various lessons from the programme and studied the behaviour and responses of the children and the behaviour of the teacher towards the programme. Two schools were selected, one from a designated high socioeconomic area, and the other from a low socioeconomic area. By using a case study approach the researcher was able to closely observe the process of the implementation of the physical fitness programme at both schools.

To have studied the teacher's and the programme's effects on the children in terms of gains made in fitness, children's activity and attitude towards activity would have made an interesting study in itself. Indeed, the way in which teachers handle new curricula is dependent on many factors, including past experience, traditions, administrative provision and expediency. This study goes beyond the usual teacher-innovation-class evaluation study and looks at two further factors believed to have significant potential in affecting the eventual behaviour of the children. These additional factors are the beliefs and attitudes of the principal of the school and the parents of the children in the Year six class. The indepth study of selected 'target children' and their parents enriched the case study still further.

The discussion of the results has been organised in the following way;

- a) the teachers at the two schools.
- b) the principals
- c) the parents
- d) the children
- e) the target children

The Teachers

Teaching is not an exact science. It is dynamic and in a constant state of change. The only factor that could be said to remain constant in the classroom is the goal of increasing student learning. In Western Australia very few primary schools have p.e. specialists and with the current financial restrictions affecting schools this is likely to be the case for some time to come. It is crucial therefore that the quality of physical education experience that children receive at this most influential stage of their schooling is positive and enduring. The messages that are put forward by teachers, both overtly and covertly will undoubtedly affect the children and the way in which they perceive physical activity and sport.

The introduction of an innovatory programme is not an easy task. To fully accept a new package, regardless of its quality, teachers will first need to be convinced that what is being offered has significant advantages over the existing set of circumstances and carries benefits for both their students and themselves. If teachers are not prepared to re-examine their pedagogic philosophy and principles in relation to an innovation then as Sparkes (1989) makes clear, real change cannot be said to have occurred.

The designers of the WASPAN programme knew this to be the case and spent considerable time and effort planning the programme material and explaining the programme to the teachers through memorandum and two in-service meetings. Full details of the WASPAN programme are located in chapter 1.

Schools do have other commitments and deadlines, projects and annual events, all of which combine to form the character and style of curriculum that is peculiar to the individual schools, individual classes and individual teachers. Teachers have constantly to make choices about how and when to modify their curriculum. In this particular programme (WASPAN) the regularity of the fitness sessions is important

for two reasons. Many children suffer from a lack of routine in their home lives. The regularity of a daily, morning fitness session is one feature that, in order to be successful, depends on the teacher's ability to afford it enough priority so that it is not only enjoyable and reaches its exercise goals, but is also regular. Only then will it have any chance of becoming habituated into the children's lifestyles. Secondly, the physical fitness activities have been designed to carefully develop children's physical fitness by progressively increasing the workload at each session. This means that although one or perhaps two sessions can be missed in any one week, the lessons have not been designed to be utilised as a resource pack (Kirk, et al. 1989) for teachers to pick out lessons when they run out of ideas.

The reaction of the two teachers to the implementation of the WASPAN fitness programme show the two very different ways that teachers can work with new innovations. Each teacher has been discussed using a term-by-term account. This is followed in both cases by a more structured discussion using the headings; planning for a curriculum innovation, implementation of the programme and finally ownership attitude and accountability.

The Teacher at Grove Hill

The gradual change in the teacher's behaviour towards the implementation of the WASPAN physical fitness programme is illustrated by the following term by term account.

Term 1

During early talks at Grove Hill, Mr. Kent appeared most enthusiastic. When the researcher first visited the school (9/4/91), Mr. Kent was organising a tape

recorder and extension lead to administer the Leger run. The girls had completed the run but a rain shower prevented the boys from taking part. The boys were so disappointed that one actually cried. At this stage, the enthusiasm of both the children and the teacher was high. Mr. Kent commented; "The kids are really getting into this programme, they get quite competitive with activities like this shuttle run" (field notes, 9/4/91). The enthusiasm of the teacher towards an innovation at this stage is common. The newness of the programme and proximity to the inservice courses provided initial impetus for the teacher. The selection of the school for additional research attention can also be a boost to the early stages of any innovation.

Documentation collected from the teacher for term 1 (teacher's log) indicated that all fitness sessions had been taken, and all were of '15 minutes' duration'. The researcher later found that even at this early stage, Mr. Kent was digressing from the programme and substituting relays in place of health hustles wherever they appeared (interview, 18/11/91). The problem that some teachers have with the aerobic, health hustle type of activity is not uncommon. Male teachers particularly feel a little self conscious leading this activity and a good strategy here is to utilise those children who have skills in this area and plan for the session in advance. Tinning and Hawkins (1987) quoted a teacher in their study who said: "I know a lot of teachers don't like dance. I think it would have to be the least popular area because of the planning. I mean you need to listen to the tape well before the lesson, and you even need to stand on your own and go through the steps" (p. 8).

The digression from the prescribed activities as early as term one started the fall off in programme adherence. Health hustles were never attempted and the teacher later admitted that the class didn't usually participate in any fitness if they couldn't go outside due to the weather (field notes, 9/4/91). This was an early sign that the teacher was not as committed to the programme as he might have been.

Fitness and the inherent benefits of regular exercise were not seen by the teacher as integral to the children's education. This is another problem to which class teachers rather than specialists are susceptible. The connotation of physical education as a "frill" subject by many teachers and principals is a perception physical educators have been addressing for some time.

Term 2

In the second term, Mr. Kent was using activities from the WASPAN manual as he recalled them from term 1, but was not following any sequence. He revealed to the researcher that he had disregarded the programme manual in favour of activities he thought suited the occasion (field notes, 12/6/91). He was actually using the manual on this occasion to remind himself of the procedure to be followed for the 1.6 kilometer run. "I only really use this (teachers' manual) now to jog my memory about something or to get the National percentiles" (field notes, 12/6/91).

Three visits were made by the researcher during this term, and only on the first occasion (3/5/91), did the teacher follow the teachers' manual. This visit had been pre-arranged with the teacher in order for two researchers to check recording reliability at the fitness session. This session lasted 20 minutes. The two subsequent sessions observed during this term ran for 10 and 12 minutes each, respectively.

There would appear to be a pattern emerging by this early stage in the year. The fitness sessions have decreased in duration and the teacher has departed from the scheduled activities. This means the structured developmental programme, designed to increase the children's fitness is no longer in operation. By the end of the term the teacher had decreased his empathy towards the fitness sessions. They no longer

occupied any intrinsic position of status in the class curriculum.

Term 3

The enthusiasm and support the teacher had shown toward the WASPAN fitness programme in term 2 continued to decrease in term 3. An arrangement was made with the class teacher, to enable the researcher to visit the class without an appointment. On several visits the teacher appeared rather anxious upon the researcher's arrival and it was obvious that he had not intended to take a fitness session. This view was substantiated by several children who would become excited and ask the teacher if they could go out for the fitness session. On the ninth week of term 3 when the researcher waited for the class on the oval, they failed to emerge. On this occasion the teacher explained that, besides having other work to catch up on, they had sport scheduled that afternoon and would therefore still receive a "run about" (field notes, 20/9/91). This comment highlights the lack of status this teacher was giving the programme at this stage. Although Mr. Kent had the choice of using his large classroom in which desks could easily have been cleared, or the empty music classroom, he always cancelled the session in the event of rain. Teachers in other schools often do not have the access to indoor space that Mr. Kent had at Grove Hill School. As a result their schedules are often disrupted by wet weather and this can cause interruption to the regularity of the programme.

By the end of term 3 Mr. Kent had clearly lowered the priority of the fitness sessions in his own agenda. "Is spelling more important than fitness? It comes back to the age-old dilemma of time on the time table to cover every thing adequately" (field notes, 18/9/91). The physical fitness programme was no longer seen as occupying a position of relative importance to the teacher. The teacher was happy to allocate a full 30 minutes to the student teacher for his morning p.e. lessons while his own

sessions lasted less than 15 minutes.

It was during this term that the relief teacher, who had come into the school to take Mr. Kent's class, was given a page of notes for the day's work. Fitness was not included in the relief teacher's brief (see results, 26/8/91). Mr. Kent had not devised any strategies for such an occurrence. This again points to a decrease in the level of priority given to the fitness programme by the class teacher.

By the end of the third term it had become obvious that Mr. Kent was no longer following the scheduled activities from WASPAN teachers' manual, even as a reference guide. He had explained that the children enjoyed the relays and found several of the other activities boring and so he had deleted them. On the days the teacher did take a session the activities were becoming increasingly repetitive. Running around the track or in relays was the staple activity for the class, and involved the teacher in the least amount of work. The final fitness session observed by the researcher in term 3 had been taken as a response to continual harassment by the children. Throughout the 9 minutes relay session Mr. Kent was 50 metres away from the children. No encouragement or motivation was forthcoming from the teacher following his initial instructions. His distance from the group reflected his general disinterest. The children were not aware that the activities they were now doing were the teacher's and not part of the original WASPAN programme.

During term 3, the children were still quite enthusiastic about the fitness sessions, despite the teachers apparent lack of commitment. In the tenth week of term 3, the teacher commented that he only brought the children out for a quick 10 minutes run because they had constantly nagged him. The obvious decline in the teacher's enthusiasm for the development of the WASPAN fitness programme had continued this term to a stage that the goals articulated by the designers had little chance of being realised.

Term 4

The fourth term's activities bore no resemblance to the WASPAN programme. The ideas and advice that Mr. Kent had utilised from the WASPAN teachers' manual in term 1 and term 2 were no longer in evidence. He commented: "The activities became repetitive for some kids. I might say; Okay, time for fitness, and some kids would moan...It's difficult to be continually creative in 15 minutes. To do something new takes detailed explanation, which can be very time consuming"(interview, 18/11/91). This statement by the teacher is rather ironic since he was no longer following the WASPAN programme and had not been for some time. In place of the varied schedule of activities as prescribed by the WASPAN manual (see Appendix A) Mr. Kent had substituted running, relays and then the obstacle course as the staple fitness diet for the class. The WASPAN programme in fact is designed to allow some flexibility and choice by the children in term 4. Mr. Kent was not aware of this because he no longer used the teachers' manual. In the relays Mr. Kent had reverted to familiar drills used in his own senior soccer training sessions. (The researcher uses the same drills at his soccer club). Activities in the fourth term became increasingly similar and repetitive. All sessions involved the minimum of preparation and involvement by the teacher.

Mr. Kent explained his diversion from the WASPAN programme to the researcher in the following statement:

I only followed what I wanted to follow. It's not in my nature to follow everything to the letter. The in-service and programme manual gave me a lot of ideas. It also gave me an incentive to do something every day. After the in-service I went back and followed everything from the book. There's no way in

the world I could continue to do that. You've got to do what you feel like doing at the time (interview, 18/11/91).

These comments reflect Mr. Kent's reluctance to be controlled by the WASPAN programme time table. He had used selected activities from the manual that suited his purposes. The use of programme materials as a resource for lesson ideas was also a finding in the study by Kirk et al. (1989) with Queensland teachers using the Daily PE programme.

The teacher's enthusiasm decreased as the term went on. His own involvement was minimal, and any encouragement and motivation he gave the children to be active was not observed. His diminished enthusiasm was also becoming more noticeable in the attitude of the children. This was reflected in the student preferences survey (happy faces) which showed that, except for running, between September and December there was a general reduction in the number of children who 'loved' the activities. Tinning and Hawkins (1987) in their study of Daily PE found that the lack of enthusiasm of the staff was mirrored by the level of pupil enthusiasm.

Planning for a curriculum innovation

Mr. Kent, whilst initially requesting to take part in the WASPAN physical activity programme had not encompassed its values ideologies and philosophy to any degree. Marsh (1986) believes that in order for curriculum innovations to be successful they need to be awarded status. The lack of status that Mr. Kent gave the programme was reflected by the allocation of time that the new curriculum was given on the time table. The WASPAN programme requires teachers to allocate 4 or 5 sessions a week to enable them to teach the class fitness skills and get them huffing and puffing regularly for 15-20 minutes. The scheduling of the session at

10.15, before recess at 10.30, was inappropriate as it meant that not only was the class often involved in other work at 10.15, causing the teacher to cancel the fitness session, but when the children did stop their class work at 10.15 it was unlikely that the engaged time would be 15-20 minutes. The average duration of the fitness sessions proved to be 13 minutes. Of this time 49% was recorded as activity fitness. This suggests that the children were huffing and puffing for an average of 6.3 minutes per session. Mr. Kent would have been well advised to have rearranged his schedule to 20-30 minutes three times a week. He scheduled no skills lessons but did claim to have taught the knowledge component of the programme as part of the weekly health lesson in term 1.

Although Mr. Kent appeared to have initial enthusiasm for the programme he was not able to devise contingencies to ensure the continuance of the programme in the event of wet weather, if he was absent or if the class was otherwise occupied at the usual fitness time.

Implementation of the programme

The teacher became inconsistent in his implementation of the fitness programme. On some days it was cancelled, on others it was cut short. This decline may have been accelerated by the winter weather, when the class was prevented from going outside due to rain. Alternative fitness work, such as health hustles, step-ups or exercise sessions could quite easily have been held in the classroom or in the music room/hall. Commonly the lessons were cancelled. Because of the teacher's deliberate omission of activities such as the health hustles, the programme began to lose its systematic development and variety as early as term 1.

Apart from demonstrating a few stretching exercises in the first term, Mr. Kent had never participated in any of the activities himself. He did not want to

jeopardise his perceived position of authority and aloofness in the classroom by joining in with the class or demonstrating any of the main activities himself. Noticeably, by the third term, his profile in the fitness programme had become even less pronounced. He would give the class a short warm-up run and then organise the relays or laps. Once the activity had commenced, he tended to withdraw from the area and let the class continue by themselves. The lack of attention and motivation provided by the teacher in terms 3 and 4 was a factor in the decreasing enthusiasm displayed by the children. It was not surprising that they actually became lethargic themselves. In their study in Victoria, Tinning and Hawkins found a gradual diminution of teacher enthusiasm towards the teaching of The Daily P. E. programme (1987). They found a strong relationship between teacher and child enthusiasm. They also found dance to be the least popular curriculum area for the teachers.

By the third term, the fitness programme the children were participating in bore little if any resemblance to the WASPAN programme. Despite this the quantity of running the children were doing prior to the testing ensured their cardiovascular endurance improved. The low fitness children were even showing signs of increased self-esteem (interview with Mr. Kent, 18/11/91). But due to the spasmodic and repetitive nature of the sessions, the more crucial longer term effect on the children's activity levels and the supposition that increased activity may become incorporated into lifestyle behaviours could not be assumed.

Ownership attitude and accountability

Mr. Kent's use of the WASPAN programme would be a prime example of what Sparkes (1989) would refer to as "innovation without change" (p. 60). Apart from a fairly enthusiastic beginning Mr. Kent had not developed any new approaches, styles or strategies. In other words he had failed to move from the first level of

change on Sparkes' model of innovation implementation.

Circumstances in classrooms can and do change. Tinning (1982) has mentioned the writers of curriculum documents or packages who may wonder why their glossy material sits up on the shelf gathering dust. In many instances these writers have limited experience in schools or they have lost touch with the reality of the classroom and the different pressures that are exerted on teachers from the environment. Initially Mr. Kent afforded the fitness programme a degree of priority and status on the timetable. As time progressed, pressures from other subject areas as well as various school events came to bear on his time. As a result the emphasis and energy he originally had for the fitness programme diminished. Mr. Kent was not prepared to change his pedagogical ideas and beliefs. He was not interested in involving other members of the staff or parents in the programme. The children were not encouraged to take an active role in the delivery and maintenance of the programme.

Mr. Kent's attitude towards the programme was that the teachers' manual provided a fairly useful resource pack but to make a commitment to a regular and systematic programme was not practical. He saw the 1.6 kilometer run as a good way of determining the 'fitness' of the children but he couldn't see how the physical fitness sessions tied into the idea of increasing children's activity levels (interview, 18/11/91).

Although the school policy was for members of staff to report the content of any inservice meeting to the staff at the next staff meeting Mr. Kent had never been reminded to do this. As a result, apart from the principal, who had received letters and information from the researcher no one else on the school staff had any knowledge about the WASPAN programme. Watkins and Tester (1988) outlining the successful implementation of a daily physical education innovation in Tester's

primary school emphasised the participative involvement of a team of interested 'stakeholders', including parents, staff and students. This group would be led by the co-ordinator, who would champion the cause. Working autonomously Mr. Kent was able to drop or deviate from the programme with relative anonymity. He was not held accountable for completing the fitness programme he had started in term 1 or for producing student gains. Several authors have commented on the fact that teachers are not held accountable for student's performances in p.e. in the same way as they are for other, perhaps more prestigious, curriculum areas (Kirk et al., 1988). The current situation in most primary schools in W. A. is that the teacher is not accountable for the children learning anything in their physical education time. While empirical forms of measuring have their place in many facets of education, in physical education the measurement of performance is quite often simply a measurement of maturational growth. If handled sensitively, accountability can be a very useful motivational device. Of much greater importance to the teacher and the principal should be the notion of personal accountability. Has the teacher been able to reach his/her stated goals? Have the children with the most need of improvement made those improvements? A time of personal reflection by the teacher and supported by the principal, may encourage the teacher to fine tune his/her pedagogy or the content of the programme to ensure more intrinsically valuable outcomes in future (K. Alexander, personal communication, 5/3/92).

The Teacher at Eastwick School

The following account discusses the implementation of the fitness programme term by term at Eastwick school. The differences between each term are not as obvious as they appeared at Grove Hill School, but the narrative highlights the factors which contributed to the mobilisation of the programme through the various

stages of implementation. The main points are then discussed under the relevant headings.

Term 1

Ms. Thomas is very positive about the current emphasis on healthy lifestyles in schools. In 1990 she and her class were involved in the WASPAN diet and nutrition programme. In 1991 she approached the principal to ask for her new class to be included in the WASPAN physical fitness programme. Despite the problems of the 'overcrowded curriculum' Ms. Thomas allocated 30 minutes at the start of school each morning to the fitness programme. This initial commitment to time allocation is a critical step for this teacher at this time. It reflects the status and profile she is prepared to afford the programme. Also by scheduling the programme first thing in the morning at 8.45 the sessions are not likely to be overlapped by unfinished work. It is also suitably the coolest part of the day.

Ms. Thomas began the programme with great enthusiasm. The most obvious feature of this is that she joined in with the sessions and was able to inspire the slower children to keep going. She was always dressed appropriately in sand shoes and track suit for the sessions. This provided a good example for the children. They saw their teacher participating as a role model despite her self confessed lack of fitness. This was especially important for the low fitness girls who saw the effort Ms. Thomas was making. All the children saw that she had taken the time to change and prepare the lesson and they also saw that it was okay to huff and puff and sweat a little.

'Fitness' started each day at 8.45 and the children knew they should expect this. If the routine was interrupted because of a school assembly or other event, the

fitness session would be rescheduled later in the day. Each weekly fitness timetable was displayed in the classroom in a prominent position next to the door. From the time table the children knew exactly what kind of exercise session to expect. All exercise sessions were completed and usually ran for 20-30 minutes. The length of the sessions did not decline during the year. The WASPAN programme is designed to be a regular daily occurrence for the children. This is important if they are to perceive physical fitness as a regular and normal part of their own lifestyle. The sense of routine appears to be of importance to the children in that it gives them something permanent to relate to. The fitness session became the 'norm' for the start of the school day. The children knew what to expect each morning and if something prevented the session from going ahead, the children were quite disappointed. This idea of establishing routine is vitally important if an innovation is to become an established part of the curriculum and begin to move from mere surface change to a position of institutionalisation (Sparkes, 1989).

In addition to the morning fitness sessions the children also had two weekly skills lessons and sport on Friday afternoon. The knowledge component on the programme was integrated into the health hour every Wednesday.

Term 2

Prolonged periods of wet weather saw the cancellation of several morning fitness sessions in other WASPAN schools. Despite this problem Ms. Thomas appeared to be just as enthusiastic towards the programme. Indoor health hustle sessions were working well, and the fact that she was able to maintain the regular fitness sessions throughout this period says much for the eventual success of the programme. It would have been easier simply to have called off the day's activity, as the rain teemed down, and continued with class work. Instead desks were cleared

and the children organised tapes and the tape recorder for health hustles which were usually led by one boy and one girl (23/5/91, field notes). Another strategy the teacher used in the case of rain was to postpone the session and substitute an afternoon lesson and then go out for fitness later in the day when the weather improved. Ms. Thomas was able to maintain the children's enthusiasm in other ways during this difficult period. On one occasion a step-up session was led by the Mother of one of the children in the class (10/6/91). It proved to be a thoroughly rewarding experience for the children and the teacher who joined in with the class.

Term 3

At the beginning of term 3 Ms. Thomas was still experiencing problems with family illness. She appeared visibly more tired in the mornings and stopped joining in with the physical activities. Partly due to these problems, Ms. Thomas developed further strategies to maintain the flow of the programme. A good example of this was the warm up that was organised if ever the teacher was late arriving at school. The children would meet in a designated area of the playground in sight of the principal's office (who was aware of this strategy and assumed responsibility if this occurred). A previously designated child would then lead a series of stretches as a warm-up activity. On another occasion when Ms. Thomas was going to be away the relief teacher was left notes for a jump rope lesson. This lesson involved the class practising well rehearsed routines with the minimum input needed from the teacher.

During this term Ms. Thomas continued to work through the manual week by week. The only exception to this was the health hustles, which were now saved for rainy days and then substituted for the activity missed. Many of the fitness sessions were taking longer than she would have liked but she had the support of the principal

to continue until the sessions were finished.

These simple but effective strategies were devised by the teacher to ensure the smooth continuance of the fitness programme in the specific school context. A total of nine visits were made to the school by the researcher this term. On the occasions that the researcher waited for the class to come onto the oval they appeared on schedule. Although the teacher had ceased her own active participation in the activities she still changed into sand shoes for the sessions.

Term 4

Five observations in term 4 and the teacher's log confirmed Ms. Thomas' adherence to the physical fitness programme through to the end of the year. In consultation with the principal, both 30-minute skills lessons were lost to mathematics, which was the main focus of the school's development plan for the year.

The physical fitness programme in term 4 is designed to be less prescriptive by giving the children choices about the activities they will participate in on certain days (see Appendix A). This decision making process gives the children more responsibility for their fitness development and encourages a degree of ownership of the programme. Sessions were lasting an average of 24.5 minutes and mean heart rate was elevated above 140 bpm. for 60% or 14.6 minutes per session. Despite the teacher no longer physically participating in the activities the results of the 'happy faces' survey (Table 29, page 261) showed the activities were enjoyed all the more by the children now that their fitness had improved.

Planning for the curriculum innovation

Ms. Thomas was prepared to fully encompass the WASPAN physical fitness programme. She allocated 30 minutes (average) at the start of each day to the

fitness session. The scheduling of this 30 minutes first thing every day was important. It meant no overlapping, most children were alerted or fully awakened and it was the coolest time of day. The knowledge component of the programme was taught in the first term and the first 3 terms also included 2 half hour practical motor skills lessons.

Ms. Thomas was prepared to change and join in with the activities and although she was not fit herself, the children, especially the less fit ones, were inspired by their teacher's efforts to participate.

Perhaps the most crucial steps the teacher took to support the continuance of the programme were in the form of the contingencies she developed. By posting the weekly fitness time table up on the wall the children were always aware of the activities they would be doing that week. By organising different children to take responsibility for providing music and leading the health hustles, wet weather activities were provided for. By leaving work to ensure that any relief teacher was able to continue the programme's activities, the continuity was not disrupted. Working closely with the principal enabled him to support the programme to the extent that if the teacher was late to school due to personal circumstances the principal took responsibility to watch the class during their child-led warm up

These strategies were not passed on from WASPAN to the teacher but were initiated and implemented by the teacher to suit her specific circumstances and environment. Her experience and professionalism enabled her to make a commitment to a change in pedagogy in order to encompass the ideals and philosophy of the WASPAN programme.

Implementation of the curriculum innovation

In Queensland, Kirk et al. (1989) found that classroom teachers who

admitted to low physical education expertise were more likely to follow the Daily Physical Education Programme closely while specialists were more likely to diversify. Daily reference to the teachers' manual (this was supported by observations and the teacher's log) demonstrated that Ms. Thomas had been able to provide the prescribed programme for the children, which followed a developmental and systematic method of increasing the children's fitness. The majority of the activities in the programme are designed to be both enjoyable and non-threatening. The WASPAN fitness programme was designed to be prescriptive in order to guide non-specialist teachers towards the stated goals. Teachers are encouraged to diversify and incorporate student choice towards the end of the year. Because this teacher was relatively unskilled in the development of fitness skills herself, she adhered rigidly to the sequence of activities as suggested in the manual (supporting the work by Kirk et al.).

Although the personal health of the teacher is suffering in the third term she has reached a point whereby the programme has very nearly become institutionalised. By the fourth term the children have reached a level of fitness whereby they are enjoying the activities. They have developed positive attitudes towards activity (as shown by the results of children's questionnaires and happy faces) and have assumed a responsibility for the continuance of the programme. The programme has by now "become part of the normal operation of the school" (Tester and Watkins, 1987).

A final point concerns the presence of the researcher whom Ms. Thomas had mentioned to be a consistent source of information and support regarding the programme. This fact cannot be underestimated in the terms of the success of any programme's implementation as Tinning and Hawkins (1988) found in their study of DPE. Conscious of possible experimenter effect the researcher deliberately declined

to offer information or advice unless it was sought by the teacher. As far as possible a low profile and relative distance from the class was maintained by the researcher at all times. Without volunteering information, the researcher was consulted regarding organisation, the timing of the warm-up and other matters concerning the programme. Ms. Thomas knew that if a problem arose the researcher would be visiting the school at some stage during the week (third and fourth term) and could be consulted.

Ownership, attitude and accountability

The teacher was aware of the children's social and emotional background. She knew which children were experiencing problems in their home environment and she related that several children were from one parent families and some of these children were undergoing psychiatric treatment. She knew that many of the children received very little support to be active from home, which was confirmed by the results of the parents questionnaires and interviews. As a result of her knowledge of the children the teacher was able to motivate them at their own level. Mandy and David, for example, responded to a different kind of encouragement from high fitness children such as Bill and Donna. Ms. Thomas commented that the fitter, more able children were not so much of a concern to her. She was more concerned about the low fitness children. The ones "left out of the big games because they can't play it." This was a very real concern for Ms. Thomas, who had been one of those less-able children herself. She could sympathise with these children and understand what they were feeling. Many teachers, and Physical Education teachers in particular, have rarely felt self-conscious or uncomfortable performing physical skills (Kirk et al., 1988). Ms. Thomas was conscious of the possible effect of negative experiences in the fitness activities on the low fitness children. She

expressed concern about the humiliation that children felt when coming last in the 1.6 kilometer run. She became critical of her own performance if the individual did not show obvious improvement. This self evaluation by the teacher shows an intrinsic professional attitude to the situation. The teacher is accountable for the children's learning outcomes and does not dismiss the problem or blame the programme content. She would instead look at alternative methods or strategies she might utilise in the future.

Ms. Thomas was also convinced about the value of the programme beyond the obvious fitness benefits. The class had increased their socialisation skills as a group, they were concerned about others in the class and cheered on the slower ones during relays and other activities (field notes 28/8/91 & 16/9/91). She had encouraged some children to "latch onto the programme" (interview, 26/11/91) and it had given them something concrete to relate to in school. Self-esteem had been enhanced in most cases and individual achievement was recognised by the teacher and in many cases the principal also gave encouragement, especially to the lower fitness children.

Ms. Thomas had become the principle 'stakeholder' in the fitness programme. She could see the positive improvements that the children were making in many different areas, as previously mentioned. The principal was supportive, as were several parents. But, most importantly the children had a shared ownership of the programme. They took turns to lead the health hustle, they chose the music for all the indoor sessions and for some outdoor skipping sessions. They became interested in taking pulse rates and the results of heart rate monitoring. These are all ways to develop ownership and to encourage the children to take more responsibility for becoming active.

The Principals

The principals of the two schools studied had very different personalities. General observations at the schools suggested that both principals appeared to lead effective schools, their approach and methods could be said to be diametrically opposed. At Eastwick any visitor entering the school would be left in no doubt as to who the principal was. On the other hand observations at Grove Hill revealed the principal to be a quieter man who, while not having the physical presence to match the Eastwick principal, was still held in high regard by the teachers and children at his school. Sergiovanni (1990) recognised that as the 'legitimate' power in the school the principal needed to possess many diverse qualities in order to be able to articulate the school purposes and mission and to bond together students, teachers and others as believers in the work of the school.

The Principal at Grove Hill School

The principal at Grove Hill school was appointed in 1988. He is 55 years old and, due to falling numbers at the school, he feels threatened by a possible move away from the area. His particular background is in music and mathematics in which areas he occasionally teaches. Although a keen gardener and walker, the principal perceived the area of physical education as a personal area of weakness. He was more than happy to leave all the teaching and coaching of physical education and sport to those teachers or parents who had the expertise or inclination to involve themselves with it. As a result, the principal was not actively involved in any aspect of physical education in the school.

Lacking in physical presence, the principal could not be said to be an inspiring role model to the children in the school. He was more than aware of his

deficiency in this area and used Mr. Kent as the school resource teacher/coordinator for anything concerning physical education at Grove Hill. This included the bike education programme and coordinating the schools involvement at the various school sports carnivals. He was glad to support Mr. Kent's application to become involved in the WASPAN fitness programme.

As a team leader it was the principal's job to ask Mr. Kent to report the details of the WASPAN inservice courses to the other teachers at the next staff meeting. He failed to do this, and as a result the status that should have been afforded to the programme was lost. As a 'top-down' curriculum innovation the ideas and methods included in the WASPAN programme should have been of great interest to some of the less skilled teachers in the physical education area. Mr. Kent was quoted as saying "most of the teachers wouldn't have a clue about this programme" (18/11/91). The important concept of ownership (Marsh, 1986) and therefore status for a new programme can be achieved through collaboration between staff. Teachers need the ideas and creativity that can come from inservice education. Great enthusiasm can be, and usually is, generated at the 'newness' stage of any innovation.

The principal had explained that the withdrawal of the Ministry Advisory teachers in physical education was a real loss to those teachers who needed help and support in this area. Tinning and Hawkins (1987) found that not only was inservice training linked to staff enthusiasm in teaching physical education, but also that it was possible for one key person to inservice the rest of the staff. This should have been Mr. Kent's role after the WASPAN inservice meetings. All the teachers that were interviewed in Tinning and Hawkins' study on curriculum implementation in physical education (Daily P. E.) claimed they would like to have inservice in physical education, in order to get new ideas and generate further enthusiasm.

The principal at Grove Hill school realised the need for a better school-wide

p.e. programme for the children and recognised that many of his staff were unable to teach this area competently.

The Principal at Eastwick School

The principal at Eastwick was in his first year as principal at the school. Previous to this appointment, he had been head of a country school. At the relatively young age of 46 he was enthusiastic and possessed a great deal of energy. The principal was a keen runner and cricketer. He had come to Eastwick from a country school where the local sport clubs were the social centre and lifeblood of the town. One of the parents of an Eastwick child commented: "The principal is from the country where sports are central to the life of the community, so there's a bigger commitment to a sporting philosophy" (parent interview, 19/11/91). An example of his commitment was seen in the extra-curricular time the principal spent taking teams and coaching the children.

As the new principal at the school he made clear his intentions to spend considerable time and effort to gain the trust and respect of the staff and work with them as a team for the good of the school (interview, 15/11/91). He held meetings with the staff and the parents concerning participatory decision making (observations and interview, 15/11/91). In conversation with the principal he emphasised the importance of involving teachers and giving them ownership of what they were doing. In this way he believed they would be more likely to work harder to achieve the aims and goals of the programmes they were involved in (field notes, 24/10/91).

The principal gave support to the innovation in several ways. He regularly consulted with the teacher about the programme and encouraged children to come and see him for praise whenever they showed personal improvement. He was very

cooperative with the work of the researcher and was keen to be kept up to date on all the developments in the study.

The principal saw physical activity as a tool and used it to develop strategies to keep the children occupied during recess and lunch time (field notes, 28/9/91). The initial discipline problems that had existed early in term one during the recess break were handled by introducing innovative activities for the children to occupy their free time (interview, 15/11/91). On two occasions the principal brought elite sports players into the school to show the children skills and modified games. This had the effect of renewing the children's enthusiasm for these activities.

Another use the principal saw for physical activity, was as a way of developing children's self esteem. Through activity he felt children could learn to set themselves realistic goals and attain them. This he saw as being as important to the children as the development of fitness, skills and sporting ability (interview, 15/11/91).

As the school team leader the principal was concerned about the total time Ms. Thomas was allocating to fitness, motor skills, health and sport each week. In term 4, in consultation with the Ms Thomas, it was decided that the daily fitness sessions should be continued, but that the two weekly 30 minute skill sessions should be dropped in favor of additional mathematics, which was the focus of the school development plan for the year.

In summary, the principal's contribution to the implementation of the fitness programme was two fold. Firstly, he was an excellent role model who the children saw to be positively and actively in favor of physical activity. Secondly, he included himself as part of a team which realised the benefits of the new innovation and strongly supported its implementation. The importance of this contribution should not be underestimated in the climate that the principal helped to create in the school.

The Parents

Work by Godin and Shepherd (1986) suggests that the most significant influences on the behaviour of primary aged children are their parents. Lee et al. (1987) furthered this point by stating that parents should provide positive role models for their children especially at this receptive age. Ideally this is true, the reality is that many parents, especially those in lower socioeconomic areas, are more restricted in their ability to make healthy choices regarding such important issues as physical activity, smoking and nutrition.

Different studies have looked at the background of children, their gender, social status and ethnic origin and the relationship of these factors to the incidence of heart disease. This study looks at the exercise habits of the parents of a class of children in order to obtain information concerning the kinds of contextual backgrounds which will ultimately influence the children's desire to be active.

The Fishbein model of behaviour suggests that intentions to carry out a reasoned action such as voluntary physical activity are determined not only by attitudes, but also by social norms, (Fishbein and Ajzen, 1975). Social learning theorists would say that the two are inextricably bound and that individuals interpret events and select a course of action on the basis of past experience and the observation of others. In the case of primary aged children these most significant 'others' are parents. Work by Godin and Shepherd suggests that this is the case for most younger children until they reach adolescence.

The Parents of the Year 6 Class at Grove Hill School

The Grove Hill catchment area determined that the parents of the children at this school lived in a high socioeconomic area (Bureau of Statistics, 1989). This factor according to research (Marmot, et al., 1978; Gliksman et al., 1990) will

produce a greater likelihood of physical activity participation. The data proved this to be the case.

Data from the questionnaires revealed the Grove Hill parents to be above the national norms (National Heart Foundation Survey, 1989) on all 3 activity questions. In the 2 weeks prior to the questionnaire 85% of parents had participated in some kind of activity. This figure compares favourably against the national figure of 73%. The total of 75% of respondents who had walked for exercise was higher than the 55% nationally and 85% had exercised vigorously compared with 40% nationally.

The finding that less than 50% of parents thought fitness to be very important to their children's lifestyle is worthy of consideration. Parents can bring a great deal of pressure to bear on principals and schools if they feel that a key area of the curriculum is not receiving the emphasis they believe it should have. Physical fitness was not considered by the interviewed parents to be an essential role of schools. Two sets of parents interviewed believed the role of the school was to provide academic education and not to provide games and sport which children can be involved in outside school. This perhaps reflects on the level of expertise in physical education available at the school.

All the parents interviewed were supportive of their children's out of school activity and sporting pursuits providing transport, registration fees and general encouragement.

"Time" was the main reason given by parents (55%) as to the reason they did not exercise more. Time for these parents may be more difficult to find, due to work commitments. Jones-Roberts and Shilton (1990) found that 75% of respondents in their study reported "lack of time" as being the main reason why they did not do as much physical activity as they would have liked. Tinning (1990) suggests that

opportunities to exercise are in fact greater for these parents than they might be for more economically impoverished individuals. The responses to the questionnaire indicate these parents do exercise regularly and claim that "time" is the main reason given as preventing them exercising further.

The Parents of the Year 6 Class at Eastwick School

The data from Eastwick School found that a quarter of the parents surveyed did no exercise in the two weeks prior to the questionnaire. This figure is lower than the national average and tends to confirm those studies which suggest that families living in lower socioeconomic areas are less likely to participate in physical activity.

Eastwick School is situated in an area of metropolitan Perth designated as low socioeconomic status and it might be assumed that the families of the children at this school live in reasonable proximity. This proved not to be the case when the target children's parents were interviewed. The parents of the high fitness children interviewed, lived away from the school suburb in areas designated as being higher socioeconomic status than the school suburb. The parents of the low fitness children lived close to the school, in the same suburb.

The other pattern that emerged at Eastwick was that the parents of the low fitness children chose to be interviewed at school, during school hours. The parents of the high fitness children chose to be interviewed at their homes. These findings illustrate that within the same school, children are coming from distinctly different backgrounds. The differences in these families' attitudes and support for their children's activity was marked, and as might be expected there was more support and encouragement for the children living in the higher socioeconomic area. A more

detailed discussion of these circumstances is reported in the section on target students.

At Eastwick only 29% of respondents reported that they exercised at a vigorous level 3 times a week or more. With the national figure at 40% this again indicates the relatively low activity level of the Eastwick parents. Although moderate exercise might have been a more appropriate term to have used (Sallis and McKenzie, 1991) the low number of participants is still an indication of the socio/cultural restraints that may prevent these individuals from exercising. Tinning (1990) suggests that many parents of low social classes do not have the rational ability or freedom of restraints to be able to make a valued decision on the matter of how much and how often they exercise. A study by Jones-Roberts and Shilton (1990) concluded that "Those who are less well off and who have less educational and material resources tend to be less active" (p. 25).

A total of 16 (67%) of the 24 respondents reported 'time' to be a major reason why they did not do as much activity as they would have liked. This supports the Tinning's argument. If, as Godin and Shepherd report (1986) children's socialisation into sport and activity begins at home, then activity programmes must start to target the home with information and practical help for parents to pass onto their children.

Godin and Shepherd (1986) report that mothers are the major influence on their children's intention to exercise. If this is the case, the result that 5 of the 15 female respondents thought they were of below average fitness may be a cause for concern. All three parents of the low fitness children interviewed at Eastwick were females and two of the three were visibly overweight. All three admitted to being inactive and recognised that their children could be more active. Conversely the parents of the high fitness children interviewed were highly active and gave their

children a great deal of support in their activities. These differences suggest that when curriculum designers and teachers develop curriculum programmes in p.e. they must be sensitive to the different backgrounds that children come from. The contextualised programmes must be recontextualised by enlightened and reflective teachers (A. Taggart, personal communication, March 5, 1992).

The parents interviewed were anxious about their children and all expressed a desire to know more about how they could help their children become more active, or if what they were currently doing was the right thing. School based p.e. programmes have a large yet virtually untapped resource in the parent body. Parents are generally most supportive of the school and what the teachers are doing. Unfortunately as one parent said: "We only get to hear from the school if there's a problem" (Bill's mother, interview, 19/11/91). Parents need to be allied to the cause of working towards healthy lifestyles. At Eastwick the class teacher had successfully enlisted the help of a mother to take a step-up class. This is just one example whereby parents can become involved in the 'school team'. As Taggart et al. (1986) found in their home based activity programme, parents can play a major role in the development of their children's activity. This is an area which needs to be addressed in future p.e. curriculum programmes.

The Year 6 Children

Armstrong (1989) in a study of 300 children in England revealed "disturbingly low levels of physical activity" (p. 28). Armstrong concluded that although the children in the study were as 'fit' as their counterparts 50 years ago fewer than 15% of the girls and 30% of the boys showed any sign of elevated heart rate during the three days of monitoring. As a result Armstrong advocated teachers

working towards helping children achieve "activity independence" (p. 32).

Sallis and McKenzie (1991) advocated that the primary goal of school physical education classes should be that of making a subtle paradigm shift from an emphasis on fitness improvement to the establishment of regular physical activity (p. 124). This most worthy of causes is behind the design and implementation of the WASPAN physical fitness programme.

The following reports discuss the children in each school and the changes that occurred.

The Year 6 Children at Grove Hill School

The December questionnaire revealed that the whole class believed they were of average fitness or above. The three children who in August had thought they were unfit now thought they were at least average. This result is a healthy reflection of the children's running work and their feelings about their own level of fitness.

Of the 20 children completing the questionnaire the numbers of children playing sport after school and at weekends increased by 10 and 3 respectively. The time children spent playing sport at weekends increased from 49 minutes per child per day in August to 66 minutes per child per day in December, an increase of 17 minutes per child per day. These increased numbers and times are a positive sign that the children are becoming more active in the summer and points to an increased awareness of the children's own activity capabilities. Several of the target children spoken to commented that they were more active in December than they were in August. Andrew said he felt fitter and was now riding his bike to school instead of walking or getting a lift. Adie said that her favourite sports were riding her bike, playing tennis and swimming at the beach. These activities are all more easily carried out in the summer. Candice had said that the main benefits of the programme

for her was that she had become more fit and enjoyed doing sport more.

The majority of children (89%) indicated that they exercised (or did physical fitness) after school or at weekends. There was a decline in the number of children exercising before school between August and December. This reduction of five students might be explained by the situation in August when the teacher was introducing more running and the children were quite enthusiastic. One of the target students, Colin, was running before school at this time to improve his 1.6 km time and to train for the school lap-a-thon. By December he had stopped running regularly and was doing more cycling. The after school and weekend time spent exercising increased by 9 minutes and 6 minutes (per child per day) respectively. The same pattern emerged for Grove Hill as it did with Eastwick school. The numbers of children participating in physical fitness dropped, those still engaged increased their quantity of participation. Analysis of the results reveals that the most active children have become more active while some of the less active individuals decreased their time in physical activity or stopped completely.

In regard to the children's responses concerning the fitness programme it is important to remember that the children's enjoyment or perception of the programme is based on their notion that what they were following was still the WASPAN fitness programme. In fact, only the first 2 terms were based on the WASPAN teacher's manual. After that, the teacher had reverted to his own format and to a large extent lesson content. The only negative responses about the fitness programme came from two girls who had responded 'it's awful' in August, had changed to 'Don't like it much' by December. It might have been assumed that the children who responded negatively to the questions concerning the fitness programme would be the low fitness children, some of whom found the running "pretty painful" as commented by Adie (interview, 3/12/91). The results revealed

the negative responses to be from girls who were middle fitness for their class. It was these middle range children about whom the teacher had said; "It doesn't really bother them because they don't have to succeed. They know they won't get better than the fit ones, and they know they won't come last." (interview, 15/12/91). This comment reflected the degree of attention the teacher gave the middle ability range of children in particular.

It is interesting to see that, although by August (term 3) the children were already doing less and less activity bearing any resemblance to the WASPAN manual, their predilection to the activity the teacher was giving them was positive.

It might be conjectured that the increase in sports participation and decrease in physical fitness activities may have been due to the content of the teacher's fitness sessions. The fitness sessions became almost totally comprised of continuous running and repetitive relays. This may well have increased the children's ability to participate in sports effectively, but decreased the children's desire to engage in further fitness activities.

Levels of Fitness and the Fitness Programme

Taggart (1991) suggests that fitness sessions are about getting children "huffing and puffing" (p. 4). This may be only one aspect of Taggart's formula for the development of active behaviour but it would appear to be the one that Mr. Kent has emphasised and, as a consequence, the one the children have followed. The results of the fitness testing reflect the teacher's emphasis on cardiorespiratory exercise in the form of running and relays. Certainly the WASPAN activities are based on running and relays as the proven activities used in the development of cardio-respiratory fitness. As well as developing an enjoyable, varied and systematic format the programme also encourages attention to both flexibility and

muscular endurance particularly in the later stages. Both the girls and boys showed decreases in back flexibility and only the boys showed a slight improvement in abdominal muscular endurance.

With the quantity of running the children were doing, it is not difficult to understand the improvements in the 1.6 kilometer test. However, two girls of lower fitness decreased their times between testing in June and November. Neither of these girls was the slowest in the group but both were lazy and at no time did they ever appear to be trying their hardest. Examination of the children's questionnaire proved these two girls to be the ones who were the most negative about the Fitness programme. One of the girls was chosen as a target child, but her mother declined to be interviewed. All the boys tested showed cardiorespiratory improvements.

The teacher did very little stretching with the class, warm-up was usually a jog across the oval and back. There was no flexibility work done in the main session. As a result, seven of the girls and four of the boys (61% of the class) failed to make any improvement in their flexibility scores.

The teacher did little or no work to improve the children's muscular development. Because this work did not come into the WASPAN programme until terms 3 and 4 the teacher would not have discovered it. Eight of the children scored less sit-up repetitions in November than in the test in June. It may be conjectured that the teacher's lack of attention to the development of muscular endurance during the programme may have contributed to this.

These results of the fitness testing reflect the teacher's lack of commitment to the fitness programme and as a consequence to the development of systematic fitness skills. The process observations give a clear picture of the decrease in priority the teacher afforded the fitness programme. In term 1 the sessions were lasting 21 minutes. By term 4 this had been reduced to 13 minutes per session.

This was certainly not enough time to produce effective fitness gains or to give the children long enough to become involved in an enjoyable activity session. Tinning and Hawkins (1987) found that the reduction of time was very common in the schools they studied in Victoria. They explained: "It seems that staff have modified the time allocation to suit a view of what is realistic in their context" (p. 6). The reduction in frequency and duration of vigorous activity can have a drastic effect on student's fitness. It would appear that all the teacher is doing at this stage is getting the children outside for fresh air and stopping them complaining.

The most worrying aspect of Mr. Kent's lack of adherence to the WASPAN programme is not necessarily concerned with fitness development. The potential benefits of the programme beyond fitness include the development of the children's ability to organise and lead activities and feel competent and comfortable enough with the fitness skills to transfer them to their own outside school context.

Analysis of the different activities at Grove Hill shows that the running activities were the most effective activities for achieving elevated heart rates. The running sessions were 14 minutes in duration with elevated heart rate above 140 bpm. for 11 minutes of this time (79%). Undoubtedly fitness gains are being made during this time but the goals of the programme in terms of duration of the sessions are not being realised and the level of the children's positive behaviour change must also be questionable.

The class survey (happy faces) points to a subtle change in attitude towards the running activities. Even though running had become a common activity for the class 43% of the children indicated they 'hated' the activity in September but this figure had dropped to 5% in December. The children's attitudes towards the relays changed very little between September and December.

The teacher's relays lasted 16 minutes (mean) per session. Heart rate was

elevated above 140 bpm. for just over 10 minutes (63%) of this time. The children became quite proficient at organising themselves for relays, which the teacher often combined with skills activities such as soccer dribbling or picking up and putting down balls. The happy faces survey revealed that the 26% of the children who 'hated' the relays in September had reduced to 24% by December. However the 31% that 'loved' them in September had reduced to 24% in December.

According to the teacher and his log there had been 6 sessions of jump rope during the year. There is no recorded data for this activity apart from the happy faces survey which showed a positive attitude shift between the two months of administration.

Ironically, the low-fitness dodge-ball game the teacher introduced on Fridays was the most popular activity. The fact that the children indicated that this was their favourite activity reinforces the need for the inclusion of a varied and systematic programme of activities such as those found in the WASPAN fitness programme. If fitness activities are to be adopted by children they need to enjoy what they are doing. This involves participation, some degree of success and enjoyment. Dodge-ball was the only activity other than the running activities, relays and later some obstacle courses, that the children experienced.

The Year 6 Children at Eastwick School

Analysis of the questionnaires revealed that the active children increased their sports activity time between the two questionnaires while at the same time two of the low activity children reported no sports activity for December. This is an unfortunate situation but a most important finding. It would appear that the active

children are becoming more active and some of the less active children are becoming less active. This is the opposite effect to that desired.

The most important change in the responses to question 10 which asked how fit the children would like to be showed that a majority would like to be much fitter in August. In December this majority was now saying it only wanted to be a little fitter, indicating that many children thought their fitness had improved.

The results of the questionnaire revealed that the children became more positive about the fitness programme and the activities they were doing. There were only three negative responses concerning the fitness programme in December. It might be assumed that these three respondents would be low fitness children. Closer analysis revealed them to be two boys and one girl all of above average fitness for the class. On the second set of testing carried out in November these three students had made very small gains on all three of the fitness areas (cardiorespiratory, muscular endurance and flexibility). One of these boys was mentioned by the class teacher one morning:

Peter was one of the fitter boys at the beginning of the year and he has just been swept from the field and now he's lost in the crowd. He's aware of that because children have actually said to him 'You used to be good at running and you're not now', and he's sort of coped with that by being blasé and not doing much about it, but with the training for the inter-school sport I noticed he really gave it his best shot in the race. Although he didn't do any good, I thought at least he's trying. (field notes, 21/8/91).

The irony of this case is that this boy was one of the more 'naturally fit' children at the start of the programme. The teacher was aware of this and as a result directed her attention to other more noticeable or perceived 'needy' children.

Even on the day she made the comments to the researcher about Peter, she did not talk to him personally or offer him any encouragement during the fitness session. Peter is perhaps typical of the group of children in many classes who because they work relatively quietly, make acceptable gains and cause little fuss are given minimal attention by the teacher. During the course of the year Peter showed improvement on all the fitness tests, but his achievements became surpassed by others and Peter became 'lost in the crowd'. The teacher noticed this occurrence but observations and her comments have shown her to concentrate her efforts on the low fitness children. Peter and others like him are not a perceived fitness problem. The danger of neglecting these middle range achievers is that they become resentful of the fact that they are receiving relatively little attention and their activity levels and their self-esteem can be diminished. They may also be turned off physical activity. Peter's response to the lack of interest in him has been to blame the fitness programme and marking "its awful" on the questionnaire.

Peter and another middle range boy answered the question "Has the fitness programme given you more energy to help with other activities" negatively. This question was answered by multiple choice response and the majority of the children were positive that the fitness programme had given them the energy to help with other activities (85% responded "yes" or "some things"). This high percentage was supported by other comments made by the children during the course of the study. One boy told the researcher: "Before we started the fitness programme I was always the tiredest in our basketball team because I play a year above my age. But now I'm finding I can keep up with them all" (field notes, 25/7/91). This quote supports a social benefit in addition to improving cardiorespiratory fitness. To some children the question "Have you become more active?" also provoked responses concerning additional activity. This is illustrated by a comment from Nadia, who

said; "I still find the fitness difficult, but now I know if Carol or Anne calls over I can cycle to the pool with them" (field notes 29/11/91).

The two boys who had responded negatively to question 9, answered question 8 in a similar manner. Had the fitness programme improved overall fitness? They both answered 'hardly' which is a partial admission to some measure of improvement. A total 74% of the class were very positive about the programme's effect on their fitness while 19% thought 'perhaps' it had improved them.

These results suggest, quite powerfully, that a relationship between school fitness activities and related physical activity outside school is being established by the children. This generalisability to some extent marginalises the fitness outcomes in favour of the ultimate goal of increased activity. It might be argued that unless health-related fitness programmes are both based on theoretical foundations and context related they will be worthless. The results from this study are beginning to demonstrate that behaviours can be shaped, practised and modified and will then begin to generalise in normal behaviour out of school.

Levels of Fitness and the Fitness Programme

The Year 6 class of children at Eastwick increased their fitness scores as a group over the three variables they were tested on between June and November 1991. (see Figures 6, 7 and 8). Total class figures can, however, be misleading and most commonly do not communicate the whole story. The strength of a naturalistic study is it's ability to evaluate the situation beyond the more obvious group statistics and supply enough descriptive detail of both class and individuals that readers can decide if the data and conclusions are congruent with their own observations.

The promotion of cardiorespiratory fitness was seen to be the primary health

goal of the programme and the 1.6 kilometer run was the test used to measure this fitness component. The mean class gain between the two tests in June and November was 65 seconds per person. On the other two tests, the sit and reach test produced a mean class gain of 24.5 centimetres. The sit up test produced a mean gain of 16 repetitions. If consideration is given to the fact that the administration of the test in June was in week 7 of the second term, at which time the programme is nearly at the half way point, it can be assumed that many of the children would already have made significant gains during the first part of the programme.

Further analysis of the fitness scores produces several interesting features. For example, although the class makes an improvement of more than a minute per person within that group two 'low fitness' children (Below the 20th percentile on the ASFT) scores decreased over the 5 month period. Nadia was at the 15th percentile in June with a run of 11.20 for the 1.6 km. run. At the November test she ran 11.37, which is 17 seconds slower than in June, putting her at the 10th percentile for her age group nationally. Similarly David ran 14.36 in June (5th percentile) and 16.00 in November. Results such as these can, and often are, hidden in tables of inferential statistics. The reasons for these decreases are often found in the home situation and cannot necessarily be blamed on the fitness programme or its delivery. Nadia is overweight and comes from a sedentary family of big eaters (interview with Nadia's father, 19/11/91). David's problem was very much one of attitude. When it became obvious he was going to be the last to finish from his half of the class he stopped trying and walked. The basis of this attitude can be traced to a protective mother who has been through the ignominy of continually coming last at school herself. She believed that she still bore the mental scars of this experience. She told the researcher during the interview (19/11/91) that she could see no point in running around and around the school field and has most obviously

indoctrinated her son against the idea. (See David's report in the target student section).

Armstrong (1986) commented that he thought the function of performance tests was to measure the obvious and did little more than distinguish the mature child from the immature. Certainly maturational and motivational factors, as demonstrated with David, will influence fitness results. The physical maturation in primary children is something teachers have little control over, but the motivational influence of the test and its results can be a powerful tool if handled with sensitivity and awareness by the teacher. This was displayed by Whitehead and Corbin (1991) who used percentile-based evaluative feedback from fitness testing in order to enhance intrinsic motivation. They found positive feedback enhanced all aspects of intrinsic motivation, whereas negative feedback decreased them. The WASPAN programme was designed around a regular four to five times weekly fitness session which would aim to give the children a vigorous and sustained activity period of 15-20 minutes duration. Teachers should aim to make the activities enjoyable and rewarding to the children in terms of making them feel good about themselves. In the process of doing this the children should be learning how the activities they are doing in fitness relate to the classwork they cover on active lifestyles.

The process observations made at the school using the 'ALT-PE, Fitness' instrument combined with heart rate monitoring (HRM), has produced a general picture of the duration of sessions, activities and intensity of the activities in the programme.

The running activities observed varied in their delivery and content with only the 1.6km run delivered as a straight forward running exercise. There was a

very definite progression in the running activities, beginning in term 1 with a 30 second walk/30 second jog regime for just 5 minutes in total. This gradually built up to sessions such as the one in week 1 of term 2, which was six sets of 1 minutes jogging followed by a 30 second walk. Results aggregated for the six observations produced a mean 11 minutes of 'activity fitness', during the 26 minute session. There was an elevated heart rate recording (above 140 bpm.), for 18 minutes (68%) of the session. This indicates that the running activities are reaching their goal of elevating the children's heart rates for 15-20 minutes. The low, 11 minutes, (42%) of 'activity fitness' does not compare favourably with Taggart's figure of 64.5% of 'activity fitness' for running activities in the pilot programme he trialled (1991, p. 8). However the combined activity average for running activities at Eastwick was 70%, which suggests that there may be a fine line between 'activity fitness' and 'activity' in this activity. The December happy face survey showed a marked increase in the number of children who 'loved' this activity (from 7 to 15 children).

The relays incorporated conventional running over short distances (10, 15, 20 meters). The numbers and sets were controlled in each lesson to promote maximum participation and allow for the physiological benefits of interval training to be optimised. The six relay sessions observed were 26 minutes duration (mean) with 23% of the time spent in 'activity fitness'. Taggart's figures were 27% for relays (1991). As with the running activities, the relay activities would appear to be reaching the 15-20 minute goal of elevated heart rate. Although this activity was difficult for several of the lower fitness children the team aspect and the effect of classmates encouragement was a positive influence. This was reflected in the happy face survey for December with 63% of the class responding that they 'loved' the relays while only 7% (2 children) still 'hated' them.

Jump rope for heart (JRFH) was the only activity that showed a reduction between surveys in the number of children who 'loved' the activity (67% to 57%). It is also the only activity that no children disliked. Results of the ALT-PE recording showed just over 5 minutes (33%) of 'activity fitness' during the 17 minute session, for which the heart rate was above 140 bpm for 9 minutes (53%). The second subject who was recorded at the same time during the session figured slightly better with 10 minutes (59%) of elevated heart rate and 37% 'activity fitness'. With 82% of the 17 minutes of monitoring with elevated heart rate above 120 bpm, the results suggest that there is the potential for this activity to reach higher levels for a more sustained period and observations suggest that with a little more teacher enthusiasm the children's attitudes would also increase.

The health hustle session observed produced lower intensity levels than might have been expected. The boy selected for observation and monitoring was not typical of the children in the class in his degree of vigorous activity. He was new to the class and was self-conscious, obviously afraid of showing himself up in front of his new classmates. His movements were stiff and regimented. As a result he recorded mostly 'activity' with only very rare moments of 'activity fitness'. Concurrently his heart rate was above 140 bpm for only 5% of the session, but above 120 bpm for 85% which gives some indication of the potential of this activity. The total period of combined 'activity' and 'activity fitness' was 94%, the highest period of continued exercise of all the different activities observed. This reflects the potential of the health hustle to produce elevated heart rates and commensurate training effects. If the two children who led the health hustle from the front of the class had been monitored it can be estimated the results would have shown a high amount of 'activity fitness' and corresponding cardiorespiratory gain. The health hustles were enjoyed by the whole class, as reflected in the happy faces survey.

Of the other activities, the aerobic circuit produced the more positive process measures. Observed individuals were engaged in 'activity fitness' for only 24% (5 minutes) of the session but returned a heart rate recording above 140 bpm. for 77.5% of the time, the equivalent of 17 minutes for the 21 minute sessions (mean). This illustrates the potential for this variable intensity type of activity to elevate the heart rate sufficiently during periods of activity to enable maintenance during the rest or transition periods. Because the teacher had difficulties with the organisation of this activity (see process observation results). It might be expected that with more experience with the organisational strategies she would increase the activity's effectiveness. The step-ups were not included in the WASPAN manual but with a parent coming in to school to lead the session the positive influences of this activity included parental involvement and the subsequent socialisation process for the children as well as making a change from the usual activities and leadership. During the 22 minute session, 16 minutes was spent in 'activity fitness'. Heart rate was recorded as above 140 bpm for 69% or 15 minutes of the session. This activity was enjoyed by the class even though many of them found it hard to keep up. The fact that the results show that the target boy recorded elevated heart rate above 120 bpm for 94% of the whole session indicates the potential of this activity.

The 'activity fitness' for the step-up activity would have been much higher but for the long and sedate warm up and warm down given by the teacher.

As might be expected, the lower fitness children produced noticeably higher levels of elevated heart rate than the high fitness children. These children, several of whom were overweight, increased their heart rate rapidly as soon as the activity began. These children's heart rate also took much longer to decrease at the end of the fitness session. These factors should be taken into account when analysing the most effective activities in terms of producing cardiorespiratory training effects. The

three highest percentages of elevated heart rates (above 140 bpm.), were produced by overweight, low fitness children. Two were running activities (94% and 81%), and the third was the aerobic circuit (80%). The lowest returns, apart from the new boy in the health hustle, were recorded by high fitness children. On the final aerobic circuit (term 4, week 4), two children were observed. Donna was a designated high fitness child and Mandy was designated low fitness, (see target students). The results were quite similar and although Donna spent more time in 'activity fitness' and 'activity' (24% and 10%), than Mandy (22% and 7%), Mandy's heart rate was above 140 bpm for 80% of the session while Donna's figure was 75%. The two girls worked together for the aerobic circuit and as the ALT figures show, Donna was able to maintain a slightly higher level of activity fitness than Mandy. Interestingly, Mandy commented that this session had been her favourite of all the sessions throughout the year. This points to the positive effects of carefully selecting children to work together.

By the fourth term, sessions were lasting a mean of 24.5 minutes (7 minutes) with 27% of vigorous activity. This percentage appears low but was due to the nature of the activities. Heart rate monitoring figures for the same period show children had a mean heart rate elevated above 140 beats per minute for 60% or 14.6 minutes per session. This figure is much closer to the amount of time the children need to be engaged in vigorous activity.

There are two key points to the organisation and teaching of the prescribed fitness activities. The first is that teachers must have, or be able to develop, the skills necessary to maximise participation. Sallis and McKenzie (1991) reported that when primary aged children are observed (in the U.S.), during their free time, very little physical activity is evident. Intensive health-related physical education programmes have been shown to improve children's levels of physical activity and

and decrease their CVD risk factors. Hayward (1991), gives the example of the game of tag played by a whole class with each child being eliminated when caught. She suggests the simple modification of two or three groups of 8-10 children playing in a confined space with the rule of counting up to 10 when caught. The attention to this key point of maximising participation would be a strong adjunct to the fulfilment of the second point - children's enjoyment of the subject matter.

The results of the happy face class survey illustrate the general enjoyment the class had for the different activities in which they participated. The most frequently performed sessions were running and relay activities which were favourably voted on by the children. There was a positive change in the results of the happy face survey between the two months of administration.

The most obvious problems that were observed by the researcher during the progress of the fitness programme was the amount of time spent in transition to and from the classroom and between activities and also during the warm up and warm down. These two areas showed a lack of planning on the teacher's part. Sometimes equipment was left behind and children sent back to collect it. On several occasions the teacher appeared unsure about the stretches and how to go about performing the stretches. As a result, this often took up to 10 minutes of the session time. A brief look at the week's activities before their commencement would have given the teacher a chance to have worked out the movements more precisely as well as noting the equipment needs for the week. These areas reflected the lack of specialist training on the part of the class teacher.

The literature suggests that the time allocated for fitness activity at Grove Hill was not long enough to elevate the children's heart rate for a period long enough

to elicit a training effect (Simmons-Morton et al., 1987; Taggart 1990). There is no doubt that the kinds of activities Mr. Kent was giving the children, i.e. running and relays, were producing elevated heart rates and if the sessions were 9 or 10 minutes longer the teacher would be reaching the goals which have shown to induce cardio-respiratory gains, i.e. 15-20 minutes with heart rate over 140 bpm.

Data from both schools indicate that the recording of process variables, both ALT-PE Fitness and heart rate monitoring highlights a future need to record children of varying fitness levels engaging in the same activity. This needs to be accomplished for the different activities and for children of different ages over a longer time period. Warm up periods also need to be designed to start the process of heart rate elevation.

The conclusions that have emerged from the analysis of the process results of the physical fitness activities is the need to stress participation, variety and enjoyment as the major aims of each activity, regardless of the content. If these aims can be achieved, then the children will be likely to encompass the skills, the activities and the health benefits into their general behaviour pattern. Children need a variety of activities if they are to maintain their enthusiasm. Haywood (1991) suggests that a variety of continuous, less repetitive, activities are needed to achieve desirable goals, i.e. enjoyment and continuation of activity into adult life. The children need to be able to enjoy activities of a duration long enough to do them some good and they need to participate regularly if this behaviour is to become habit forming. Enjoyment is often a by-product of a programme that has variety and maximises participation at the individual's particular levels of ability.

If increased activity and the other benefits associated with the fitness programme, including group socialisation, personal self-esteem and goal setting are to be worthwhile, then the importance of the knowledge based content must be appreciated by the teacher and the children. Teachers should be expected to pre-plan their lessons and develop their own strategies to ensure the programme is carried out consistently. The influence of the home background and the support of the principal need to be entered into the equation for the most effective implementation of school fitness programmes.

Finally, the process results highlighted the importance of enthusiastic teaching as the imperative key which can combine the ingredients of good programme materials, a supportive school environment and curriculum status. Researchers have demonstrated a positive relationship between teacher enthusiasm and student attitudes (Caruso, 1982) and although teacher enthusiasm is manifested in many ways, both verbally and nonverbally, it was generally missing in terms of participation, encouragement and praise at Grove Hill. At Eastwick Ms. Thomas displayed positive teacher enthusiasm. This is a factor which is essential if the programme is to have any chance of realising its goals.

Levels of Class Activity

Armstrong (1989) assures us that children are as fit as they were 50 years ago but that the child of the 90s' engages in far less physical activity than his or her counterpart of fifty years ago. Children of today have a more sedentary lifestyle and fail to engage in voluntary physical activity. Armstrong therefore suggests that school p.e programmes should be encouraging regular physical activity.

The link between high levels of cardiorespiratory fitness and habitual leisure-time physical activity is a complex one. Cardiorespiratory fitness is a physiological

variable, whereas physical activity is a behaviour. The association between high, regular levels of cardiorespiratory fitness and the consequent high levels of physical activity is still being researched and debated. However, it has been shown that people who are inactive in their youth are more likely to develop a sedentary lifestyle as adults. The added fact that childhood obesity is likely to develop into adult obesity is also of great concern (Corbin and Lindsay, 1983).

This study looked at children's out of school activity in two main areas:

- i) at school during recess and lunch time by observation,
- ii) out of school by self-reported activity diaries.

Recent studies have shown children to be 'rarely vigorously active' at school during their free time. Sallis and McKenzie (1991) reported on several studies which monitored school-aged children's physical activity levels in the USA. Most of these studies monitored children's activity throughout the day. Two of the studies concerned recess activity and were based on children of similar age to this study. Table 35 displays the results from the USA, together with the results from this study.

Previous studies suggest that although children may appear to be active for up to 60% of the recess period, very little of this time is spent in vigorous activity. In this study the quantity of vigorous activity was minimal, with 14% the highest recorded. Although unlikely to produce a training effect, there is no doubt that these recess breaks serve to positively socialise children into physical activity.

The observations at Eastwick school showed children to be vigorously engaged for minimal periods (15%) of the 15 minute recess with similar periods at lunch (13%). Heart rate was elevated over 140 bpm for 16% of recess and 15% of lunch break. These figures may be considered quite high when compared with the other

Table 35

Objective measures of primary aged children's activity levels at recess.

Study & Subject	Method	Results
Hovel et al. (1978) N=274 (3rd-6th grade)	observed during unstructured recess	60% of time spent in moderate activity
Parcel et al. (1987) N=48 (3rd-5th grade)	observed during unstructured recess	6.9% of time spent in vigorous activity
Medland, (this study,1992) N=46 (Year 6)	observed and heart rate (HR) monitored during unstructured recess and lunch period (mean)	Gr. H. 50.5% moderate activity (A) E'wk. 49% moderate activity (A) Gr. H. 8.5% vigorous activity (AF) E'wk. 14% vigorous activity(AF) Gr.H.13.5%HR>140bpm. E'wk.14.6%HR>140bpm.

studies (see Table 35) and certainly, there was a great deal of activity in the school yard at Eastwick. The principal had organised games for the children and provided equipment to ensure that all those children who wanted to be active could be. His presence outside during recess and much of lunch time was another contributory

factor. Often two or three games would be going on at the same time, on the same basketball court (the school only has one court). The detailed results of the recess and lunch time activities (Tables 29 and 30) illustrate that the low fitness children are engaged in the lowest quantity of vigorous activity (activity fitness). For example Mandy, recorded no 'activity fitness' during recess and only 2% 'activity fitness' for the 50 minute lunch period. This highlights the enormity of the problem of encouraging the less active to become active in their own time.

The observations made during recess and lunch break at Grove Hill School (Tables 14 and 15) showed children to be vigorously engaged for 7% of the 15 minutes recess. At lunch time there was 10% 'activity fitness' in a total of 50% of total activity during the 50 minute lunch period. The range of heart rates at this school is worth considering. Andrew's heart rate above 140 bpm for 100% of the recess period he was tested on, yet only 27% of lunch time. Other children showed a markedly higher proportion of elevated heart rate at recess than at lunch time. The reason for this is that recess directly followed the activity sessions, and due to the high cardiorespiratory nature of the fitness sessions there was a high carry-over effect into recess time. The added impact of wearing the heart rate monitor inspired Andrew following the fitness session and he was active for 61% of recess. The carry-over training effect of the fitness session would appear to influence children's activity to a major extent straight after a period of cardiorespiratory activity.

Out Of School Activity - Grove Hill

As a group, the class at Grove Hill altered their out of school activity habits very little between August and November (Table 16, page 116). The team activities showed a drop in participation from 27 to 20 (mean) between August and November, due mainly to the seasonal drop in winter team games. Soccer is the most noticeable

with 6 of the 8 boys in the class taking part in August. This may reflect the teacher's emphasis on soccer, which he takes with the boys on Friday afternoons during sports time and has arranged occasional matches against other schools. The most popular activity is 'playing games'. This includes the small improvised games, usually of only 2 - 4 children, which are the same as, or similar to, the recess games played at school. The time the children spent engaged in team activity was very similar during the two periods.

The individual activities in which the Grove Hill children participated showed little variation between the two diary periods. Interviews with the target children revealed that the seasonal variation and proximity to the beach was the reason why more children were swimming in November. Bicycle riding maintained its popularity as the individual activity most indulged in. Running and jogging decreased in popularity, possibly an influence of the increase in running the children were doing at school and the slight increase in temperature. Some of the children who were running for exercise in August were now doing other activities in November. Colin, for example was doing more bicycle riding in the summer period.

Total mean numbers of children engaging in activity showed a slight decrease in team activities and slight increase in individual activities. The total time spent engaged increased slightly for the team activities and decreased for the individual activities. Disturbingly, two of the three girls with the lowest recorded activity in August, had decreased this time in the November diary. Two of the lowest boys increased their activity time, whilst the third was sick during the second week and only recorded one day. Although Armstrong (1989) found no significant difference between the activity levels of the girls and the boys in primary aged children, Gilliam et al. (1982) found girls to be less active. The reasons for this, the authors surmise, are cultural and suggest that society does not encourage girls to participate

society does not encourage girls to participate in vigorous physical activity.

Attitudes towards physical activity are formulated at a young age and parents provide the main role models for their primary school children. For young girls their mother is usually the prime influence at this age. The activity range shown in Table 12 (page 110) illustrates that girls are almost certainly able to be physically active at the level of the most active boys, given the opportunity. It is the low activity girls who are perhaps more likely to decrease their activity levels and it is to this group that more attention must be paid.

Out of School Activity - Eastwick

By regularly engaging in intensive activity sessions, children may begin to perceive regular activity as a normal part of their lives. Gilliam et al. (1982) among others, believe that children are not as active as they may appear. They do not, these authors believe, engage in voluntary, vigorous activity. The main emphasis of school based programmes should be to encourage high rates of physical activity in children. Sallis and McKenzie (1991) have recently championed the cause of increasing children's physical activity as the main aim of physical education programmes in schools.

The range of activities and the time the children at Eastwick spent engaged in these activities has been displayed in Table 31 (page 187). The popularity of several activities changed with the seasons, while others are consistently practised throughout the 5 month period. Basketball is clearly the most popular team activity, played by 75% of the boys and 10% of the girls in the class. The success of the Perth Wildcats and the media coverage they receive may have contributed to the high degree of participation. Another contributory factor in this popularity is the enthusiasm of one boy's parent who coached the successful Year 6 Eastwick Eagles

basketball team using the school facilities after school time. Several girls also play basketball, but have no organised school team. The girls did not play team activities as much as the boys but those who did play games, preferred improvised made-up games. Running and jogging was the most popular individual activity in July. This activity had decreased in popularity by November, almost in direct contrast to the increase in popularity in bicycle riding. There are several possible reasons for this. The children who were training for the school cross country in July were no longer doing so in November because the event had taken place. Interviews with target students revealed that many children were now (in summer) using their bikes to get around as the weather had warmed up.

The general trend of increased activity time between the activity periods is not obviously explained by the introduction of the WASPAN programme. However the noticeable change in the children's enjoyment of the activities, as indicated by the happy faces survey, suggests a more positive disposition towards activity. Certainly the change in the team activity figures can be almost exclusively attributed to the change in playing season. Football, rugby, cricket and netball all altered in this respect. Basketball maintained its popularity throughout the period of recording.

The increase in the number of children participating in individual activities is less likely to be explained on seasonal variation. The physical activity component of the WASPAN programme has been designed to give children enjoyable and manageable experiences in order that they might become more active and exercise more frequently in their own time. Individual or small group activities are far more likely to be engaged in as the result of a behaviour change towards increased activity. Team activities usually depend on parental preference and organisation. The individual activities children choose are not as restricted in this way, but will

depend on other factors. One factor of great influence is the proximity of facilities and ease of access for children. The figures for the second period of the activity diaries are encouraging in that they show additional participation of two children in team games and 16 additional participations in individual activities (mean). There was a slight drop in mean duration of participation in individual activities (40 minutes to 33.5 minutes per activity).

Overall the girl's activity time increased by 1007 minutes in total, or 84 minutes for each girl for the week. Closer analysis of the diaries brought to light the fact that the least active girls in July, were still the least active in November. Five of the 12 girls and 6 of the 14 boys were doing less out of school activity in November than they were doing in July. Two of these girls, Mandy and Nadia, were the two lowest scored girls in cardiorespiratory fitness, (Table 32, page 189). Their weekly activity time dwindled from 30 to 20 minutes for Mandy, and from 195 to 70 minutes for Nadia. Why did these activity times decrease? The answer may be found in the interviews where the girls suggested they did not like to get hot and sweaty. It may be suggested that these girls were already victims of what Colquhoun (1989) calls consumerism (p. 118) based on media and peer influences. They are conscious of their bodies and although overweight are not able to either decrease or modify their diets or increase their activity levels.

The boy's activity time increased by 121 minutes a week for the group, or 8.7 minutes for each boy. The five boys with the lowest activity time in July all increased their weekly activity in the November period. These were still the lowest scores among the boys. At this age the boys are more influenced by the sporting messages and the media coverage is dominated by male sports. In Western Australia the Eagles, Wildcats and Sheffield Shield cricket team receive a majority of the media coverage. The young girls on the other hand have fewer sporting models and

turn instead to women's glossy magazines.

In conclusion, the trends shown by the activity diaries and displayed in Table 31 show a healthy increase in the numbers of children taking part in activity between July and November. In both team and individual activities combined, the time the children are spending engaged in activity also increased. Seasonal changes may account for some of the time changes in the team activities, but the individual activity time increase is most encouraging. On the negative side, some individuals have decreased their activity time. The fact that the analysis has shown two of these to be designated low fitness girls, is a major concern because these are the individuals that this programme is the most concerned with. The discussion of the target students will help to explain the circumstances behind this problem.

As Tinning has mentioned in several articles (1988, 1990, 1991) low fitness children are usually less able to make rational choices in their lives in regard to healthy behaviour. The political and social constraints of our society mean that not all individuals are able to make the same choices. The simple 'eat less and exercise more' solution to health problems does not recognise the strong social constraints and factors which determine any individual's ability to make choices in his life. The middle class view of the ideal child as an "active mesomorph" (Evans and Clark, cited in Tinning, 1990, p. 87) is a dangerous concept, which has emerged from media-constructed images of the ideal. These images can be a constant worry for the less active and overweight child who has probably already become the target of victim blaming, usually because of his or her own inability to make healthy choices. The problem is that these children are most probably embedded in a socio/cultural environment, which to a large extent shapes the choices and directions these children will follow. It is very simplistic to assume that children will see regular participation in vigorous activity as normal and desirable social

behaviour, since after school these messages are often sadly diminished. If programmes are to reach the children who will most benefit from increased activity the home background will have to become a more important consideration.

The Target Children

The Grove Hill Target Children

The Target student results in chapter 4 describe five very different individuals each with their own particular set of social and environmental circumstances. All five families live in upper socioeconomic status areas. The children chosen to be studied were Andrew and Adie, both low fitness children, and Colin, Louise and Candice; three high fitness children.

Louise, a State level swimmer is a strong and active girl. Although she enjoys netball and softball she is worried about injury affecting her swimming chances (interview, 3/12/91). Louise has very supportive parents who encourage their daughter to be as active as possible. In her mother's words they are aiming for their daughters to be "activity independent." Louise's mother explained the practical ways they are helping her to achieve this. They believe that social activities and sports are a good way for young people to occupy their spare time. Tennis at the tennis club and cycling to the pool or the beach with friends at the weekend is encouraged. Both parents are active themselves and provide good role models for their children. However there is a danger here. It is a problem that has turned many thousands of young children away from physical activity, sometimes for good. This is the problem of overkill in regard to parental pressure. Louise's father has promised to buy her 50 pairs of swimming costumes if she wins the State

Championships. Both parents have curtailed their social life in order to be able to take Louise to the pool each morning at 5 o'clock. Louise is worried about doing too much running and sport in case she injures herself. These are dangerous signs of pressure and expectations from parents of an 11 year old child.

Candice also has parents who are very supportive of her activity as part of their belief in healthy lifestyles. Candice's mother pointed out the importance of developing habits of physical activity and healthy eating from an early age. Candice plays netball regularly, sometimes playing two matches at the weekend. Candice's mother also plays netball and swims regularly. Because they live near the beach and have a holiday house 70 kilometers south of Perth, Candice and her two sisters have been given swimming lessons since they were 6 months old. In reference to the school fitness sessions Candice supported the concept of increasing fitness when she commented that she thought she had become fitter and this had helped her enjoy doing sport more. She also explained that she found the continuous running "boring, tiring and often too hot by 10.20" (interview, 3/12/91). Suggesting that the scheduling of the fitness session at 10.15 was a poor time for the children as well as for the programme.

Colin, the third high level fitness child selected for the study, also has the benefit of a family beach house south of the city. His family spend a great deal of time there where Colin participates in the surf club activities, rides his bike around with his friends and is learning to waterski with his Father, who is very active himself. Colin's favorite subject at school was fitness, because it was continually active. He didn't like softball or kickball because they were boring. Colin thought the fitness sessions had made him fitter and stronger which helped him in the surf club. He had not enjoyed the skipping activities.

Adie sometimes joins her parents when they go on their regular morning

walks. Sometimes she cycles to the tennis courts with her mother. Her mother commented that Adie can now complete this ride without stopping to rest like she needed to last year. When asked about the concept of physical fitness Adie replied that it was pretty painful sometimes depending on what they were doing. She thought it was good for confidence to be fit and she ranked herself 5 out of 10 for fitness.

Adie is dropped at the netball court for her match at the weekend by her mother who then goes to watch her 12 year old son play basketball. Although Adie's parents do support her activities and encourage her to be active, it appears their attention is more focused on her brother. As Adie's Mother commented; "I suppose we do favour him more really. It's much better to watch his A-grade basketball at Perry Lakes than watching Adie play D-grade netball at Warwick." Referring to Adie later in the interview her mother said "we tell her she'll be a big fat slob if she doesn't get moving." These comments suggests the daughter does not receive the same amount of encouragement as her brother. This in turn may have the effect of reducing the amount of activity that Adie is inclined to engage in. Children need to be praised, encouraged and given positive verbal motivation. If Adie felt that she wasn't getting the same attention as her brother, it might have the effect of decreasing her activity levels.

Andrew is a low fitness boy with an unfortunately disruptive home life. As a result he either lives with his Mother or with his grandparents for varying periods of the year. The teacher commented that Andrew's efforts were affected by these problems. His mother admitted: "A lot of the way he goes (with his activities) is my fault and the things that have gone on with me. I've got to be more consistent with him as far as sport goes... I've been slack. I haven't encouraged him because I haven't been around for a while." Despite this, Andrew was quite active during the recess and lunch breaks and he recorded quite high periods of out-of-school activity. The

activities he participated in could be said to be 'fad' activities including BMX racing, self-defense and baseball. These types of activities go in and out of vogue and are likely to have less likelihood of being sustained by children.

The most noticeable differences with these children is the level of support and encouragement from home. In Louise's case it may be argued that the support has reached the stage of becoming pressure. At the other end of the scale is Andrew who lives either with his grandparents or with his mother. This is in contrast to Louise's parents who go to bed early in order to be able to get up at 5 o'clock to take Louise to the pool for swimming training. The three high fitness families all appear to be financially secure. Both Colin and Candice's families had beach houses and Colin was learning to waterski from his father's boat in the summer. Louise father was in a position to buy her 50 pairs of bathers, which are expensive items of sportswear. While Louise was encouraged to go to the tennis club, Adie cycled to the local high school courts.

The Eastwick Target Children

The analysis of the target children provided further data on the effectiveness of the programme. A closer look at each individual in the class would have produced a wealth of information about some of the influences and attributes that would account in some way for the behaviour each individual exhibits.

Of the eight children selected for more intensive consideration, five have been included in this study. Three are low fitness children, Mandy David and Larry, and two are high fitness children, Bill and Donna. Close scrutiny of these children exposes certain behaviours which are common in children and others which are very specific to the individual. The two high fitness children are popular with both their

peers and the teacher alike. They are both above average academically (according to the teacher) and they both have self confidence and positive body image (this opinion is based on observations and interviews with the children). They both enjoy the regular fitness sessions and are most competitive. All three of the low fitness children were visually overweight and admitted this to the researcher. They all admitted that they would like to have been more popular with their peers. They all knew their fitness was low but all thought they were 5 out of 10 on a scale of fitness (completed at interview). All three displayed a degree of laziness in their school work and this was confirmed by the class teacher in relation to home work. All three admitted during their interview to spending a great deal of time watching television (three or four hours a night) which David admitted affected his moods and his subsequent performance in the fitness sessions. None of the three particularly enjoyed the fitness programme, particularly the running elements. Out of school activity was high for the high fitness children and low for the low fitness children, apart from David, who spent much of his free time shooting baskets in the ring set up on the driveway of his house.

The most obvious difference between the two groups (low fitness and high fitness) is in the amount and the kind of support and encouragement the children received from home. Both Bill and Donna have very supportive parents who encourage their children to be active in practical ways. Donna's parents both ride their horses with their children. Donna's Mother takes her to and from horse competitions and helps her to groom and prepare her horse for the shows. Donna's Father goes out running with her. Bill's Father goes to the nets with his three sons to practise cricket. He coaches and umpires their matches at the weekends during the summer. In the winter he goes to the park to kick the footie with Bill and takes him to play rugby. Bill's Mother is active herself with aerobics and tennis. She

takes a keen interest in the boy's activities and transports them to and from their sporting venues.

Mandy receives very little encouragement from home. Her Mother is not convinced about the value of the fitness programme and does no activity herself. Her only form of encouragement is to say to Mandy; "go outside and run around." This is usually after Mandy has been glued to the television for long periods. Her Mother admits to taking her everywhere by car, but not to what the Mother calls "sporty things". The mother is also visually overweight.

Larry's Mother is not overweight, but her lifestyle was very hectic and revolved around working, studying and bringing up Larry on her own, all of which was proving a visible strain. She admitted that she had taken him swimming but that generally her encouragement for Larry to be active was minimal. Larry was a self-confessed T. V. addict and this diversion is often a symptom of a sedentary lifestyle even by the age of 11. In the USA McCullough (cited in Croce and Lavay, 1985, p. 52) reported that television was the favoured recreation of 10 to 11 year olds, with a weekly average of 26 hours. Larry's Mother was supportive of the fitness programme and knew that Larry had said that he had found the running component difficult and therefore hadn't liked it.

David also lives with his mother, in whose eyes he can do no wrong. She saw the fitness programme as threatening to David's confidence and thought that he should be doing something more worthwhile than running mindless laps or doing repetitive step-ups which she saw as a total waste of time. David's mother held a negative view of fitness and physical education in general, perhaps due to her own negative experiences at school which she admitted were very similar to those she could see David was receiving. She framed the problem as being totally school based and thought it was the teacher's job to reinforce the individual's worth and continually

build up the childrens confidence. The mother took no blame for her son being overweight (although he admitted that he overate) or his poor attitude towards fitness. The boy had a poor body image which was reinforced by the media and his peers. Most certainly the sensitivity shown by Ms. Thomas would be at least equal to that of any other teacher David is likely to encounter during his school career. The WASPAN programme had been designed to cater for all abilities and not to embarrass the lower fitness children. The 1.6 km run is one of the few activities where the slowest children are most obvious. David's performances in the 1.6 km run (provided from the teacher's records show that in February he ran 17.15, in May he ran 14.57, in June he ran 14.36 and in November he ran/walked 16.00. These performances tend to suggest psychological rather than physical problems.

The results from the target children at Eastwick supports the research which has emphasised the powerful influence of the home and the social background on the behaviour of young children (Tinning, 1991; Colquhoun, 1989). It would appear that the high fitness children in this study were thinner and lived in higher social economic areas than the low fitness children. This supports a recent Australian study by Glicksman, Dwyer and Włodarczyk (1990) that showed children from lower socioeconomic backgrounds to be fatter and have other higher, more identifiable coronary heart disease risk factors.

There was a definite similarity in the anatomically lean body shape of the high fitness children at both schools. The low fitness children from both schools were also similar in that they were all visibly overweight. Children who are inactive in their youth are more likely to develop sedentary lifestyles as adults. Additionally it has been demonstrated that childhood obesity is likely to develop into adult obesity (Corbin and Lindsey, 1983). The problem of this self-perpetuating

health cycle is a very real one. Parental support depended more on the socioeconomic status of the family than the fitness levels of the child. At Eastwick the low fitness children lived in a lower socioeconomic status area than the high fitness children who lived away from the school area in higher socioeconomic status areas.

This chapter has discussed the behaviour of the two teachers in regard to the implementation of the fitness innovation. The differences in the way these teachers worked with the programme, the children and the contextual factors formed the major emphasis for the study.

The influence of the principal was believed to have been important in the successful implementation process and the results showed this to be the case. At one school there was principal support at the other there was none. For a variety of reasons the parents of the children are a variable often omitted from studies involving children and schools.

Parents profoundly influence the way their children behave and this was clearly displayed particularly in the course of the discussions held with five parents from each school.

The fitness and activity levels as well as the attitudes towards activity of the children was seen to increase positively during the course of the study. This occurred in both schools to differing degrees despite one teacher dropping the WASPAN programme in favour of his own agenda for fitness development. The concept of long term active lifestyles was lost to this teacher who saw the short term measurement of certain fitness criteria to be a more suitable benchmark for his teaching ability.

This and the other issues discussed here are summarised in chapter 6.

CHAPTER VI

Summary

The previous chapter has illustrated how the same fitness programme introduced in two schools within twenty kilometers of each other can be implemented in vastly different ways and with differing degrees of success. A third school would most certainly have produced a different picture again, reflecting its specific context just as have the two schools selected. The primary purpose of a case study is to determine the factors and the relationship among the factors that have impacted on the current behaviour or status of the subject in the study, according to Gay (1987) "To determine why, not just what" (p. 207). By concerning itself with the process of curriculum implementation this study has been able to blend the quantitative results of fitness testing and periods of physical activity with descriptive accounts of the process that occurs when new material is implemented in the school. Included in this process has been the influence of the class teacher, the school principal, the children in the class and the parents of the children in these two different schools.

The Teachers

The teacher is the instrument by which curriculum is imparted to the children. The positive outcomes achieved by the children are directly proportional to how the teacher implements the curriculum. Experienced teachers will have practised strategies which they use to achieve satisfactory learning outcomes. In the case of curriculum innovation or change, by definition the teacher is introducing something new. Innovations, says Bolam (1974) are not objective and unchanging, but are constantly being modified and redefined as a result of experience. Sparkes (1989) emphasises that innovation in health related fitness is characterised by a lack of real change at the ideological level (p. 60). The degree of success that any

Innovation has in becoming institutionalised into the regular school curriculum will be dependent on the energy and status the teacher affords the innovation. Mr. Kent and Ms. Thomas perceived that the situation at their own schools and in their own classes warranted the introduction of a new health related fitness programme. Both teachers approached their respective principals to ask to be included in the WASPAN programme and attended the consequent two inservice days. By making these choices both teachers have, at this stage, begun the process of change at the surface level of Sparkes' model of change (1989).

Both teachers attended the inservice courses and began the fitness programme which included a concentrated knowledge based unit which ties into the programme during the first term. This unit links the theoretical concepts of fitness and health to the practical sessions. The fact that Mr. Kent schedules 15 minutes for fitness directly before recess, while Ms. Thomas schedules 30 minutes first thing every morning, illustrates the different degree of commitment the teachers are prepared to afford the programme.

In addition to the daily fitness sessions, one weekly knowledge based classroom lesson and the Friday afternoon sports period, Ms. Thomas also included the two 30 minute skills teaching lessons included in the WASPAN programme. At Grove Hill Mr. Kent did not schedule these skill sessions into his class time table. The outcome of this omission is that daily fitness has come to mean physical education in Mr. Kent's class. Certainly not an intended outcome of the WASPAN programme but an unfortunate consequence of the situation in schools Tinning (1988) researched in relation to the Daily Physical Education programme.

The move to stage two of Sparkes' model of change was made by Ms. Thomas who was using new skills, teaching approaches, styles and strategies. These changes, both conscious and unconscious, overt and covert, began in term 1 of the school year

1991. Mr Kent was using WASPAN material with his own teaching approach and style and strategies. Ms. Thomas relied heavily on the programme materials. She displayed the weekly timetable of activities on the classroom wall and has scheduled the fitness sessions first thing each morning at 8.45 a.m. She was conscious that the sessions were sometimes taking too long to complete, but she believed this was compatible and consistent with her new values and goals for the children. She appeared to be sensitive to the needs of the individual children although data from both schools has shown the danger of neglecting the children of average fitness levels in terms of attention. Ms. Thomas was working as part of a team, a most vital consideration say Tester and Watkins (1989). She used parents to lead her class, she was supported by an enthusiastic pro-activity principal and she enlisted the help of the researcher to clarify any confusing or unclear programme material. Most importantly, she gave the children responsibility for areas of the programme, such as leading the health hustle and warm-ups, which has given the class a sense of commitment towards the programme and an active role in its delivery. A problem with any centralised curriculum material is the relative distance teachers feel from the material. Modifications and refinement to suit the specific school's situation are very necessary in this way. She did not attempt to enlist the help or advice of other teachers or to disseminate the programme in any way. This may be a direction for the future. Although the WASPAN programme is designed specifically for Year 6 children, many of the activities and strategies could be utilised by other teachers in their own programmes.

In contrast Mr. Kent, by the end of the first term, held a diminished perception of the relative advantage of the innovation. He had found the regular 15 minutes of allocated time difficult to maintain and the preparation for the fitness sessions an additional concern. He was uncomfortable with the prescriptive nature

of the programme and usually preferred to use his own activities. By the third term Mr. Kent's fitness sessions bore little resemblance to the WASPAN programme. Fitness had become repetitive and was firmly based on running, either around a track or in relay form. As a result the Grove Hill children increased their cardiorespiratory fitness but decreased their performance on the other fitness criteria (Figures 3, 4 & 5, pages 91-92). It may be argued that cardiorespiratory fitness in itself is a worthwhile outcome and certainly objective, measurable scores for the 1.6 km run were the method by which Mr. Kent justified his running emphasis. However, the lack of variety in the programme and low levels of enthusiasm from the teacher made the fitness sessions fall short of the WASPAN objective of encouraging enjoyable sustainable activity in the children.

Mr. Kent did not see himself as a part of a team and commented that the other teachers would not be interested in the programme, saying: "Several staff members would complain if too much emphasis was placed on fitness." The principal was more than happy for Mr. Kent to deal with all matters concerning physical education. Mr. Kent's attitude suggested that enlisting the help or advice of other teachers or parents would have been paramount to admitting weakness in this area.

Placek (1984) made two important findings concerning teacher's planning for physical education. Firstly she found that teachers tended to plan mentally rather than on paper. Any notes made usually concerned lists of activities and equipment. Secondly teachers tended to plan what they would do during the lesson rather than what the children should have learnt by the end of the lesson. Because the WASPAN programme was designed for non-specialist teachers, lesson plans, equipment lists etc. were all included in the manual. In addition the programme's principle aim: "to develop in children an enthusiasm for physical activity and to maintain and encourage that enthusiasm so that they become committed to pursuing

an active lifestyle"(WASPAN teachers manual) was implicit in all aspects of the programme delivery. Ms. Thomas did a certain amount of planning in other ways for the programme, Mr. Kent did none. At Eastwick the class knew the activities they would be following each week. They would begin a warm up if the teacher was late and the relief teacher was always given a fitness session to instruct if the class teacher was not available. Parents were invited into the school to help with the programme. Children in the class organised simple routines for the health hustle and supplied the music prior to the activity taking place. At Grove Hill any planning was conspicuous by its absence. The teacher followed the programme in the first term but then found it to be too rigid for his purpose. He wanted to be able to choose when and how to teach an area in which he considered himself to have a degree of expertise. He felt that the regular routine of the programme locked him into a situation that was a threat to his pedagogical independence.

Ms. Thomas continually related the knowledge based classroom work the children had covered in the intensive 6 week classroom programme, in term one, to the practical work. Tinning (1991) stresses this link as a critical component of any health related fitness programme. At Grove Hill no such integration was evident.

For Mr. Kent the WASPAN manual became as Kirk et al. (1989) found with Daily P. E., "a non-prescriptive source of ideas and resources" (p. 25). In terms of accountability, Mr. Kent saw the decreasing times in the 1.6 kilometer run as evidence of total fitness gains for his class. Accountability, say Kirk et al. (1989), reflects the value the school awards physical education against the other more publicly accountable subjects. It also supplies an insight into the reason why teachers, whose time is at a premium, approach the planning and organisation of a daily physical education programme in a haphazard fashion, even when they personally value physical education.

Ms. Thomas has held herself accountable for improvements in the children's fitness and activity. She has reflected on the amount of time allocated and engaged for the programme. She has given the programme status by including fitness on the End-of-Year school reports (Appendix K) for the first time in the school's history.

The teacher as the major change agent in curriculum innovation will determine the degree to which a new programme is successful or not. The implementation of the programme will depend to a large extent on the relative advantage of the innovation compared with what was in place before. This will then determine the status and the degree of importance the teacher gives new programmes in the school curriculum. A change in pedagogical direction is a major step for teachers to take and as Sparkes (1989) suggests, this can involve a re-orientation of the teacher's philosophy and self-image. This is a step that Mr. Kent was not prepared to take. At Grove Hill he was seen by the teachers and the principal as the teacher with the expertise in physical education. The idea of adapting his well - perceived and personally practised routines towards a seemingly more prescriptive programme of activities was not finally acceptable to him.

The Principals

The principals at the two schools had very different ideas regarding the profile of physical education at their schools. The one philosophy they shared was in their regard for the traditional community pressure for academic success as a priority outcome for the children in the school. Principals are answerable to the parents of the children at the schools and to society in general. Although the emphasis on the academic curriculum has changed over the years to encompass several other areas considered important for children to learn, society and therefore schools, are still a long way from giving health and physical education the kudos

many educationalists say they deserve. The priority that principals give to physical education in a school can greatly influence the whole ethos and consequent ambience of the school.

A report by Lee and Owen (1987) reiterated some of the points made by Shepherd and Godin (1986) concerning the importance of effective role models to young children whose behaviour and attitudes can be influenced to a great degree during childhood. At Grove Hill the principal was not physically inclined and took no real interest in any form of physical activity or sport at the school. He could not in any way be considered a physical role model and he was happy to delegate all responsibility with regard to physical activity to Mr. Kent. At Eastwick the principal was a very positive role model for the children and the staff alike. He introduced recess activities and personally monitored them. He changed and took part in cross-country running activities with the children and he supported the teachers in their efforts to organise daily morning fitness activities. He developed the strategy with Ms. Thomas whereby if she was a few minutes late during terms 3 and 4 (she took on additional family responsibilities due to the ill health of a close relative) he would watch her class as they performed self-directed warm up on the netball court.

Mr. Kent had no such relationship with his principal or other teachers in the school. He did not have the confidence in his principal to consult him on any matter concerning physical education. Ratliffe (1990) found in his study on the influence of school principals on the teaching of effective physical education, that some principals were lacking the ability to criticise positively or commend the teacher regarding their physical education teaching. Although Ratliffe's study concerned specific teacher behaviours, it points out the lack of confidence that some teachers have in their principals. Without this leadership or support, teachers may lose

sight of the learning goals they have for their children and any associated accountability for attaining these goals.

Petit and Robinson (1989) found in Darwin with the Daily P.E. programme, that school principals are very conscious of the "overcrowded curriculum" and pressure teachers to increase time allowance for language and mathematics. The Eastwick principal was concerned with the time Ms. Thomas was devoting to physical education. Five fitness, two skills and one sport session, as well as the classroom component in term 1, was eventually considered excessive and mathematics was substituted for the skills sessions in term 4. This does not belittle the principal's support of the programme but rather illustrates his role as a team leader helping the teacher to attain the most suitable blend of curriculum for the specific school context. Although the principal at Eastwick was obviously concerned with the balance of the curriculum in his school he was instrumental in the positive direction the WASPAN fitness programme took. Marsh (1986) has commented on the interest curriculum writers have shown in the change agent activities of the principal over the last decade and how they can provide encouragement and incentives for curriculum change. Had the Eastwick principal been at Grove Hill the programme at this school might have been implemented very differently.

The Parents

The two schools selected for this study were chosen from two distinctly different social class areas; Eastwick from a low socioeconomic status area, and Grove Hill from a high socioeconomic area. The previous discussion has illustrated a difference in levels of sedentary behaviour and attitude to exercise between the two Year 6 classes in the two schools. The parent questionnaires were a useful

instrument to gain some general information concerning the attitudes of the parents towards fitness and activity. The general context of family backgrounds was wide ranging within each school, though it was less pronounced at Grove Hill. The Eastwick parents took less exercise at a vigorous level and a quarter of them admitted to a sedentary lifestyle, not having exercised during the last two weeks before the administration of the questionnaire. These small differences may have become more significant with a larger sample and a greater focus on the home background. It was considered important to understand the general background because it sets the context of the children's environment. Few educational studies go beyond the teacher-pupil interaction to look at the parental attitudes.

At Eastwick the low fitness families were living in the low socioeconomic area close to the school. The high fitness children's families lived in an adjacent suburb of higher socioeconomic status. This discovery was only revealed as part of the interview process when addresses were noted and homes were visited. This is a very strong indication that the low fitness children are coming from a different background from the high fitness children, who are living in a higher socioeconomic area. This was not the case at Grove Hill where all the families lived close to the school. Understanding that up to a quarter of the children at a school such as Eastwick will have sedentary parents or quite usually a single parent (as was the case in three of the four low fitness children's families) is something that designers and implementers of physical activity programmes must be sensitive to in the future. Those programmes aimed at the 'middle class mesomorph' type child are clearly missing the children from the lower income families who, say Sparkes (1989) and Tinning (1990), cannot as easily make rational decisions concerning their health, due to social and political pressures. In these circumstances the fit will get fitter and the less fit will have the already instigated barriers reinforced.

'Lack of time' was recorded by 67% of the Eastwick respondents as a major reason why they did not exercise more. Lack of time is a problem for working class women in particular who suffer material constraints such as access to private transport. These women also see sport and social settings as being dominated by male groups (Scratton, cited in Sparkes, 1989). Tinning (1991) has recently drawn attention to the fact that school based programmes do not relate to the contexts of home life "...the school is implicated in reproducing notions of a healthy lifestyle which are illconceived, and lacking in contextual reality" (p. 10). These considerations must be addressed in future programmes as well as in the education of our teachers.

Historically, problems in physical education such as low fitness, poor motor skill performance, and examples of poor sportsmanship have not been deemed significant enough to report to parents. Evidence regarding CHD risk factors and sedentary lifestyles beginning in childhood is now known (Berenson, 1986; Vaccaro et al., 1989). The part parents can play in helping to shape children's physical behaviour has been demonstrated successfully in the past (Taggart et al., 1986). Teachers and parents need to communicate children's fitness and activity levels to and from the home and strive to collaborate if any development is to be made with those children who most need it; the middle and low fitness children.

The Children

The two Year 6 classes selected for this study were different from one another in many ways. At Eastwick the school was in a high density population, low socio-economic area, close to the city. There were 27 children in the class, rising to 31 on

one occasion. Grove Hill was in a more salubrious suburb close to the beach, and classified as being in a high social economic area. The Grove Hill classroom was the same size as the one at Eastwick but with eight fewer children there was more room and a more open atmosphere. The teacher at Grove Hill was male, while at Eastwick the teacher was female. This background is important when considering the children and the context of their living and working daily environment.

As might be expected, the mean fitness levels of the children at Grove Hill was higher than that of the Eastwick children. The mean fitness scores recorded for both boys and girls at Grove Hill were above the 50th percentile on all three fitness scores in June, while the mean scores for the Eastwick children were all below the 50th percentile on all three fitness scores. This would tend to support recent evidence from Australia that children from lower socioeconomic backgrounds are less fit (Gilksman, Dwyer & Włodarczyk, 1990).

The children at Grove Hill were receiving only half of the allocated time for their daily fitness session compared with the children at Eastwick. Although both schools began by following the programme, by June (term 2), when the first fitness test was administered, the WASPAN fitness programme was no longer being used by the Grove Hill teacher. By the time the next set of three fitness tests were administered by the researcher in November the Eastwick class had made comprehensive gains on all criteria. Most importantly, the children had made these gains following a developed and varied programme designed to systematically increase the children's fitness, fitness skills and knowledge in order for them to feel confident enough to increase their activities out of class.

At Grove Hill the children certainly made impressive cardiorespiratory gains from the teacher's modified running and relay programme. However, decreased

scores in the other two tests supported observations which revealed that other aspects of fitness were being neglected. Although cardiorespiratory improvements are one of the main goals of the WASPAN programme, the lack of attention to the activities in the manual meant the children were not getting the variety and overall fitness development from the activities that they should have received. The continuous running certainly elevated the children's activity and participation. In terms of enjoyment and influence on lifestyle behaviour their repetitive use must be questioned. Ironically the 'Happy face' student surveys taken at Grove Hill indicated that children were enjoying the activities in December more than in September, suggesting that the fitness gains they had made was a strong motivational factor. The Eastwick survey produced a more enthusiastic attitude towards the running and relays than the Grove Hill survey.

As previously mentioned in the discussion, the overall presentation of results can disguise the development of individuals within the group. At Eastwick one girl and two boys ran slower times in November than in June. Two boys decreased their flexibility score. At Grove Hill two girls ran slower in November, four boys and four girls decreased their flexibility while seven girls and one boy recorded less sit-ups. These decreases in muscular endurance and flexibility can be linked to the teacher's lack of attention to the programme. The two girls who ran slower times at Grove Hill were both 'average children' in a similar situation to the two boys at Eastwick who ran slower times. The questionnaires revealed that these were the same respondents who reported that they did not like the fitness programme. These average fitness children are the ones receiving little attention from the teacher and, as a result, are developing a negative attitude towards the programme. Unless teachers become more sensitive to this problem, a new sub-group of children will emerge with a rapidly decreasing self-esteem and who may become more difficult to

teach than any of the other groups. The following comments from the two teachers in the study highlight this problem;

Peter was one of the fitter boys at the beginning of the year and he has just been swept from the field and now he's lost in the crowd. He's aware of that because children have actually said to him 'You used to be good at running and you're not now', and he's sort of coped with that by being blasé and not doing much about it (interview, Ms. Thomas, 26/11/91).

Mr. Kent when asked about the 'average' ability children in the class stated: "The middle ones still get enjoyment. It doesn't really bother them, because they don't have to succeed. They know they won't get better than the fit ones, and they know they won't come last" (interview 18/11/91).

In school the children were recorded at various recess and lunch times. The periods of time the children spent engaged in activity were very similar to previous studies (Table 36). The figures from this study show slightly lower percentages of moderate activity compared with the study by Hovel et al. (1978). The percentages of vigorous activity recorded at both schools were higher than those in the study by Parcel et al. (1987). If the promotion of vigorous activity in children's free time is seen to be the main objective of the WASPAN programme, then these figures are positive. In view of the fact that the Eastwick teacher implemented the programme most successfully, the figure for vigorous activity at Eastwick (14%) was double that of Parcel's study and far higher than the Grove Hill figure (8.5%). The discussion has outlined the influence of the principal's presence and organisation of recess strategies which complement the positive influence of the WASPAN programme.

During recess and lunch break the Eastwick children were playing more team activities than the Grove Hill children. Parental support and school innovations may have influenced this situation. The time spent engaged in activity increased for both Eastwick boys and girls, but only for the Grove Hill girls. The Grove Hill boys' activity time decreased by 16 minutes per boy per week. With only a small sample of boys at this school a reduction of two of the most active boy's activity time was enough to bias the group distribution. Apart from these boys, the figures are positive, but again individual's scores can be lost in the group data. The lowest fitness rated boys at both schools all increased their activity scores. The positive increase of 84 minutes per girl at Eastwick disguises the fact that two of the five least active girls decreased their activity between July and November. At Grove Hill two of the three least active girls decreased their activity time. These girls are all overweight and of low fitness. Observations also revealed these girls to be the least active at recess time at school. That this group should have been identified so clearly supports the findings of other studies in this area. Tinning (1985) writing on the 'cult of slenderness' has identified these overweight, less fit, children and suggests that "physical education serves to reinforce their feelings of inadequacy through the practices of their physical education teachers" (p. 142). Gliksman et al. (1990) have suggested that this group should be targeted prior to puberty. The same authors report that girls are less active than boys partly because society does not encourage girls to participate in vigorous activity. As Mandy commented: "I don't like getting hot and sweaty."

CHAPTER VII

Conclusions and Recommendations

Conclusions

The main aim of the WASPAN programme is to increase children's activity levels to a point whereby they become motivated and able to utilise the skills they have learnt by embracing regular physical activity as a part of their lifestyle. Whether or not this has been the case is impossible to state in what has effectively been a two term study without baselines. Certainly several patterns and trends relating to activity did emerge. The low fitness children were more closely associated with low socioeconomic status home backgrounds and single parent homes than they were with low activity levels. The least fit boys were not the least active boys but the least fit girls generally had the lowest activity levels. The low fitness children were all visibly overweight and did not enjoy the running activities in the programme, although they were not the ones to respond negatively to those activities in two surveys.

The main aim of this study was not to prove the effectiveness or otherwise of the WASPAN programme but was to make a detailed observation of the process of implementing a curriculum innovation in physical education. By using a case study methodology the influence of the teacher, the principal and the home background could also be studied.

Several points have emerged from this study by way of answering the research questions.

1. Young children engage in many varied activities, but not usually at a vigorous intensity. In school time the children had the opportunity to be active if the class had the fitness session or at break times. At Eastwick the fitness programme lasted a mean time of 24 minutes. At Grove Hill this figure was 16 minutes. Relays

and running activities dominated the sessions at Grove Hill, producing a figure of 45.5% 'activity fitness'- a relatively high mean taken over 19 recordings. At Eastwick, where the programme of activities was far more varied, 'activity fitness' totalled 33.6%. This figure is not as high as it should be but as the teacher becomes more familiar with the programme materials the time should increase.

The activities the children engaged in during recess and lunch time were generally of low intensity. At Eastwick the children were encouraged to play games and be active to the extent that the principal supplied equipment and took some activities himself (cross-country, athletics and cricket). Basketball was popular and some small groups played 'playground games' e. g. foursquare and stationary. The low fitness girls were observed to be the least active during these periods. At Grove Hill the same 'playground games' were played (mostly foursquare). These low intensity games involved low fitness as well as high fitness children.

The activity diaries showed the children to engage in a wide range of different activities. Although some of these were seasonal and depended on warmer weather (e.g. surf lifesaving) many, especially the individual activities, were played year round. At Eastwick the 26 children who completed the activity diaries participated in 17 different activities in the July week and 23 different activities in the two November weeks. At Grove Hill 17 children completed the activity diaries and between them participated in 15 different activities in the August week and 17 different activities in the two November weeks. These figures tend to hide the individuals who are shown by the activity diaries, questionnaires and interviews to do little or no activity. At Eastwick the low levels of activity were particularly evident and appeared to be linked to single parent families living in low SES areas.

2. The children's attitudes to playing sports and fitness was recorded by the questionnaire and the selected interviews with the target students. There was a positive attitude to both sports and fitness in the two classes although 33% at Eastwick and 37% at Grove Hill indicated that they only liked fitness 'sometimes'. Interviews with the less fit, overweight children established that they really did not like the running activities, particularly the 1.6 kilometer run.

3. At Eastwick the children's attitude towards the WASPAN physical activity programme was most positive. Two girls who were part of the Eastwick cross country team said they would not have felt confident enough to join the team if they hadn't been doing the fitness programme. One boy commented that the fitness programme had helped him to keep up with the other boys in his basketball team who were all older than him. On the student questionnaire the five negative responses in August had become three by the December questionnaire. By December 81% felt the programme had definitely improved their overall fitness. At Grove Hill only two children still didn't like the programme much by the December questionnaire. The remainder were positive. A total of 89% thought the programme had improved their overall fitness during the year. One girl at Eastwick regularly tried to be excused from fitness, but eventually realised she would have to participate and gave up trying to be excluded. At Grove Hill several children would comment "great, does that mean we get fitness today?" when the researcher arrived at the classroom.

4. The fitness levels of the children from Grove Hill and Eastwick generally improved from the middle to the end of the programme. At Grove Hill there was a marked improvement in the class mean for the 1.6 kilometer run. The June mean of 9.2 minutes was reduced to 8.2 minutes in December. This reflected the teacher's

preference for the running activities. With the exception of the boys sit-ups, there was a reduction in the overall class performance for sit and reach and for the female sit-ups.

At Eastwick, class performances in all three fitness measures was improved between the June and December testing. Figures 6, 7 and 8 and Table 21 in the results chapter display these findings.

National percentiles for the three chosen variables showed that the Grove Hill class was considerably fitter than the Eastwick class, having a greater proportion of children scoring above the 50th percentile. However the Eastwick class made greater improvements on all three tests between the June and December measurements.

5. (a) The teacher's attitudes toward the WASPAN programme in the school varied between the two teachers studied. Ms. Thomas believed the programme to be important to the children but thought that together with the two skills sessions and the theoretical classroom component the package had taken up too much time on her time-table. She had eventually dropped the skills sessions in term 4.

At Grove Hill Mr. Kent scheduled fitness for a 15 minute period immediately before recess. He saw it as a fill-in on the time table rather than occupying a position of importance and as a result it was often cancelled if other work needed to be finished. The skills sessions were never time-tabled because Mr. Kent said the children had swimming in term 1 as well as athletics, winter sports and swimming carnivals which the children trained for after school. There was a 60 minute health period every Wednesday afternoon.

(b) The implementation of the programme was different at the two schools. At Eastwick Ms. Thomas stuck closely to the WASPAN manual using all the various

activities it contained. The children were involved in leading health hustles, choosing music and designing and leading warm-up stretches and exercise periods. Parents were encouraged to come in and help out to add variety to the programme. Wet weather days became health hustle days and the activity that had been missed would be done next time health hustles came up on the programme. Ms. Thomas joined in with the activities throughout term 1 and some of term 2.

At Grove Hill the WASPAN programme was only used in the first term with any real enthusiasm. By the middle of the second term the teacher saw the manual more as a book of resources he could refer to periodically for ideas. From this point the activities became based on running and relays with very little variation. There was no wet weather alternative programme and so in the case of rain the fitness session was cancelled. The teacher did not take health hustles at any time.

(c) Ms. Thomas was enthusiastic about the improvement in fitness and weight loss the low fitness children had shown. She was conscious that some had not made dramatic gains and she was aware of the influence of the children's home background. She noticed that the previously fit children had become fitter and more aware of their ability. They now wanted to take their heart rates and improve their times. Others in the class had latched onto the programme, always volunteering to help with hustles and warm up exercises. Ms. Thomas thought the middle ability children were given equal amounts of encouragement to the others and had shown a steady improvement.

Mr. Kent thought the biggest improvement had been with the low fitness children who couldn't run around the oval at the start of the year and who could now complete the 1.6 kilometer run without stopping. He believed these children had

improved their self-esteem and had enjoyed a great sense of achievement. The fitter children, he said, improved but probably would have done so without a fitness programme. These children gained in leadership and social value, he said. He thought the middle ability children were able to look after themselves and were in no danger of coming last.

6. The principal at Eastwick had a very positive attitude towards active lifestyles. He believed that "fit kids were happy kids." With this philosophy in mind he coached a cross country running programme and other activities with the children. He made equipment available for the children at recess and lunch times and he organised specialist coaches to come in to school and demonstrate different sports.

The Eastwick principal was certain the WASPAN programme had been successful. He mentioned that he had received positive feedback from both the children and Ms. Thomas in this respect. He was particularly pleased with the benefits the lower fitness children had made in terms of self esteem as they had improved their fitness levels and become more confident.

At Eastwick the principal was an effective team leader. He supported his staff and involved them in school decision making and the design of the school curriculum. He was also conscious of his responsibility to the parents and helped teachers make modifications to their time table if he thought it appropriate.

The principal at Grove Hill was perhaps far more typical of a primary school principal. He left all matters concerning physical education and sport to Mr. Kent. He believed fitness was important to children but he felt that the staff, besides Mr. Kent, would not be sufficiently skilled to develop children's fitness effectively. Their desire to pursue that goal would also be questionable.

7. The parents at both schools walked for exercise more than the national level for 1989. The parents of the children at Grove Hill were less sedentary than the Eastwick children's parents and more of them exercised at a vigorous level.

Interviews with target students from Eastwick revealed that 3 of the 4 low fitness children were living with a single female parent. At Grove Hill, besides one low fitness child who lived some of the time with his mother and some of the time with his grandparents, the same pattern was not evident.

At Eastwick 50% of the parents thought fitness was of above average importance to their own lifestyle, while 87.5% thought it to be of above average importance to their children's lifestyle. At Grove Hill 60% of the parents thought fitness was of above average importance to their own lifestyle, while 80% thought it to be of above average importance to their children's lifestyle. These figures demonstrate that the majority of parents of the Year 6 children at both schools are supportive of active lifestyles for their children even if they are not so convinced about the value of it to themselves. This contradiction tends to illustrate the subtle change in the value parents are placing on healthy lifestyle. This study demonstrated that these values are still vastly different between parents living in low and high socioeconomic environments.

Recommendations

Teachers

Teachers must make a commitment to a regular fitness programme. They should be enthusiastic and clear in their objectives. The fitness programme should be given status in the curriculum. This is acquired by elevating the profile of the programme so that the principal, other teachers and the children's parents are all made aware of it. The timing of the fitness period is also important and every effort should be made to make fitness the first class of the day. Individual improvements should be rewarded with recognition from the principal and a letter home. Teachers must endeavour to establish fitness and activity on the school report.

In-service training must stress the aim of increasing activity levels which can be achievable in an environment of high levels of continuous class participation, variety of activities, and perhaps most importantly, enjoyment.

The teacher is instrumental in the successful implementation of a curriculum innovation. In physical activity the innovation should not only be a well planned and designed package, but should also stress team work, enthusiasm and participation by the teacher as well as the importance of regularity, variety and weekly pre-planning. Teachers should believe in the development of children's healthy lifestyles. As a result they should hold themselves accountable for improving outcomes in this area just as they do in English and Mathematics.

These are essential elements of successful curriculum implementation. Are they too much to expect from our teachers as we strive to combat an increasingly sedentary society?

The Principal

The principal can make a very important contribution to the successful implementation of any innovatory programme. In the case of the WASPAN physical activity programme the principal needed to be kept fully informed of the progress of the programme and of children's improvements, especially the low fitness children. The teacher and the principal should take time to discuss the aims and goals of the programme and how these might be evaluated. With the principal's support a staff meeting could then be the place for the teacher to disseminate details of the programme to the staff. In order for a curriculum innovation to become fully implemented in a school the principal must personally be prepared to support and co-champion the cause with the teacher. In this way both staff and parents can be accessories in the successful institutionalisation of the innovation. The principal should be reminded to come out and observe the fitness session on a regular basis and even to change into sand shoes and join in appropriate activities.

Parents

Parents have a great influence on their children's activity levels. Schools must impress upon parents the value they are placing on increased activity and why they believe this is a most worthwhile goal. Schools and parents can become partners in the development of children's activity levels. Increased communication between school and home is vital.

Inactive parents can be encouraged to be more involved in the promotion of healthy lifestyles for their children. Parents could occasionally lead or simply join in activities at school. They should be encouraged to support their children's out-of-

school activity by participating with their children and by signing the children's activity diaries. The positive outcomes that children achieve in terms of increased activity should be recognised and related to the parents.

Children

Many Year 6 children are not suitably active and need help to modify their behaviour to become more active. Emphasis should be given to children who most need support in this area. These children are usually overweight, and will have sedentary parents. In many instances they will live with a single parent, usually a mother, in a low socioeconomic area. There may also be a second group of 'at risk' children in a class. These children are rated average in fitness and are often not given the same attention as others in the class. As a result these children may develop a negative attitude towards fitness and activity. This is a potentially dangerous situation as these children near adolescence.

The development of a remedial programme for low fitness / inactive children should be a priority. This programme would aim to increase the activity levels of children. Increased fitness, self-esteem and peer acceptance would be by-products of this process. Activity levels would be monitored by the teacher with subjective observations and activity diaries which the children would self-report.

During the daily fitness programme the children should be encouraged to take more responsibility for the activities. This responsibility should be shared between low and high fitness children preferably working in partnership (buddy system). In this way they will become more involved and feel that they have some 'ownership' of the programme.

The children must acquire knowledge and understanding about their physical health. They should take and record pulse rates and fitness measures, learning how to develop their fitness and activity in ways that are fun and rewarding to them.

In order for curriculum innovation to move from levels of surface change to become real institutional change, several factors need to be considered. These factors may include the 'readiness' of the teacher to change, the support of the principal and the appropriateness of the curriculum material. Because a curriculum package is visually well presented, contains visual aids and other accessories does not mean it will necessarily contextualise to the specific school/teacher situation.

What is certain is that health related physical education, if taught well and/or handled effectively, can have a valuable role to play in linking the cognitive aspects of physical activity to physical participation. Well conceived physical fitness programmes that emphasise the attainment of increased activity levels rather than the temporary attainment of physical fitness must be given emphasis in school curricula. Teachers using these curriculum materials need to be fully aware of the intrinsic aims and objectives of such programmes and also understand something about the individual children's specific circumstances.

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APPENDIX A WASPAN TIME-TABLE EXAMPLES

DAILY FITNESS ACTIVITIES

TERM 1

AIMS: To introduce a variety of fitness activities of appropriate intensity which promote maximum participation levels and exercise adherence. To establish daily fitness as a regular part of the Year 6 program.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Week 1	/	/			
2					
3		Inservice I			
4	RUN	RUN	RELAYS	RUN	RELAYS
5	RUN	RUN	RELAYS	RUN	RELAYS
6	/	RUN	Inservice II	RUN	RELAYS
7	RUN	* 1.6km RUN	RELAYS	* 1.6km RUN	RELAYS
8	RUN	HEALTH HUSTLE	RELAYS	RUN	HEALTH HUSTLE
9	RUN	HEALTH HUSTLE	* LEGER SHUTTLE	* LEGER SHUTTLE	/
10	/	/	LEGER RELAY	LEGER RELAY	HEALTH HUSTLE
11	FUN RUN	HEALTH HUSTLE	LEGER RELAY	LEGER SHUTTLE	HEALTH HUSTLE

*TESTING SESSION

DAILY FITNESS ACTIVITIES

TERM 2 - begin week 1.

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AIMS: To build on basic fitness levels established in term 1. To closely monitor intensity (heart rate) and improvement levels for a variety of fitness activities to ensure students are making gains in cardio-respiratory fitness.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Week 1	RUN	RUN	RELAYS	RUN	RELAYS
2	RUN	HEALTH HUSTLE	FUN RELAYS	RUN	HEALTH HUSTLE
3	RUN	HEALTH HUSTLE	RUN	LEGER SHUTTLE	HEALTH HUSTLE
4	RUN	HEALTH HUSTLE	RUN	LEGER SHUTTLE	HEALTH HUSTLE
5	RUN	HEALTH HUSTLE	* 1.6km RUN	LEGER SHUTTLE	* 1.6km RUN
6		JRFH or CHOICE	RELAYS	LEGER SHUTTLE	JRFH or HEALTH HUSTLE
7	RUN	JRFH or CHOICE	RELAYS	* LEGER SHUTTLE	JRFH or HEALTH HUSTLE
8	RUN	JRFH or CHOICE	RELAYS	RUN	JRFH or HEALTH HUSTLE
9	10 MIN. CLASS RUN	JRFH or CHOICE	RELAYS	CLASS SESSION	JRFH or HEALTH HUSTLE
10	FUN RUN	JRFH JUMP OFF	RELAYS	HEALTH HUSTLE	CLASS SESSION

* TESTING SESSION

DAILY FITNESS ACTIVITIES

TERM 3 - begin week 1

AIMS: To maintain fitness levels achieved in term 2. To introduce new continuous running activities to promote enjoyment as part of aerobic activities. To target low fitness students and reward small gains in cardio-respiratory fitness.

Week	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1	/ / / / /	CLASS SESSION	RELAYS	RUN	RELAYS
2	RUN	HEALTH HUSTLE	RELAYS	RUN	RELAYS
3	RUNNING GAMES	HEALTH HUSTLE	RUNNING GAMES	JRFH	HEALTH HUSTLE or CHOICE
4	RUN	HEALTH HUSTLE	RELAYS	JRFH	HEALTH HUSTLE or CHOICE
5	RUN	HEALTH HUSTLE	RELAYS	JRFH	HEALTH HUSTLE or CHOICE
6	RUN	* 1.6km. RUN	* 1.6km. RUN	JRFH	HEALTH HUSTLE or CHOICE
7	RUNNING GAMES	JRFH	RUNNING GAMES	LEGER SHUTTLE	JRFH or CHOICE
8	RUN	JRFH	RELAYS	LEGER SHUTTLE	JRFH or CHOICE
9	RUN	JRFH	CLASS SESSION	* LEGER SHUTTLE	JRFH or CHOICE
10	NEARLY NON-STOP RELAY	JRFH or POWER WALKING	NON-STOP RELAY	CLASS SESSION	CHOICE

* TESTING SESSION

DAILY FITNESS ACTIVITIES

TERM 4 - begin week 1




AIMS: To ensure that pre-holiday fitness levels are quickly recovered, if levels have dropped during the holiday. To persevere with low fitness children to ensure that gains from term 1 are maintained.

Week	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1	RUN	CLASS SESSION	NEARLY NON-STOP RELAY	NON-STOP RELAY	CLASS SESSION
2	RUN	JRFH or HH	RUNNING GAMES	NON-STOP RELAY	JRFH or HH or Australian Schools Fitness Test
3	RUNNING GAMES	JRFH or HH	AEROBICS CIRCUIT	NON-STOP RELAY	AEROBICS CIRCUIT
4	RUN	JRFH or HH	AEROBICS CIRCUIT	RELAYS	AEROBICS CIRCUIT
5	RUN	10 MINUTE RUN	AEROBICS CIRCUIT	RELAYS	JRFH or HH or AEROBICS CIRCUIT
* 6	RUN	LEGER, 2 SPEED	AEROBICS CIRCUIT	LEGER, 2 SPEED or RELAYS	JRFH or HH or AEROBICS CIRCUIT or Australian Schools Fitness Test
* 7	DAY OF WARM-UPS	LEGER, 3 SPEED	AEROBICS CIRCUIT	CHOICE	JRFH or HH or AEROBICS CIRCUIT or Australian Schools Fitness Test
* 8	RUN	LEGER, 3 SPEED	CLASS SESSION - Review	CHOICE	STUDENT CHOICE
* 9	REMEMBER DAY 1	FUN RUN Cycle or Walk	CLASS SESSION - Holiday Plans	CHOICE	STUDENT CHOICE

* YOU WILL BE CONTACTED WELL IN ADVANCE ABOUT TESTING SESSIONS FOR 1.6k. RUN AND LEGER SHUTTLE TO BE HELD DURING WEEKS 6 - 9.

APPENDIX B HAPPY FACE CLASS SURVEY

STUDENT PREFERENCES

			
ACTIVITY	Love	O.K.	Hate
Health Hustles	1	2	3
Run	3	1	2
JRFH	2	3	1
Relays	1	3	2
Anything else			

* Follow numbered order for asking students - that is: for Health Hustles "Hands up if you (1) love them, (2) think they're O.K., (3) hate them. Hands up if you think the Run is (1) O.K., (2) you hate it, (3) you love it", etc., etc.

* Please transfer the results from the board to this chart and put with your logs.

APPENDIX C CHILDREN'S QUESTIONNAIRE

CHILDREN'S QUESTIONNAIRE

NAME_____

AGE:

SCHOOL_____

YEARS____ MONTHS____

For each question circle the letter next to the answer which you think most accurately describes your own feelings .

There are no right or wrong answers - so be as honest as you can.

1. Do you enjoy playing sports?

- a a great deal
- b quite alot
- c sometimes
- d not that much
- e not at all

2. Do you enjoy taking part in fitness activities?

- a a great deal
- b quite alot
- c sometimes
- d not that much
- e not at all

3. What do you think your current state of fitness is?

- a completely unfit
- b quite unfit
- c about average
- d quite fit
- e very fit

4. Where do you think the most suitable place to exercise would be?

- a in school
- b out of school
- c both
- d none of the above.

5. Out of school time, when do you mostly do your physical fitness (e.g. go for a run, cycle or exercise)?
- a before school
 - b after school
 - c weekends
 - d none of the above
6. Out of school time, when do you mostly do your sport (e.g. play basketball, netball, gymnastics etc)?
- a before school
 - b after school
 - c weekends
 - d none of the above
7. What do you think about the fitness programme that you have taken part in this year?
- a awful
 - b don't like it much
 - c it's o.k.
 - d quite good
 - e it's excellent
8. Do you think the fitness programme has improved your overall fitness?
- a not at all
 - b hardly
 - c perhaps
 - d quite alot
 - e a great deal
9. Has the exercise programme given you more energy to help you with other activities?
- a yes
 - b some things
 - c maybe
 - d I doubt it
 - e no
10. If you could would you like to be:
- a unfit
 - b less fit than you already are
 - c about the same level of fitness as you are now
 - d a little fitter than you are now
 - e much fitter than you are now.

APPENDIX D PARENT'S QUESTIONNAIRE

7. In the PAST 2 WEEKS did you engage in vigorous physical activity, apart from exercise, which made you breathe harder or puff and pant? (e.g. carrying loads, heavy gardening, chopping wood, labouring-at home, during employment or anywhere else.)

NO.....

YES.....

If YES, how many sessions of these types of vigorous activity did you have over the 2 week period?_____

Please estimate the TOTAL TIME spent in these types of vigorous activities during the last 2 weeks.

____hours/ ____minutes

8. How fit do you consider yourself to be?

(circle only one number on the scale)

VERY FIT	AVERAGE	VERY UNFIT
----- ----- ----- -----		
1	2	3
		4
		5

9. How important do you consider fitness to be to your own lifestyle?

(circle only one number on the scale)

VERY IMPORTANT	AVERAGE	NOT IMPORTANT
----- ----- ----- -----		
1	2	3
		4
		5

10. How important do you consider fitness to be to your children's lifestyle?

(circle only one number on the scale)

VERY IMPORTANT	AVERAGE	NOT IMPORTANT
----- ----- ----- -----		
1	2	3
		4
		5

11. Are there reasons preventing you from exercising more?

1. Time
2. Weather
3. No-one to exercise with
4. Costs
5. Personal medical condition
6. Rather do something else e.g. _____
7. Other reasons _____

(circle only the number which you consider to be major reasons)

APPENDIX E LETTER TO PARENTS

PARENTS QUESTIONNAIRE

July 21, 1991.

Dear Parent,

As a part of the current W.A. Schools Physical Activity and Nutrition Project, researchers from Edith Cowan University will be looking at the effectiveness of the current exercise programme on the activity patterns of the children involved. We hope that this work will lead to better programmes with long-term health benefits for W.A. children.

During the next few weeks we will be studying the childrens' levels of activity both in and outside the school environment. In addition we will be asking students, teachers and parents questions about the programme and their thoughts concerning activity and exercise.

Enclosed with this letter is a short questionnaire for you to fill in and return to us at the school. The information provided will be completely confidential and you are under no obligation to complete it. If you would like more information concerning this research then please ring us on 2721601.

I hope that you will take part in this study . The information obtained will be valuable for the development of active life-styles among our children and the reduction of heart disease in later life.

Yours Sincerely,

Mr. Andrew Medland (Edith Cowan University)

APPENDIX F TEACHER QUESTIONNAIRE

WASPAN FITNESS PROGRAM EVALUATION

Name:

School:

Class teacher or Principal or P.E. specialist

Please circle your answer to each question. Feel free to add comments at any stage.

CONTENT/MATERIALS

Please reflect on the Content and Materials used in establishing the WASPAN fitness program in your classroom. Try to consider the entire four-term program in your response.

A. Running Component

	High	Neutral	Low		
1. What is your overall rating of the running component of the program?	5	4	3	2	1
2. How would you rate your understanding of the interval running component?	5	4	3	2	1
3. How would you rate the originality/newness of the running component?	5	4	3	2	1
4. How would you rate the relevance of the running component to PE objectives?	5	4	3	2	1
5. How effectively organised/packaged is the running component?	5	4	3	2	1
6. How comfortable did you feel teaching this component of the fitness program?	5	4	3	2	1

Comments:

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B. Relay Component

1. What is your overall rating of the relay component?	5	4	3	2	1
2. How would you rate your understanding of the interval relay component?	5	4	3	2	1
3. How would you rate the originality/newness of the relay component?	5	4	3	2	1
4. How would you rate the relevance of the relay component to PE objectives?	5	4	3	2	1
5. How effectively organised/packaged is the relay component?	5	4	3	2	1
6. How comfortable did you feel teaching this component of the fitness program?	5	4	3	2	1

Comments:

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C. Health Hustle Component

	High	Neutral	Low		
1. What is your overall rating of the health hustle component?	5	4	3	2	1
2. How would you rate your understanding of the health hustle component?	5	4	3	2	1
3. How would you rate the originality/newness of the health hustle component?	5	4	3	2	1
4. How would you rate the relevance of the health hustle component to PE objectives?	5	4	3	2	1
5. How effectively organised/packaged is the health hustle component?	5	4	3	2	1
6. How comfortable did you feel teaching this component of the fitness program?	5	4	3	2	1

Comments:

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D. Jump Rope for Heart Component

1. What is your overall rating of the jump rope component?	5	4	3	2	1
2. How would you rate your understanding of the jump rope component?	5	4	3	2	1
3. How would you rate the originality/newness of the jump rope component?	5	4	3	2	1
4. How would you rate the relevance of the jump rope component to PE objectives?	5	4	3	2	1
5. How effectively organised/packaged is the jump rope component?	5	4	3	2	1
6. How comfortable did you feel teaching this component of the fitness program?	5	4	3	2	1

Comments:

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E. Leger Shuttle Run Component

1. What is your overall rating of the Leger shuttle component?	5	4	3	2	1
2. How would you rate your understanding of the Leger shuttle component?	5	4	3	2	1
3. How would you rate the originality/newness of the Leger shuttle component?	5	4	3	2	1
4. How would you rate the relevance of the Leger shuttle component to PE objectives?	5	4	3	2	1
5. How effectively organised/packaged is the Leger shuttle component?	5	4	3	2	1
6. How comfortable did you feel teaching this component of the fitness program?	5	4	3	2	1

Comments:

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F. Classroom Knowledge Component

	High	Neutral	Low		
1. To what extent do you feel that the six-lesson classroom component of the program:					
(a) provided essential support to the practical fitness sessions?	5	4	3	2	1
(b) included materials and resources that were readily implemented?	5	4	3	2	1
(c) encouraged the teacher to link knowledge with the practical activities?	5	4	3	2	1
(d) made the pupils link the knowledge with the practical activities?	5	4	3	2	1
2. What is your overall rating of the classroom component?	5	4	3	2	1
3. How would you rate your understanding of the classroom component?	5	4	3	2	1
4. How would you rate the originality/newness of the classroom component?	5	4	3	2	1
5. How would you rate the relevance of the classroom component to PE objectives?	5	4	3	2	1
6. How would you rate its relevance to Year 6 Health Ed. objectives?	5	4	3	2	1
7. How effectively organised/packaged is the classroom component?	5	4	3	2	1
8. How comfortable did you feel teaching this component of the program?	5	4	3	2	1

Comments:

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THE TEACHING PROCESS

Teachers involved in the program used a variety of independent and collaborative teaching strategies to meet the program objectives. Please reflect on how the program was implemented at your school with you and your fellow teachers. If any questions are irrelevant to your situation leave blank.

	High	Neutral	Low		
1. The degree to which you felt the collaboration between teachers was necessary for the successful implementation of the program	5	4	3	2	1
2. From your viewpoint, the level of success of the collaboration between teachers	5	4	3	2	1
3. The perceived knowledge levels of fellow teachers in terms of:					
(a) running	5	4	3	2	1
(b) relays	5	4	3	2	1
(c) health hustle	5	4	3	2	1
(d) jump rope	5	4	3	2	1
(e) Leger shuttle	5	4	3	2	1
(f) classroom component	5	4	3	2	1
4. From your viewpoint, how skilful were you in effectively teaching the following:					
(a) running	5	4	3	2	1
(b) relays	5	4	3	2	1
(c) health hustle	5	4	3	2	1
(d) jump rope	5	4	3	2	1
(e) Leger shuttle	5	4	3	2	1
(f) classroom component	5	4	3	2	1
5. How successful were other teachers in effectively teaching the following:					
(a) running	5	4	3	2	1
(b) relays	5	4	3	2	1
(c) health hustle	5	4	3	2	1
(d) jump rope	5	4	3	2	1
(e) Leger shuttle	5	4	3	2	1
(f) classroom component	5	4	3	2	1
6. How successful are you in helping "at risk" children in fitness development?	5	4	3	2	1
7. How successful was this program in helping low fitness children improve?	5	4	3	2	1
8. What proportion of very unfit children benefitted from this program?	0-20%				
	20-40%				
	40-60%				
	60-80%				
	>80%				

Comments:

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ORGANIZATION AND PLANNING

Please reflect on the Organization and Planning in establishing the fitness program.

	High	Neutral	Low		
1. The clarity of the communications you've had with the project coordinators (Andrew, David, Linda)	5	4	3	2	1
2. The suitability of the timing/scheduling of the fitness program in Term 1 i.e. inservices in weeks 3 and 6, activities start week 4, etc:	5	4	3	2	1
3. The degree to which the phases of the project were manageable (i.e. transition from running to relays to health hustle, etc)	5	4	3	2	1
4. The degree to which the fitness program reflects the priorities of:					
(a) the classroom teachers	5	4	3	2	1
(b) the school	5	4	3	2	1
(c) the Ministry	5	4	3	2	1
(d) the parents	5	4	3	2	1
5. The credibility of the fitness program for:					
(a) the principal	5	4	3	2	1
(b) other teachers	5	4	3	2	1
(c) district office personnel	5	4	3	2	1
(d) parents	5	4	3	2	1
6. Rate how effectively overall you perceive the fitness program has been					
(a) organized this year	5	4	3	2	1
(b) planned this year	5	4	3	2	1

Comments:

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PROFESSIONAL DEVELOPMENT

It would be helpful now, with hindsight, for you to reflect on various aspects of your professional development with a view to refining and developing the program for implementation in 1991.

	High	Neutral	Low		
1. Rate the overall effectiveness of the professional development related to the fitness program you have received this year	5	4	3	2	1
2. Rate the relevance of the professional development for work with at-risk children in the school	5	4	3	2	1
3. My need for further professional development in					
(a) running is	5	4	3	2	1
(b) relays is	5	4	3	2	1
(c) health hustle is	5	4	3	2	1
(d) jump rope is	5	4	3	2	1
(e) Leger shuttle is	5	4	3	2	1
(f) other (please specify) is	5	4	3	2	1

Comments:

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IMPLEMENTATION OF THE FITNESS PROGRAM IN 1990

	High	Neutral	Low		
1. How would you rate the overall effectiveness of the implementation of the fitness program?	5	4	3	2	1
2. Rate how effectively your school (grades 4-7) has been able to implement fitness programs in 1990.	5	4	3	2	1
3. Rate how effectively you have been able to undertake your role during the implementation of the program to date	5	4	3	2	1
4. Rate how committed you feel you have been to the fitness program this year	5	4	3	2	1
5. Rate how committed the school has been to the fitness program this year	5	4	3	2	1
6. Rate your current skill at using:					
(a) the practical fitness material	5	4	3	2	1
(b) the classroom knowledge materials	5	4	3	2	1
(c) other resources for developing fitness skills	5	4	3	2	1
(d) other resources for developing fitness knowledge	5	4	3	2	1
7. Indicate the number of prescribed lessons you have used during the year					
(a) running	10-20%	30-40%	50-60%	70-80%	90-100%
(b) relays	10-20%	30-40%	50-60%	70-80%	90-100%
(c) health hustles	10-20%	30-40%	50-60%	70-80%	90-100%
(d) jump rope	10-20%	30-40%	50-60%	70-80%	90-100%
(e) Leger shuttle	10-20%	30-40%	50-60%	70-80%	90-100%
8. The number of children in your class who you would place in an "at risk" fitness group	0	1-2	3-4	5-6	7+

Comments:

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PERCEIVED OUTCOMES**At risk children**

1. Indicate the number of at risk (low fitness) children per classroom who, in your opinion, have shown clear progress as a result of their participation in the program:

(a) in terms of fitness development	0	1-2	3-4	5-6	7+
(b) in terms of social development (with peers)	0	1-2	3-4	5-6	7+
(c) in terms of social development (with teacher)	0	1-2	3-4	5-6	7+
(d) in terms of academic development	0	1-2	3-4	5-6	7+

	High	Neutral	Low	
2. Rate how effectively the program has addressed the needs of at risk (low fitness) children	5	4	3	2 1
3. Rate your success at helping at risk (low fitness) children	5	4	3	2 1

All children

4. Rate how effectively the fitness program has addressed the needs of children generally in:

(a) fitness skill development	5	4	3	2	1
(b) desire to be physically active	5	4	3	2	1
(c) knowledge of healthy lifestyle practices	5	4	3	2	1
(d) planning their own fitness activities	5	4	3	2	1

5. Rate how successful the fitness program has been for planning instruction in:

(a) running	5	4	3	2	1
(b) relays	5	4	3	2	1
(c) health hustle	5	4	3	2	1
(d) jump rope	5	4	3	2	1
(e) Leger shuttle	5	4	3	2	1
(f) other (please specify)	5	4	3	2	1

6. Rate how successful the fitness program has been in terms of generating individual results on:

(a) children's aerobic/cardiorespiratory fitness	5	4	3	2	1
(b) children's abdominal strength	5	4	3	2	1
(c) children's lower back flexibility	5	4	3	2	1
(d) children's body weight	5	4	3	2	1

7. Overall, rate how successful the fitness program has been for promoting an awareness of the importance of physical activity for:

(a) your class	5	4	3	2	1
(b) the school	5	4	3	2	1
(c) other teachers	5	4	3	2	1
(d) the principal	5	4	3	2	1
(e) parents	5	4	3	2	1

8. To what degree did the implementation of the fitness program impact **positively** on:

(a) the pupils' academic skills	5	4	3	2	1
(b) the pupils' social skills	5	4	3	2	1
(c) the pupils' PE/sports skills program	5	4	3	2	1
(d) the pupils' health education	5	4	3	2	1
(e) the pupils' absentee levels	5	4	3	2	1
(f) the parents' involvement in the class	5	4	3	2	1
(g) other teachers' involvement in the class	5	4	3	2	1

OVERVIEW AND RECOMMENDATIONS

	High	Neutral	Low		
1. Overall, rate the success of the fitness program	5	4	3	2	1
2. Overall, the success of the fitness program was dependent on:					
(a) the fact that this was a research study	5	4	3	2	1
(b) the initial inservice sessions	5	4	3	2	1
(c) the curriculum materials and resources	5	4	3	2	1
(d) my commitment to my pupils achieving fitness goals	5	4	3	2	1
(e) the influence of my teaching colleagues	5	4	3	2	1
(f) the influence of the principal	5	4	3	2	1
(g) the influence of the Ministry	5	4	3	2	1

3. Rate the importance you place on being a role model for regular physical activity for:

(a) your class	5	4	3	2	1
(b) other teachers	5	4	3	2	1

4. Specify changes which you feel are needed to make the program a success in 1991

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5. Specify any constraints/limitations that might impact on the success of the program in 1991

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6. Rate the likelihood that you will implement the fitness program in 1991 if:

	High	Neutral	Low		
(a) if you are teaching a year 6 class	5	4	3	2	1
(b) if you are teaching an upper school class (grades 4-7)	5	4	3	2	1
(c) if you are teaching a lower school class (grades 1-3)	5	4	3	2	1

7. In terms of planning, preparation and implementation of the fitness program:

(a) the amount of extra time required was	5	4	3	2	1
(b) the amount of knowledge I gained was	5	4	3	2	1
(c) the credibility it gained for me as a teacher was	5	4	3	2	1
(d) the amount of professional satisfaction it generated was	5	4	3	2	1

APPENDIX G LETTER TO TARGET CHILDREN'S PARENTS

Date as postmark

Dear Parents,

Thank you for supporting the physical activity research currently taking place in your child's school. We hope that the results of this research will effect the quality of physical education that children receive in schools.

In order to understand more fully the effects of the home and school on children's fitness we are relying on some additional information from some parents whose children have been taking part in the activity work.

Over the next few weeks Mr. Andrew Medland who has been working with the teachers and children for the last two terms would like to visit some households to discuss the exercise programme the class has been involved in and find out what parents feel about physical activity and exercise for their children. This should not take more than 15-20 minutes of your time.

All information provided will be confidential.

Mr. Medland would like to visit you on _____
between _____

Yours sincerely,

Andrew Medland

Class teacher

Researcher-Edith Cowan University

Cut here-----

PLEASE RETURN THIS SLIP TO YOUR CLASS TEACHER

I _____ (your name) am available to meet
Mr. Medland at the suggested time and date.

If this time or date is not convenient please ring the school on
341 1920
to arrange an alternative.

If you would prefer to meet at the school or not to be interviewed
at all this is perfectly acceptable. Please let us know on the
number above.

APPENDIX H ACTIVITY DIARY

- Record in each days box;
1. the activity or activities you did.
 2. the time you spent doing each activity.

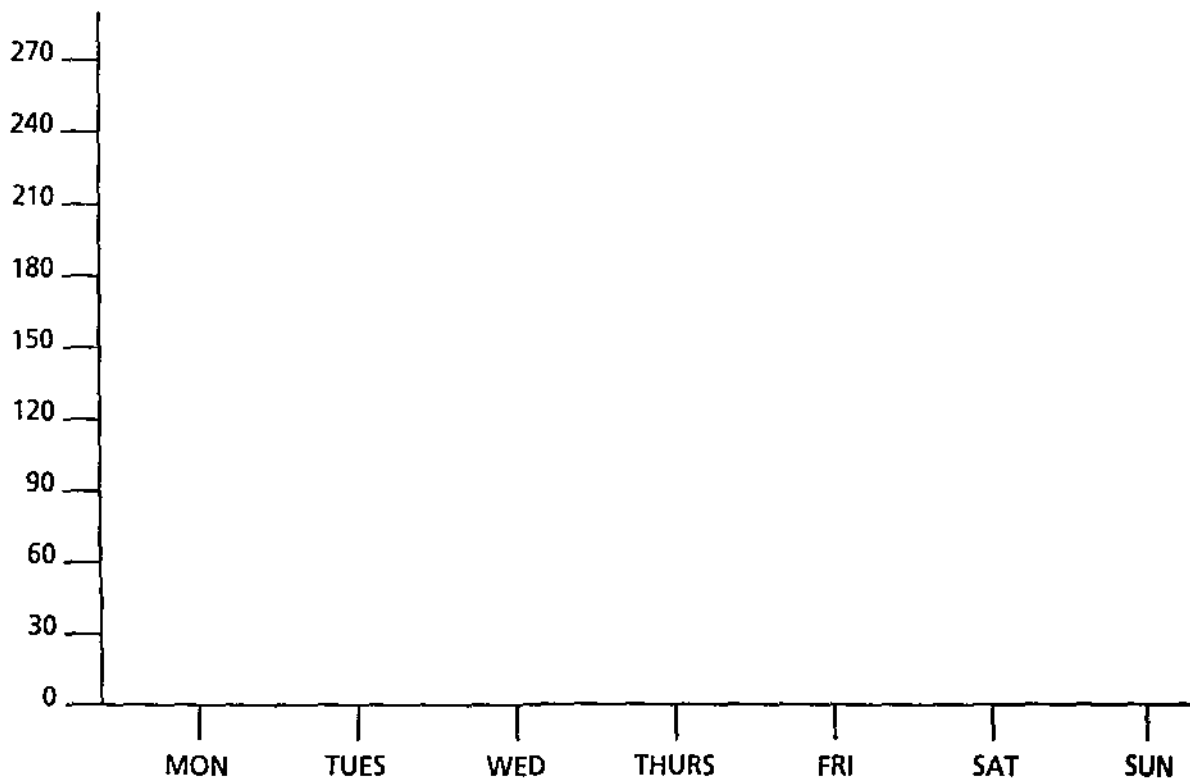
ACTIVITY DIARY

Remember: only record the activities that lasted more than 10 minutes at a time that made you huff & puff. Don't record activities you did in school lessons.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY

Which activity did you enjoy most?

What benefits have you noticed with regular exercise?



APPENDIX I ACTIVITY DIARY PROTOCOL

ACTIVITY DIARY PROTOCOL (also used for student questions 5 & 6)

Before the activity diaries were administered to the children the researcher wrote on the board:

1. Include all activity that makes you huff and puff.
2. Include all activity that lasts for a continuous period of 10 minutes or more.
3. Include all activity that is done out of school lesson time

The children asked questions about the different activities that might be included and the researcher clarified them under the criteria above. The children were told to write down in the column under the day the activity occurred the activity itself and the time spent engaged in the activity e. g. rode bike to the beach 12 mins.

Questions 5 and 6 on the student questionnaire asked the children:

5. Out of school time, when do you do your physical fitness?
6. Out of school time, when do you do your sport?

These questions also required the children to indicate how much time they spent engaged in these areas on a weekly basis. The same criteria was written on the board to explain acceptable activity. For example physical fitness activities would include going on a bicycle ride, a run or other exercise. Sports would include netball, gymnastics and basketball.

APPENDIX J THE BASIC ALT-PE INSTRUMENT

ALT - FITNESS

Teacher: _____ School: _____ Grade: _____
 Activity: _____ Start: _____ Stop: _____
 Students: _____ Observer: _____ Date: _____
 Term: _____ Week: _____ Activity: _____

Key Behaviours:

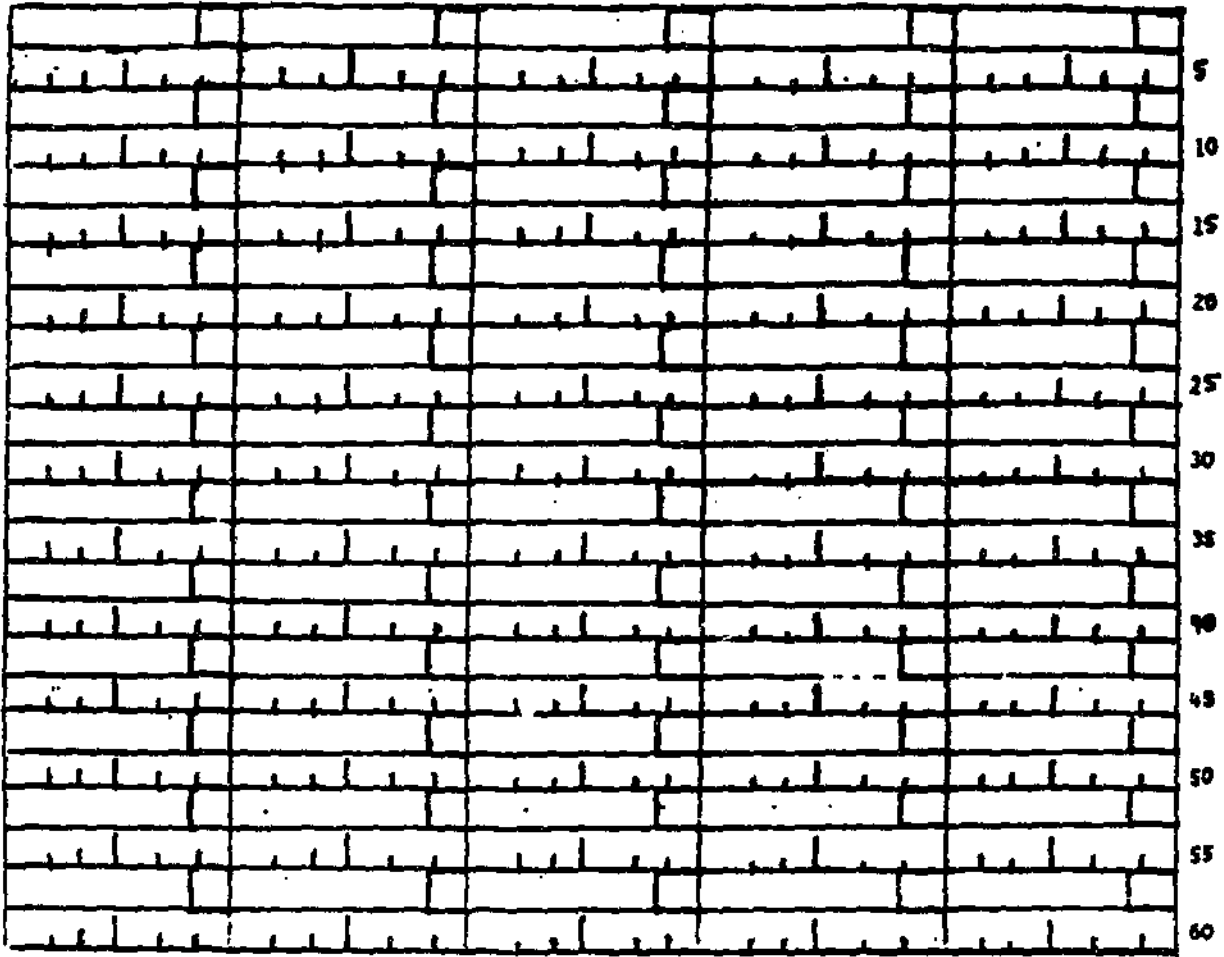
- Management (M) - related to class business, unrelated to instructional activity
- Transition (T) - managerial and organizational activities related to instruction
- Activity (A) - engaged in motor skill activity
 (AV) - motor activity specific to warm-up, cool down or non-locomotor exercises
 (AF) - high intensity cardiorespiratory activities (>140 beats/min)
- Waiting (W) - completed a task, period of no activity and no movement between activities
- Knowledge (K) - listening to instructions, watching a demonstration, questioning, discussing
- Off Task (O) - not engaged in assigned activity, misbehaviour, talking when teacher is explaining

Critical incidents: _____

Other comments: _____

Target Student (Name): _____ 10: _____

Description: _____



Summary Data

M Secs. 1. T Secs. 1. W Secs. 1.
 R Secs. 1. A Secs. 1.

Student Name	Total
Used	
Not Used	

Behavioral Interactions	Total
Positive	
Negative	

APPENDIX K TEACHER'S LOG EXAMPLE

PHYS ED PROGRAM: TEACHER'S LOG TERM 1

In order to properly evaluate the phys ed program it will be important to gauge the extent to which each teacher is covering the fitness and skills areas. We would be grateful if you could keep a record of your work with your class using the attached logs. Examples of completed sections of the logs are shown below. Please fill these in at least once a week.

EXAMPLE:

Week 1

Date	Fitness Activity	Time (mins)	Skills Activity	Time (mins)
Mon	<u>Run around oval</u>	<u>17</u>	_____	_____
Tue	<u>Run around oval</u>	<u>15</u>	_____	_____
Wed	<u>Relays</u>	<u>24</u>	_____	_____
Thur	<u>Legs trials</u>	<u>20</u>	_____	_____
Fri	<u>Health health</u>	<u>20</u>	_____	_____

Week 2:

Mon	<u>1.6k run - 2 groups 2x12 mins</u>	<u>35</u>	<u>Volleyball lesson 1</u>	<u>30</u>
Tue	<u>Run around oval</u>	<u>15</u>	_____	_____
Wed	<u>Jump rope</u>	<u>20</u>	_____	_____
Thur	<u>Jump - max. effort</u> <u>2 groups, 2x11 mins</u>	<u>25</u>	<u>Volleyball lesson 2</u>	<u>30</u>
Fri	<u>Health health</u>	<u>20</u>	_____	_____

Notes:

Please add any comments you think might be useful to teachers using the program

in the future.

APPENDIX L END-OF-YEAR REPORT EXAMPLE

NAME: _____

354

My End-of-the Year Report. 1991

MATHEMATICS: I love problem solving. My maths is at a level that I am proud of.

WRITING: I'm proud of my achievements in the writing forms we have studied.

HOMEWORK: I am organized and always do my homework, this is an area in which I like to 'boast'.

BEHAVIOUR: I think my behaviour is responsible and sensible.

FITNESS: I've improved greatly with my personal fitness. Now I'm starting to enjoy physical education.

MY GREATEST ACHIEVEMENT THIS YEAR: My gain of my personal fitness level. I used to feel very tired afterwards, but now I feel like attempting the session again!

MY GOALS FOR 1992:

Hold my pencil correctly.

Teachers Comment

Principal's Comment

Parents Comment

APPENDIX M ADMINISTRATION OF AUSTRALIAN
SCHOOLS FITNESS TEST ITEMS

Administration of the Australian Schools Fitness Test items.

1.6 Kilometer Run Test

Equipment used: 30 meter tape measure, 20 marker cones, stopwatch, list of students names.

Preparation

On the morning of the test a 50 meter square track was marked on the school field using the tape measure and the cones placed at frequent intervals.

The researcher supplied the markers for the 1.6 km run and a stopwatch.

The children were told to wear trainers.

Test Procedure

The children are told that they must complete 8 laps of the 200 meter course to achieve the 1.6kilometers. They are informed that the best technique is to run at a steady pace until the middle of the distance and they increase speed if they still feel comfortable and have some reserves of energy left. Walking is permitted should it be required, however they should attempt to run as much of the entire distance as possible.

The children then pair up and each pair stands at a cone. The teacher takes up a central position and starts one of each pair running anti-clockwise with the words: "READY, GO" and starts the stopwatch. Each non-running partner tells their running partner how many laps they have completed as they run past their cone. As the fastest runner completes the last lap (eighth) the teacher calls out the elapsed time at 5 second intervals and the partner tells the runner their time as they finish at their cone.

The runners should be encouraged to walk a lap to cool down whilst taking deep breaths to recover. The same procedure is then carried out for the second group.

Administration of the Australian Schools Fitness Test items.

Sit-Up Test

Equipment

Cassette type player, sit-up cadence tape.

Preperation

There should be enough room for each person performing the sit-ups to lie on the floor which should be reasonably soft (e.g. grass or classroom carpet). Shoes on.

Test Procedure

The children performed the sit-ups with bent knees (140 degrees) and feet flat on the floor. The ASFT tape gives the participants opportunity to practice in time with the tape cadence before the test begins. The participants lie flat with their shoulders touching the floor. Fingers should be extended and the hands on the top of the thighs. The trunk is curled upward until the finger-tips reach the level of the patella. This position is held for one second in time with the tape cadence. If the child fails to keep time the teacher directs that individual to stop the test. The maximum number of sit-ups is 100.

Sit and Reach Test

Equipment

Sit and reach box.

Test Procedure

Working in pairs with shoes off the children sit on the floor with their feet flat against the sit and reach bench. The bench is placed against a wall so that it is not able to move. A partner gently but firmly holds their knees down while reading off the reach at their partners finger tips on top of the bench. The stretch should be held for three seconds before the distance is recorded. The level of flexibility is read to the the nearest complete centimeter and always rounded down to the lower score.

APPENDIX N PRINCIPAL INTERVIEW

1. In your own words could you tell me the school philosophy?
2. Do you think P.E. is an important part of this philosophy and in what way do you see the physical development of the children inter-relating with the other aspects of their development?
3. What feedback, if any, have you received from the year 6 class teacher regarding the WASPAN activity programme?
4. What feedback, if any, have you received from the year 6 children regarding the WASPAN activity programme?
5. What feedback, if any, have you received from the parents of the year 6 class regarding the WASPAN activity programme?
6. If physical education in the Primary school can be divided up into fitness, skills teaching and practise and sports or team games. What do you feel is the right balance for primary school children in their school week?
7. In terms of staff development and considering that many Primary school teachers have very little training in physical education. how much support do you think teachers need in the organisation and implementation of meaningful physical activity for their classes?
8. Do you see a programme such as WASPAN becoming institutionalised in the school curriculum?
Which years?
Which days?
How long (15, 20, 30 mins.)?

OTHER QUESTIONS ASKED;

THANK YOU FOR YOUR TIME THIS MORNING

APPENDIX O TEACHER INTERVIEW

TEACHER INTERVIEW. SCHOOL _____ DATE _____

TEACHER _____ INTERVIEWER _____

* How would you describe your own philosophy of "fitness"?

What attitudes does the class teacher have towards:

a) the place of the WASPAN physical education programme in the school curriculum?

* Why do you think health-related fitness skills are important for children to learn at school?

* What are some of the outcomes (positive and negative) that you have noticed during, or as a result of, the fitness programme?

* Has any other aspect of the school curriculum suffered as a result of your class' participation in the fitness programme?

* In your opinion is the fitness programme suited to the year 6 students?

* What do you think would be the optimum year to start children learning and practicing fitness skills?

* How much time do you think children should spend in structured fitness activity each day/week?

* Most schools include p.e. lessons and games sessions in the curriculum. How does the fitness programme sit in the overall package of physical education that the children receive?

b) the benefit of the WASPAN physical education programme to the children?

* How do you think the 'high' fitness children benefit from the fitness programme?

(fitness gains, weight control, feel better about themselves, socialisation, health gains, do they receive any value in terms of leadership or demonstrating excellence for example)

* How do you think the 'low' fitness children benefit from the fitness programme? (fitness gains, weight control, feel better about themselves, socialisation, health gains etc)

* How do you think the 'middle range' fitness children benefit from the fitness programme? (fitness gains, weight control, feel better about themselves socialisation, health gains etc)

* Do you see any indication that the skills and levels of activity, that the children may be achieving in the fitness class, are transferring to their out-of-class behaviour?

c) the implementation of the WASPAN physical education programme?

*** What are the advantages and the problems you have encountered during the process of implementing the WASPAN fitness programme?**

*** Could you make any suggestions at this stage which might make the process of implementation easier in the future?**