Can a physical education intervention with Year 2 children influence their perceptions, knowledge, and choices about physical activity?

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Abstract

The purposes of this study were to examine (a) what views Year 2 hold about physical activity, (b) how they perceive their own ability, and how much effort they give, with regard to physical activity, and (c) how they explain the importance of being physically active. In addition, a physical education (PE) intervention was put in place to see if it would change the children's perceptions, choices and knowledge in regard to physical activity. Two groups of four Year 2 children from a private city school took part in individual and group interviews before and after the teaching intervention. Results indicated that the children viewed physical activity, PE and physical fitness, positively. The children in this study held high self-perceptions of their ability to do physical activity and sport and attributed their abilities to previous physical experiences and effort. Before the teaching intervention the children's knowledge of concepts of health related physical activity were vague and incomplete. Following the eight-week intervention the children in this group were able to answer the knowledge questions accurately and in detail.
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Introduction

A wide body of research shows that there is a positive correlation between regular physical activity and good health (Cardon & Bourdeaudheu, 2002; Corbin, 2002; Kilpatrik, Hebert & Jacobsen, 2002; Dale, Corbin & Dale, 2000). National goals in the United States emphasise the importance of beginning physical activity promotion very early in life (Corbin, Dale & Pangrazi, 2000). Although children are more active than any other segment of society, Corbin (2002) believes that it essential for them to learn that a physically active lifestyle is the key to future fitness and health.

Physical education (PE) programmes have been said to have the most promise for having a public health impact (Sallis, 1989). Physical educators have a unique opportunity and responsibility to positively influence the health of society's young people (Wright, Patterson & Cardinal, 2000). The promotion of lifelong physical activity has long been one of the primary goals of New Zealand's school PE programmes. In recent times, the expressions of concern about young people's health has focused increased attention on how PE can effectively improve children's physical activity attitudes and behaviours (Henzell, 2003; Burrows, Wright & Joungersen-Smith, 2002; SPARC, 2003). New Zealand's Health and Physical Education Curriculum clearly supports the promotion of physical activity (Ministry of Education, 1999). With recent research showing that the physical activity levels of young people in New Zealand are decreasing, concern has been expressed about how effectively students are being equipped with the knowledge and attitudes to be healthy and physically active for a lifetime (Burrows et al., 2002; SPARC, 2003).
Background

Since the early 1980's there has been an increasing awareness of the health benefits of exercise (Green & Lamb, 2000). This knowledge has increasingly impacted on schools' PE programmes. Over the last decade a broad consensus has emerged that one of the primary purposes of PE is to guide young people in the process of becoming physically active for a lifetime (Green, 2002).

There is an extensive body of research and literature documenting the value of physical activity (Corbin, 2002). Regular participation in physical activity has long been recognised as essential to normal development in children (American Academy of Pediatrics Committee, as cited by Pate, Trost, Felton, Ward, Dowela & Saunders, 1997). There is also strong evidence to show regular physical activity participation reduces the risk of chronic illness and enhances feelings of wellbeing (U.S. Dept. Health & Human Services, 2000 as cited by Corbin, 2002) particularly in adults. Similar links with children are not as well established (Welk et al., 2000) but there is evidence that regular physical activity during childhood and adolescence is associated with improvement in numerous physiological and psychological variables (Cardon & Bourdeaudheu, 2002; Dale et al., 2000; Kilpatrick et al., 2002). There is evidence that the level of children's physical activity may have implications for their degree of wellness and quality of life across the lifespan, (Brustad, 1996; Duda, 1996). For example inactivity among children has now been shown to track into adulthood (Corbin & Pangrazi, 1999).
Physical Activity in Children

The study of children's physical activity is an area of increasing importance (Brustard, 1996). In recent years there has been tremendous interest in assessing and promoting physical activity among children (Welk et al., 2000). Despite the clear evidence supporting regular physical activity, there is a growing concern regarding the physical activity levels of children in many western countries (Burkhalter & Wendt, 2001). Numerous studies of youth physical activity have been completed and almost all show a decline in physical activity levels as children age (McKenzie, 2001). New Zealand is no exception. The results from a recent study carried out by SPARC (2003) show the number of physically active young people in New Zealand declined from 69% in 1997/98 to 66% in 2000/01. This decrease was particularly evident for boys, Maori and Pacific Island young people, and young people aged from 5 to 8 years (SPARC, 2003).

This is a disturbing trend and one which society needs to take seriously. Schools, along with communities and families face a moral imperative to equip and guide their children to make informed decisions that will increase the chances of them having a productive lifetime of health and wellness (Johnson & Deshpande, 2000). The exact nature of physical activity is complex and is generally thought to be "an intricate combination of both biological function and behaviour" (McManus, 2000, p. 133). Briddle (1995) defines physical activity as "a broad reference to any bodily movement produced by skeletal muscle that results in energy expenditure" (Kilpatrick et al., 2002, p. 37).
Factors affecting Children's Physical Activity

Researchers are still struggling to gain a complete understanding of what determines physical activity behaviour (McManus, 2000). Young people are inherently active and inherently enjoy activity (Corbin, 2002) but the challenge is to keep them motivated. An array of biological, developmental, social and psychological factors shape children's participatory interest and involvement (Brustad, 1996). A complex arrangement of external determinants, such as peers, community, coaches, teachers, school, media and the family (Kimiecik, Horn & Shurin, 1996), all contribute to a child's perception of their ability, their self-esteem and beliefs which in turn affect their physical activity behaviour (Carlson, 1995). Orlick (1975) believes that physical activity environments have the capacity to enhance or destroy the participant's feelings of self (Halas, 2002). Several studies have suggested that positive attitudes, feelings of competence, enjoyment of physical activity and self-management skills are some of the factors that lead to lifetime physical activity (Corbin et al., 2000).

Children are active in different ways than adults (Welk et al., 2000). They have different needs, interests and abilities (Barnett, 2001). Children's patterns of activity tend to be intermittent, with poor economy and efficiency of movement meaning they fatigue quickly and need regular rest periods. They have concrete thought patterns that result in short attention spans and leads to their failure to see the long-term advantages of physical activity (Welk et al., 2000). Activities designed for children need to be developmentally appropriate (Corbin, 2002).
When a child's social, emotional, cognitive and physical needs are met through specific kinds of physical activity, these activities will probably be perceived as being fun (Barrett, 2001). Young people are more likely to participate in programmes that are perceived as "fun" and that meet their needs and interests (Tannehill, Romar, O'Sullivan, England & Rosenberg, 1994).

Researchers have identified several determinants of physical activity participation. These include perceptions of competence, willingness to give effort, cultural influences, and the knowledge one has about the benefits of physical activity. These determinants are now discussed.

(1) Perceptions of competence: Confidence in an ability to perform physical tasks well has been labelled 'perceptions of competence' by physical activity researchers; high perceived competence predicts involvement in physical activity, regardless of age. Horn and Hasbrook (1986) believe it is essential that young people develop and maintain a positive view of themselves and their competencies (McKiddie & Maynard, 1997). Children form perceptions of competence by relying on feedback from significant others such as parents, siblings, and teachers (Fry, 2000; Weiss, Ebbeck & Horn, 1997).

(2) Effort and intrinsic motivation for physical activity: With regard to physical activity most young people see effort as the primary determinant of ability and performance (McKiddie & Maynard, 1997). In other words, "if I try harder, I will do better". This viewpoint does not continue into adolescence. Teenagers equate ability – not effort – with physical performance (Lee, Carter & Xiang, 1995).
Children's ability to distinguish between ability and effort increases as they get older. The value they place on comparison with peers also tends to increase (McKiddie & Maynard, 1997). Therefore how they define success also needs to be considered (Portman, 1995). There are generally considered to be two goal orientations linked to success, task orientation and ego orientation. In the task goal orientation success is measured in terms of mastery or attainment of set goals (Wang & Biddle, 2001). Research has shown that there are positive relationships between task goal orientations and both effort and perceptions of competence (Williams & Gill, 1995). Ego goal orientation success is measured in terms of winning or comparison with others (Wang & Biddle, 2001). This orientation is not necessarily bad but it is more likely to have a negative impact on young people's perceptions of competence and overall attitude towards physical activity (Chung & Phillip, 2002). It is important that young people develop realistic perceptions of their own ability. This process can be encouraged by helping the students to become intrinsically motivated through promoting a task goal orientation and providing them with alternative sources of information to judge their ability, such as achievement of personal goals (Harter, 1982).

Intrinsic motivation is a key factor in encouraging young people to be physically active regularly and to ensure that this continues throughout their lives. Kilpatrick et al. (2002) define intrinsic motivation as "the thoughts that exist when an individual chooses to engage in activity for the sake of the activity rather than an external reason" (p. 38). If an individual perceives an experience as being positive or successful, they will be more likely to choose to participate with intensity and to persist with it (Mitchell, 1996). Research has shown that there are a number of factors that increase the likelihood of a physical activity being perceived as positive.
These are:

- receiving positive feedback
- promoting process/task goals
- promoting moderately difficult goals
- choices of activity
- rationale for activity
- positive social relations
- careful utilization of rewards (Kilpatrick et al., 2002).

(3) Cultural influences: Cultural influences, including messages promoted by the media, have also shown to have an impact on young people's physical activity behaviour (Cardon & Baourdeaudheuj, 2002). Changes, such as increased television viewing, and the greater use of computers and videogames affect the time some young people have to be physically active. These cultural changes have been blamed on decreasing children's physical activity levels. In tandem with increasingly poor nutritional choices, these changes have been pinpointed as the major causative factors explaining the rising incidence in childhood obesity.

(4) Knowledge of the link between physical activity and health. A recent study expressed concern about how the popular health orientation discourse in New Zealand, which closely links exercise, weight and health, impacts young people's views of physical activity and health (Burrows, et. al., 2002). The results showed that children made strong links between fitness and health, stating that exercise and proper nutrition would definitely lead to health. Whether knowledge on the relation between activity and health leads to improved physical activity behaviours is currently unclear.
Many children believed that people who were fit would be thin and look better (Burrows et. al., 2002). Placek, Griffin, Dodds, Raymond, Tremino and James (2001) reported similar findings in America. They also found that even though young people believed that fitness was good for you they struggled to verbalise any specific ideas about the health benefits of exercise.

**Physical Activity Promotion in Physical Education**

Many people see schools, particularly PE, as being the most appropriate setting for the promotion of physical activity. This is mainly due to the accessibility of a captive audience and the fact that there is no extra cost (Cale, 2000; Sallis, 1989). School PE provides the foundation on which other physical activities are built - by providing trained teachers who can provide appropriate curricula (Sheilds & Bredemeier, 1995).

The PE content, as well as the way it is delivered, can potentially affect the health and well-being of students throughout their lives (Ennis, 1996). New Zealand's new Health and PE curriculum, released in 1999, incorporated PE and health subject areas into one syllabus (Burrows et al., 2002) to provide "a single co-ordinated "holistic" approach to physical well-being" (Cuplan as cited by Worrall, 1999, p. 5). In the curriculum the concept of well-being encompasses the physical, mental, emotional, social and spiritual dimensions of health (Ministry of Education, 1999). The assessment results from the 1998 National Education Monitoring Report (NEMP) on Health and Physical Education showed that before the introduction of the new curriculum students did not demonstrate a holistic understanding towards physical well-being.
Crooks and Flockton (1998, p. 4) state:

"The students showed substantial knowledge of the human body and of physical aspects of health such as nutrition, but tended not to extend their concepts of health to the social, emotional, intellectual and spiritual aspects..."

The new curriculum gives teachers a clear mandate for including regular physical activity in their programmes. The achievement objectives state that students will:

- Understand and appreciate, as a result of experience, the contribution of physical activity to personal well being.
- Develop a positive attitude towards physical activity by accepting challenges and extending their personal capabilities and experiences.
- Develop understandings, skills and attitudes that enhance interactions and relationships with other people.
- Participate in creating healthy communities and environments by taking responsible and critical action.

(Ministry of Education, 1999, p. 8).

Even since the introduction of the new curriculum, various sectors in society continue to express concern regarding the effectiveness of PE programmes run in schools, particularly in regards to health issues (Burrows et al., 2002). A Ministerial Taskforce was set up to examine some of these concerns. In it's report, 'Getting Set - For an Active Nation', the taskforce acknowledged the role of the educational institutions in the development of lifelong physical activity (Ministerial Taskforce on Sport, Fitness and Leisure, 2001). The importance of PE in primary schools is emphasised but concern is also expressed about the state of current programmes.
The report states:
"evidence was repeatedly presented to the Taskforce that showed a lack of clarity, direction, prescription and scheduled time in school for physical activity and sport"
(Ministerial Taskforce on Sport, Fitness and Leisure, 2001, p. 54).

Following the report of the taskforce, the Education Review Office (ERO) conducted a study of the current level of physical activity in a number of primary schools (ERO, 2001). They found that:
- most schools had regular fitness and PE sessions
- most PE lessons included a substantial proportion of aerobic activities.
- the children took part in PE lessons willingly and appeared to enjoy them.

It would seem from this report that most New Zealand children are experiencing regular physical activity and are enjoying it. The question remains is this enough to ensure the development of positive life-long physical activity habits? The results from the recent SPARC report (2003) would suggest that it's not enough. Further research is needed to examine how to most effectively promote physical activity in New Zealand's primary schools so that students are equipped with the knowledge and motivation to be physically active for a lifetime. The Health and Physical Education Curriculum document gives clear guidelines but it is still up to individual schools and teachers to interpret the document and to develop and run programmes from it. Wright et al., (2000) call for schools and physical educators to critically examine their PE programmes.
They believe there is a need to:

"employ new and innovative strategies to ensure that children develop good physical activity habits. Strategies which help children recognise, understand, value and commit to physical activity throughout their lives." (Wright, et. al., 2000, p. 27).

In critically reflecting on their PE programmes schools need to consider the many factors that effect student's attitudes and behaviour. These factors include the way in which physical activity is promoted and reinforced within the whole school context including through the curriculum and the informal curriculum, the environment, community links, school policies and the overall school ethos (Cale, 2000).

Research shows that student's attitudes towards PE vary greatly. Most students enjoy PE but it seems that there is always a portion of students who find it irrelevant and boring (Groves & Laws, 2000; Carlson, 1995; Graham, 1995b; Tannehill et. al., 1994). These negative feelings generally come from a feeling of meaningless (no purpose), powerlessness (no control) or isolation (Carlson, 1995). The most positive experiences in PE include participating in a variety of activities, success/ winning, performing well, being included, being part of a team and general enjoyment (Tannehill & Zakrajsek, 2002; Barnett, 2001). Females tended to value relationships while males emphasized the need for activities to be challenging (Tannehill, et. al., 1994). Students reported that they didn't like excessive competition, repetitive activities or activities which were not at an appropriate level (Barnett, 2001). The activity and the nature of it was usually commented on before anything else when students were talking about PE (Groves & Laws, 2000). Tannehill & Zakrajsek (2002) found that many students had negative attitudes towards fitness sessions at school and thought that it was unimportant.
Research from the United States suggests the PE should adopt a philosophy of physical activity promotion' rather than 'fitness promotion'. Pushing children to "get fit" may lead to many children developing negative attitudes and being "turned off" physical activity (Corbin et al., 2000). There is also evidence to show that there is a weak relationship between fitness and physical activity in children (Welk et. al., 2000). Physical activity does not necessarily result in the increase in fitness, meaning that there is no positive reinforcement for active behaviour when fitness is the measure.

Learning the concepts relevant to health related physical activity is a necessary aspect for students to embrace an active lifestyle. Research has shown that students of all ages can learn these concepts (Placek, et. al., 2001). National goals outlined in America support the belief that activity promotion should begin very early in life, by the age of six (Corbin et al., 2000). However, there has been little research conducted to ascertain specific details of children's present concepts of physical activity and fitness (Burrows, et. al., 2002). There is concern that students come to PE with many preconceptions about physical activity and fitness, many of which are incomplete or inaccurate (Placek, et. al., 2001). Teachers need to make the effort to learn and understand the needs and interests of the students they are teaching (Graham, 1995b). This will enable them to design a programme that will not only teach students new concepts regarding physical activity but which will change alternative conceptions (Placek et. al., 2001). Teachers also need to teach students the skills that will enable them to think critically about the information they are bombarded with from many sources so they are able to draw their own conclusions about the issues (Cuplan, 1998).
Helion (1996) believes that to attract and encourage students to remain physically active, teachers need to create PE experiences that are emotionally safe and enjoyable. Similarly Tannehill and Zakrjsek (2002) state that it is essential for PE programmes to develop students' belief in their own ability and to encourage participation in physical activities. Research has shown that an environment where students can responsibly work and play together also enhances students' enjoyment of PE (Halas, 2002). Creating such programmes and environments is a constant challenge for physical educators as many factors influence individual student's experiences. The motivation climate established in a PE class can often predict the children's investment in physical activity (Virgillo, 1997). A number of studies have shown that children respond more favourably in PE lessons, showing more on-task behaviour and involvement, when task goal orientation is encouraged (Halas, 2002; Wang & Biddle, 2001; Salas, 1992). Considering the student's abilities, interests and needs is essential for teachers to ensure a varied and challenging programme (Barnett, 2001). The action and reactions of peers and teachers during PE lessons can also influence a child's response, both behaviourally and mentally (Groves & Laws, 2000). Research has shown that it is important for teachers to encourage all students, even the ones who are competent (Morey & Karp, 1998) and for teachers to be active role models (Corbin & Pangrazi, 1999).

This Study

The lead researcher's interest in this area stemmed from her teaching experience in New Zealand primary schools. In her teaching she made every effort to ensure her students enjoyed participating in physical activity and had a working knowledge of the importance of it – especially in regard to
physical fitness. However, like many teachers, the researcher in this study still had concerns about how effective her programme was. Traditionally many schools have run fitness and PE sessions as separate activities. Fitness sessions have generally been 10 - 15 minutes when the children are involved in some aerobic exercise. These sessions often stand-alone and are not generally linked back into PE or health sessions. PE sessions take place 2 or 3 times a week for 30 to 40 minutes and focus more on skill development and sport.

In the first part of this study the researcher was interested to find out from the children what they thought of physical activity. She aimed to examine the views Year 2 children hold about physical activity, how they perceive their own ability, and how much effort and importance they give to physical activity, in terms identified and defined by them. Previous research has shown that students as early as five are able to express their feelings, needs and thoughts about what is taught in PE and how it is taught (Graham, 1995b).

The second part of the study is going to involve a teaching intervention being put into place that will attempt to link fitness sessions with the broader concept of physical activity. The teaching will also provide students with the opportunity to gain knowledge related to the importance, for their own health and well-being, of being physically active and physically fit. They will also be challenged to take responsibility for their own level of physical activity. Time restraints do not allow any change in the timing of sessions.

The research project will be based at The Cathedral Grammar School, in Christchurch. It will involve eight students from two Year 2 classes. The lead researcher is also the PE teacher in the Junior School. In this study she taught
both classes' PE session. Although the lead researcher did not run the daily fitness sessions she provided the programme for the classroom teachers.

Research Aims

The first aim of this research project is to gain insight into how children perceive and explain physical activity, focusing on PE and fitness sessions within the school programme. The second aim is to determine how a PE programme that incorporates activity and a focused teaching component influences: (a) how the students perceive physical activity, (b) the choices they make regarding physical activity, and (c) student knowledge on the value and importance of physical activity.

Specific Questions:

1. What views do Year 2 children hold about physical activity and fitness?
2. How competent do Year 2 children perceive themselves as being, and how much effort do they give, with regard to physical activity and fitness?
3. How well can Year 2 children explain the importance of physical activity?

Following the PE intervention, the following issue was addressed:

4. Does incorporating a teaching component focused on the importance of physical activity into the PE programme improve:
   (a) student perceptions of their own physical competence,
   (b) student choices regarding physical activity
   (c) student knowledge on the value and importance of physical activity.
Method

Methodology

This research employed qualitative procedures. This study aimed to explore why students hold the attitudes that they do toward physical activity and fitness and to provide information on students' perceptions towards their own level of physical activity. A qualitative research design enabled the researcher to learn, first hand, about the social world being investigated by means of her involvement with subjects - through focusing on what individuals say and do (Hitchcock & Hughes, 1989). Qualitative research emphasizes that knowledge of a social context is essential in understanding the social world (Neuman, 1997). Human behaviour (including physical activity participation of children) is significantly influenced by the setting in which it occurs (Bogdan & Biklen, 1982). This study aimed to describe and understand the meaning students gave to the process of being physically active. A short quantitative instrument was also used to gather data on children's perceptions of competence for physical activity.

Subjects

Participants were eight Year 2 children from a private school in the city. Four children were selected randomly from each of the Year 2 classes. Each group of four was made up of two boys and two girls. Seven of the children were from English-speaking, middle-to-upper class families. The other child was an Asian boy who spoke English as his second language. Permission for this study was given by the Academic Approval Board and the Ethnical Standards Committee, at the Christchurch College of Education, the Head Teacher of the
Junior School and two classroom teachers. The lead researcher was also the PE teacher in this study.

Procedure

During the second week of the new school year the eight participating students (n=4, intervention class, n=4 control class) took part in an individual and a group interview before the teaching intervention began. The group interviews were carried out with the 4 children from each class.

All interviews were semi-structured. The individual interviews sought to gather responses from students relating to their perceptions and knowledge of physical activity. Three areas were covered: perceptions of competence, choices regarding physical activity and knowledge. These interviews included questions based on Harter’s (1978) perception of competence scale as a starting point of discussion. In responding to a modified forced choice format, a student was required to choose a positive or negative stance as well as rate that choice "sort of true" or "really true". A high score indicates positive perceptions of competence. Examples of items from this scale are given in Table 1.

**Table 1: Examples of the structured questions**

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Some children don't like doing lots of physical activity.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some children enjoy doing lots of physical activity.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some children struggle to do physical activities and sports.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some children are good at physical activities and sports.</td>
<td></td>
</tr>
</tbody>
</table>

After each structured question the children were asked more open-ended questions which were designed to gain further information as to why they
made the previous response. The complete questionnaire is in appendix 1. Each interview lasted about 20 minutes.

The group interviews were used to elicit information about the children's likes and dislikes during physical activity in school, including both physical education lessons and fitness sessions, through open-ended questions. For examples of the questions used in the group interviews see appendix 2. The questions also encouraged the children to consider why they thought what they did. Before the interviews took place the researcher stressed to the children that they should be honest and that there was no right answer. Interview sessions were tape-recorded and transcribed for analysis.

The following week a new fitness programme was introduced for the whole of the Junior School, including both Year 2 classes. This programme involved daily sessions of 10-minute fitness activities. These activities included running, skipping, aerobics, fitness stations and relays. The students rotated around the activities so they did a different one each day. At the end of each session the teachers were encouraged to have the children warm down; this involved light jogging and completing a series of stretches. The classroom teachers were responsible for taking these fitness sessions.

Both classes received their timetabled sessions of physical education, twice per week for 40 minutes. For the intervention class one lesson included 15 minutes being allocated to 'classroom type' instruction (teacher-led discussion, self-directed activities, peer-teaching, and group work). Both lessons included 15 minutes focus on fitness activities with the remainder of the lesson being made up of motor skill learning and sports activities. The lessons for the intervention teaching are outlined below (for the complete lessons plans see appendix 3):
Week One
Focus: Wellness
Objective: To explore and understand that "to be well" involves being physically, mentally, spiritually, socially and emotionally healthy.

Week Two
Focus: Individual Differences
Objectives: To explore the differences between children, especially those related to physical activity and characteristics of the body.
2. To learn to accept and respect other people's differences.

Week Three
Focus: The importance of health related activity.
Objective: To explore and understand the importance of being physically active.

Week Four
Focus: Aerobic Fitness
Objective: To understand how our heart and lungs work and how exercise effects them.

Week Five
Focus: Muscular strength and Flexibility
Objective: To explore and understand what role our muscles and joints have and why it is important to exercise them.

Week Six
Focus: Taking part in a variety of activities.
Objective: To understand that different activities have different benefits and that it is important to be involved in a range of activities.

Week Seven
Focus: Healthy Eating
Objective: To understand and to be able to explain why a balanced diet is important for your health.

Week Eight
Focus: Being responsible to make decisions for your health.
Objective: To be aware that everyone has some responsibility to keep themselves healthy.

The 'control class' received the traditional physical education programme for the entire 40 minute lesson.
The fitness programme and teaching intervention ran for the remaining eight weeks of the first term. During the last week of the term the eight participating students again took part in an individual and a group interview based on the same questions as the initial interviews. These were used to gather data to determine if any changes had been made in the children's perceptions, knowledge or choices regarding physical activity.

Analysis

Inductive analysis was used to analyse the content of the verbatim interview transcripts (Bogdan & Biklen, 1992). The researcher read through the transcriptions several times, searching for and noting patterns of meanings. The raw data was categorised into coding categories that included perceptions of competence, choices regarding physical activity, knowledge and attitudes towards physical activity in school. Each category was examined and compared to the other categories to identify common elements.
Results

What views do Year 2 children hold about physical activity and fitness?

Physical Education

As I examined the transcripts of each participant and from the group interviews it became very clear that fun/enjoyment was an important factor in the children's perception of physical activity in PE. In the Tables that follow, data in bold indicate information following the physical education intervention, i.e., eight weeks after the initial interview. The children in the control group (children A to D) are the first four listed in each table, and the children in the intervention group (children E to H) are the final four listed. The full transcripts of group interviews are in appendix 4.

In their individual interviews all the children indicated that they enjoyed physical activity (see table 2). When asked why they liked it most children replied "it's fun". Some were able to extend their ideas and explain that the activities, equipment and doing things with other people made it fun, e.g.

"because it's fun. You get to do lots of it. There's fun games."
"because it's fun. They are also a bit tricky and I like tricky things."
"because it's fun. I like doing it with other people".
"It's fun running around. We get to use fun equipment".
"It's fun and it's good to do new things".

One child's response reflected that the assumption that all children liked doing physical activities:

"because it's fun. Children like playing activities."
Another child linked enjoyment with an activity being healthy for you:

"I like running. It gets you healthy".

**Table 2: Enjoyment of physical activity:**

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Some children don't like doing lots of physical activity.</th>
<th>Really true for me</th>
<th>Some children enjoy doing lots of physical activity.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Why do you enjoy/ don't enjoy physical activity?**

<table>
<thead>
<tr>
<th>Child</th>
<th>Rating</th>
<th>Reason</th>
</tr>
</thead>
</table>
| Child A| 4      | It's fun  
Because it's fun. You get to do lots of it. There's fun games.                        |
| Child A| 4      | It's fun  
Because it's fun. You get to do lots of it. There's fun games.                        |
| Child B| 3      | It's because they are fun  
Because it's fun. They are also a bit tricky and I like tricky things.               |
| Child B| 3      | It's because they are fun  
Because it's fun. They are also a bit tricky and I like tricky things.               |
| Child C| 4      | It's fun  
Because they are fun.                                                               |
| Child C| 3      | It's fun  
Because they are fun.                                                               |
| Child D| 4      | I don't know  
Because it's fun. Children like playing activities.                                    |
| Child D| 4      | I don't know  
Because it's fun. Children like playing activities.                                    |
| Child E| 4      | Because it's fun. Do lots of different things  
It's fun.                                                                                 |
| Child E| 4      | Because it's fun. Do lots of different things  
It's fun.                                                                                 |
| Child F| 4      | I like running, gets you healthy.  
It's fun running around. We get to use fun equipment.                                        |
| Child F| 4      | I like running, gets you healthy.  
It's fun running around. We get to use fun equipment.                                        |
| Child G| 3      | Because it's fun - I like doing it with other people.                                      |
| Child G| 4      | I like throwing balls.                                                                    |
| Child H| 4      | It's fun and it's good to do new things.  
I like doing some physical activities. I like playing on the playground. Some (activities) are too hard - I don't like those ones and some are not. |
| Child H| 3      | It's fun and it's good to do new things.  
I like doing some physical activities. I like playing on the playground. Some (activities) are too hard - I don't like those ones and some are not. |

The only negative comment any of the children made about physical activity was in relation to activities being too hard:

"I like doing some physical activities... Some are too hard - I don't like those ones and some are not".

In the first group interview most of the children identified the activity as what they liked about physical education, e.g. "I like playing with the balls/ hoops/
frisbees/games. Two children made responses were more generalized, speaking of moving their bodies and being outside:

"Playing lots of games and moving around"
"Playing outside....you can actually do lots of fun things and lots of moving your bodies".

As in their individual interviews when asked about what made these things enjoyable the children's most common reply was "they are fun". Many struggled to explain why they were fun, e.g.

Child B: I like playing games.
Interviewer: Playing games. Why is that?
Child B: Because they are fun.
Interviewer: Why are they fun?
Child B: They are fun to do.

The children who were able to explain why they enjoyed a particular activity had similar responses as given during their individual interview. In addition three children mentioned the fact they enjoyed something because they did the activity outside school:

"because I like going swimming with my sister".
"I like balls because I like throwing them.... I've got one at home".

Data from the individual interviews showed that all the children reported that were involved in and enjoyed a range of physical activities outside school hours. Several children also attributed their ability in a particular physical activity to having done that activity at home:

"I've practiced them before. I have a tramp and skipping rope at home".

When the children were asked about which activities they liked best a range of activities/equipment were named. These included hoops, frisbees, balls,
swimming, moon hoppers, obstacle courses, whirligig (sensory motor equipment), playing games and doing cartwheels. Several times the Asian child spoke of physical activities he had done outside school. When he was reminded to focus on activities done during physical education sessions he struggled to answer. All the children enjoyed playing games as well as doing activities. Five children enjoyed playing games the most, two enjoyed both the same and one child preferred doing activities. Again the children struggled to give a reason for this other than to say they were fun:

"I like playing games... because they are fun"
"I like them both... because they are both fun".

Without exception all the children said that they liked me as a teacher. The only reason they gave for this was the activities I provided for them to do:

"because you make fun activities"
"because we do lots of different activities"

Only one child made a suggestion about what I could do differently to make physical education better. He wanted to be taught how to do cartwheels.

All the children thought that their friends enjoyed physical education. When asked why they thought their friends liked it most of the responses again focused on the fun activities. One child mentioned working together with friends:

"because they might be in your group and you get to choose who you work with sometimes".

During the second interview the children were asked about what they had learnt in physical education that term. Consistent with earlier comments two
of the children in the control group focused on the physical skills/activities they had done:

"have learnt how to throw"
"have learnt how to throw a frisbee"

The other two children did not know what they had learnt. By contrast, the children in the intervention group all focused around being healthy:

"about getting fit"
"about exercising and eating healthy things".
"you have to exercise so you don't get arthritis when you get older".

All the children in this group said that they had enjoyed learning about being healthy. They also thought that the things they had learnt and done in physical education during the eight weeks had helped them get fit. They indicated that they had a greater understanding of the importance of being fit. They thought they had learnt about:

"about how our bodies work and why we need to work after them".
"how to get healthy".

*Fitness*

The children also reported strong positive feelings towards fitness sessions, both before and after the introduction of the new fitness programme:

"running around and racing your friends is fun"
"fun because you do lots of things"
"aerobics is the best because it is fun"
"relays are fun..."

In the initial group interview most of the children struggled to differentiate between fitness sessions and physical education sessions:
Interviewer: What did you enjoy about fitness last year?
Child H: Uhm... well, going through the obstacle courses...
Interviewer: Did you do obstacle courses in fitness last year?
Child H: Remember when you set up the ones in the hall.
Interviewer: That was during P.E. time.

Interviewer: What sort of equipment did you use for fitness?
Child A: Hoops, skipping ropes.
Interviewer: Did you use those for fitness in the morning? Not for P.E.
Child A: No - we didn't really use any equipment for fitness.

When the children were asked what could have made fitness more fun the most common response was to have a greater variety of activities. They also thought it would have been good for the teachers to do fitness with them:

Child E: They (the teachers) could have done it too. That would have been funny.
Child F: Yes, then if you don't know how to do something then the teachers can show you.

In the second interview, after a term of the new fitness programme, most of the children stated that they had enjoyed fitness more this year. The variety of activities was mentioned as being the main reason:

"There are lots of different activities".

Skipping, relays and aerobics were the activities that the children enjoyed most. The intervention group did not think anything could make fitness better. The control group thought that using more equipment such as frisbees and hoops and learning to do cartwheels would make it better.
Table 3: What they think of fitness.

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Some children think fitness is boring.</td>
<td></td>
<td>Some children think fitness is fun.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Why do you think this?

<table>
<thead>
<tr>
<th>Child A</th>
<th>3</th>
<th>So you run around and get healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>I like playing games.</td>
</tr>
<tr>
<td>Child B</td>
<td>4</td>
<td>'Cause it's outside</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Running because it's fun exercise.</td>
</tr>
<tr>
<td>Child C</td>
<td>4</td>
<td>Fun activities</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Skipping - I like jumping over the rope.</td>
</tr>
<tr>
<td>Child D</td>
<td>4</td>
<td>Just is.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Relays are fun because I like with Child B and hitting the Grass with the baton and coming back to friends.</td>
</tr>
<tr>
<td>Child E</td>
<td>3</td>
<td>Sometimes we could do what we liked - I liked that. Sometimes we had to do what the teacher said. Playing tag is fun and aerobics.</td>
</tr>
<tr>
<td>Child F</td>
<td>4</td>
<td>Running around and racing your friends was fun.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Aerobics is the best because it's fun.</td>
</tr>
<tr>
<td>Child G</td>
<td>3</td>
<td>Do lots of things.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>I like skipping best and relays - it's fun.</td>
</tr>
<tr>
<td>Child H</td>
<td>4</td>
<td>Playing on the playground was fun.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Makes me tired. The running one and the one with Mrs R. I'm not so keen on. They make my legs tired. I like the other ones - they're fun to do.</td>
</tr>
</tbody>
</table>
During the second group interview the children were asked why they thought we did fitness at school. Two children in the control group responded. One child said to keep fit and the other said to keep healthy. Two children from the intervention group also mentioned getting healthy. One child added:

"because you might have mothers and fathers at home that don't even think about getting fit".

All the children thought that it was also important to do physical activities at home as well as school.

**How competent do Year 2 children perceive themselves as being, and how much effort do they give, with regard to physical activity and fitness?**

*Ability*

Findings from the interview data indicated that the children gave high self-perceptions of their ability to do physical activity and sport. All the children rated themselves at either three or four on the initial scale. There was little variation between the initial and final interviews. The children all related success to their performance outcomes. They were successful because they could do various activities:

"because the things I've done before are easy".
"because I do lots of things".
"because I'm fast (at running)".

The children gave a range of reasons for their ability in physical activities, many relating their ability to effort or previous experience.

"used to go to gym and that helped me to balance".
"done them before and have practiced".
"because the people who are better try really hard and the other's don't".
One child implied that it was natural for him to be good at physical activities:

"Don't now - just are".

When the children were asked why they thought some children were better at physical activities similar themes emerged. The main underlying themes in this category included amount of practice, behaviour in class and whether or not the children had done the activity before. For example:

"the ones who aren't very good haven't practiced and the ones who are have practiced and have done different things".
"because they have done it before and the other children haven't and they don't know what to do".
"people who aren't good are slow and don't listen".
"maybe they aren't used to running and we are doing a really long run. Long to them but short to us".

One child specifically mentioned effort in relation to ability:

"because the people who are better try really hard and the other don't"
<table>
<thead>
<tr>
<th>Child</th>
<th>3</th>
<th>I've done it lots of times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>Some people are little, some people are big. Big people know more than little people.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child B</th>
<th>4</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>Because I try really hard.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Because the people who are better try really hard and the others don't.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child C</th>
<th>3</th>
<th>Went to gym when at pre-school - balancing &amp; stuff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>Used to go to gym and that helped me to balance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Because they have practiced a lot.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child D</th>
<th>4</th>
<th>Because I do lot of things.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Because I like playing with balls and hitting them and doing activities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child E</th>
<th>3</th>
<th>Done them before and have practised.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>I've practised them before. I have a tramp and skipping ropes at home.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) The ones who aren't very good haven't practiced and the ones who are have practiced and done different things.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child F</th>
<th>3</th>
<th>'Cause the things I've done before are easy.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>'Cause I've done it before.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Because they have done it before and the other children haven't and they don't know what to do.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child G</th>
<th>3</th>
<th>'Coz I'm fast (at running).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>People who aren't good are slow and don't listen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Don't know.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child H</th>
<th>4</th>
<th>Don't know - Just are.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Some of them I don't like. Some I like - obstacle courses - going through obstacles and jumping things and stuff. It's fun to do.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Don't know.</td>
</tr>
</tbody>
</table>
**Effort**

As in the ability category the interview data indicated that the children gave high self-evaluations in regard to the effort they make to do physical activity. Seven of the children said that they could do physical activities easily, rating themselves at either three or four on the initial scale. Out of these seven only one child changed their score between the initial and final interviews, from a three to a four. The remaining child selected a two, indicating that he felt that he did have to try hard at times. In the initial interview he was not able to explain why this was true. In the second interview he increased his score to three and explained:

"it's really hard to do some of it. Like trying to get the ball on the field. It's really hard with all these fast runners that don't get puffed'.

The responses the children gave when asked why some children had to try harder than others to complete physical activity elicited very similar responses to the reasons they gave for differences in ability. When asked why some children needed to try harder to do physical activities the most common responses were:

"because they haven't done it before".
"because they haven't been practising".
"because I listen to what we are doing".

One response, as in the ability category, indicated that effort and ability are linked:

"Some people are not good at it".

Another related need for effort with a physical characteristic:

"some people are littler so it's harder".
Table 5: Effort required to do physical activities.

<table>
<thead>
<tr>
<th></th>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some children have</td>
<td>1</td>
<td>2</td>
<td>Some children can</td>
<td>3</td>
</tr>
<tr>
<td>to try really hard</td>
<td></td>
<td></td>
<td>do all physical</td>
<td>4</td>
</tr>
<tr>
<td>to do physical</td>
<td></td>
<td></td>
<td>activities easily.</td>
<td></td>
</tr>
<tr>
<td>activities well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Why do you think this is true?

| Child A               | 4 | Some people are littler so it's harder |
|                      |   | Some people haven't done it much      |
|                      | 4 | Don't know.                           |
| Child B              | 4 | People who listen to instructions can |
|                      |   | do it well.                           |
|                      | 4 | I listen to the instructions properly | |
|                      |   | and don't do silly things.            |
| Child C              | 3 | 'Cause they haven't been practising.  |
|                      | 4 | Don't know.                           |
| Child D              | 4 | Don't know                            |
|                      | 4 | Don't know                            |
| Child E              | 3 | Children who struggle haven't       |
|                      |   | practiced before or                  |
|                      |   | Haven't learnt how to do it.         |
|                      | 3 | To get them right - once I can do    |
|                      |   | them they are easy.                   |
| Child F              | 4 | 'Cause they haven't done it before.  |
|                      | 4 | Because I listen to what we are doing.|
| Child G              | 3 | Some people are not good at it.       |
|                      | 3 | Don't know.                           |
| Child H              | 2 | Too hard to answer.                   |
|                      | 3 | Not - it's really hard to do some of |
|                      |   | it - like trying to get the ball on  |
|                      |   | the field - it's really hard with all |
|                      |   | these fast runners that don't get    |
|                      |   | puffed.                               |

35
How do Year 2 children explain the importance of physical activity?

Consistent with the previous categories the children scored themselves with a three or four, indicating that they all thought they tried hard during fitness sessions. The scores on this question varied little for either group between interviews. Three children in the intervention group and one child in the control group moved from three to four, indicating that they thought that they had increased the effort they put into fitness during the term.

The reasons given for the importance of fitness by both groups before the teaching intervention tended to be vague. Three children replied that they did not know why fitness was important. Other children mentioned that it was important because to kept you healthy, strong and fit:

"Get you fit and healthy and strong".
"To keep us healthy".

The control group gave similar reasons during the second interview. One child who had said that they did not know responded that it made you fit and healthy while another child added that fitness "helped you be able to lift things". The children in the intervention group all gave more detailed answers during the second interview. They mentioned the benefits for specific body parts such as heart, lungs, muscles and joints as well as fitness being good for your overall health:

"because it helps our bodies. We are using our muscles and joints. Makes them stronger. It makes your heart and lungs stronger".
"So you won't get fat. Get strong bones and joints so when we get old we won't get sore arms. Make our hearts pump the blood faster".

36
### Table 6: Effort during fitness

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Some children don't try very hard during fitness because they don't think fitness is important.

Some children really try hard during fitness because they think fitness is important.

### Why do you think fitness is important / not important?

<table>
<thead>
<tr>
<th>Child</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>4</td>
<td>Don't know</td>
<td>'Cause you get healthy and fit.</td>
<td></td>
</tr>
<tr>
<td>Child B</td>
<td>3</td>
<td>Don't know</td>
<td>Because it helps you to be able to lift things.</td>
<td></td>
</tr>
<tr>
<td>Child C</td>
<td>4</td>
<td>To keep us healthy</td>
<td>'Cause it makes you healthy.</td>
<td></td>
</tr>
<tr>
<td>Child D</td>
<td>3</td>
<td>Don't know.</td>
<td>Don't know.</td>
<td></td>
</tr>
<tr>
<td>Child E</td>
<td>3</td>
<td>Get healthy.</td>
<td>So you get healthy. Exercising you heart.</td>
<td></td>
</tr>
<tr>
<td>Child F</td>
<td>3</td>
<td>If you don't listen you don't know what to do</td>
<td>Because it helps our bodies. We are using our muscles and joints - makes them stronger. It makes your heart and lungs stronger.</td>
<td></td>
</tr>
<tr>
<td>Child G</td>
<td>4</td>
<td>You need to get strong. We need to get fit.</td>
<td>Because it gets you fit and helps your muscles come strong so we can get more strong.</td>
<td></td>
</tr>
<tr>
<td>Child H</td>
<td>3</td>
<td>Get you fit &amp; healthy &amp; strong.</td>
<td>So you won't get fat. Get strong bones and joints so when we get old we won't get sore arms. Make our hearts pump the blood faster.</td>
<td></td>
</tr>
</tbody>
</table>

There was a much larger range in the scores given when the children were asked whether or not they got puffed during physical activity. The results from the initial interview included one child scoring a four, with two children scoring a three, four children scoring a two and one child scoring a one. The indication here is that the children were willing to acknowledge that they struggle in this area. Although several children made changes to their scores in the second interview, there was no consistent trend. In the control group two children's score remained the same with one child dropping from four to
two and the other child moving from one to two. In the intervention group one child remained the same with two children moving to a score one higher and one child decreasing his score by one.

The variation was also evident in the range of responses the children gave for why they got puffed. One child did not know, four related getting puffed to being tired or running out of energy, two talked about how you got puffed or what to do when it happened, another explained that it meant you were not fit enough:

"because your legs get tired and they feel like they're going to drop off and just want to stop for a while".
"need a drink of water because your kept running around".
"because you run out of energy".
"it means you are not fit enough".

In the control group there was very little change in individual's answers between the initial and second interviews. Once again the intervention group gave more detailed and accurate responses during the second interview. All four children explained that you got puffed because your heart had to work harder:

"when you get puffed it means that your heart is working hard to pump blood around your body really fast".
"your heart pumps blood really fast".

Evidence of a greater understanding of what happens to our hearts during aerobic activity was also given during the intervention's group second group interview. When asked what they had learnt in physical education this term, one child responded:

"Making your heart go fast and slow".
Table 7: Getting puffed

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Some children get puffed easily when they do physical activity.</td>
<td>Some children can do lots of physical activity without getting puffed.</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Can you tell about how getting puffed makes you feel?

Why do you think you get puffed?

<table>
<thead>
<tr>
<th>Child</th>
<th>4</th>
<th>It means you are not fit enough</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td><strong>Feel tired. Because you haven't done much exercise.</strong></td>
</tr>
<tr>
<td>Child B</td>
<td>3</td>
<td>'Cause I'm tired</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td><strong>Tired because sometimes I go too fast.</strong></td>
</tr>
<tr>
<td>Child C</td>
<td>1</td>
<td>Need a drink of water 'coz keep running around</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td><strong>Needs heaps of water because I kept running.</strong></td>
</tr>
<tr>
<td>Child D</td>
<td>2</td>
<td>Don't know</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child E</td>
<td>2</td>
<td>When I'm tired. Don't know why I get puffed.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td><strong>Feel tired. Because you run fast or run a long way and your heart pumps blood really fast.</strong></td>
</tr>
<tr>
<td>Child F</td>
<td>2</td>
<td>If you run too fast you get puffed</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td><strong>Like you haven't got enough breath. Because have been running around. When you get puffed it means that your heart is working hard to pump blood around your body really fast.</strong></td>
</tr>
<tr>
<td>Child G</td>
<td>3</td>
<td>'Cause you run out of energy.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td><strong>Feel tired. Because your heart is working hard.</strong></td>
</tr>
<tr>
<td>Child H</td>
<td>2</td>
<td>'Cause your legs get tired &amp; they feel like they're going to drop off &amp; you just want to stop for a while.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td><strong>Really tiring. Our heart is going to hard/fast. We have to stop running.</strong></td>
</tr>
</tbody>
</table>

39
In the initial interview all the children, except one, responded with a score of three or four indicating that they thought they did a reasonable amount of physical activity. They were able to give examples of a range of physical activities they did outside school. These included biking, swimming, playing an outside game, on a playground or on a trampoline, or going to the beach. For seven of the children there was little variation between the scores and examples given in the initial and second interviews. The remaining child, from the intervention group, changed his score from a four to a one. He also made the same change in responses to how much choice of activity he got after school. Saying initially that he got complete freedom of choice to saying that his parents decided for him. He explained:

"I don't have any (physical activity) to do. Mum and Dad never let me. After school we have a bath and play playstations".

This response seems to be a more accurate reflection of this child's physical activity than the previous score of four that was inconsistent with other responses given during the initial interview. When asked to choose what activities he would do after school, this child selected play-station for every time slot. In the second interview he did include four physical activities slots (out of fourteen) to his choices.
### Table 8: Amount of physical activity:

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Some children don't do much physical activity. Some children spent lots of time doing physical activity.

Some examples of physical activities you do at home.

<table>
<thead>
<tr>
<th>Child A</th>
<th>3</th>
<th>Swimming lessons, bike, scooter, playground, Play hopscotch/ leap frog/ tag.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td><strong>Playground</strong></td>
</tr>
<tr>
<td>Child B</td>
<td>3</td>
<td>Bike at Bottle Lake, scooter, play cricket</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td><strong>Bike, scooter, play cricket</strong></td>
</tr>
<tr>
<td>Child C</td>
<td>3</td>
<td>Go swimming, trampoline, walking, go to the beach.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td><strong>Frisbee, trampoline.</strong></td>
</tr>
<tr>
<td>Child D</td>
<td>3</td>
<td>Walk to the shops</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td><strong>Walk</strong></td>
</tr>
<tr>
<td>Child E</td>
<td>2</td>
<td>Bike, go on the monkey bars, running, skipping</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Swimming, trampoline, walk to the staples.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td><strong>Running, jungle gym, trampoline, bike, skip.</strong></td>
</tr>
<tr>
<td>Child F</td>
<td>4</td>
<td>Bike, go to the playground, Walk to school, running games.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td><strong>Bike, scooter, roller blading.</strong></td>
</tr>
<tr>
<td>Child G</td>
<td>3</td>
<td>Sometimes beach, bike, walk around the block/ to shops, Scooter, play with Dad and a ball.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td><strong>Bike riding, scootering, helping Dad fix the fence.</strong></td>
</tr>
<tr>
<td>Child H</td>
<td>4</td>
<td>Obstacle courses, running games, scooter, walk to park.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>I don’t have any to do. Mum and Dad never let me. After school we have a bath and play playstations.</td>
</tr>
</tbody>
</table>

41
Apart from the previously mentioned child, the remaining children all said that they had some choice in what activities they did after school. Three children scored a two while the other four scored their freedom to choose at a three. There was little variation in these scores and no consistency within the two groups between the initial and second interviews.

As expected the children gave a range of responses when they were asked to give their preferred activity for two hours everyday for a week (14 individual time slots). The child mentioned earlier was the only one who selected only one activity, play-station, for the entire fourteen time slots. All the other children selected from a range of non-physical and physical activities. For these children the number of physical activities selected ranged from three to eleven slots out of fourteen. In the initial interview six of the children selected to do non-physical activities for more the half the time slots. The preferred activities for these children included watching television, using the computer or playing on the playstation. There was little variation between interviews in the number of physical activities selected. Three children's number of physical activity slots remained the same, two increased and three decreased by one. Apart from the child mentioned separately the remaining children in the intervention included more physical activities in their choices in both interviews than did the children in the control group. Their physical activity choices ranged from eight to eleven slots.
Table 9: Allowed to choose what they do after school.

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Some parents tell them what they are going to do after school. Some children are allowed to choose what they do after school.

Child’s choice of activity - if allowed to choose what you would do after school for 2 hours everyday for a week.

Number of physical activities (out of 14)

<table>
<thead>
<tr>
<th>Child A</th>
<th>2</th>
<th>2</th>
<th>5/16</th>
<th>5/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child B</td>
<td>3</td>
<td>4</td>
<td>3/16</td>
<td>4/16</td>
</tr>
<tr>
<td>Child C</td>
<td>3</td>
<td>2</td>
<td>7/16</td>
<td>7/16</td>
</tr>
<tr>
<td>Child D</td>
<td>3</td>
<td>3</td>
<td>7/16</td>
<td>6/16</td>
</tr>
<tr>
<td>Child E</td>
<td>2</td>
<td>3</td>
<td>10/16</td>
<td>9/16</td>
</tr>
<tr>
<td>Child F</td>
<td>2</td>
<td>3</td>
<td>11/16</td>
<td>11/16</td>
</tr>
<tr>
<td>Child G</td>
<td>3</td>
<td>3</td>
<td>9/16</td>
<td>8/16</td>
</tr>
<tr>
<td>Child H</td>
<td>4</td>
<td>1</td>
<td>0/16</td>
<td>4/16</td>
</tr>
</tbody>
</table>

Knowledge of health related physical activity concepts.

There was wide variation between individuals in relation to the knowledge they had regarding physical activity. This was particularly evident in the initial interviews. There was little evidence that the control group showed any greater understand in the second interview. In contrast the children in the intervention group were all able to more detailed and accurate answers during the second interview. The children's complete responses to these questions are in appendix 5.
**Question One:** What do you think it means to be fit?

The main themes given in answer to this question during the initial interview focused on doing lots of exercise, being healthy and strong and running:

"lots and lots of exercise".
"being healthy and strong".

In the second interview three of the children from the control group said they did not what it meant to be fit. The other child replied:

"so you are thin".

The intervention group made mention of specific body parts, such as muscles and hearts, and related being fit to being healthy:

"to be healthy, to have strong muscles. So your heart works well".
"to be the right shape - not too skinny, not too fat. Makes our bodies healthy and strong".

**Question Two:** Why do you think it is important to keep fit?

Five children answered "don't know" to this question in the initial interview. One child related being fit to helping your muscles and body grow, while the remaining two children made associations with body weight or shape:

"helps your muscles grow and your body grow".
"so you don't get fat and if you are fat you can't run fast".

In the second interview two of the children in the control again answered that they did not know why it was important to keep fit. The other two children from this group mentioned "getting strong" and not becoming fat. The children from the intervention offered a wider range of answers. They talked
about keeping your heart, joints and bones healthy, not getting sick, staying healthy when you are older as well as not getting fat:

"helps our muscles, makes joints stronger so when you grow up you don't get arthritis".
"so we don't get sick".
"your heart and bones can be healthy and don't get stiff".

**Question Three:** What are 3 things you could do to keep fit?

All the children, apart from the Asian boy, were able to answer this question. Two children included eating healthy foods as well as exercising in their answer. Most of the activities named were things that the children themselves would do, such as riding a bike or scooter and running or walking. Running was the most common response. The most creative was "using my hands on the play-station". There was no difference between the control group and intervention in the responses to this question in the second interview.

**Question Four:** What does it mean to be healthy?

In the initial interview all the children who made responses defined being healthy by actions, such as playing games, doing exercise and eating and drinking healthy things. Four children mentioned eating fruit and vegetables. In the second interview all four children in the control group answered "don't know" to this question. Three children in the intervention group again made responses that focused on how to keep healthy:

"keeping our bodies fit. Make your heart strong so it doesn't stop pumping".
"eat fruit and vegetables. Do some physical activity".
The fourth child stated:

"to have a healthy heart, brain and muscles. Eat fruit and vegetables, drink water and do physical activity".

**Question Five: What does your heart do?**

Most of the children had a good basic understanding about what their heart did. In the initial interview six of the children responded that their hearts pump blood around their bodies. One of the other children did not know what their heart did and the other child, the answered:

"it makes you feel good".

Both these two children were in the control group. In the second interview the first child changed their answer to "it beats" and the second child responded "don't know". All the other children's responses was the same as those from the initial interview.

**Question Six: How can you keep your heart healthy?**

Like the previous question eating healthy food, particularly fruit and vegetables, was the most common response for this question during the initial interview. One child also mentioned drinking milk and another child added drinking milk. In the second interview two of the children from the control group once more talked about healthy food and the other two said they did not know how to keep their heart healthy.
Two of the children in the intervention also mention healthy eating but all four children also included the need for physical activity:

"exercising it (heart) - running, skipping and relays".
"playing games and eating healthy food".

**Question Seven: Why do you have muscles?**

All the children responses from the initial interview focused on having muscles to make us strong:

"so we can be strong"
"so we don't get weak and can't lift things up".

This theme continued in the two children from the control group who gave answers in the second interview. The other children responded that they did not know what muscles did. The children extended these ideas to include the role muscles had in moving our bones and heart:

"to make our joints move and our heart".
"muscles move our arms and legs"
"if we didn't have muscles we would have to drag ourselves along".

**Question Eight: How can you look after your muscles?**

The children gave a range of answers to the question how do we look after our muscles. These included drinking milk, not lifting heavy things and exercising. The two children from the control who gave responses during the initial interview repeated the same answers during the second interview. The children in the intervention all named several ways to look after your muscles
in the second interview. These included exercising, eating healthy food, drinking water, warming them up and doing stretches.

Question Nine:

Which of these things are important to do or have to stay healthy?

1. Eat lots of fruit.
2. Watch lots of television.
3. Do physical activity regularly.
4. Get lots of sleep.
5. Drink lots of fizzy drink.
6. Stay up late all the time.
7. Enjoy playing with your friends.
8. Eating lots of cakes and lollies.
9. Have fun with your family
10. Being busy all the time.

Most of the children showed a good understanding of what helped you be healthy when ideas were extended to include emotional, mental and social health. In the initial interview four children made all the correct responses. Three children made one incorrect response; two thought eating lots of fruit was not healthy and the other thought watching lots of television was healthy. The Asian child responded positively to all the statement, indicating that he thought that they were all healthy options. In the second interview all the children in the intervention gave the correct answers. Two children from the control group gave one incorrect response. One child thought that it was healthy to do busy all the time and the other child repeated his response from the initial interview, stating that he thought it was healthy to watch lots of television. The Asian child also repeated the responses he gave during the initial interview.
Discussion

As stated at the outset, the intent of this study was to examine what views Year 2 children hold about physical activity, how they perceive their own ability, and how much effort and importance they give to physical activity. An additional purpose of this study was to see whether a physical education intervention would change the children's perceptions, choices and knowledge in regard to physical activity.

As the children in this study shared their perspectives on physical activity at school it became apparent that they all shared positive views towards both PE and fitness. Previous research has shown that while most students enjoy PE there are a few who find it boring and irrelevant. The enjoyment of PE seen in this study is consistent with the findings in the NEMP report (1998) which showed New Zealand Year 4 and Year 8 children named PE as their favourite subject. McGowan (2000) also found in her study that all students had positive attitudes towards PE. In contrast Burkhalter & Wendt (2001) and Morey & Karp (1998) reported that they found that many students felt alienated during PE. Halas (2002) found that girls often had negative experiences during co-educational PE classes. One purpose of this current study was to examine attitudes towards PE. In this study all the children reported enjoying PE. There was no difference in the responses between the girls and boys nor was there any mention of the opposite sex effecting their experiences in PE.

From the responses the children gave it was difficult to create a clear or detailed picture of why they enjoyed PE. In some ways, the things the children did not say give as much insight into why their experiences in PE are
positive as what they did say. There was only one potentially negative comment recorded in all the interview data. One child mentioned that he found some of the activities difficult. Another child made the assumption that all children enjoy physical activity. Both these findings indicate the children in this study have little or no negative experiences associated with physical activity at school.

Carlson (1995) proposes a model to help explain the process through which students view their experiences in PE. It includes extrinsic and intrinsic factors. The extrinsic factors include the teacher's personality and behaviours, the curriculum/programme, class environment and out of school influences. The intrinsic factors focus on the child's ability, their self-esteem/self-perception and their beliefs. In the next part of this discussion Carlson's model will be used as framework to discuss the relevant results from this study.

Many studies have shown that teachers play a vital role in ensuring their students have positive experiences of physical activity (Corbin, 2002; Corbin & Pangrazi, 1999). This also appears true in this study. The teacher's role is multifaceted, controlling many of the extrinsic factors in PE yet still influencing the intrinsic factors involved. The lead researcher/teacher in this study made a conscious effort to be effective in this role, taking the time to consider the factors involved, to ensure that children's experiences of PE were positive. This role included creating a positive environment (Helion, 1996), developing and running relevant sequencial programmes (Duda, 1996), being interested in the children as individuals (Carlson, 1995), interacting with them in a positive way (Halas, 2002) and being a good role model for them (Cothran & Ennis, 1999).
Although the children in this study do not mention their PE environment, Helion (1996) believes that providing a safe, supportive, interactive and exciting environment in which physical activity happens, is a prerequisite for students enjoying PE. Portman (1995) found that students liked physical education when they felt involved, interested and able to achieve success.

The children's responses from this study also highlighted the importance of teachers' role in providing a variety of interesting activities at an appropriate level in their programmes. The interview data strongly showed that the activities were one of the keys to the children's enjoyment of PE and fitness. A range of activities and games, as well as a variety of equipment were linked to PE being fun. These results parallel Groves and Laws' (2000) findings. They reported that students named the activity, and their response to it, before anything else was considered. In their study with older children, Chung & Phillip (2002) reported a difference in the responses given by boys and girls when they were asked what made PE enjoyable. The boys tended to focus on the activity while the girls emphasised the social aspect. There was no evidence of this trend being present with these Year 2 children. In fact the only two comments made regarding a social aspect of PE, were made by boys.

Once again, despite the lack of comment by the children in this study regarding the social aspects, earlier studies have shown very clearly that the action and reactions of peers and teachers effect how a student experiences a lesson. Whether this is in a positive or negative way, each will have an effect on a child's responses, both behaviourally and mentally (Groves & Laws, 2000). Cothran & Ennis (1999) believe that for PE programmes to be successful they must address young people's need for relevance and connection. In this study the children made positive remarks about the teachers involved in both the PE and fitness programmes. They also said that they thought all their
friends like physical activity. Both these findings indicate that these children felt safe and supported in the physical activity environments at school and that they assumed their friend did also.

Without exception all the children said that they liked their PE teacher. Unlike in the study done by Tannehill et al. (1994) the children in this study were not able to attribute their liking of the teacher to personality or to the way the teacher interacted with them. In this study the discussion focused solely on the teacher as the provider of fun activities. This may have been due to the fact that the children were younger than those children in the Tannehill et al. (1994) study or because the lead researcher doing the interviewing was also their teacher.

The children's responses indicated that they thought that physical activity was important. Several children linked their responses to physical activity, including their own ability, to experiences they had had outside school, often at home. This result provide support for the notion put forward by Groves and Laws (2000) who found that physical education was likely to provide a more positive experience if children could relate it to their learned associations and behaviour outside of school. This study did not examine the important link between children's views of physical education with that of their parents. Studies carried out overseas have shown that parents and families have a significant influence on children's view and habits regarding physical activity (Kimiecik et al., 1996). This is an area where further research specific to New Zealand would be valuable.

It is important for teachers to understand the beliefs the children already hold towards physical activity. This includes what messages they are receiving and habits they are forming from home. In this study the children all said
that they thought physical activity was important and indicated that they did a reasonable amount of physical activity outside of school. However for several of the children this was not reflected in the choices they made when they were able to select the activities they would like to do after school. Six children selected activities that did not require them to be physically active for less than half the available time slots. These children's activity choices did not reflect the belief of the importance of regular physical activity. For many of the children watching television, using the computer or playing on the playstation were their most preferred activities. Virgillo (1997) believes it is important for teachers to promote and encourage children to be physically active with their families and outside the school. This message was part of the intervention teaching and was reflected in some of the responses given by the children in the control group during the second interview.

How children perceive their ability, their self-esteem and the beliefs regarding physical activity all affect how they view physical activity and consequently how much effort they apply to it. The children in this study gave high self-perceptions of their ability to do physical activity and sport. This result was somewhat expected as they paralleled trends which are present in earlier research (Xiang, Lee & Williamson, 2001; Fry, 2000; McKiddie & Maynard, 1997; Weiss et al., 1997). These studies showed that young children are often inclined to be overly optimistic about their own abilities, with their perceptions becoming more realistic as they get older.

The children's responses indicated that they were task orientated, as they believed that ability could be developed with effort and persistence over time and could be judged in a self-referenced manner. Most of the children in this study interpreted their own success as being influenced by past experience or effort. Their responses also implied a belief that unsuccessful peers could
improve their performance if they tried harder. Similar to the findings by Lee et al. (1995) the children in this study made it clear in their explanations that the poor students could improve their ability if they could manage their own behaviour, listen more carefully to the instructions and show more persistence and effort during PE.

It is thought that younger children are more likely to rely more on the evaluative feedback from significant others to judge their competence while older children tend to access their own ability in terms of social comparison (Fry, 2000). The children in this study made no mention of their performance in relation to other children in the class. As in Burkhalter & Wendt 's study (2001) the interview data from this study did not indicate a difference between the boys and girls in regard to their perceptions of competence. A number of earlier studies documented that boys perceived themselves higher in competence than girls (Eccles et al., 1989 as cited by Burkhalter & Wendt, 2001; Harter, 1982).

It was interesting that the children were able to give a much more accurate response about getting puffed. In the initial interview seven of the children said they got puffed and they all said that they got puffed sometimes. This may be due to the fact that it is much easier for them to judge whether or not they are puffed as it is a physical thing. It would also seem that these children do not seeing being puffed as a measure of fitness. Although one child did link being puffed with not being fit enough, most of the children's responses indicated that they did not see getting puffed as a measure of fitness, particularly not in relation to others.

Results from various sections of this study showed that these children have not yet reached a stage where social norms and comparisons affect their self-
perceptions of their ability. This would suggest it is important for teachers to identify key motivational factors associated with physical activity for children of differing ages and work to develop children's perceptions of their ability so they are realistic (Harter, 1982). How these children perceive their ability and define success as they get older will influence their achievement motivation. Harter (1982) suggests that children experience negative consequences from inaccurate perceptions of ability. To encourage the children in this study to develop realistic self-perceptions the teacher provide a task orientated learning environment. She uses instructional strategies that encourage the children to become intrinsically motivated and to develop a mastery view of learning. These strategies include defining success as achieving individual performance goals, evaluating students on mastery or skill development rather than ability and discouraging the social comparison process.

The interview data strongly linked the enjoyment in PE to the children's concept of it being fun. This finding is consistent with the results in the studies carried out by Tannehill et al. (1994) and Tannehill & Zakrajsek (1993). Tannehill et al. (1994) found that when students were asked what they most valued about physical education the greatest proportion answered fun/enjoyment. Unlike the current study their students also mentioned teamwork and fairness as being significant factors. Again this might have been due to the age difference between the subjects in the two studies, with the students in the Tannehill et al. (1994) study being several years older. Tannehill & Zakrajsek (1993) reported that their data suggested that students liked PE for the fun and enjoyment they derive from it.

There has been much debate about the concept of fun and its place in PE programmes (Griffin, Chander & Sariscsany, 1993) even though students, as in this study, and teachers often see fun/enjoyment as an important part of
PE. O'Reilly, Tompkins and Gallant (2001) found that it was common for students to use the word to predict or evaluate the worth of activities in which they engage. The children in this study also did this. The concern arises when 'having fun' is used only as a short-term extrinsic form of motivation (Griffin et al., 1993). Even though the researcher/teacher in this study believed that it was important for the children to enjoy PE, she did not consider the children having fun as a primary goal of her programme. Her goal was to foster student learning so they gained intrinsic satisfaction from their participation in physical activities. The teacher worked to provide a safe environment with a varied and appropriate programme through which the children could develop their physical skills and fitness levels, be challenged, learn to relate to others and learn how to work independently and in a team. The children's responses in the study strongly show that such a PE programme can result in the participant's enjoyment.

The responses the children gave during this study gave some interesting insights into the promotion of physical activity in primary schools. Like Burrows et al. (2002) this study showed that it is important for teachers to understand the meaning children already hold towards fitness. The findings also supported the notion made by Corbin et al., (2000) that physical activity should be promoted rather than physical fitness. Even though the children in this study found it hard to differentiate between fitness and physical education the concepts taught in the intervention programme helped them put fitness into a wider context. Making links between fitness and the PE and health subject areas seemed to increase the likelihood of the children gaining a broader understanding of the importance of health related physical activity.

The lead researcher was surprised that all the children in this study reported that they enjoyed fitness. Her own experience and previous research lead her
to expect that some children would report that they found fitness a negative experience. Graham (1995a) summarizes several studies that report that children do not enjoy fitness, particularly when it involves fitness testing. Tannehill et al. (1994) noted a frequent and alarming trend of students responses reflecting a negative attitude towards fitness, throughout their research. Furthermore, the children's responses in this study indicated that they enjoyed fitness even before the new programme was implemented. They did report that they liked the variety of activities in the new programme more than what they had done for fitness. The enjoyment of the old fitness may have been due to the children being young enough to see any physical activity, especially when it was done outside, as enjoyable. Even if this being the case, there still remains a challenge for teachers to ensure their student's are actually developing positive views towards physical activity and are not just doing the activity for the fun of it. Further research considering how children's views of fitness change and what factors effect these views as they get older would extend our understanding in this area.

The conceptions of health related physical activity voiced by these children during their initial interview showed a lack of knowledge, or at best an incomplete understanding. While there were a few general areas of accurate knowledge (e.g. exercise is good for you), these lacked any specific knowledge about why exercise is important to maintain a healthy body. These results reflect the findings reported by Placek et al. (2001). They found that their students also thought exercise was good for you yet they displayed little knowledge of fitness specifics. Placek et al. (2001) concluded that it is important for children to be taught the concepts relevant to health related activity. This study showed that the eight-week teaching intervention programme was successful in increasing the children's physical activity related knowledge. During the second interview the children who had been
involved in the teaching intervention were able to give more accurate and
detailed responses for the knowledge questions. This supports Graham's
(1995b) notion that it is possible for young children to be taught the purpose
of physical activity and PE when it is well communicated.

Older students in previous studies have equated fitness with appearance and
looking good (Burrows et al., 2002; Placek et al., 2001). They consistently
evaluated the effects of an exercise programme by assessing weight loss. In
the NEMP (1998) report both Year 4 and Year 8 students stated that the prime
benefit of fitness was good health, followed by enhancing sporting capability,
with body image in third place. During the initial interview, in this study,
five children did not know why keeping fit was important, one child spoke of
growing your body and muscles and another child mentioned not getting fat.
The only mention of body image in the interview data came during the focus
on fitness when one child equated fitness with being thin. The teaching
intervention included a session on individual differences, considering how
individuals respond differently to exercise and why people have different
body shapes. This teaching came out in the responses during the second
interview when one child mentioned that one of the reasons it was important
to get fit was so you were not too skinny or too fat. The other children in this
group also demonstrated things they had learnt during the intervention
programme. They focused on keeping different body parts healthy, not
getting sick and continued good health as they got older. Again this
emphasises the need for teachers to teach the appropriate concepts and to be
aware of the messages students are receiving regarding physical activity as
they get older. It would seem that there is a need for students not only to be
taught the knowledge but how to think critically about relevant issues, as
couraged in the new curriculum.
One of the things the children were confident about was the need to eat healthy food. This is consistent with findings outlined in the NEMP (1998) report, in which 78% of the Year 4 children answered food and diet when asked what the most important attribute was to maintain health. Over half the students in this study mentioned that having a healthy diet was being important to remain healthy. This trend may reflect the emphasis placed on healthy eating being taught as part of the health curriculum in many schools. Burrows et al. (2001) raise the concern that the Year 4 and Year 8 students in the NEMP study make the assumption that healthy eating will lead to a person being healthy. In this study the area of healthy eating was presented in the wider context of healthy lifestyles.

Most of the children in this study had a good understanding of what their heart did. This was covered in the Life Education programme they had been involved in the year before. In the initial interviews many of them did not know how to keep their heart healthy, what your muscles do and how to look after them. The teaching intervention effectively increased the children knowledge in all these areas. The final question was designed to gain understanding on how well the children understood the broader notions of health including the mental, social, emotional and spiritual aspects. The way the question was presented meant most of the children could easily give the correct answer. The fact that most of the children gave the correct answers in the initial interview meant that the lead researcher was unable to detect any differences that the intervention teaching may have produced.

One child, the Asian boy (Child D) for whom English was his second language, did not answer many of the questions and struggled to explain himself during the group. It would seem that despite his English being very good, he had trouble expressing his own views in it.
The limitations of the study should be recognised. First, this study was done on a very small sample of children taken from a homogeneous population. The sample did not reflect an even distribution among either ethnic or socio-economic groups of New Zealand Year 2 children. However, the children in this sample displayed many of the characteristics common to children of this age and year level at school. As mentioned earlier, it would also be helpful to study a wider cross-section of children at different ages as it would seem that the children's views of physical activity and the things that influence them change as they get older. Despite this, the information gleaned from the data should draw teachers' attention to the issues related to the promotion of health related physical activity.

Second, the fact that the lead researcher was also the PE teacher may have affected the study in both negative and positive ways. It may have limited or influenced the honesty of the responses the children gave during their interviews, particularly in regard to the question about their liking of the teacher. On the other hand the children were familiar with their teacher. This meant there was no anxiety attached to the interviews and they willingly accepted the teaching intervention as part of their normal PE programme.

Third, the study investigated only a relatively short teaching intervention and only used data that was collected soon after the teaching intervention concluded. This study would have benefited from additional data being collected at a later time to enable the researcher to see if the benefits from the teaching intervention remained over time.
Conclusion

The idea that a physically active lifestyle can be carried over from childhood to adulthood is an oft-stated goal of physical education but the SPARC (2003) report and the results of this study raise concerns about whether this goal is being realised in New Zealand today. Despite the clear guidelines in the Health and Physical Education Curriculum there would appear to be a need for primary schools as well as individual teachers to review how they promote physical activity within their physical education programmes and in the wider context of the school.

Many factors impact on the effectiveness of programmes promoting physical activity in schools. The results from this study suggest that it is important for students to have the complete picture of what it means to be healthy, particularly linking the concept of fitness into the PE and Health subject areas.

PE teachers are undoubtedly the key players in efforts to promote physical activity to young people. Teachers need to create environments that support the creation of positive attitudes and confidence in children towards physical activity. They need to be active in their efforts to develop and run PE programmes that teach the knowledge, build the habits and develop the behavioural skills associated with being a life-long active person. It is essential that teachers see assisting today's young people to become more active as an on-going challenge. Students need to understand why regular physical activity is so important for them, both now and in the future, as well as learning to take some of the responsibility for their own physical activity level even as children.
Bibliography


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Appendix 1: Outline for Individual Interview

Name: 

Date: 

Attitude

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*Physical activity = playing games outside, riding a bike, playing in the playground, going for a walk

Why do you enjoy / don't enjoy physical activity?

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Why do you think fitness is important / not important?

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Why do you think this?

Perception of Competence

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Why do you think this is true?

Why do you think some children are better at physical activities than others?

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Can you tell about how getting puffed makes you feel? Why do you think you get puffed?

4. □ □ Some children have to try really hard to do physical activities well. □ □ Some children can do all physical activities easy.

Why do you think this is true?

**Choices / Behaviour**

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Some children don’t do much physical activity. Some children spend lots of time doing physical activities.

Please give some examples of some of the physical activities you do.

2. □ □ Some children’s parents tell them what they are doing after school. □ □ Some children are allowed to choose what they want to do after school.

3. Just imagine that your Mum and Dad are going to let choose what you would like to do after school for 2 hours every day next week. You are allowed to select up to two different activities each day. For example, on Monday you might choose to go for a walk for one hour and watch T.V. for an hour.

You can choose from the following list:
- going for a walk
- watching T.V.
- going to a park or playground.
- playing games inside.
- playing a game outside e.g. cricket, soccer.
- playing on the playstation
- going to the beach / swim
- reading a book.
- riding your bike or scooter.
- using the computer.
# Knowledge

1. What do you think it means to be healthy?
2. What do you think it means to be fit?
3. Why do you think it is important to keep fit?
4. What are 3 things you could do to keep fit?
5. What does your heart do?
6. How can you keep your heart healthy?
7. Why do you have muscles?
8. How can you look after your muscles?
9. Which of these things are important to do or have if you are going to stay healthy?

- Eat lots of fruit
- Watch lots of T.V.
- Do physical activity regularly.
- Get lots of sleep.
- Drink lots of fizzy drink.
- Stay up late all the time.
- Enjoy playing with your friends.
- Eat lots of cake and lollies.
- Have fun with your family.
- Being busy all the time
Appendix 2: Examples of questions for the group interviews

Focus on Physical Education (PE)

- What activities do you like doing in PE?
- What is it about these activities that you like?
- Do like playing games or practicing the skills?
- What equipment do you enjoy using the most?
- What do you like/ don't like about Miss Smith's teaching?
- Do you friends like/ not like P.E. or parts of P.E.? Tell me why. Now tell me whether you like/ don't like it.
- Why do you think some children find physical activity easy but other kids find P.E. difficult?
- Why do you think it is important to do physical activity regularly?
- What have you learnt in PE this term?

Focus on Fitness

- What things about fitness do you enjoy? / What makes fitness fun?
- What activities do you enjoy the most?
- What equipment do you enjoy using the most?
- What do/ could the teachers do to make fitness sessions more enjoyable/ better for you?
- Why do you think we do fitness at school?
Appendix 3: Physical Education Intervention Lesson Plans

One Week  Focus: Wellness

Objective: to explore and understand that to be well involves being physically, mentally, spiritually, socially and emotionally healthy.

Lesson One
Brainstorm: How do we keep ourselves healthy?

Activity: In small groups complete a jigsaw puzzle then turn it over.
(On one side there is an outline of a body and on the other side a circle divided into 5 segments. Each segment is labeled - physical, social, spiritual, mental or emotional health - and is accompanied with a symbol depicting the words.)

Discussion
• What do the children think each symbol represents?
• What do they think that means in terms of being healthy?
• How could this be achieved? Examples?

Write out definitions for a chart in the classroom e.g.
• Physical Health: keeping our bodies healthy and fit by having a healthy diet, exercising regularly and getting enough rest and sleep.
• Social Health: Valuing our family and friends - spending time with them, talking to them and having fun times together.
• Emotional Health: understanding that it’s okay to feel different emotions but also learning how to cope with these different emotions - wanting to be happy not sad.
• Mental Health: Using our brains so they keep working well. We need to think, talk and read about lots of different things.
• Spiritual Health: Believing that God made us and loves us. Knowing that this makes us unique and very special just as we are (Christian School).

Lesson Two

Review the first lesson and talk through the definitions on the chart.

Play game "Healthy People" (revised version of "Captain’s coming")
Rules:
Each of the four sides of the working area is labeled. When a label/signal is called the children need to run to that side and do the accompanying action.
- Eating healthy food (pretend to eat)
- Drinking water and milk (pretend to drink)
- Regular exercise (jogging on the spot)
- A good night’s sleep (Head on hand)

There are other signals for which the children do the action where they are. The children can make up extra signals and actions. Some examples:
- Playing with friends - hold someone hand and dance around.
- Spend time with your family - put arm around someone’s shoulder.
- Read a book - hold hands like a book.
- "I’m okay" - do the thumbs up signal.
Week Two  Focus: Individual Differences.

Objectives:
1. To explore differences between children, especially in physical ability and characteristics - particularly body shape.
2. To be able to accept and respect differences.

Lesson One

Read story: The mouse with the too long tail.
Discuss:
What would it be like to that mouse?
What would it have been like for that mouse at school?
Are there children in our school that are different?

Activity:
Get into groups according to different characteristics e.g. eye colour, height.

Discuss:
Is being different good or bad? Is it important?
Why are we different? Can people help being different?

Talk about different body shapes - they are different but not good or bad.
Use chart presented in Activity 2 in Exercise Lifestyle Award (Newport, 1993)
- being skinny or fat can be unhealthy.
- why does exercising affect people in different ways.

➢ what's important is to exercise regularly and be healthy.

Lesson Two.

Discuss:
Why do they think healthy bodies need regular exercise?
What physical activities do their parents do?
- emphasize the range of activities that are okay.

Activities: Have children take part in a range of physical activities e.g.
- running         - monkey bars
- balancing       - bouncing a ball
- skipping        - doing forward rolls

At end discuss what activities did they find easier/ harder.
Point out that it's okay - for different children were better at different things.
- to be better at some things than others.

Discuss: What is important when we are doing physical activities?
i.e. that you do some regularly.
that you try to do your best.
Week Three Focus: Importance of health related activity.

Objective: to explore and understand the importance of being physically active.

Lesson One

Ask the children why they think they need to be physically active.

Discuss the different parts of their bodies that benefit from regularly exercise and why - heart, lungs, muscles, joints, bones.

Brainstorm: Why we need exercise?

➢ make up a chart "Keeping our bodies well".
  - exercise makes our muscles stronger so you won't get tired when you play.
  - exercise makes our hearts and lungs stronger so you won't get out of breath.
  - exercise helps you move more easily so you won't get stiff and sore.
  - exercise helps your brain work.
  - exercise helps make you look and feel good.

Lesson Two

Revise lesson one and read through chart.

Discuss: Who needs to exercise?

In groups the children brainstorm activities they do at school and home to be physically active.

Discuss what physical activities their parents and grandparents do.

Talk about what can happen to people as they grow older and why it is important to keep on exercising regularly.

Think about some fun physical activities the children could with their parents/families and grandparents.
Week Four  Focus: Aerobic Fitness

Objective: to understand how our hearts and lungs work and how exercise effects them.

Lesson One

Discuss:
What do our lungs and heart do? Read p 8 -10 "A healthy Body" (Royston, 1999)

Have a diagram of the body with the heart and lungs.
(Unit four - Skills for Growing Grade 5)
- explain what happens when we breathe (have a balloon for example)
- get the children to feel their own chest - lungs when breathing in and out
- talk about heart and what a pulse is - feel on self or friend.

Why do you get puffed? What can you do so you don’t get so puffed?

Aerobic activities e.g. running, skipping.
- feel heart beat / pulse - how fast is it going?
- use tube to listen to friend’s heart beat.

Ask "Have you been working your heart?"

Lesson Two

Revise lesson one.

♦ Why do we need to look after our hearts?
♦ What can happened when people get older?
♦ How can we look after our hearts?

What sort of activities make our hearts work harder?

Have a range of activities set out - some aerobic and some not.
e.g. skipping, relays, balancing, stretching, walking, running.

Examples from p 80 - 84 "Kids with Zip" (Landy & Burridge, 2002)
and Jump Rope for Heart.

Encourage the child to feel their heart beat after each activity and see if it is faster than before.

At end talk about what activities made their heart go faster and what it was about those activities that made their heart rate increase.

Talk about activities they could do in the playground and after school that would "use their hearts".
Week Five  Focus: Muscular strength and Flexibility

Objective: to explore and understand the role of our muscles and joints and why it is important to exercise them.

Lesson One

Read p. 12 - 17  "A healthy Body" (Royston, 1999)
Discuss:
- The different bones and muscles we have in our bodies.
- How do muscles and joints work together

The children experiment using different muscles and feel to see what happens when they move.

Brainstorm: Types of activities to strengthen our muscles.

Do a series of activities that strengthen muscles:
- swinging on the bars
- climbing on the adventure playground
- balancing
- exercises
(see Fit focus: Strength in "Kids with Zip" (Landy & Burridge, 2002)

Lesson Two

Why we need to look after are muscles?

Read p. 10 - 11, 14 - 15, "A healthy Body" (Royston, 1999)
Use bluetac to demonstrate cold/ warm stretching.

Talk about why we need to stretching and why it is important to bend your knees when lifting.

Do some aerobic activity (skipping, running), warm down by slow jogging then stretch different parts of the body - holding each stretch for 30 seconds. Talk about what the children can feel when they are doing it.

Make up a chart of stretches for the children to do regularly.

For examples of stretches see:
"Kids with Zip" (Landy & Burridge, 2002)
"Physical Activity for Health and Fitness" (Jackson, Morrow, Hill & Dishman, 1998)
"Exercise Lifestyle Award" (Newport, 1993)
Week Six  Focus: Types of Activities

Objective: To understand that different activities have different benefits and that it is important to have a balance.

Lesson One

Brainstorm in groups: What things do you at school, after school, at home?

In a sharing circle the children talk about:
- what my favourite physical activity to do at school is.
- what my favourite physical activity to do at home with my friends is.
- what my favourite physical activity to do with my family is.
- what my favourite physical activity to do by myself is.

(adapted from "PE teacher’s pre-sport skill lessons, activities & games for grades 4-6". (Landy, 2002).

Discuss: What activities did we say were good for the heart and muscles?

Read "At the end of the Day" by Trish Puharich
- talk about why it is important to rest or relaxing during the day and how the children do this.

Do a message circle.
(Ideas from "Looking after Ourselves: Body Care and Physical Safety" Ministry of Education.)

Lesson Two

Revise lesson one and introduce the Activity Pyramid
(Adapted from p 449 "PE teacher’s pre-sport skill lessons, activities & games for grades 4-6". (Landy, 2002).

Discuss the different activity levels:
- Passive Activities
- Strength & Flexibility Activities
- Play & Leisure Activities
- Sport & Recreation Activities
- Aerobic Activities
- Daily Activities

Draw a picture of self, doing one of the named activities and glue it onto the pyramid.
Week Seven  Focus: Healthy Eating

Objective: to understand and explain why a balanced diet is important to be healthy.

Lesson One

Have the children to select a type of food.
Ask them to stand on a continuum as to whether they think they should eat lots of that food or a little.

Read 16 - 18 "A Healthy Body" (Royston, 1999)
Have a chart of the food pyramid and discuss why we should eat a variety of foods. What foods are healthy for you?

Discuss what foods give you energy and the difference between sugar and carbohydrates for energy.

Talk about choices the children can make when they are allowed to select their own food.

Lesson Two

Brainstorm all the drinks that the children have.

Ask them what is their favourite drink. Then what drink they think is best for them.

List the drinks from 'healthy' to 'not so healthy'.

Talk about why water and milk are good for you and why it is good to drink water when you are exercising.
Week Eight  Focus: Making decisions for health.

Objective: To be aware that everyone has responsibility to keep themselves healthy.

Lesson One

Revise what have learnt so far. Play Healthy People game.

In groups draw around one child. In the body shape write down all the things we need to do to stay healthy. Report back to class.

Let the children choose some physical activities they that have enjoyed.

Lesson Two

Discuss who is responsible for your own health?

Encourage the children to realise that they can make decision that will help them increase their own fitness and health. For example, the activities they decide to do after school and in the weekend.

Think about ways that the children can independently:
- keep healthy in a holistic sense.
- can be physically active after school or encourage their family to be active.

Brainstorm ideas of physical activities that are fun for kids to do - make chart.
Resources used:


Appendix 4: Transcripts of Group Interviews

Initial Interviews

Non-intervention class

Can you tell me what sort of activities you like doing in PE?
B: I like playing with hoops
With hoops...
C: I like playing with the frisbees
With the frisbees, right.
A: I like playing with the hoops.
Is there anything in particular about the hoops you enjoy?
B: Uhmm, I like swinging them around my arm.
What about you J - what sort of things do like doing in PE time?
D: I like frisbees.
You like playing with the frisbees.
D: Yes.
So what is it about doing these things that you like?
A: 'Cause you can do lots of different things with hoops.
What about you C?
C: I like balls because I like throwing them.
You like throwing them and do you think you are pretty good at throwing them?
C: Yes, I've got one at home.
B: And I've got one at home and sometimes I can throw it and it circles around my trees twice and then it comes back to me. But I only do that with my boom-a-rang.
Right. D why do you like doing things with the frisbees.
D: Uhmmm...
Why do like using them?
D: Uhmm...
What do you like about PE?
D: Swimming
You like swimming
D: Because I like going with my sister.
Going with your sister - but what about at school time? What about PE time at school?
D: Uhmmm
Do you like PE time at school?
D: Yes.
You do like it. Why do you like it?
D: I don't know.
In PE time do you like playing games or do you like practicing with the hoops and balls and frisbees and things? What do you like best?
B: I like playing games.
Playing games. Why's that B?
B: Because they are fun.
What about you A?
A: I like playing games as well because they are fun to do.
They fun to do. What about you C? Do you like playing games or doing the activities?
C: Uhmm
Do you know or do you like both?
C: I like both.
Why do you like both?
C: Because they are both fun.
They're both fun. What about you D?
D: I like playing with my scooter.
We are talking about PE time. At PE time at school do you like playing games or doing activities?
D: Playing...
What equipment do you like using the best? You have already told me about that. What do you like about PE time? What's good about PE time? Not just the activities but what's good about PE time?
D: Frisbees
Yes, but what else do you like about PE? Why is PE good?
C: Because it is fun.
Why do you think it is fun?
C: Uhm...
B: Because the activities are fun.
A: Lots of games.
What do you like about Miss Smith's teaching?
Silence
Do you like Miss Smith's teaching?
All: Yes.
Why do you like it?
A: Because it is fun.
What about it is fun?
C: Because you make fun activities.
So it's about the activities. Is there anything about Miss Smith and what she does that helps make PE fun?
C: I don't know.
A: I don't know either.
Is there anything about Miss Smith you don't like or something that you wished she did differently to make PE better?
B: Doing some cartwheels.
You want me to do some cartwheels.
B: No - teach us to do some cartwheels. I like doing them.
Is there anything about how Miss Smith teaches that you think I could do better?
Silence
No - you can't think of anything. Do your friends like PE time?
C & B: Yes
They do.
A: I think so.
What about you D? Do your friends like PE time?
D: Uhm...
Why do your friends like PE time?
B: I don't know.
Do they like some parts of PE better than other parts?
D: Yes, 'cause one PE time playing and one you throw a frisbee and hoops. It's fun.
Why do you think some children find physical activity and PE time hard and some children find it easy? Why do you think that is?
C: Because they have been doing it a lot.
Yes, any other reasons.
C: Because they have been at the school for a long time.
What do you think B?
B: Uhmm... because the other ones don't pay attention to the instructions.
So you think that if they don't listen to the instructions they find it hard. Why do you think it
is important for us to do physical activity at school?
Silence
Is it important for us to do physical activity regularly?
C: Yes.
Do you think so B?
B: Yes
Why do you think that is?
B: I don't know.
Have you got any ideas A why we should do physical activity?
A: Because it is good for your body.
B: It makes your body strong.
What do you think D?
D: Uhm... I don't know.

What do you do for fitness? You might have to think back to last year.
B: Did cartwheels.
C: Walked about Cranmer Square.
A: Ran about Cranmer Square or played in the playground.
What things do you enjoy?
A: Playing on the playground.
G: In the boxes.
D: I liked playing in the playground
B: I liked doing the things you went around the courses.
In fitness or do you mean in PE time?
B: In the hall with you.
Is fitness fun?
C & A: Yes.
Why is fitness fun?
B: I don't know.
C: I liked it because it was fun and there was lots of playing activities.
What equipment do you enjoy using for fitness?
Silence
Do you use equipment for fitness?
B: Yes
What sort of equipment did you use?
B: Frogs...
Not for PE. For fitness.
A: No, we didn't use equipment.
What do the teachers do well during fitness?
Silence
What do the teachers do during fitness?
C: Watched us
So they didn't do fitness with you. What could have they done during fitness times?
A: They could have done it with us.
Anything else?
Silence
What would make fitness more fun?
C: Doing more different things.
What about you D?
D: Ummmm, I don't know.
Why do you think we do fitness at school?
A: To get healthy.
In what sort of ways do we need to get healthy?
A: So we can get strong.
Any thing else, any other ideas.... No.

Intervention Group

What things do you like about PE?
H: Playing some sports games.
E: Playing lots of games and moving around.
H: Playing outside and playing with hoops and balls.
What about you G?
G: Tag
You like playing tag. How about you F?
F: Ummmm, doing lots of courses.
Lots of courses - you mean doing lots of activities.
F: Yes.
Is there anything else about PE that makes it fun. Is there anything else other than the activities?
H: You can actually do lots of fun things and lots of moving your bodies.
So, what is it about the activities you like doing? What do you like doing the best - playing games or doing activities?
F: playing games.
H: I like playing games.
G: I like doing activities.
What about you E?
E: I like doing activities.
What equipment do you like the best?
E: The hoopla hoops
F: Hoops
H: I like the moon hoopers.
You mean when we did PE inside.
H: No, when you have got a handle... and Dad sets up this obstacle course for me.
So, it an obstacle course that you like doing.
What about at school? What activities do you like doing at school? G?
G: Don't know. Maybe the hoops.
What is it about these things that you like?
E: They are fun to play with.
F: The thing you can do best on the hoopla hoop is fun to do.
Do you like it when you get to choose what you want to do with the hoopla hoops?
E: I like it when we can try our own thing.
G: I liked balancing with them.
H: Going through obstacle course like going through things and going over things.
Why do you like doing those?
H: Fun activities.
Do you like Miss Smith as a teacher?
E & H & F: Yes
Why do like Miss Smith as a teacher?
F: 'Cause we get to do fun things.
E: We get to go outside and I like doing outside things.
H: Well uhmm, jumping on stuff and getting through gaps...

Yes, but I'd like you to tell me about Miss Smith's teaching.
H: Because we do lots of different activities.
Is there anything that you think Miss Smith could do differently in PE?
F: No
E: No, I don't think so.
Do your friends like PE?
F & E: Yes
H: yeah.
What is it about PE that they like?
E: Because they like doing the fun activities.
H: 'Cause they might be in your group and you get to choose who you want to work with sometimes.
F: Maybe it's because they like doing all the fun things you set up.
E: They like running around and the activities.
Do you like PE?
All: yes
Why do you think some children find physical activities easy and some children find them difficult?
E: Some things are hard for them.
Why do you think that is?
E: They haven't practiced.
F: Maybe they aren't used to running and we are doing a really long run. Long to them but short to us.
E: They could think that they haven't done it before and that it would be difficult to do well.
H: They could find it hard for running because it's hard sometimes because it's a long, long way and ... it's hard and if you are running a long, long distance you would have to practice.
Why do you think we do physical activity regularly?
F: It's good for you.
H: Running around makes you healthy.

I'll going to ask you some questions about fitness. You may have to think back to fitness last year.
What did you used to do for fitness last year?
F: We used to run to the Chapel.
E: We used to run around Crammer Square.
H: We played on the playground sometimes.
What about last year's fitness did you enjoy?
F: When we went across to the park and used to do the runs across the paths at the park.
H: Uhhh... Well, going through obstacle courses...
Did you do obstacle courses in fitness last year?
H: Remember when you set up the ones in the Hall.
That was during PE time. What about fitness? - after assembly/
Did you enjoy fitness last year?
G & E: Yes
F: Quite fun.
What made fitness fun?
G: Playing games.
H: Going for runs and playing on the playground.
Did you use any equipment?
F: Hoops, skipping ropes
Did you use those in fitness - in the morning? Not for PE.
F: No - we didn't really use any equipment for fitness.
What do you think teachers could have done last year to make fitness more enjoyable?
E: Set up some jumps and things.
H: Do some different things like adventure playground and running around.
What did the teachers do during fitness?
F: They just watched us.
What would you have liked them to do?
E: They could have done it too - that would have been funny.
F: Yes, then if you don’t know how to do something then the teachers can show you.
Why do you think we do fitness at school?
E: To get healthy.
H: Because we need to run around.
Second Interview

Non-intervention group

What are some of the things have you enjoyed doing in PE this term?
D: Skipping
C: Playing with the frisbees
What about you F?
A: Frisbees
B: Going on the whirligig.
Why have you enjoyed those things?
A&B: They're fun.
B: Because it makes me dizzy.
D: Fun.
Have you learnt this term in PE?
A: Have learnt how to throw.
D: Have learnt how throw a frisbee.
What have you learnt this term E?
B: Uhm.. I don't know.
C: I don't know either.
Have you enjoyed fitness more this term than you did last year?
D&B&C: Yes
A: No
Why not F?
A: Because this year it is done differently. Doing different things.
Why don't you enjoy those different things?
B: Because you can't do cartwheels.
What did you do last year that you enjoyed more than you do this year?
A: Doing fitness inside.
And you don't do that much this year.
B: Don't do it much this year.
Do you mean fitness or PE with me?
A: With you and all the equipment.
Do you enjoy fitness - in the mornings - more this year Georgia?
C: Yes, most of the time.
What do you enjoy doing most? The aerobics, skipping or the relays?
Silence
In the mornings after assembly - what do you enjoy the most?
C: Skipping
D: The relays
What about you E?
B: Relays
Are they more fun than the stuff we did last year?
B: Sometimes
So what makes fitness fun?
B: Fun activities.
C: Doing fun things.
Why things are fun?
D: I don't know.
What teachers do you enjoy doing fitness with the most?
A: Miss Smith
C: Miss Smith
What about in fitness in the mornings?
B: Mrs H, Mrs R
D: Miss B.
Why do you think we do fitness at school?
B: To keep fit.
A: To keep our bodies healthy.
Do you think it is important to do some physical activities at home as well?
All: Yes
Why is that?
B: So you can get good at doing things.
Why do you think it is important to do physical activities regularly?
C: It keeps you strong.
Is there anything we could do in fitness, not PE, to make it even better?
C: Do some cartwheels.
B: Being able to throw frisbees.
A: Being able to play with the hoops.
Being able to use the hoops and other equipment.
What would make PE time even better?
B: I don't know.
A: Doing new things.
D: Doing fun things.

Intervention group

What are some of things have you enjoyed doing in PE this term?
F: Uhmm, running about
What have you enjoyed H?
H: Playing on the playground.
What about you G?
G: Stretching
E: Running around.
What's something you have learnt in PE this term?
H: Making your heart go fast and slow.
Feeling your heart beat.
H: Yes.
G: About getting fit.
F: You have to exercise so you don't get arthritis when you get older.
E, what about you?
E: About exercising and eating healthy things.
Have you enjoyed learning about being healthy in PE this term?
All: Yes
Has it helped you why you need to keep fit?
G: Yes
In what sort of ways has it helped you understand this?
E: How to get healthy.
G: Getting fit.
F: About how our bodies work and why we need to look after them.
Do you think you will try to get fitter?
All: Yes
What sorts of things could you do at home to help you get fitter?
E: Running around, jumping on the trampoline, monkey bars, skip.
F: Watching TV isn't very healthy. It can make you fat.
Why do you think that doing physical activity regularly is important?
G: Make you get healthy.
F: Keeps your heart and lungs going well.
E: Helps you not get sick.
This term in fitness you have been doing lots of different things, have you enjoyed that more than fitness last year?
All: Yes
Why is it better?
H: There are lots of different activities. Some are hard.
F: We get to run around more.
E: Some as F.
H: We get to do fun things.
So what activities do you enjoy doing the most in fitness?
E: Skipping is best. But I like doing lots of different activities.
G: I like doing it with you.
What do you like doing it with me best?
H: Because it is fun.
Is there anything we could do to make fitness even better?
All: No
So you think it is as good as it can get.
All: Yep.
Why do we do fitness at school?
F & E: To get healthy.
Do you think...
F: Because you might have Mothers and Fathers at home that don't even think about getting fit.
G: My Dad gets fit. He goes for a jog every night.
So, we do fitness at school to make sure that children get to do fitness activities? Just in case they don't get to do it at home.
F: Yes.
Do you think you will do it at home as well as a school now?
F & E: Yes.
E: I like doing it anyway.
Appendix 5: Responses to the knowledge questions.

Table A: What do you think it means to be fit?

<table>
<thead>
<tr>
<th>Child</th>
<th>Response</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Lots &amp; lots of exercise</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child B</td>
<td>Doing lots of exercise</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child C</td>
<td>Be fun</td>
<td>So you are thin.</td>
</tr>
<tr>
<td>Child D</td>
<td>Don't know</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child E</td>
<td>Don't know</td>
<td>To be healthy, have strong muscles, so your heart works well.</td>
</tr>
<tr>
<td>Child F</td>
<td>Being healthy and strong</td>
<td>To be the right shape - not too skinny, not too fat. Makes our bodies healthy and strong.</td>
</tr>
<tr>
<td>Child G</td>
<td>Don't know</td>
<td>So we can exercise our bodies - heart pumps blood.</td>
</tr>
<tr>
<td>Child H</td>
<td>Running</td>
<td>Get your muscles strong.</td>
</tr>
</tbody>
</table>

Table B: Why do you think it is important to keep fit?

<table>
<thead>
<tr>
<th>Child</th>
<th>Reason</th>
<th>Child</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Don't know</td>
<td>Child B</td>
<td>Helps your muscle grow &amp; your body grow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Because you can get strong</td>
</tr>
<tr>
<td>Child C</td>
<td>Don't know</td>
<td>Child D</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child E</td>
<td>Don't know</td>
<td>Child E</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child F</td>
<td>So you don't lose weight</td>
<td>Child G</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child H</td>
<td>So you don't get fat &amp; if you are fat you can't run fast.</td>
<td>Child H</td>
<td>So you won't get fat, if you don't when you get old your joints won't work properly.</td>
</tr>
</tbody>
</table>
Table C: What are 3 things you could do to keep fit?

<table>
<thead>
<tr>
<th>Child A</th>
<th>Ride bike/ scooter / play on playground</th>
<th>Ride bike/ scooter/ Rollerblade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child B</td>
<td>Biking/skate board/scooter</td>
<td>Ride bike/ running/ Scooter</td>
</tr>
<tr>
<td>Child C</td>
<td>Eat veges / running</td>
<td>Running/ walking/ Eating fruit &amp; veges.</td>
</tr>
<tr>
<td>Child D</td>
<td>Don't know</td>
<td>Bones come out</td>
</tr>
<tr>
<td>Child E</td>
<td>Bike ride/walk/swimming</td>
<td>Skipping/ aerobics/Run</td>
</tr>
<tr>
<td>Child F</td>
<td>Eating healthy things/ go for a walk / bike ride</td>
<td>Run/ bike/ swim</td>
</tr>
<tr>
<td>Child G</td>
<td>Running/ jogging</td>
<td>Running/ biking/ scooter</td>
</tr>
<tr>
<td>Child H</td>
<td>Going on my scooter/ walking /using my hands on my playstation/comp.</td>
<td>Monkey bars/ running/ Riding bike.</td>
</tr>
</tbody>
</table>

Table D: What does it mean to be healthy?

<table>
<thead>
<tr>
<th>Child A</th>
<th>Playing games</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child B</td>
<td>Doing exercise</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child C</td>
<td>Eating f &amp; v</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child D</td>
<td>Don't know</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child E</td>
<td>Eating fruit &amp; veges., drinking milk, running</td>
<td>To have a healthy heart, brain, muscles, eat f &amp; v, drink water, do p.a.</td>
</tr>
<tr>
<td>Child F</td>
<td>Doing exercise, drinking water and milk, eating fruit &amp; veges.</td>
<td>Keeping our body fit, make your heart Strong so it doesn't stop pumping.</td>
</tr>
<tr>
<td>Child G</td>
<td>Don't know</td>
<td>Getting more strong</td>
</tr>
<tr>
<td>Child H</td>
<td>Eating healthy food - like fruit &amp; veges.</td>
<td>Eat fruit &amp; veges., do some physical activity.</td>
</tr>
</tbody>
</table>
### Table E: What does your heart do?

<table>
<thead>
<tr>
<th>Child</th>
<th>What it does</th>
<th>Why it does it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Don't know</td>
<td>It beats.</td>
</tr>
<tr>
<td>Child B</td>
<td>Pumps blood about body</td>
<td>Pumps blood</td>
</tr>
<tr>
<td>Child C</td>
<td>Keeps you alive /Pumps blood</td>
<td>Pumps blood around your body.</td>
</tr>
<tr>
<td>Child D</td>
<td>Makes you feel good</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child E</td>
<td>Pumps your blood around</td>
<td>Pumps blood around your body.</td>
</tr>
<tr>
<td>Child F</td>
<td>Pumps blood around your body</td>
<td></td>
</tr>
<tr>
<td>Child G</td>
<td>Pumps blood</td>
<td>Pumps blood around your body.</td>
</tr>
<tr>
<td>Child H</td>
<td>Pumps the blood</td>
<td>Pumps blood</td>
</tr>
</tbody>
</table>

### Table F: How can you keep heart healthy?

<table>
<thead>
<tr>
<th>Child</th>
<th>What you do</th>
<th>Why you do it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Eat lots of fruit &amp; veges.</td>
<td>Eat fruit &amp; veges., and healthy things.</td>
</tr>
<tr>
<td>Child B</td>
<td>Drink milk</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child C</td>
<td>Eat veges.</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child D</td>
<td>Don't know</td>
<td>Eating healthy food.</td>
</tr>
<tr>
<td>Child E</td>
<td>Don't know</td>
<td>Exercising it - running, skipping, relays.</td>
</tr>
<tr>
<td>Child F</td>
<td>Make sure you eat lots of variety of food</td>
<td>Playing games, eating healthy food.</td>
</tr>
<tr>
<td>Child G</td>
<td>Eat fruit and veges.</td>
<td>Exercising</td>
</tr>
<tr>
<td>Child H</td>
<td>Run</td>
<td>Eat fruit &amp; veges., running</td>
</tr>
</tbody>
</table>

### Table G: Why do you have muscles?

<table>
<thead>
<tr>
<th>Child</th>
<th>Why you have muscles</th>
<th>So you can do what you want.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Keep us strong</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child B</td>
<td>Be strong</td>
<td>So you can lift your body.</td>
</tr>
<tr>
<td>Child C</td>
<td>So we can be strong</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child D</td>
<td>Strong</td>
<td>Because they are strong and we have to keep them strong.</td>
</tr>
<tr>
<td>Child E</td>
<td>To be strong</td>
<td>Make our bones move.</td>
</tr>
<tr>
<td>Child F</td>
<td>So we don't get weak &amp; can't lift things up</td>
<td>To make our joints move and our heart.</td>
</tr>
<tr>
<td>Child G</td>
<td>To be strong</td>
<td>Muscles move our arms and legs.</td>
</tr>
<tr>
<td>Child H</td>
<td>So you are strong</td>
<td>If we didn't have muscles we would have to drag ourselves along.</td>
</tr>
</tbody>
</table>
Table H: How can you look after your muscles?

<table>
<thead>
<tr>
<th>Child</th>
<th>Drink lots of milk</th>
<th>Drink milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td>Don't know</td>
<td>Without putting too heavy things on them.</td>
</tr>
<tr>
<td>Child B</td>
<td>Don't know</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child C</td>
<td>Don't know</td>
<td>Don't know</td>
</tr>
<tr>
<td>Child D</td>
<td>Keeping fit</td>
<td>Exercising, eat v &amp; f, drink water, doing stretches.</td>
</tr>
<tr>
<td>Child F</td>
<td>Exercise</td>
<td>Using them, eating healthy food, drinking water and milk. Warming up.</td>
</tr>
<tr>
<td>Child G</td>
<td>Exercise</td>
<td>Running, exercise, drinking water, stretching.</td>
</tr>
<tr>
<td>Child H</td>
<td>Run and jog</td>
<td>Running, drink water, Stretch.</td>
</tr>
</tbody>
</table>

Which of these things are important to do or have to stay healthy?

1. Eat lots of fruit.
2. Watch lots of television.
3. Do physical activity regularly.
4. Get lots of sleep.
5. Drink lots of fizzy drink.
6. Stay up late all the time.
7. Enjoy playing with your friends.
8. Eating lots of cakes and lollies.
9. Have fun with your family
10. Being busy all the time.

<table>
<thead>
<tr>
<th>Child</th>
<th>10</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child B</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Child C</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Child D</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Child E</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Child F</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Child G</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Child H</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>