A survey of the activity patterns of young people and their attitudes and perceptions of physical activity and physical education in a Local Education Authority

This item was submitted to Loughborough University's Institutional Repository by the/an author.

Additional Information:

- A Master's Thesis. Submitted in partial fulfilment of the requirements for the award of Master of Philosophy at Loughborough University.

Metadata Record: [https://dspace.lboro.ac.uk/2134/34290](https://dspace.lboro.ac.uk/2134/34290)

Publisher: © Bernard Dickenson

Rights: This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at: [https://creativecommons.org/licenses/by-nc-nd/4.0/](https://creativecommons.org/licenses/by-nc-nd/4.0/)

Please cite the published version.
<table>
<thead>
<tr>
<th>AUTHOR/FILING TITLE</th>
<th>DICKENSON, B</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSION/COPY NO.</td>
<td>012999/01</td>
</tr>
<tr>
<td>VOL. NO.</td>
<td></td>
</tr>
<tr>
<td>CLASS MARK</td>
<td>Archives</td>
</tr>
</tbody>
</table>

FOR REFERENCE ONLY
A SURVEY OF THE ACTIVITY PATTERNS OF YOUNG PEOPLE
AND THEIR ATTITUDES AND PERCEPTIONS OF PHYSICAL ACTIVITY
AND PHYSICAL EDUCATION IN A LOCAL EDUCATION AUTHORITY

BY

BERNARD DICKENSON

A Master's Thesis submitted in partial fulfilment of the requirements
for the award of Master of Philosophy
of the Loughborough University of Technology (July 1987)

© by Bernard Dickenson (1987)
CONTENTS

Chapter | Title                                                                                     | Page
---------|-------------------------------------------------------------------------------------------|------
         | Abstract                                                                                  | i    
         | List of Figures                                                                            | ii   
         | List of Tables                                                                             | iii  
         | List of Abbreviations                                                                     | v    
         | Acknowledgements                                                                          | vi   
         | Articles Initiated by the Research                                                        | vii  
1.00     | Introduction                                                                              | 1    
2.00     | A Review of Areas of Literature Which Have Implications for the Concept of 'Health Related Fitness' | 7    
2.10     | Introduction                                                                              | 7    
2.20     | The Secondary School Physical Education Curriculum                                        | 8    
2.22     | Local Education Authority Based Surveys                                                    | 9    
2.30     | Pupil Views of Physical Education                                                         | 14   
2.40     | The Physical Activity Patterns of Young People                                            | 19   
2.50     | The Effects of Training on Children                                                       | 29   
2.60     | A Review of Research Linking the Risk Factors Associated with Coronary Heart Disease to Children | 31   
2.70     | A Review of Studies into the Effects of Daily Physical Education on Primary School Children | 36   
2.80     | Factors Influencing Adherence to Exercise                                                 | 37   
3.00     | Methodology                                                                               | 41   
3.10     | Introductory Statement                                                                    | 41   
3.12     | The Reason for Using a Questionnaire and Interview as Methods of Data Collection          | 42   
ABSTRACT

For some time there has been a suspicion that young people are not as physically active as previous generations and this, coupled with the discovery of risk factors associated with coronary heart disease becoming observable in young people; changes in diet and the development of sedentary life styles in Western society, suggests that there could be serious implications for the short and long term health of young people.

If this situation exists then it would appear that there is an educational role in schools to provide courses which raise these issues and provide a suitable medium for young people to become knowledgeable about themselves and exercise.

However, to date, a data base does not exist which would provide evidence about how active young people are and about their attitudes towards physical activity and Physical Education.

This study attempts to contribute towards this data base by providing evidence about the activity patterns of a large random sample of 500 young people between the ages of 11 to 16 years, from a local education authority in the West Midlands.

This phase of the study was followed by interviews of over 100 young people who had been involved in the activity survey, to ascertain their attitudes towards physical activity and Physical Education.

In order to make a stronger contribution to this data base and to place this survey into context, the study also addresses itself to a review of existing literature related to this area, the development of research tools for this kind of survey and discusses the implications the results have for Physical Education in this country.
LIST OF FIGURES

Figure 1  The Yearly Sport Activity Score of the Subjects
          Between the Ages of 14 to 17 Years.  28
LIST OF TABLES

Table 1  Young Individuals Displaying Cardiac Risk Factors 33  
Table 2  The Numbers of Completed Responses for Each Day and the Whole Week 85  
Table 3  The Activity Levels for the Whole Sample on Each Day of the Survey 85  
Table 4  The Levels of Inactivity for the Whole Sample for the Week 86  
Table 5  The Levels of Activity for the Different Age Groups for the Week 87  
Table 6  The Levels of Activity for the Week of Boys in Each Age Group 87  
Table 7  The Levels of Activity for the Week of Girls in Each Age Group 88  
Table 8  A Comparison of the Activity Levels of Boys and Girls in Each Age Group 88  
Table 9  The Percentage of All Boys and All Girls Inactive in Each School 89  
Table 10 Leisure Patterns 91  
Table 11 The Percentage of Subjects Placed in the 'Top 5 Most Important' 94  
Table 12 A Comparison of the Subjects Boys & Girls Placed in Order of Importance 96  
Table 13 The Most 'Enjoyable' Subjects 98  
Table 14 A Comparison Between Boys and Girls of Most Popular Subjects 97  

(iii)
Table 15  Feelings Immediately Before a Physical Education Lesson  100

Table 16  Pupil Preference of Activities in Physical Education  104

Table 17  The Preference of Boys for Physical Education Activities  103

Table 18  The Preference of Girls for Physical Education Activities  103
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.E.</td>
<td>Physical Education</td>
</tr>
<tr>
<td>H.R.F.</td>
<td>Health Related Fitness</td>
</tr>
<tr>
<td>C.H.D.</td>
<td>Coronary Heart Disease</td>
</tr>
<tr>
<td>G.H.S.</td>
<td>General House Survey</td>
</tr>
<tr>
<td>B.M.R.</td>
<td>Basal Metabolic Rate</td>
</tr>
<tr>
<td>V.O₂ Max.</td>
<td>Maximal Oxygen Uptake</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

The completion of this research is due in no small manner to the efforts and co-operation of a large group of people. It is therefore appropriate to acknowledge the contribution these people have made.

Mr Len Almond for initiating this study and providing of his experience and expertise throughout.

The staff of the Computer Centre at Loughborough University for their unselfish time and help during the analysis of the survey results.

The advisory and Physical Education staff from the authority in which the survey was conducted.

My wife, Mary, and family who have provided continuous support throughout the process of the survey and the completion of the dissertation.

I would like to acknowledge the help of all those pupils, teachers, advisors, researchers and lecturers who have in any way contributed to this study.

Finally, my sincere thanks to the Bridgnorth Secretarial Bureau for their skill and understanding in producing the finished document.
ARTICLES INITIATED BY THE RESEARCH


The Background to the Study

During the past few years there have been important developments in a number of areas which have implications for Physical Education. These developments may be briefly identified as:-

Recent surveys of the Physical Education curriculum (Hill 1986, Underwood 1983) have indicated that competitive activity is the dominant experience, particularly in the form of games. Teaching styles tended to be direct. Acquisition of skill was considered to be the most important aim of the programme and any form of evaluation was given least priority.

During the same period of time an awareness and interest in fitness and health issues has also begun to permeate into societies thinking. This movement was stimulated in 1969 when the World Health Organisation claimed that atherosclerotic coronary heart disease was potentially the greatest epidemic the world had ever faced (Br. Heart J. 1971).

Many western countries introduced huge education and intervention programmes in order to combat this disease. A major feature of these programmes was to encourage physical activity as a vital influence in the control of risk factors associated with coronary heart disease. There is now considerable evidence to support this (Fox et al 1971, Morris et al 1973, Blair et al 1984, Council on Scientific Affairs 1984, Kaplan 1984, Paffenbarger et al 1984).

Much of the research into coronary heart disease has focused quite
understandably on adults. However, recent research indicates that the risk factors associated with coronary heart disease are observable in childhood. (Armstrong and Davies 1980, Armstrong and Davies 1982, Gilliam et al 1977, Seliger et al 1974, Wilmore et al 1981). This has been coupled with a suspicion that young people may not be as physically active as previous generations (Ilmarinen and Rutenfranz 1980, Armstrong and Davies 1982, Telema 1980, De Haas 1978).

Physical activity has also been argued as an important factor in improving quality of life (Facey 1984, Almond 1983). They claim that this is achieved by finding satisfaction through participation in physical activity which has positive benefits for self-esteem and self image. This concept has been developed further by Almond (1986)c who argues that because physical activity has a number of beneficial effects on the body, it is better to be in a 'good' physical state than a 'poor' state, because of the desirable social benefits to be gained from a body that is functioning well. He is making the claim that a concern for health through enhanced functioning of the body is an important value for society.

A Discussion of Developments in Health Related Fitness

These developments have led many physical educationalists to appreciate the vital role Physical Education can play in developing the health and well-being of young people and promoting the idea of active lifestyles (Almond 1983a, 1983b, Fox 1983a, 1983b, Laventure 1985, Corbin and Fox 1985). This concept involves young people in the learning process so that they develop an understanding of the benefits of activity, the principles for the maintenance of physical fitness, the ways in which personal fitness can be achieved and

The growth and interest in this area can be illustrated by an increase in the number of health and fitness courses in schools, (Booths 1986) the increasing number of journal articles about health related fitness, the interest shown by teachers in the health based Physical Education project (approximately 1200 responses asking for information), (Guardian 1986) the way health related fitness features strongly in all recent D.E.S. curriculum courses in Physical Education (South Yorkshire, Cheltenham, Sheffield), and the introduction of health and fitness as an important part of pre vocational courses for the 16-19 years age groups. (Dickenson B 1986)

While the concept of health related fitness is still in its infancy in this country, this interest, at all levels of the Physical Education profession, suggest a major change in the focus of Physical Education in schools away from the traditional sporting base towards promoting physical well-being through physical activity by courses using individualised learning methods.

However, as an appreciation of the importance of this work has been developing, it has become clear that there are large gaps in our knowledge of the behaviours and attitudes of young people. For example questions have been raised about the activity levels of young people (Armstrong 1984, Fox 1983b, Stevens 1985). We do not have a clear picture of their activity patterns. Also, if we are encouraging children to be physically active, then we need to know what they think about the activities within Physical Education. We need to know what motivates or deters children from becoming active.
If the concept of health related fitness is to develop effectively a DATA BASE of information is required which identifies young peoples activity patterns, values, motives, attitudes and perceptions. A review of current literature indicates that this data base does not exist. It is vital that we have sound research evidence as a background to developing future strategies and directions in Physical Education.

The Purpose and Structure of the Study

It is the intention of this study to begin the process of forming a DATA BASE about the activity patterns of young people. However the first stage of this process is to gather information, which could be valuable to this study, from literature. The review of literature includes the following areas:-

a) The structure and composition of the secondary school Physical Education curriculum.
b) Pupils views of Physical Education.
c) The effects of training on children.
d) Research linking the risk factors associated with coronary heart disease to children.
e) The effects of daily Physical Education on primary children.
f) The factors influencing adherence to exercise.

All of these areas provide background information to this study while also providing an insight into the factors affected by the results of this study.

The second part of the study is a report on research into the activity patterns of a random sample of 500 pupils aged between
11 to 16 years in six large comprehensive schools in the West Midlands. This survey involved the sample in completing a daily questionnaire for one school week to identify the frequency, duration and intensity of voluntary physical activity in which the sample engaged.

Having collected pilot data on activity patterns it became clear that further information was required to explain the reasons for the low levels of activity. Therefore, a semi-structured interview schedule was constructed which had three purposes. The first was to verify the results of the questionnaire by asking questions about regular pastimes and activity during the week. The second purpose was to identify patterns of behaviour, particularly concerning activity, during the weekends. The third purpose was to find out how the sample perceived school and in particular Physical Education.

The evolutionary process and the theoretical underpinning of these two research instruments is described in detail and is followed by a presentation of the results of the survey and a discussion of the implications they have for Physical Education. They will also be related to the concept of the school as a health promoting agency within the community and to consider how Physical Education Departments may be able to make a specific contribution to this concept.

Some work has already been done into the concept of Community orientated programmes in Health, Physical Education and Recreation (Ruskin 1977, Baranowski 1983, Devorkin 1983), and a little into family Health projects (Nader 1983).
While these projects are valuable in their own right, the school may have a vital role in contributing to community health, as it prepares children for an age of leisure. The role of the school is described by Ruskin (1977) as,

"The responsibility of preparing children for leisure-centred living runs throughout the learning experiences of the home, school and other community institutions. Any community system has to assume responsibility in complementing the school for the preparation of the children during their formative years for their future as adults".
CHAPTER 2

2.00 A REVIEW OF AREAS OF LITERATURE WHICH HAVE IMPLICATIONS FOR THE CONCEPT OF HEALTH RELATED FITNESS

2.10 Introduction

The first part of this review is concerned with several mainly small scale investigations which have explored the Physical Education curriculum. This information provides details of the activities that form the curriculum, although, in the main, they do not report on the way these activities are taught.

The second part centres on research into the way pupils view Physical Education, and complements Part 1 by providing an indication of the way young people view the curricula. Part 3 provides a review of existing research into the activity patterns of young people, and provides information about the effectiveness of Physical Education programmes in encouraging and motivating active lifestyles. Part 4 reviews research into the effects of physical activity, or lack of it, on young people, including reports on the effects of training on children, the effects of daily Physical Education and a review of research linking the risk factors associated with coronary heart disease. Part 5 of the review of literature is concerned with the area of adherence to physical activity. It is vital to understand why people maintain or drop out of exercise programmes if we are to develop an effective strategy for developing active lifestyles.

This chapter is concluded by a summary which aims to identify the major issues raised in each section.
2.20 The Secondary School Physical Education Curriculum

In a study that intends to look at the way in which young people view Physical Education it is important to have information about what is actually presented to pupils as Physical Education.

Surveys conducted in this country, which may provide an insight into this information have been few. They have also largely been restricted to a survey of a particular education authority. These surveys include:

1. Schools Council Survey (Kane 1974)
2. Leicestershire Schools Survey (Boyall 1979)
3. Thames Polytechnic (Thomas 1980)
4. Wirral Schools Survey (Williamson 1981)
5. Trafford Schools Survey (Greenfield 1982)
6. Liverpool Schools Survey (Bayman 1982)
7. An East Midlands Schools Survey (Hill 1986)

All of these surveys used questionnaires in an attempt to quantify information about what was being taught in Physical Education Departments in schools. The research procedures varied from survey to survey and it would be very difficult to draw specific conclusions, however, from the information available trends can be observed which provide strong evidence for generalisations about the current Physical Education curriculum.

The Schools Council Survey (1974)

The Schools Council Survey (Kane 1974) used a rank order of the relative importance attached by Physical Education teachers, to areas of the Physical Education curriculum. The results showed
that games dominated the programme, athletics and gymnastics move up and down in the rank order and dance and outdoor pursuits remain consistently in the lower ranks. This survey gives the impression that all of these activities are actually being undertaken in schools, later surveys showed that this was not the case. These surveys, which tended to examine a local authority, provided a better picture of individual activities within the broad framework of general areas.

2.22 Local Education Authority Based Surveys

An example of the results of one of these surveys (Hill 1986) represents patterns that emerge in many of the others. Briefly, Hill identified the following results. The time allocated to Physical Education reduced with age for both boys and girls. He also identified a small number of activities which dominated the curriculum. For boys these were football, athletics and gymnastics (47.6%) followed by cricket, rugby, basketball, cross country and tennis (36.6%). For girls netball, hockey, gymnastics and athletics formed the basic curriculum. The major area of experience on the curriculum was provided by games which was notably of the invasion type. It is also worth noting that competitive-type activities dominate programmes for both boys and girls.

A summary of the results of these surveys shows that games dominate the Physical Education programme for boys and girls. Athletics and gymnastics take up the next largest allocation of time, but they represent only approximately a quarter of the programme. Dance is non existent for boys and only represents a small proportion of curriculum time for girls. In some authorities, swimming is
not included in the programme, not even for first-year children; however in one local authority, over ten percent of the time was allocated in the first year. Cross country is the only other activity mentioned in the surveys and this has been included as a separate activity to athletics. Once again, only a small proportion of time was allocated and not all local authorities appear to include it.

There are clear sex differences in the emphasis placed on different activities. Boys spend more time on games, particularly invasion type games, but no time appears to be allocated for dance. On the other hand, girls spend some time on dance and this appears to make up the time difference between boys and girls' games activities. Gymnastics for boys and girls is very similar in terms of time allocation. The curriculum appears to be 'activity' based, with little time allocated for health work.

The time allocated to Physical Education appears to be similar across local authorities, but it appears to be reduced in year 3 and continues to decrease in years 4 and 5. Once again, this is consistent across the local authorities.

**Underwood's Survey (1983)**

It provides the most comprehensive survey of the Physical Education curriculum in this country. Over several years he has gathered data from 608 secondary schools via a postal questionnaire and interviewed 16 heads of departments (8 women and 8 men), half under 40 years old and half over 40 years old and analysed 71 Physical Education syllabuses.

Very briefly the major findings of this survey were:-
1. The aims of the Physical Education programme given greatest importance by the sample in order of priority were -
   (a) Skill acquisition
   (b) Recreation for leisure
   (c) Health and fitness, socialization
   (d) Enjoyment.

   It was interesting to note that most teachers did not communicate their aims to the children.

2. All the Secondary Schools had a compulsory common core of activities. This usually took place in the first three years and consisted of major games, gymnastics, swimming, athletics and dance. However the amount of time allocated varied considerably. Not every activity was offered in each year. Most schools were allocated three or four periods a week.

   The curriculum in the 4th and 5th year was characterized by a wider range of activities and a limited amount of choice and was usually described as an option programme.

3. Teaching styles tended to be direct.

4. Extra-curricular activities were considered to be very important, sometimes greater emphasis was placed on this area than on the normal curriculum.

5. There was little evidence that the teachers were making much effort to systematically evaluate/assess courses or children.

6. Curriculum planning was often informal or casual.

7. Analysis of the syllabuses identified 4 common areas -
(a) Core work
(b) Optional activities
(c) Award schemes
(d) Time allocation

Other aspects of Physical Education work mentioned included extra-curricular activities, facilities and equipment.

Underwood concluded that:

"...something is left to be desired in relation to the content and presentation of many of the syllabuses. Teachers are unsure how to present their work in the form of a written syllabus and there would appear to be some support for the earlier contention that they might find guidelines helpful in the planning of the Physical Education curriculum".

8. General trends show that teachers place most emphasis on the content of programmes; less emphasis is placed on aims and objectives and teaching method; and any form of evaluation is regarded as least important.

Methodological Issues Related to these Surveys

All of these surveys have used methods which are open to criticism. Some lacked rigor in framing the questions to elicit accurate, detailed information. For example the Schools Council Survey referred to a category called 'Team Games', but made no distinction about what games. It also used the word 'regularly' which was open to interpretation by the sample. (e.g. Do you regularly participate in sport?).

Because of the anomalies in the research methods any comparison
of surveys is problematic, particularly as much of the data is either incomplete, misleading or ambiguous.

All of these surveys relied on self reported data and postal questionnaire methods. These two aspects of research design are fraught with problems. Self reported data relies heavily on the respondent to understand the questions and reply in an appropriate form for analysis. In many of these surveys the respondent was asked for information covering the whole of the academic year. It therefore was unknown whether the respondents relied on memory, or records, as methods of recall.

The major problem of postal questionnaires is that the researcher relies on the goodwill of the respondent to return the information. Even with considerable prompting and reminders it can still be very difficult to collect enough appropriate information, and it also has implications for the results because the sampling procedure would be affected by the number of returns, (e.g. East Midlands Schools Survey).

Many of these criticisms are due to the fact that, all except the Schools Council Survey, were conducted by non-professional researchers. Many were initiated by advisers and teachers to provide a general impression of what was happening in a particular authority. Time for pilot studies and lack of research procedures have caused particular problems with all of these surveys, however one recent survey has attempted to overcome many of these methodological issues.
2.30 Pupil Views of Physical Education

Research into pupil perceptions in education has centred almost entirely on the classroom. There is very little evidence about how young people view Physical Education, however two studies have provided a valuable insight into this area.

Attitudes of Young People, Aged 15 - 16 Years, in Central Scotland

The first major study in this area was conducted by Hendry (1978) which involved 3,000 students between 15 to 16 years old, in 15 comprehensive schools in Central Scotland. Data was collected by questionnaires and inventories, teachers ratings and assessments, and by direct measurement, observations and recordings.

Hendry found that more than half the boys and more than two-thirds of the girls were non-participants in extra-curricular sports. However this group of non-participants rarely suggests a dislike of the activities offered at school. Comments were more often related to restrictions and the learning situations which they experienced; changing into sports clothes which did not enhance their appearance (particularly girls); a dissatisfaction with sports experiences associated with the cold and playing full scale games in poor weather conditions. The most frequent comments were directed towards the Physical Education teacher's decisions about the choice of activities, without any real pupil-understanding of the reasons behind these decisions. A desire to improve their physical skills was an aspiration of most pupils. If Physical Education became a voluntary subject most active pupils and a reasonable number of non-participants would attend. This reinforces the finding that many pupils are interested
in and enjoy physical activities and sports. This was also confirmed by almost two-thirds of the non-participants who were aware of greater attention given to the physically active pupils and expressed a dislike of the teaching procedures involved. Yet many non-participants found the actual sports activities enjoyable and desired to improve their individual competence and skills level.

Hendry also identified other attitudes connected with Physical Education. He recognised that the active pupils were aware of their own ability and enthusiasm, showed a willingness to attend Physical Education classes and had a desire to improve their sport skills; they were also aware of the extra attention given to them by Physical Education staff.

This can be linked to the idea of 'identification' and 'association' of active pupils with school and is re-inforced by teacher-identification with these pupils as reflected by Hendry's finding that roughly 1 in 10 of the competitive pupils had positions of responsibility in school, whereas the ratio for recreatives and non-participants was approximately one in twenty.

Finally, Hendry identified body weight or shape as an important influence. This concerns those who may be underweight as well as overweight. The pupils' perception of his/her condition has been shown to affect social relationships, school performance, and emotional adjustment as well as being a potential health hazard. The emphasis on performance in Physical Education programmes may reinforce the perceptions of these young people. The implications are described by Hendry as:-
"...those with an overweight or underweight physique may be less active and less sociable, following more passive pursuits, exhibiting different characteristics and possessing a less clear-cut body concept".

Research into Attitudes of Young People in New Zealand Towards Physical Education

The other recent major work into the area of attitudes of young people toward Physical Education and physical activity has been conducted by Williams in New Zealand (1982).

He began assessing the effects of daily Physical Education on children's attitudes towards physical activity (1982). The sample was 251 pupils, aged between 9 to 11 years from 3 primary schools. The attitudes were assessed by Kenyons (1968) original APTA inventory amended by Simon and Smolls (1974). The second part of the test was a questionnaire designed to measure involvement in physical activity. It consisted of 19 items arranged in a 5-point Likert scale. Subjects were asked to indicate how often they participated in a variety of activities in terms ranging from 'almost every day' to 'hardly ever'.

The results showed that participation in physical activities was associated with positive attitudes towards physical activity and that there was partial support for the view that positive effects on attitudes would result from a daily Physical Education programme.

Williams next study was concerned with the self esteem, body esteem and attitudes toward physical activity of high school students (1982). Williams again used a questionnaire designed by Kenyon (1968) to
measure ATPA. It is worth noting that Kenyon identified seven subdomains which represented a different perception of the value of physical activity. These are:

1. Physical activity for health and fitness
2. As a social experience
3. As a pursuit of vertigo or excitement/risk
4. As catharsis or a release
5. As an ascetic experience, involving sacrifices to long and strenuous training
6. As an aesthetic experience
7. As chance

Self-esteem was measured by the Guttman 4 point scale (Rosenburg 1960) and body esteem by a 24 item semantic differential scale (Kenyon 1968). The sample for this study was n = 194 3rd and 5th form students from 4 schools.

The results showed that female secondary school pupils hold more positive attitudes towards physical activity than males. The male students regarded physical activity as the pursuit of vertigo much more than female students. Williams suggested that attitudes to physical activities are to an extent a function of sex not age, and that male students held more positive attitudes towards self and body esteem than female students.

Williams next turned his attention towards the attitudes of High School students towards Physical Education (1983). His sample was 814 boys and girls in 3rd and 5th form classes from 3 schools. The methods of assessment were Wear's Physical Education Attitude Inventory (1951), the Guttman Scale for self-esteem (Rosenberg 1965)
and Kenyons (1968) semantic differential scale for assessing body esteem. The results showed that attitudes towards Physical Education were generally favourable for boys and girls. Some differences were observed between sexes and ages for self-esteem and body esteem. For example the older girls seemed to have a more positive concept of the self as well as a more positive perception of body image.

This study was later extended into an assessment of the Attitudes of New Zealand School Pupils Towards Physical Education (1983), using Wears Physical Education Attitude Inventory as the method of assessment. The sample was \( n = 5,101 \) form I and form IV boys and girls from state schools. The results showed that the attitudes of pupils towards Physical Education was generally positive although specific differences exist according to the various levels of independent variables of form, sex, geographical location and school type.

Finally Williams looked at the relationships among body-esteem, self-esteem and attitudes of pupils towards Physical Education (1984). The sample was again, \( n = 5,101 \) form I to form IV boys and girls in state schools. Assessment of attitude was by Wear's Physical Education Inventory which identified Self-esteem, Rosenberg (1968), and Body-esteem (Kenyon 1969). The results showed that attitudes towards Physical Education are to some extent a function of body-esteem and self-esteem and that these should receive close consideration in the planning, implementation and evaluation of Physical Education in schools.
2.40 The Physical Activity Patterns of Young People

At a time when the physiological and psychological benefits of regular exercise are being demonstrated by research, there is a growing suspicion that young people may not be as physically active as might have been expected. If this is the case and in the light of research associated with identifying CHD risk factors in children, there may be serious Health implications for the short and long term future for this section of the population.

Involvement of 15 to 19 Year Old Young People in Sport and Physical Activity in Stirling (1985)

Some recent studies would suggest that young people are active. An example of these is a report by the Sports Council for the Stirling District on the involvement of 15 to 19 year olds in Sport and Physical Activity (McKusker 1985). 200 young people were interviewed over a 3 month period from September to December 1984. The results show that over 90% of both boys and girls take part in recreational sport and only 39% of the boys and 31% of the girls take part in competitive sport.

These results may be misleading as there is:-

1. No information concerning the frequency, duration and intensity of the participation.
2. The researcher suggests that there are differences in definition of sport by researchers and by young people.
3. Activities like snooker, pool, darts and fishing were included in a classification of popular 'sports'.
The Involvement of 9 to 13 Year Olds in Leisure Activities in Bradford (1983)

Similar criticisms can be levelled at a report on the social and recreational interests of 9 to 13 year olds in the Bradford area. Five schools and 1,438 children were involved in the survey, which concluded that:

"...nine to thirteen year old children are actively involved in a wide range of leisure activities and would, if they were better informed, welcome the chance to try even more".

While the report implies that the level of participation in leisure activities, (which it suggests are predominantly sporting), appears to be high, analysis of the results shows that the percentage who regularly take part in extra-curricular activities was:

<table>
<thead>
<tr>
<th>School</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23.7%</td>
<td>12.1%</td>
<td>16.5%</td>
<td>10.4%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

and the percentage who attended activities from home was:

<table>
<thead>
<tr>
<th>School</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.6%</td>
<td>8.7%</td>
<td>12.2%</td>
<td>34.0%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

It could be argued that the percentage of children involved in school-based leisure activities was relatively low. Also there is no reference to the frequency, duration and intensity of sports activities. Neither is there any explanation to understand the high score (34%) for school D concerning the percentage who attended activities from home.

A Survey of Sport, Physical Education and Recreation in the South West (1984)

Community' conducted a survey of the South West part of this country to establish the current condition of Sport, Physical Education and recreation in order to identify future strategies for the development of sports participation in that area. The report uses information from a General Household Survey in 1980 to identify current rates of participation. For the 13 to 24 age range the results are:

<table>
<thead>
<tr>
<th></th>
<th>Outdoor</th>
<th>Indoor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Participation Rate %</strong> (GHS 1980)</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>53.1</td>
<td>39.7</td>
</tr>
</tbody>
</table>

Unfortunately the report does not identify differences within the age groups; the type of activity which is categorized as 'sport'; whether or not the same people made up the indoor and outdoor percentage, or the frequency, duration and intensity of participation. In the light of these criticisms it is difficult to place much importance on these results.

The Factors Affecting Participation in Sport (1981)

The Sports Council have also produced a report, 'A Sporting Chance?' (1981), which considered the family, school and environment as influences on taking part in sport. It examined the levels of sports activity by people in different social and personal circumstances in two areas typical of Teesside and urban England. One part of the report was concerned with the influence of school on participation. Out of a sample of 237 individuals, 210 indicated that they enjoyed sport at school. However three quarters of this group also indicated that they had taken part only in compulsory sports. If this number were added to those who indicated a dislike for school sport and did not participate, it might be concluded that 183 members of
a sample of 237 did not participate in sport after school. It should be noted however that the interview/questionnaire asked adults to reflect on their school life which, due to the problems of memory recall, may have affected the results.

**A Survey of Fitness and Activity Patterns in North America**

A major study into the fitness and the activity patterns of young people between the ages of 10 to 17 years in North America has recently been published by the Office of Disease Prevention and Health Promotion (1984). It set out to determine how fit and how active 5th through to 12th grade students actually are. Specifically the study attempted to describe the current fitness status of American children and youth; to describe patterns of participation in physical activity and to evaluate the relationships among physical activity patterns and measured fitness. The sample was taken from 140 schools in 19 states. Eight thousand eight hundred students completed the fitness testing and physical activities survey. The study sought to answer, among others, the following questions with regard to activity patterns.

1. In a typical week, how much time do youths in 5th through to 12th grades spend in physical activity (exclusive of physical education classes)?
2. How much does activity vary from season to season?
3. What portion of time is spent in physical activities with carry-over value into adulthood?

The students were asked to select from a list of types of community organisations through which they obtained physical activity in the past 12 months. Next, they were asked to review a list of the physical activities and to report whether they had participated in
each activity at least 3 times outside Physical Education classes in the past 12 months. Third, students were asked to select the 10 activities performed most frequently and to indicate for each the season in which they participated in the activity the most and, the frequency, duration and sources of the activity. To check the validity of the self reported activity patterns, a final question asked the students to report the weekly frequency by season, with which he or she experienced the behavioural signs of appropriate physical activity (sweating and breathing hard during exercise) for 20 minutes or more.

The results of the self-report data indicate that 58.9% of the sample participate in appropriate physical activity year round. The data further indicates that only 46.9% of the sample participate year-round in appropriate lifetime physical activity. The percentage of students reporting regular experience of breathing hard during exercise was much lower (41.0%). The report can only speculate as to the reason for this result. Also exercise patterns vary greatly from season to season whichever measure of appropriate physical activity was used. The report stated its concern about this result as:

'The likely resulting patterns of deconditioning and reconditioning deprive our youth of the health benefits of year-round appropriate physical activity and may set an unhealthy precedent for life-long patterns of inconsistent participation in vigorous physical activity from season to season.'

The report defines appropriate physical activity as:

'exercise which involves large muscle groups in dynamic movement for periods of 20 minutes or longer, 3 or more times a week, and which is performed at an intensity requiring 60% or greater
of an individual's cardiorespiratory capacity."

The report concludes that:

'The reality is probably half of American children and youth in grades 5 through 12 do not perform the minimum weekly requirement of vigorous physical activity needed to maintain an effectively functioning cardiorespiratory system.'

The major problem associated with self-report questionnaires is the many influences on the accuracy of the form. Baranowski (1984) suggests that these include: '(a) the structure of the form, including time period of recall and response format, (b) the appropriateness of the forms and instructions for the age and social group of the child, (c) the incentives for form completion, (d) the environment for form completion.'

Baranowski also suggests that forms for self-reporting of aerobic activity which require responses for each segment of the day separately appear to be most accurate. The methods used to assess appropriate physical activity in this survey could not be further removed than Baranowski's observation. This must place a serious question mark against the validity of the results.

**Seliger Et Al (1974)**

One study which was very specific in its methodology was that conducted by Seliger et al (1974). In this study eleven 12 year old boys were studied over a 24 hour period. The subjects kept personal records of their activity, accounting for each minute according to the procedures used by Durnin and Passmore (1967) and Weiner (1969). These were evaluated in a subsequent personal interview.
and an attempt was made to quantify the various activities as follows: 1° sleep (110% BMR); 2° awake lying down (120% BMR); 3° moderate activity, sitting or standing at rest (150% BMR); 4° low intensity activity (300% BMR), 5° moderate intensity activity (500% BMR), 6° medium intensity activity (800% BMR); 7° heavy intensity activity, moving (1000% BMR). Throughout the 24 hour period heart rate was recorded.

The results showed that the subjects spent 44% of the time sleeping, and 34% engaged in mild activities at levels 3 and 4, only 3% of the time was devoted to moderate or medium intensity activity. At no time did the boys engage in heavy intensity activity. Seliger concludes that -

'All of the subjects in this sample exhibited a sedentary life pattern.'

While these results are quite specific they only report on a small group for a relatively short period of time. Therefore, even though the methodology may be accurate there would be severe problems in using it with a large sample for a long period of time.

Hovell (1978)

An interesting study was conducted by Hovell (1978) into the amount of voluntary physical activity elementary students engage in during recess time. About 300 students, from third to sixth grade (8 to 11 years), were observed for almost 5 minutes. Every 5 seconds their activity levels were rated as no activity, moderate, or vigorous. Results showed that the students engaged in physical activity for only about 60% of their recess time. Further, when compared with an aerobic standard, the elementary student's performance was
only slightly more than half as vigorous. It was concluded that children do not voluntarily engage in sufficient aerobic activity during recess to be likely to increase their cardiorespiratory fitness. Hovell finishes his discussion of the results with the following statement:-

'Thus although this analysis does not rule out the possibility that children obtain aerobic exercise outside of recess, it appears that children do not engage voluntarily in such activity when provided with the opportunity during the school routine. If, as previous research has suggested, children are not as physically fit as they might be, recess periods may be an opportunity for health and physical educators to provide more extensive physical education and improve fitness. Doing so might contribute to the prevention of heart disease'.

**Hendry (1975) and Illmarinen and Rutenfranz (1980)**

Some studies, while not specifically monitoring levels of participation, have identified the involvement of young people in sport. Two examples of these studies have been provided by Hendry (1975) in Scotland and by Illmarinen and Rutenfranz (1980) in the Federal Republic of Germany. Hendry's study involved over 3,000 adolescents (15-16 years) in 15 comprehensive schools. He categorized pupils as: (a) active competitively, (b) active recreationally, (c) non-participant. It was discovered that more than half of the boys and more than two thirds of the girls were 'non-participants'—they did not voluntarily take part in school sports beyond timetabled lessons. Illmarinen and Rutenfranz conducted a longitudinal study which monitored 25 girls and 26 boys from the age of 14 years to 17 years. Habitual
physical activity was assessed in four annual retrospective interviews with a standard questionnaire. Quality, quantity, and intensity were assessed as follows:

1. **Quality:** type of sport activities
2. **Quantity:** average hours per month and number of months per year.
3. **Intensity:** average MET (multiple of basal metabolic rate) value of individual sport events, calculated according to standardized tables.

The results are illustrated by **Figure 1.** They show the variation in the yearly sport activity scores of the boys and girls during the 4 years of the study. For both sexes the scores tended to decrease with age. A clear decrease was seen among the boys after the age of 15; i.e. by about 70% between the ages of 15 and 17. The yearly sport activity of the girls decreased between the ages of 14 and 17 by 57%. At the age of 15, the total sport activity score of the boys was about 4 times higher than that of the girls, but by the age of 17 the difference was only twofold.

Illmarinen (1980) concludes that:

'... leisure time physical activity tends to decrease, especially among girls, as adolescents leave the school environment and enter work life. If this decrease tendency continues after the age of 17 the demands of work could overload working adolescents and young adults and lead to occupational health problems later in life.'

**Methodological Problems in Assessing Activity**

Examination of the literature on the physical activity patterns of
THE YEARLY SPORT ACTIVITY OF THE SUBJECTS

BETWEEN THE AGES OF 14 AND 17 YEARS
young people illustrates the problems of accurately assessing this area. It appears that methods combining self report procedures, with interviews and monitoring of heart rate can be very effective, but are difficult to administer over a long period. Questionnaires requiring specific information about behaviours in the past must have problems associated with the accuracy of memory recall. Self report procedures are also open to misuse or misinterpretation. For example what constitutes appropriate physical activity or vigorous physical activity. Also with these procedures young people are more likely to respond in a way that they perceive as being appropriate rather than accurate.

Clearly further research is required into appropriate methodologies, however despite the various approaches used in identifying activity patterns and considering the international nature of the evidence, it is reasonable to suggest that in general very many young people are physically inactive and this may have vital implications for the physical health of Western Society.

2.50 The Effects of Training on Children

This section is devoted to a review of evidence concerning the effects of training on young people to identify if it enhances bodily functions. Research into the response of the growing child to physical training is accumulating, but is still relatively rare when compared to the number of adult studies in this area. The major reason for this would appear to be the problem that the child is growing at his own particular rate and it is very difficult to separate the contribution of growth to that of training when observing physiological changes. Research into this area, therefore appears to offer contradictory results. However certain trends appear to be emerging:-
(a) The first is that up to the age of 12 years the effects of extra training are rather limited. For example several studies have found no increase in VO\textsubscript{2} max with training for pre-pubertal children (Bar or and Zwirner 1973, Yoshida et al 1980, Koch 1978, Mocellin and Wasmund 1973, Gilliam and Freedson 1980).

(b) However between the ages of 12 to 16 years training may increase the functional capacities of the heart and the lungs. For example, Copper et al (1972) demonstrated with a sample of 1,215 high school boys, average age 15 years that when the experimental group participated in a 20 min exercise programme for 5 days per week for 15 weeks they improved their endurance, as measured by the Coopers 12 minute run/walk test, by 17.5% over the control group whose endurance capacity remained constant. Astrand et al (1963) study of 30 young female swimmers demonstrated that both functional and dimensional measures of cardio respiratory fitness may be improved by long-term strenuous swim training. Ekblom (1969) in a 32 month run training study demonstrated improvements in vital capacity and heart volume which were larger than those predicted from normal growth and larger than those observed in a control group. More recently, Armstrong and Davies (1982) have reported elevated levels of serum cholesterol in children and have suggested that,

"it seems likely that regular, intensive exercise during adolescence may increase HDL-C concentration and that obesity is inversely related to both physical activity and high levels of HDL-C".

-30-
(c) It is also worth noting that the effects of detraining are also complicated by the child's continued growth during the detraining period. However it appears that as with adults short term training programmes are transient. The study of girl swimmers (Astrand et al 1953) discussed earlier was followed up 10 years later by Eriksson et al (1971) who observed that all the girls had stopped swimming and most did not engage in any specific physical activity in their spare time. He found that all the girls showed a decrease in VO$_2$ max which was 29% on average and total haemoglobin also decreased (13%). However the dimensions of the lungs and heart remained the same. Apparently the girls appeared to have retained the organic capability for high levels of aerobic work even though their VO$_2$ max had significantly decreased.

In a recent review of the effects of exercise on children, Armstrong and Davies (1984) conclude that:

"the data are not unequivocal but it seems likely that regular, fairly intensive physical activity during childhood may elicit favourable lipoprotein changes as well as cardio respiratory and body composition adaptations".

2.60 A Review of Research Linking the Risk Factors Associated with Coronary Heart Disease to Children

Coronary risk factors have been defined as 'those abnormalities demonstrable in persons free of clinical coronary heart disease and known to be associated with significantly increased risk of developing them in subsequent years.' (Stamler 1966)
The abnormalities referred to have been categorized as follows - primary risk factors - high serum cholesterol, hypertension and cigarette smoking; secondary risk factors including obesity, physical inactivity, positive family history of premature vascular disease and various other less well established phenomena like caffeine intake. (Armstrong 1984).

For some years research has been accumulating which has linked the sedentary lifestyle of our western culture to the risk factors indicated above (Morris et al 1973, Paffenbarger 1975). Much of this research has provided evidence about the value of regular exercise in improving the physiological and psychological conditions of the population (Collingwood (1971), Bjorntorp (1973), Bioleau (1971)). The importance of this research cannot be stressed too strongly as atherosclerotic coronary heart disease is annually responsible for the death of 180,000 Britons. The World Health Organisation claims it is potentially the greatest epidemic the world has ever faced (1969).

The publicity generated by this evidence has resulted in something of a nationwide health and fitness boom, however there has been some concern that this increased awareness of the body and its response to exercise should only concern the adult population. There is now a strong suspicion that the risk factors associated with coronary heart disease may also be observable in childhood (Fentem 1976). Unfortunately there has been little research conducted into this area. However the results of work that has been done certainly indicate that hypokenetic diseases have a paediatric origin.
For example Wilmore et al (1981) assessed a random sample of 308 boys, between the ages of 13 to 15 years for coronary artery disease factors. He produced the following table (Table 1) which shows the degree of relative risk and made the following statement as a result of his research:

"it is apparent that factors which place the adult at high risk for Coronary Heart disease are already present in 13-15 year old boys. This suggests the importance of early education and possible lifestyle modification for those at risk".

**TABLE 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Risk Criteria</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>14.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height (cm)</td>
<td>165.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>55.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative fat %</td>
<td>17.0</td>
<td>&gt; 20%</td>
<td>30%</td>
</tr>
<tr>
<td>Cholesterol mg/dl</td>
<td>165.7</td>
<td>&gt; 180 mg/dl</td>
<td>27%</td>
</tr>
<tr>
<td>HDL-C mg/dl</td>
<td>46.0</td>
<td>&lt; 40 mg/dl</td>
<td>30%</td>
</tr>
<tr>
<td>LDL-C mg/dl</td>
<td>103.0</td>
<td>&gt; 120 mg/dl</td>
<td>20%</td>
</tr>
<tr>
<td>Triglycerides mg/dl</td>
<td>83.7</td>
<td>&gt; 100 mg/dl</td>
<td>25%</td>
</tr>
<tr>
<td>Systolic BP mm Hg</td>
<td>121.3</td>
<td>&gt; 140 mm Hg</td>
<td>2%</td>
</tr>
<tr>
<td>Diastolic BP mm Hg</td>
<td>70.6</td>
<td>&gt; 90 mm Hg</td>
<td>1%</td>
</tr>
<tr>
<td>$VO_2$ max ml/kg. min$^{-1}$</td>
<td>46.9</td>
<td>&lt; 45 ml/kg. min$^{-1}$</td>
<td>35%</td>
</tr>
<tr>
<td>Smoking, yes</td>
<td>0.0</td>
<td>yes</td>
<td>0%</td>
</tr>
<tr>
<td>Parents smoking, one</td>
<td>34.0</td>
<td>yes</td>
<td>34%</td>
</tr>
<tr>
<td>or both, %</td>
<td>12.0</td>
<td>yes</td>
<td>12%</td>
</tr>
<tr>
<td>Diabetic, %</td>
<td>1.0</td>
<td>yes</td>
<td>1%</td>
</tr>
<tr>
<td>Abnormal Resting ECG %</td>
<td>6.0</td>
<td>yes</td>
<td>6%</td>
</tr>
<tr>
<td>Family History CHD %</td>
<td>31.0</td>
<td>&lt; 60 yrs of age</td>
<td>31%</td>
</tr>
</tbody>
</table>
Wilmore and McNamara (1974) have also indicated the presence of the following risk factors in boys 8 to 12 years of age. Obesity (> 25% fat), low physical work capacity (< 42 ml/kg. min) and elevated serum cholesterol (> 200 mg%) and triglyceride (> 100 mg%).

Lauer et al (1975) investigating coronary heart disease risk factors in 4,829 school children, reported that 24% had elevated cholesterol levels and 15% had abnormal triglyceride levels. In addition, they reported that 20% of the children, 6 to 9 years of age, had excess body weight as determined by deviation from the median body weight at a given height.

Gilliam (1977) studies 47 boys and girls between the ages of 7 to 12 years who were all judged healthy by the means of a comprehensive medical history questionnaire to their parents. The sample were tested for VO₂ max, obesity, elevated triglycerides and the presence of Type IV hyperlipoproxememia. The results showed that twenty-nine (62%) of the children had at least one risk factor. Of these seventeen (36%) had two or more risk factors, with one subject having as many as five risk factors. Gilliam concluded that:-

"The data of this study further substantiates the prevalence of Coronary Heart disease risk factors in children. More importantly the data give evidence to the development of multiple risk factors at an early age".

He continues to suggest that:-

"... diet modification and prescribed physical activity be studied as one possible means of coronary heart disease intervention during early childhood to minimise the potential development of these risk factors".

Their sample was 111 kindergarten children (ages 4 to 6 yrs) and 54 primary school children (ages 8 to 12 years) from 3 schools in the Nijmegen area of the Netherlands. The results expressed a particular concern about the level of body fat observable in less active children. Saris concludes by suggesting that:

"These findings support the idea that saturated fatty acids and cholesterol in the diet are not harmful as long as one is physically active."

Armstrong and Davies (1980) have reported research in this country into the prevalence of obesity, hypertension, smoking, physical inactivity and familial coronary heart disease in a group of twenty-eight, 14 year old boys. They found that two boys exhibited 3 factors, ten boys 2 factors, twelve boys 1 factor and only four boys were free from symptoms.

Summary

The results of these studies would appear to confirm the suspicion that the risk factors associated with coronary heart disease are frequently present in children. It is therefore reasonable to conclude that individuals displaying several risk factors at an early age are potential coronary candidates.
A Review of Studies into the Effects of Daily Physical Education on Primary School Children

The first documented study was conducted in 1933 by Professor Laterjet, who identified 30 of the medically and physically weakest 11 year old girls in Lyon (France). They engaged in 2 hours of daily Physical Education for 18 months and were then compared to a control group. The results showed that the experimental group were physically superior, had improved attendance and there was no fall in academic standards. In 1951, Dr Fourestier introduced a daily Physical Education programme for 32 children of 11 years old at Vanves primary school in France. When compared with a control group the experimental group were healthier, had a better attendance, were better at sports and better academically. Using the same model similar results were obtained in Brussels schools (1954).

Out of concern for the health of Canadian children, Professor Bailey (1972) highlighted the need for more time spent on physical activity. In May 1974, the Canadian Association of Health, Physical Education and Recreation recommended that every primary school child:

"should have the opportunity in schools to experience effective daily instruction in physical activity".

Martins and Grant (1980) surveyed the results of daily physical education in Canada and concluded that:

"teachers, principals, parents and school boards pronounced the programmes eminently successful", and that, "there was overwhelming support for daily Physical Education".

Two of the better known Canadian studies took place in Quebec
at Trois Rivieres and Pont Rouge and at Blanshard Elementary School in Victoria, British Columbia. The Quebec study concluded that the experimental groups were superior to the control groups in aerobic power and strength (Shephard 1979). The Victorian study concluded that academic achievement remained the same, but attitudes became more positive and physical fitness improved (Martins 1979). Reports submitted to the Department of Education in Alberta (Glaseford 1977) and to the Ministry of Education, British Columbia (1980). Both strongly endorsed the concept of daily physical education.

Major work on daily physical education has been developed in Australia. A well documented study in Adelaide involved 500 10 year olds in 8 schools (Coonan 1980). The SHAPE project (School, Health, Academic Performance and Exercise) operated over a 14 week period. The experimental groups made substantial gains in health and in the psychological and social areas over the control group, without any evidence of adverse effects on academic performance.

The only documented study in this country is being conducted by Pollatschek (1982) in the Renfrewshire Division of Strathclyde in Scotland. He is examining the psycho-physical effects of daily Physical Education on 10 year old children over 1 year. Preliminary subjective results taken at the mid-point of this study indicate a very positive attitude from all of those involved.

2.80 Factors Influencing Adherence to Exercise

There is mounting evidence that regular physical activity can have beneficial effects on the physiological and psychological condition of the individual. However, recent evidence has highlighted a major problem in encouraging people into leading active lifestyles.
This evidence suggests that most of those who begin an exercise programme will 'drop out', usually within the first 3 to 6 months. Also and perhaps even more importantly exercise adherence is typically poor even among those who are likely to benefit most. (Martin and Dubbert 1982)

Martin (1981) suggests that the following factors have been found to predict exercise participation and level of adherence - 'A' Subject Factors; 'B' Social/Environmental Factors; and 'C' Programme Factors.

'A' - Subject Factors

(1) Psychological - one's attitude toward exercise does not appear to predict participation or later adherence. Studies have indicated that even the very sedentary have extremely favourable attitudes toward exercise. (Dishman & Gettham 1980; Morgan 1977).

Lack of motivation is frequently cited by individuals for their exercise drop out.

(2) Behavioural - major predictors of exercise drop out appear to be smoking (Oldridge 1979), and inactive leisure time pursuits (Oldridge 1979).

(3) Biological - several studies have related over weight, especially high percentage of body fat, to drop out and poor adherence (Dishman & Gettham 1980).

'B' - Social/Environmental Factors

Social support or reinforcement both in the home environment and during the exercise has consistently been related to increased
adherence. Heinzelman and Bagley (1970) reported that 90% of a sample of 195 exercisers stated that they either did prefer or would have preferred exercising with others.

'C' - Programme Factors

An inconvenient location for the exercise programme has been found to detract significantly from adherence (Andrew & Parker 1979; Andrew et al 1981). Another important predictor of adherence is the overall intensity of exercise. Pollock (1977) and others have found higher intensity exercise to be associated with lower adherence.

Martin and Dubbert (1982) suggest that the following areas may provide a means to increasing adherence levels:

(a) Reinforcement Control - Contracting and lottery procedures have been shown to be effective in improving short term exercise programme attendance.

(b) Stimulus Control - Visual displays and telephone prompts have proved effective. Cognitive/Self Control - several studies have effectively employed self management strategies (including stimulus control, self contracting and goal setting, self reward in the modification of exercise behaviour).

Brownell and Stunkard (1980) have suggested two useful categories of exercise behaviour that have important implications for adherence. They are:

(i) programmed or special activities - like sports or exercises that occur in scheduled sessions, and
(ii) routine or regular activities which can be readily incorporated into daily living, for example using stairs instead of lifts, walking instead of driving short distances.

Whatever the variable which controls exercise adherence the following statement by Andrew (1981) seems vital:-

"The enjoyment or aversiveness of each exercise session may be strongly influenced by the individual's interpretations of bodily sensations accompanying the exercise and perceived success in achieving personal goals. These subjective evaluations may in turn, continually erode or enhance the individual's probability of engaging in the exercise behaviour ....."

Martin and Dubbert (1982) confirm this statement:-

"We also believe that, for the exercise habit to be maintained, there must be a high ratio of enjoyable experience, sensations and cognitions to those of neutral or especially of an aversive quality".

It is clear that the problem of exercise adherence is of major importance, yet it appears to be a neglected area of research. If it is possible to identify the reasons why people take up exercise and either continue activity or drop out, then it should be possible to produce programmes which are suitable for the majority. However, we seem to be a long way from the position. Further research into this area appears to be a priority.
CHAPTER 3

3.00 METHODOLOGY

3.10 Introductory Statement

The purpose of this chapter is to describe the processes used to develop the tools for data collection. The first stage will be to explain why a questionnaire and interview were used in this research and then describe the theoretical principles underpinning their development.

The description of the development of the questionnaire and interview schedule will be kept separate. The purpose of this is to clarify developmental procedures, despite the fact that these two tools were being devised, tested and amended simultaneously and the development of one was likely to influence the other.

The structure used to describe the developmental procedure will be the same for both the questionnaire and the interview.

The procedure will begin by outlining what the purpose of each instrument is, then to describe the important factors associated with their design, followed by a description of the processes of development and the finished or final instrument.

The next stage will be to explain the analytical procedures used to arrive at the final results, followed by a description of the survey procedure.

The chapter will conclude with a critique of the research processes and methods.
3.12 The Reason for Using a Questionnaire and Interview as Methods of Data Collection

The initial purpose of this study was to identify how physically active young people are. In order to identify patterns of activity to make generalizations about the population it was felt suitable to sample a large group.

Research Methods

Having made these decisions, it was necessary to decide what method was appropriate for collecting data. There were various options available. These included questionnaires, diaries, interviews or observation. A combination of these methods may have been ideal, however the practical difficulties associated with using the latter three methods, on a large sample and with only one researcher in the field suggested that a questionnaire might be an appropriate instrument. This seemed to be endorsed by the fact that other studies had used questionnaires to determine behaviours in related areas (e.g. South West Council for Sport and Recreation 1984, Joperd 1985, Williamson 1985, Scottish Sports Council 1980, Collings 1981, Baronowski 1984, Balding 1983).

Also, the quantitative nature of the data seemed to lend itself to use of a questionnaire. However, to use only one instrument for data collection would inevitably limit the credibility of the results. Another method of data collection was therefore required which could also provide information about the level of activity in which the sample engaged. Two instruments seemed appropriate. These were diaries or interviews. Either would have served the purpose of providing information about activity patterns from a different source,
however an interview had several advantages. Firstly, the opportunity for the interviewer to probe answers provided a valuable contrast in approach. Diaries would have relied, like the questionnaire, on the honesty and reliability of the respondent. Whilst to a certain extent the interview would also rely on this, the different nature of data collection enables the researcher to provide more reliable results.

Also it was important to find out how the sample viewed Physical Education and the activities in which they engaged. Questionnaires have been used to collect information about attitudes towards Physical Education (Williams 1982\textsuperscript{a}, 1982\textsuperscript{b}, 1983\textsuperscript{a}, 1983\textsuperscript{b}, 1984, Coe 1984, Hendry 1975). However to provide the sample with a further questionnaire may cause practical problems as well as motivational ones. As it had been decided to conduct interviews to check the activity patterns it seemed logical to extend the interview schedule to include questions related to Physical Education. Again the opportunity to probe responses was seen as particularly valuable in this case.

Apart from the information that the survey was interested in collecting, the interview had one other major advantage. It was intended to collect information from a cross section of a large sample which was to include marked differences in age, intellectual capacity, background and sex. Bearing in mind these variables and the nature of the information required, it seemed to make much more sense and was more likely to elicit more credible results by talking to the sample, rather than for example, expecting them to write.

This final justification for the interview cannot be emphasised too highly when collecting information from young people.
At this stage it is appropriate to consider the criteria for establishing the validity of these research instruments during both the process of development and as a finished article. Guba (1985) refers to this as establishing its trustworthiness, or the ways by which the researcher can demonstrate to an audience that his findings are worth paying attention to or worth taking account of. Also, it is important to be able to show that these instruments are objective, impervious to external human influence. Guba (1984) suggests a summary of techniques for establishing trustworthiness as:–

**Criteria Area**  **Techniques**

Credibility

1. Activities in the field that increase the probability of high credibility.
   (a) Prolonged engagement.
   (b) Persistent observation.
   (c) Triangulation (sources, methods and investigations).
2. Peer debriefing.
3. Negative case analysis.
4. Referential adequacy.
5. Member checks (in process and terminal).

Transferability

6. Thick description.

Dependability

7. (a) The dependability audit, including the audit trail.
   (b) The confirmability audit, including the audit trail.
8. The reflexive journal.
These techniques provide the researcher with the tools to overcome the following initial questions:-

1. How can one establish confidence in the truth of the findings of a particular enquiry?
2. How can one determine the extent to which the findings of a particular inquiry have applicability in other contexts or with other subjects?
3. How can one determine whether the findings of an inquiry would be consistent if it were replicated with similar subjects and context?
4. How can one establish that the researcher has remained neutral, and that the findings are determined by the subjects and context of the inquiry?

The following sections demonstrate how these questions were asked and how the techniques outlined were used in developing the research instruments to establish their trustworthiness. Some of the techniques are inappropriate for this study, however, many of them are and they will be referred to as the development of the questionnaire and interview schedule is described.

**Trustworthiness**

Before describing the development of the questionnaire it is important to address two vital issues concerning the trustworthiness of the research instrument. These are Confidentiality and Validity.

**Confidentiality**

This issue is vital in obtaining reliable information. The respondents
need to be aware from the outset that staff will not have access to responses, names are not required and that processing the data is conducted outside the school.

It is also important that the respondents are aware that they are providing important information which may influence the curriculum to make it more relevant and interesting.

This data is likely to produce results which will interest many people, therefore it is important that particular individuals, groups or institutions are not identified by name or implication, as this will breach the pact between the researcher and the respondents. This would be likely to create a reluctance for that sample to be involved in any further research of any kind.

Validity

The issue of validity is concerned with how a research instrument can demonstrate the truthfulness of its results. In a questionnaire, the following represent what constitutes truth in this context.

1. **The Question** - The respondent should be able to understand the question. More importantly the respondent should not misunderstand the question. In the former, the respondent is likely not to answer a question if he does not understand it. In the latter, he is likely to give a well intentioned, but misleading answer.

2. **Obtaining an Appropriate Answer** - Probably the best method of obtaining accurate data is to enable the respondent to answer in whatever way he finds appropriate. However,
this can be problematic if you wish to produce tables of grouped responses. Some ways of overcoming these problems are:

a. If a time is required, the computer can group all the times into, for example, 30 minute blocks.

b. Some questions offer answers already grouped into blocks e.g. 'up to 1 hour, up to 2 hours'.

c. Questions relating to habit might provide the answers 'never', 'sometimes', and 'whenever possible'.

3. Forgotten Answers - Some questions require information of a factual kind, which may have been forgotten. This does not necessarily invalidate the question since the answer provides useful information, but to a different kind of questions.

4. Is the Respondent Truthful? - Assuming that the question is understood and that a satisfactory answer can be provided the validity of the response still depends upon the sincerity of the individual.

A method of overcoming this problem is to follow-up a questionnaire survey with selected interviews which can then be compared to the survey responses. Another method is to check the internal consistency of the questionnaire by comparing answers to questions which, are related although not necessarily positioned close together.

All these points taken together, reinforce the view that if the enquiry instrument is administered properly, the overwhelming number of questionnaire responses will be valid.
3.14 The Purpose of the Questionnaire

The purpose of the questionnaire was to provide data from which the physical activity patterns of a large sample of young people could be identified. The specific information of interest was the frequency of activity, the duration of activity and the intensity of activity. With this information, it should be possible to quantify how active the sample was and to consider the implications of these findings for their short and long term health. It is worth noting that this data was concerned with vigorous physical activity; that is activity which is likely to make improvements in the cardiorespiratory system. The questionnaire also sought to identify other less strenuous activity, for example, walking the dog or walking to school, which is described as routine activity by Martin & Dubbert (1982).

Another feature of the questionnaire was to identify the most common pastimes of the sample.

It is important to note that the questionnaire was only concerned with voluntary physical activity. Compulsory activity, Physical Education lessons for example, were not included in this survey.

The final data was expected to provide a detailed picture of the lifestyles of the sample and the levels of physical activity in which they engaged.

3.15 Questionnaire Design

The previous section outlined the information that the questionnaire would provide. This section is concerned with identifying important features in designing a questionnaire to suit the previously stated
purpose. Three distinct phases were used in designing the questionnaire:

Phase 1

This initial phase involved a process of study, discussion and testing as background to producing a draft questionnaire. The study part was a comprehensive analysis of literature on questionnaire design. The discussions were with professional research workers who had experience of questionnaire design and the testing involved trying out various formats and questions on children and adults.

This phase led to a consideration of the issues of question formation and wording. To consider the format of the questionnaire and the order of questions. Also the length of individual questions and of the whole instrument, including the length of time required to complete it. It also led to a consideration of the kind of responses likely to be obtained and the kind of responses the survey hoped to find.

The major feature of this phase was an introduction to the problems of designing a questionnaire specifically for young people.

By the end of this phase a draft questionnaire was produced based on the following factors:

1. By combining an understanding of the information required with a study of questionnaire design, it was possible to identify the type of question which was most likely to produce the information required.

2. By talking to young people and asking them to write about
what they did it was possible to develop a data base of information to learn about how they spent their time.

3. Discussions with teachers and headteachers provided an insight into the problems of using a questionnaire in schools which led to a consideration of the amount of time required for its completion.

4. Reading, discussions and piloting had provided an insight into the wording and formation of questions.

5. Reading and discussions had suggested a questionnaire format and a survey method which would be more likely to overcome the problems associated with surveys of young people.

The completion of Phase One allowed a logical progression into Phases Two and Three. It is important to note that these two phases were quite distinct, however they evolved in parallel and the process of one had effects on the other and vice versa.

Phase 2

This was concerned with working with the type of subjects to be surveyed i.e. young people. This involved a series of three major pilot studies. This involved testing the questionnaire in the field with a variety of age groups in different parts of the country; sometimes the children involved would be the same in each pilot and sometimes they would be different. In this way the questions and format could be tested to see if they produced similar or different results and feedback was obtained from both the subjects and their teachers regarding the questions, the format and the time of completion.
This phase made three important contributions to the study:

1. It provided information about the levels of activity of young people which helped in anticipating the results of the final survey and in the interview schedule design.

2. It enabled the research instrument to be thoroughly tested in the field, and . .

3. It provided an insight into the practical problems and solutions of using the questionnaire in schools.

Phase 3

As has already stated, Phase 3 ran in parallel to Phase 2. This phase was concerned with obtaining opinions and advice from other researchers about the questionnaire.

These researchers included research assistants studying for higher degrees and doctorates, members of staff, professional research workers, computer advisers and professional educators. The contributions these people made to developing the questionnaire were invaluable and will be explained in more detail in the next section. Particularly valuable help was obtained for question formation and wording, questionnaire format and computer analysis. These researchers were consulted on more than one occasion and particularly after the results of pilot surveys.

This section has described the three phases of questionnaire design and the important design features which had to be considered in developing the final instrument and provides the background for the following section on the process of developing the questionnaire.
3.16 The Process of Developing The Questionnaire

This section is concerned with a description of the development of the questionnaire. It identifies the decisions, the results, the discussions and the thinking that occurred which moulded the finished product. Reference is made to the phases of questionnaire design as outlined in the previous section, and explains what actually happened during these phases.

As described earlier, the first phase was one which provided familiarity with the information to be collected, the ways in which it could be collected and the nature of the subjects. With regard to the nature of the subjects, it became important to simply find out how young people spent their time, to provide a base from which to work. To achieve this several teachers were asked to talk to a class and ask them to write down what they did the previous evening after leaving school. After collecting nearly fifty responses from various age groups it was possible to identify certain pastimes that occurred frequently. However, when considering the variety of possible responses there were obvious implications for the format of a questionnaire.

Because of the type of subjects it was felt logical to make a response to a question as straightforward as possible. This suggested a form of checklist of activities which could be ticked off as appropriate. In the light of existing information on the range of activities young people did, it was decided to compile lists of activities which involved either routine or vigorous physical activity with combinations of the most popular passive activities. However, it was still necessary to provide the opportunity for the respondent to insert an activity.
which was not identified by the questionnaire, but still required reporting. It seemed appropriate to leave a space for the respondent to explain what activity he/she did.

In this way a format began to evolve which began with an open question with a series of possible answers in checklist form and the opportunity for a written response if necessary.

At the same time the issue of accuracy of response was causing concern. To ask young children to remember what they did a week or month previously did not seem to be a good idea. Experiments with children into the problems of memory recall confirmed suspicions that the accuracy of the response predictably deteriorated the longer the period of elapsed time.

This problem was particularly important when an estimation of the length of time spent doing activity was required.

It became clear that a daily questionnaire which reported the previous days activity was likely to provide the most accurate results under the circumstances.

The final decision at this stage was to conduct the survey during school time. The reasons for this included:-

1. A school provides easy access to a large number of pupils.
2. Schools had the facilities, the staff and the experience to organise large groups of pupils.
3. Pupils were more likely to follow an identifiable pattern or routine during school terms rather than at weekends or holidays.
4. Other forms of survey procedures, like postal questionnaires or home based interviews, which may have been appropriate for collecting data about weekends and holidays were fraught with practical and methodological problems.

By now an initial draft questionnaire for the first pilot study was almost ready, however one problem remained. which was finding a suitable format and appropriate wording for the subjects to indicate the frequency, duration and intensity of their activity. This problem was solved, in particular, with the help of Dr Frank Ledwith, from Manchester University and is an illustration of value of Phase 2 of the questionnaire design. He provided a phrase suitable for describing the intensity of appropriate activity. It was activity which 'made you sweat or become breathless?' Interestingly the National Children & Youth Fitness Study (1985) also used a similar phrase ('sweating and breathing hard during exercise') to establish behavioural signs for appropriate physical activity as a check on self reported activity patterns. This phrase was now used in constructing questions about intensity of activity and then combined them with precoded open questions to indicate duration of activity and a numerical indication of frequency of activity.

The following decisions had therefore been made when constructing the first draft questionnaire.

1. To focus the questionnaire on physical activity and only include very popular passive pastimes. The term physical activity was to include 'routine' activity (e.g. paper rounds, walking the dog), as well as sports activity.

2. To use a daily questionnaire that would report the previous days activity.
3. To construct a questionnaire appropriate for school days other than weekends or holidays.

4. To address the questionnaire specifically to identifying the level, duration and frequency of vigorous physical activity, that is activity which is likely to make improvements in the cardiorespiratory system.

The first draft of the questionnaire was produced which had a checklist of routine and sporting activities for each part of the school day, beginning with the period of time from walking to arriving at school, break-times, dinner-times and then after school. Regular appropriate passive pastimes were also added to the lists. Space was provided for activity not specified on the lists. At the end of the questionnaire the respondent was asked if he became breathless or sweated during the day; what activity had caused this, and for how long did it occur.

It is worth noting that the survey addressed itself to identifying the level of voluntary activity, therefore activity in Physical Education lessons was not asked for.

This questionnaire was piloted in secondary schools in Loughborough and Wolverhampton. The ages of the respondents ranged from 12 to 15 years.

The results were encouraging in that the structure of the questionnaire appeared to be appropriate for identifying levels of activity and the sample had few problems understanding or answering the questions. It also appeared to be appropriate for the 11 to 16 year age group.

A second draft was quickly constructed in which amendments were
made, based on observations of the pilot study by teachers, pupils and other researchers. These amendments were mainly to the wording and formation of the questions, checklist and introductory instructions. This draft was piloted approximately three weeks after the first in the same schools and given to the same sample. The sample was slightly extended in the Wolverhampton school to include 11 year olds and 16 year olds.

The second draft showed a consistency of result in terms of level of activity and the changes in the wording were well received. It appeared that it was working in the right direction to produce an appropriate instrument of measurement. However, there was still the concern about the accuracy of a self report questionnaire in which the respondent was required to assess the duration and intensity of activity during one day.

A solution was found, after further consultations with research assistants. We divided the day into thirds - before school, during school and after school.

The questions, did you become breathless?; what made you breathless? and a checklist for the duration of breathlessness were placed at the end of each section. We thought that this must help memory recall and would overcome the problems related to estimating the duration of activity. There were now several means of checking the responses if the respondent indicated a certain level of activity. First he would have to state what made him breathless - this could be checked against the checklist of activities. Secondly the duration of breathlessness could be checked against the type of activity and the context within which it occurred (e.g. with friends, at a club etc).
A third draft of the questionnaire was produced and piloted in the same way as the first two, although the sample was extended slightly to include pupils who had not filled in the questionnaire before. The purpose of this pilot study was to check on reliability of the amended format. The results of this study were in fact very similar to the other pilot studies. The amended format appeared to work well and several other researchers thought that this format was much more likely to produce accurate results compared to its predecessors.

The reasons for the similarity of results throughout the pilot studies was mainly due to the fact that many of the sample were inactive which made completing the form very easy.

It is worth noting that during the pilot surveys particular attention was given to the length of time required to complete the questionnaire by the different age groups. Because of the checklist format it was found that the maximum time needed was ten minutes and after practice the majority of the sample could complete it well within this time. This was important information for teachers if the survey was to be conducted during the school day.

Having developed a structure which appeared to be accurate in reflecting activity patterns during school days it was now necessary to make sure the responses could be quantified for computer analysis. With the help and advice of research assistants and staff at the Computer Centre this was quickly done. The checklist format lent itself easily to this procedure.

In producing the final draft of the questionnaire, many of the
criteria for trustworthiness had been fulfilled. In particular, the regular piloting and cross checks on the results involving different age ranges, sexes and schools provided a rigorous examination of the suitability of the structure and content of the questionnaire. Also the involvement and advice of a variety of interested groups added to its credibility. The groups included professional research workers, research assistants, lecturers, advisers and various subject teachers. At this stage, the questionnaire had been subject to a thorough developmental process both in theory and in the field and only by widespread use could it ultimately confirm its dependability and transferability.

3.17 The Final Instrument

The final questionnaire was produced after a process lasting three and a half months. It had been subject to three major pilot studies and numerous critical appraisals by researchers, teachers and pupils. It provided a measure of the frequency, duration and intensity of voluntary vigorous physical activity and also provided data on levels of routine physical activity.

Also, it provided a valuable picture of the leisure patterns of young people.

The questionnaire appeared to be suitable for using with the 11 to 16 year old age group and with pupils of either sex.

The format divided the school day into three parts – before school, during school and after school. For each part, information was asked for concerning what the respondent did during that particular part of the day – a checklist of activities was provided for the
respondent to indicate what he/she did and space was provided for activities not listed to be inserted. Precoded open questions were also used at the end of each part of the day for the respondent to report vigorous activity.

The research instrument had been subject to a rigorous development procedure which had included a study of the issues involved in questionnaire design, thorough piloting in the field and close and regular examination of other researchers.

3.18 The Analytical Procedure

When the survey week was finished the responses from each school were collected. The first task was to manually code each questionnaire - there were nearly 2,500 responses in total. Three cards were required for each questionnaire - one for each part of the day.

After this information had been placed on line, the next task was to check the data for errors and prepare it for analysis. The major problem with this task involved finding occasions when a response was missing for a particular day. As a total of 356 of a sample of 500 had completed the full weeks questionnaires, it meant running through the data and manually inserting a code for each missing response. This was a very laborious and time consuming process which could have been avoided with hindsight, during the first task of coding the questionnaires.

The number of questionnaires (2,500) and the number of variables in each questionnaire (296) greatly influenced what computer package was to be used. It was decided that because of the amount of data the statistical package for the Social Services (S.P.S.S.) was the most appropriate programme for handling the amount of data.
The first task of analysis was to quantify the time spent on activity by the sample on each day. Specific populations within the sample were identified and a similar analysis undertaken. These populations included:

- All boys
- All girls
- Then all age groups (11 to 16 years)
- These age ranges were then divided into boys and girls.
- Then the same analysis was done for each school.

Finally the daily results were added together to provide a picture of the amount of time spent in activity for each week. The same populations as above were identified and a similar analysis was conducted.

Information was also collected which indicated how the sample was made up in terms of male, female, age and school.

3.20 **The Purpose of the Interview Schedule**

In order to verify the results of the questionnaire, it was decided to interview approximately a fifth of the survey sample (approximately 100 respondents). Questions would be asked about how they spent their leisure time, what they did and how often they engage in physical activity. The results of these questions could also be compared with the questionnaire results to see if there were any similarities.

An interview would also provide the opportunity to ask questions about how the sample spent their leisure time at weekends. The
difficulties of obtaining this information by questionnaire have been described in previous sections, therefore data from interviews could provide a clearer picture of the levels of activity engaged in by the sample.

The other main purpose of the interview was to identify what the samples views were concerning Physical Education and the activities provided in the subject. This was important because many Physical Educationalists would hope that their Physical Education lessons would act as a motivator for further participation by their pupils, however there were suspicions that this was not the case.

The purpose of the interview was therefore to collect data, which could be quantified about the activity patterns of the sample as to verify the results of the activity questionnaire and to provide evidence of activity at weekends.

The other parts of the schedule were to find out what the sample thought about Physical Education and to identify the reasons for their attitudes.

3.21 Interview Schedule Design

There are basically three kinds of face-to-face interview. These are structured, semi-structured and unstructured. For the purposes of this study a structured interview which is based on a carefully worded interview schedule and frequently requires short answers was appropriate if it was necessary to probe answers.

An unstructured interview requires a great deal of skill and experience on the part of the interviewer to probe in depth the answers of
the interviewee. Because some questions would be directed at obtaining attitudes and the reasons for them and other questions might be simply reporting information, a semi-structured interview in which the schedule would be carefully worded and assembled, but would also allow for probing questions appeared to be the most suitable.

An important consideration in deciding on this was the practical limitations of the amount of time required for each interview and the availability of the pupils in schools. An unstructured interview would inevitably take much longer to conduct than the other two.

These were factors that needed to be considered before embarking on the preliminary phase of design, which was concerned with a study of interview techniques, to get plenty of experience of talking to young people and to become familiar with tape recording, transcribing and analysing interviews.

During this first phase it was particularly important to listen to young people talking about Physical Education and to experiment with open and closed questions and with various aids and stimuli for developing discussions.

Eventually an understanding evolved of the information and of ways of obtaining that information. Also an understanding of the subjects of the survey and in particular how they thought, what they thought and, how they expressed themselves.

As in the questionnaire design, Phase 2 and 3 though separate operated simultaneously. Phase 2 was concerned with piloting questions and interview schedules, then transcribing and analysing them. The
difference between this phase and Phase 2 of the questionnaire design was that the piloting procedure for the interview schedule was an almost continuous process so that I could be certain that the information required from any age group or either sex could be obtained within a limited period of time.

In order to do this it was important to identify what information would indicate attitudes towards Physical Education, while at the same time deciding what aspects of Physical Education should be investigated - then devise methods of obtaining this information.

Phase 3 was the same as Phase 2 for the questionnaire design in that the advice of researchers was sought in constructing the interview schedule and also in learning about interview technique particularly when interviewing children.

The final part of Phase 2 was concerned almost specifically with piloting the interview schedule with a focus on developing a routine for conducting the interview. Also researchers were used as interview subjects to provide further information about the reliability of the schedule. Two types of researchers were sought; those were ones who could comment specifically about the suitability of the interview schedule, the interview technique and the way the interview was conducted and those researchers who could comment specifically on the subject matter of the interviews.

By the time the schedule had been completed, it had been subject to a vigorous examination in the field, and by researchers. It provided relevant data and enough experience had been gained of conducting interviews to feel confident about the researchers performance.
3.22 **The Process of Developing the Interview Schedule**

During the process described in Phase 1 in the previous section, a considerable amount of time was spent talking to young people about what they did and what they thought about Physical Education. This was done in a variety of settings (e.g. informally, as a formal interview and as group discussions). The results of this process had a major influence on the development of the interview schedule. These were:-

1. That many young people were skilled in identifying what type of answer was required of them based on the wording of the question and the posture of the interviewer.

2. They were keen to present a positive response to questions in the sense that they were trying to please the interviewer, and...

3. They did not easily express dislikes or personal limitations in their physical performance.

It therefore became clear that an approach to schedule design was needed that initially used an open question to elicit a response which could be sensitively probed.

Based on this three parts to the interview evolved. The first part was concerned with asking questions about how the interviewee spent his/her leisure time both during the week and at weekends. From the response a picture of the leisure patterns of the respondent emerged which could then be probed to find out the level, if any, of physical activity in which he engaged.

The second and third parts were concerned with attitudes towards
Physical Education. In part 2 questions about school in general and then about subjects in particular were asked, leading to part 3 in which the focus would be on Physical Education.

Pilots of this schedule were beset with the problems that many young people were reluctant to talk freely about themselves and also that they found it difficult to articulate the reasons for their likes or dislikes.

This led to a very frustrating period in which an appropriate structure for the schedule was evolving, but the information required was becoming elusive.

The value of Phase 3 of schedule design was highlighted at this stage by suggestions from researchers to use an aid or stimulus in the form of cards or pictures.

Careful and regular piloting demonstrated the value of this technique when interviewing children. Words or statements on cards gave them the impetus required for them to provide an answer and then allowed the interviewers the opportunity to probe answers. Also the cards helped to make the responses more predictable and kept them all within the same areas. They also provided data which could be quantified.

The result was that the three part structure was supplemented by cards which acted as introductions to areas for discussion and allowed the interviewee the opportunity to make choices or express opinions based on visual information. It proved to be a quicker and more efficient method of eliciting information rather than a verbal description of what was required.
An interview schedule had evolved which had three parts, which all began with open questions with a visual aid or stimulus from which probing questions could then be asked. The schedule had been thoroughly piloted over a long period of time and many consultations had taken place amongst other researchers.

The other vital feature of constructing this schedule was to develop an appropriate technique and routine for conducting the interview. This was constructed after considerable experience of talking to children and listening to the advice of researchers and teachers. Feedback from teachers from schools where pilot interviews were conducted was particularly valuable and had an important influence on the way the survey was conducted.

A routine was devised which enabled the interviewer to talk to the interviewee in a quiet room, sitting down and in fairly close proximity to each other. A table was available to place the cards on and the tape recorder was placed close to the interviewer, but not in a position where it intruded on the conversation. A tone of voice and manner was used which was friendly, but businesslike.

3.23 The Final Interview Schedule

The introduction was concerned with what the sample did during the week and at weekends. The interviewee was given four cards which had written on them, homework, watching TV, listening to music, visiting friends. These were the most popular pastimes as identified by the pilot results. The interviewee was then asked - "Which of these do you spend most of your spare time doing?" followed by, - "Is there anything else you spend a lot of time doing?" "How do you spend your time after school?" "What would be a typical weekend?"
During this phase the interviewer made no reference to physical activity unless the interviewee specifically mentioned it. If this occurred then further details about what was involved, how often etc, were asked for. If at the end of this phase the interviewee had not mentioned any activity, a question would be phrased to find out why this might be. The phrasing was important, because at this stage it was vital that the interviewee should not feel inadequate or challenged. Examples of these questions are - "Does sport play any part in your life?" "You haven't mentioned any physical activity, is there any reason for that?" "Do you enjoy sport?" "Do you play much sport?"

By asking questions about what they did, it was possible to identify a pattern of life, and where appropriate probe responses to produce a clearer picture.

The same principle was used for the questions about Physical Education. The second phase of questions asked about attitudes towards subjects in the curriculum. The interviewee was shown a set of 21 cards which had the most common subjects found in schools. He/she was then asked to select what they considered to be the 10 most important; then asked to place them in a rank order of importance and briefly explain - "Why have you selected that order?" Then the question, "Which subjects do you enjoy most and why?" was asked.

Again the interviewee was not given the impression that the researcher was interested to see if they thought Physical Education was important or enjoyable, because if those questions had been asked directly the pupils may have perceived that a positive response was required.
The final phase of the interview was specifically directed at the samples attitudes towards Physical Education. By this time the interviewees were usually happy to talk and did not feel threatened, therefore they were prepared to be honest and open in their responses.

For the first question the interviewee was given a card with three faces on it. One was happy, one was sad and the other was undecided. The question - "Which would be your face immediately before a Physical Education lesson?" was asked, followed by a question asking "Why?"

For the next question the interviewee was given a series of cards with categories of activities found in Physical Education lessons. These were:

- Contact Games e.g. Football, Hockey.
- Non-contact Games e.g. Tennis, Badminton.
- Individual Activities e.g. Athletics, Gymnastics.
- Water Activities e.g. Swimming, Canoeing.
- Fitness Activities e.g. Circuit Training, Aerobics.

The question asked was - "Which category of activity would you go for if you had the choice?" and "Why would you prefer that category to any of the others?"

This became a valuable question, because the pupils were asked to make a comparison between their choice against others. The result was that they were prepared to make positive and negative comments about these categories.

Results of pilots of the last question - "Do you know why you do Physical Education in school? Why do you think you do?" -

-68-
had shown that pupils could not answer positively. It was therefore
decided to place these questions at the end of the interview with
the result that by this time the interviewees were quite prepared
to answer honestly and openly even if a negative response was
required.

At the beginning of the interview, to make the interviewee as
comfortable as possible, he/she was asked what their name was
and thanked for completing the questionnaires and for their time
to complete the interview. The interviewer then introduced himself
and explained that he was looking into the leisure patterns of
young people and what they thought of school. He also explained
that the interview was totally confidential and was not a test,
he was simply interested in what they had to say. The interview
was to be tape recorded so that he could listen to it more carefully
at a later date, it would not be available for anyone else to listen
to. Then began the interview schedule.

At the end of the interview the interviewee was thanked for their
time and trouble and suggested that they had made a valuable
contribution to this research.

3.24 The Analytical Procedures

The following procedures were adopted for analysing the interviews
of a cross section of the survey sample. One hundred and two
interviews were conducted, the average time for each interview
was 15 minutes. These interviews were transcribed and coded
so that the age, sex and school of the respondent could be identified.

The analytical procedures differed from question to question, therefore
Question One was concerned with verifying the results of the activity questionnaire and to get an impression of the level of activity at weekends. The first question, as an introduction, used the cards as an aid or stimulus to finding out what the interviewee did in his/her leisure time. This gave an initial impression of interests and routine activities. The next question asked how they normally spent their time after school. The results of this question could be parallel with the activity questionnaire. The development of this question was what would be a typical weekend? - again, to get an impression of levels of activity during this time. If, during the answers to these questions some form of physical activity was mentioned then the answers would be probed to get an impression of frequency, duration and intensity.

From the transcripts it was possible to identify (1) those who had mentioned physical activity, (2) similar answers which could be categorised as being consistent responses, and (3) the number of the sample who could be associated with a particular response.

Question Two was concerned with getting an impression of how the sample viewed the school curriculum. The first question produced a list of ten subjects, placed in order of importance, for each of the sample, with a brief comment next to each about why they had selected that subject. This response was analysed by identifying which subjects were placed in the top 5 for each respondent. The frequency of the subjects was quantified to find out which ones were the most popular. The same process was used to identify
any differences between sexes, ages or schools. The following question - "Which subjects do you find most enjoyable?" was subjected to the same analytical procedure.

For both questions reasons were sought for the selection of the subjects. Similar reasons were grouped together and a word or statement was developed which described the category of responses. In this way, a series of reasons for a particular response could be identified with some certainty.

**Question Three** was concerned specifically with Physical Education. The first results of the first question "Which face would be you immediately before a Physical Education lesson?" was analysed by quantifying the number of responses for each face. A similar procedure was used to identify any differences in response between sexes, ages or schools, and for the next question, when the sample identified a particular activity they would prefer to do in Physical Education if they had the choice. Again any differences between sexes, ages or schools were identified.

The reasons expressed by the sample for their preferences were grouped together. Similar responses were categorized and a word or statement was devised which described the category.

A similar process was used for the final question "Do you know why you do Physical Education in school?" The first part of the process was to identify the number of the sample who produced a negative response. Then the positive responses were grouped together and similar answers were identified. These were then categorized and a suitable word or phrase was devised which described the category of responses.
The Survey Procedure

Initial discussions about the survey procedure suggested that a large group of young people should make up the sample and that the easiest form of access to large groups of children was through schools. Sandwell Education Authority (situated North-West of Birmingham) had seconded one of the researchers and it was appropriate that this research should be centred there. Several practical reasons also made it a suitable location. Sandwell is a densely populated industrial area with a uniform educational system. This meant that the secondary schools were similar - 11 to 16 years, co-educational and situated relatively close together. Also the predominant social group in this area was working class. This meant that the researchers had access to a large group of people who lived in similar circumstances and had a common educational system.

Initially it was anticipated taking a sample (approximately 10%) of each secondary school in the borough (24) and to have a survey week early in March. This time was seen as the most appropriate to get reasonable weather and to allow sufficient time to analyse and write up the results of the survey, due to the fact that the first term had been used almost entirely on developing and piloting the instruments and the time immediately after Christmas was spent setting up the survey in schools. Therefore, the beginning of March was considered to be the most appropriate time to conduct the survey.

Just before Christmas, the Physical Education advisor for the borough was contacted and approval for the survey sought and agreed. Then a letter was sent out to each headteacher, with
the blessing of the director, to inform them of the proposed survey and ask for a provisional indication of their support prior to a meeting with the researchers to discuss the details. Early in the Spring Term, appointments were made with 23 out of 24 schools. The one school which preferred not to be involved was in the process of re-organisation and felt that their staff were already over committed to extra work.

The response of headteachers was uniformly encouraging to both the purpose of the survey and to using their pupils as part of the sample.

However, two factors led to a re-appraisal of the situation. At this time the teachers pay negotiations had broken down and industrial action had begun to become widespread. After the initial meetings with the headteachers it became clear, as the action escalated, that it was going to be difficult to conduct the survey in many schools. This was due to the disruption being caused by: 1. Teachers not covering for absent colleagues, which meant that pupils were being sent home at various parts of the day and for varying lengths of time, 2. Schools being closed at dinner-times due to the withdrawal of supervision during this time by teachers, and 3. Teachers refusing to do any extra work other than they were contracted to do.

These restrictions on school life threatened to place the whole project at risk. In fact if it had not been for the goodwill and interest of teachers in the survey schools, it would have been impossible to conduct this research.
Also we were becoming aware of the value and the importance of assessing attitudes towards Physical Education, as a factor affecting activity patterns. We therefore decided to significantly cut the activity sample to 500 (6 schools) and to increase the number of interviews to 100 (5 schools). Schools which had indicated that they were still prepared to conduct the survey were contacted and definite arrangements made for the activity survey to begin either the first or second week in March, whichever suited the school.

A random sample of approximately 10% of the school population was selected by the school. A similar number of boys, girls and ages were identified. The sampling procedure was usually to take the tenth name in each register list.

A set of written instructions were issued for staff responsible for organising the survey. These instructions suggested that the questionnaire should be completed by the sample at the beginning of the school day and returned for safe keeping to a specified member of staff. The timing for completing the questionnaire was based on:-

1. A setting which would be close to the period of time being reported, while also being at a time when help was available if needed and the organisational procedures of giving and collecting the questionnaires could be conducted with relative ease, and . .

2. It was at a time which would cause as little disruption to the schoolday. Many schools have assemblies or tutor periods at the beginning of the day which provides the opportunity for facilities, staff and time to be available for this type of work.
There were also instructions which were to be conveyed to a sample at a meeting on the day prior to the first survey day. It was suggested that this should be on a Monday morning with the survey week beginning Tuesday morning. At this meeting the purpose of the survey was explained to the sample; that their selection had been based on a random procedure and that there were no 'wrong' or 'right' answers.

By beginning the survey on a Tuesday, the final day would be the next Monday at which Fridays activity would be recorded. Several alternatives were considered, including an introductory session on the Friday and begin on Monday, or to give out questionnaires for the sample to complete on Saturday for Fridays activity. There were difficulties associated with all the alternatives. The selection of the one described appeared to be the least problematic.

The timing of the survey left one week to collect the questionnaires before the Easter holidays. During this time arrangements were made in 5 schools to conduct the interviews. A cross section of the activity sample was identified to create the interview sample, although an imbalance between the levels of inactivity and activity made this difficult. In the end a sample was selected and conveyed to the schools who drew up a timetable for the interviewees and provided a quiet room in which the interviews could be conducted. By allowing 15 minutes for each of 20 interviews in each school the whole procedure could be completed in one school day. All the interviews were completed during the first two weeks of the Summer Term.
3.31 A Critique of the Research Procedure & Methods

Both research instruments have been subject to a rigorous developmental procedure based on a sound theoretical grounding. This statement is substantiated by the fact that they produced the information for which they were intended. However the instruments and the survey procedure have their limitations which are outlined in this section.

The Questionnaire

The questionnaire developed into a useful tool for measuring activity and dividing and assessing the day in three parts helped with memory recall and therefore accuracy. The validity of this method has also been identified in other research. Baronowski (1984) states:

"At this time, forms of self reporting of aerobic activity which require responses for each segment of the day separately appear to be most accurate".

However further research is necessary to assess the accuracy of self reports of activity. It is possible, for example, that the children in this study may have been more aware of activity and as a result artificially increased their reported levels of activity. It may be appropriate for future research to assess differences in self reported behaviour between observed and unobserved days.

Also it may be possible to explore the relationships between self report and observational measures to more traditional measures of activity and fitness (e.g. pedometer or pulse response to submaximal exercise).
The issue of self report data is further illustrated by the method the questionnaire used for reporting frequency and particularly duration of activity. The method used was able to illustrate patterns of activity, however a more detailed analysis would require a refinement to the method of reporting duration of activity to avoid the problem of overlap between one category and another, e.g.

\[ 3 \times \text{Cat. 2} = 45 \text{ mins} = \text{Cat. 6 overall} \]
\[ 2 \times \text{Cat. 3} = 32 \text{ mins} = \text{Cat. 6 overall, or . . .} \]
\[ 2 \times \text{Cat. 2} + 1 \times \text{Cat. 1} = 35 \text{ mins} = \text{Cat. 5 overall} \]

What is required is a specific response to this question, which may unfortunately be difficult for children to accurately assess. Alternatively some form of observation may be appropriate, but again this would be problematic when dealing with a large sample.

One possibility could be to subject the sample to a training process, prior to the survey, which could teach them to recognise appropriate activity and provide practice at assessing the duration of activity. However, this may require a team of researchers and considerable co-operation from schools.

To incorporate some of these methodological developments into a study of activity patterns would mean that the researcher or possibly the research team would have to maintain and develop close contact with the schools and communities being assessed. This would lend weight to a criticism of the survey, which was that there was little contact with the schools other than discussions with teachers about the procedures and conducting the interviews. If it had been possible for the interviewer to address the introductory session and been available for consultation then misunderstandings or
difficulties with procedures would have been less likely. Building up this sort of contact would have been vital if the study were to have taken in different times of the year. Changes in levels of activity during changes in season was identified by the JOPERD Study (1985), and the problem of irregular exercise patterns may be an important issue in developing active lifestyles. This study, conducted at the beginning of March, was something of a compromise in terms of weather conditions (dry and cool) and time of the year.

Another consideration for further research must be assessing different areas of the country (rural/urban), different types of school (grammar, independent, middle) and different age ranges (9-11 yrs, 16-19 yrs). The advantage of this study was that it sampled a large group from a similar area, which provides a good base for generalisations about that group or area. However any results or generalisations cannot be applied to different areas or groups.

Another issue concerning the questionnaire procedure was the problem of activity at weekends. While the interview covered this area, as far as this research was concerned, a further check to verify the interview results would have been valuable. Also the weekends caused a problem in the timing of the survey week. The final decision to have the introductory session on the Monday and then begin the survey week on the Tuesday meant that Fridays activity was reported on Monday morning. The results showed a similar activity pattern on this final day to the other four days, however the sample was much smaller. The main reasons for not allowing the sample to report Fridays activity on Saturday morning at home.
was that this may reduce the size of returned responses and it changed the reporting procedure. As it turned out the results were similar to other days although the sample returns were notably lower. Reasons for the similar results could be that by the fifth day the sample were used to completing the questionnaire so that the weekend break made little difference and that the number of returns was reduced because the pupils were not in school due to the escalating industrial action.

The Interview

As a method of obtaining data concerning young people's views of Physical Education, the interview schedule had fulfilled its purpose. The problem of pupils perceiving what answers were required of them, as in a test, appeared to be largely overcome, however that will always be a problem when assessing data from children. This highlights the importance of using a number of methods to provide credibility to any results. It was unfortunate that during the field work on this study the industrial action being taken by teachers made it very difficult to make repeat visits, conduct observations or talk to teachers. In fact, in many ways, it was fortunate that the survey could be conducted at all. If it had been delayed by another month the problems created by the action would have presented almost insurmountable difficulties.

Considering the limitations on time and the potential width of subject the interview schedule performed well. However, analysis of the transcripts illustrates inexperience with interview technique.

Many opportunities were lost to probe answers which may have
resulted in significant data. This was despite considerable time being devoted to developing interview experience and piloting the interview schedule. This suggests that even more time needs to be devoted to gaining experience with this technique and that it may be appropriate to conduct more than one interview per interviewee. The use of cards to act as a stimulus and aid to the interviewee was undoubtably successful. A comparison of pilot interviews conducted without the cards were far less significant in eliciting data. The cards gave the interviewees something to talk about which some found very difficult without a visual cue. They also helped to indicate a progression through the interview which made the transition from, the general to the specific, a logical sequence.

To summarize, the research methodology and procedure has limitations which have been identified. However, as unique tools for use in their areas they have been subject to careful, sensitive development and rigorous testing in the field and have produced an invaluable data base of information about the behaviours and attitudes of young people. Also, like all good research, they have indicated future areas of development both in the sense of methodological tools but also in the results they have produced.

However, if the results of this study are to be confirmed by similar work, then they should seriously consider diaries, observation and parental interviews to verify activity patterns and if attitudes towards Physical Education are to be identified, then attention needs to be given to how those attitudes have evolved which would mean talking to teachers and parents and identifying the regular experiences young people have of Physical Education which mould their attitudes towards it.
CHAPTER 4

4.00 THE TEACHERS INDUSTRIAL ACTION - ITS EFFECTS ON THIS RESEARCH

At various places in this study the effects of teachers industrial action on the methodology of this research have been mentioned. However, it is important to make a specific statement about this issue because it had a significant influence on the planning, process and examination of this research.

It was originally intended to survey a sample of ten percent of every high school in Sandwell Education Authority. Just after Christmas, began the process of contacting all headteachers and arranging meetings with them to explain the project and how their schools might help. This involved twenty-four interviews during a three week period. All but two headteachers were interested and supportive, and further discussions took place to explain specifically the survey process and how it could be implemented in different schools. The two schools who felt they could not be involved were subject to particular organisational problems at that time. One was on a split site and the other was in the process of amalgamation.

During this time negotiations were underway to discuss the annual pay rise for teachers. It soon became clear that a solution to this issue was not likely to appear very quickly and limited industrial action was initiated by Teachers Unions. After setting up the survey in all of these high schools, a process which took nearly six weeks, the intensity of industrial action began to escalate. This meant that children were sent home if a teacher was absent.
Schools were closed at dinner-times, half and three day strike action became common, teachers were instructed not to do any additional work and were also to leave the school premises at the end of the school day.

The implications for the survey quickly became clear and many schools expressed their concern about the situation. This lead to the activity survey being conducted in schools where the staff involved in supervising the survey process, were prepared to ignore Union instructions.

The effects of sending children home during various parts of the day inevitably caused practical problems in completing the questionnaires. It is to the credit of both staff and pupils that so many returns were obtained.

Because access to schools and pupils had become so problematic it was very difficult to maintain consistent contact. Again, it was with only considerable goodwill by staff that the interviews took place. However, the opportunity to have further discussion with both staff and pupils became almost impossible as the action hardened after the Easter Holidays.

Industrial action had therefore limited the scope of this study in the sense of the size of sample and in the opportunity to follow-up the results of the activity survey and interviews. It had also rendered useless nearly 6 weeks of discussions with teachers to set up the original projects, although that process was not totally wasted as it was encouraging to listen to the sympathy and interest of headteachers in this project.
To summarize this section the following factors have had a major influence on this research:-

1. The protracted industrial action involving teachers did not allow me the opportunity of pursuing this research in an appropriate manner.

2. The views of teachers towards co-operation with outside agencies hardened during the field work so that there was an almost hostile reluctance to become involved in anything beyond their normal duties.

3. As a practising teacher, the researcher felt that he had to support his colleagues in their industrial action and was therefore reluctant to approach either schools or individuals to ask them to become involved in extra work.
CHAPTER 5

5.00 THE QUESTIONNAIRE RESULTS

Introduction

The results of the questionnaire will be presented in tabular form. Each table will be accompanied by an explanation of the structure of the table and a statement indicating results of note.

The tables provide a comparison of:

1. The percentage of the sample who were inactive or did less than 5 minutes vigorous activity on each of the survey day.
2. The percentage of the sample who were inactive or did less than 5 minutes activity during the survey week.
3. The number of responses for each day and for the whole week.
4. The percentage of the sample who were inactive or who did less than 30 minutes activity during the week by age.
5. The percentage of boys, by age, who were inactive or did less than 30 minutes activity during the week.
6. The percentage of girls, by age, who were inactive or did less than 30 minutes activity during the week.
7. A comparison of the activity levels of boys and girls by age.
8. A comparison of the percentage of boys and girls, by age, who were inactive in each school.
The numbers of completed responses for each day and for the whole week is illustrated by Table 2. It should be noted that the responses for the whole week are lower than the responses for each day, because it only includes members of the sample who completed questionnaires on all five days.

**TABLE 2**
The Number of Completed Responses for Each Day & the Whole Week.

<table>
<thead>
<tr>
<th>Day</th>
<th>No of completed responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>471</td>
</tr>
<tr>
<td>Tuesday</td>
<td>473</td>
</tr>
<tr>
<td>Wednesday</td>
<td>465</td>
</tr>
<tr>
<td>Thursday</td>
<td>442</td>
</tr>
<tr>
<td>Friday</td>
<td>383</td>
</tr>
<tr>
<td>Whole Week (days 1-5)</td>
<td>311</td>
</tr>
</tbody>
</table>

Table 3 illustrates the percentage of the whole sample who were either inactive or did less than 5 minutes vigorous activity on any day. The sample number indicates the number of responses received for that particular day.

**TABLE 3**
The Activity Levels for the Whole Sample on Each Day of the Survey

<table>
<thead>
<tr>
<th>Day</th>
<th>No Activity (%)</th>
<th>Less than 5 mins activity (%)</th>
<th>No of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon (1)</td>
<td>67</td>
<td>80</td>
<td>471</td>
</tr>
<tr>
<td>Tue (2)</td>
<td>69</td>
<td>80</td>
<td>473</td>
</tr>
<tr>
<td>Wed (3)</td>
<td>74</td>
<td>82</td>
<td>465</td>
</tr>
<tr>
<td>Thu (4)</td>
<td>76</td>
<td>86</td>
<td>442</td>
</tr>
<tr>
<td>Fri (5)</td>
<td>75</td>
<td>86</td>
<td>383</td>
</tr>
</tbody>
</table>
Table 3 indicates a consistency of result for each day which shows a range of between 67% and 75% of the sample were inactive and between 80% to 86% did less than 5 minutes activity. The sample number (column 4) varied from day to day due to members of the sample being absent on that day. This was usually due to illness or the teachers industrial action.

Table 4 illustrates the level of activity for the whole sample for the week.

**TABLE 4**

The Levels of Inactivity for the Whole Sample for the Week

<table>
<thead>
<tr>
<th>Whole Week</th>
<th>No Activity (%)</th>
<th>Less than 5 mins activity (%)</th>
<th>No of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days 1-5</td>
<td>55</td>
<td>63</td>
<td>311</td>
</tr>
</tbody>
</table>

It should be noted that the levels of inactivity over the week are lower than for each day. A reason for this was indicated by a manual analysis of the questionnaires which suggested that those pupils who were absent were much more likely to be inactive than those who completed a full attendance.

The percentage of each age group who were inactive or did less than 30 minutes vigorous activity during the week can be seen in Table 5.
### Table 5

The Levels of Activity for the Different Age Groups for the Week

<table>
<thead>
<tr>
<th>Age (Yrs)</th>
<th>No Activity (%)</th>
<th>Less than 30 mins (%)</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>41.0</td>
<td>58.5</td>
<td>39</td>
</tr>
<tr>
<td>12</td>
<td>51.5</td>
<td>72.5</td>
<td>81</td>
</tr>
<tr>
<td>13</td>
<td>51.0</td>
<td>73.5</td>
<td>47</td>
</tr>
<tr>
<td>14</td>
<td>44.0</td>
<td>71.0</td>
<td>62</td>
</tr>
<tr>
<td>15</td>
<td>46.0</td>
<td>63.0</td>
<td>87</td>
</tr>
<tr>
<td>16</td>
<td>64.5</td>
<td>75.5</td>
<td>34</td>
</tr>
</tbody>
</table>

It shows consistent levels of inactivity between the ages 12 to 15, followed by a sharp increase in age 16. The percentage of the sample who did less than 30 minutes activity during the week appears to be consistent for ages 12 to 16 years.

### Table 6

Levels of Activity, for the Week, of Boys in Each Age Group.

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>No Activity (%)</th>
<th>Less than 30 mins Activity (%)</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>38.0</td>
<td>81.0</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>51.0</td>
<td>66.0</td>
<td>44</td>
</tr>
<tr>
<td>13</td>
<td>31.0</td>
<td>47.5</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>28.0</td>
<td>60.5</td>
<td>32</td>
</tr>
<tr>
<td>15</td>
<td>28.5</td>
<td>53.5</td>
<td>42</td>
</tr>
<tr>
<td>16</td>
<td>52.5</td>
<td>74.0</td>
<td>19</td>
</tr>
</tbody>
</table>
The results in Table 6 (column 4) show that levels of inactivity appear to rise markedly during the age of 16 years (column 2). The percentage of the sample who did less than 30 minutes activity is higher for the age groups 12 and 16, compared to the age groups 13, 14 and 15 years.

**TABLE 7**

Levels of Activity, for the Week, of Girls, in Each Age Group.

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>No Activity (%)</th>
<th>Less than 30 mins Activity (%)</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>45.5</td>
<td>64.5</td>
<td>21</td>
</tr>
<tr>
<td>12</td>
<td>50.5</td>
<td>82.5</td>
<td>37</td>
</tr>
<tr>
<td>13</td>
<td>68.0</td>
<td>87.0</td>
<td>25</td>
</tr>
<tr>
<td>14</td>
<td>66.5</td>
<td>90.0</td>
<td>30</td>
</tr>
<tr>
<td>15</td>
<td>62.5</td>
<td>83.5</td>
<td>45</td>
</tr>
<tr>
<td>16</td>
<td>80.0</td>
<td>98.0</td>
<td>15</td>
</tr>
</tbody>
</table>

The interesting feature of Table 7 is that it shows a consistent rise in the level of inactivity, of the sample of girls, with increase in age.

**TABLE 8**

A Comparison of the Activity Levels of Boys & Girls in Each Age Group.

<table>
<thead>
<tr>
<th>Age</th>
<th>No Activity (%)</th>
<th>Less than 30 mins activity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>11</td>
<td>38.0</td>
<td>45.5</td>
</tr>
<tr>
<td></td>
<td>81.0</td>
<td>64.5</td>
</tr>
<tr>
<td>12</td>
<td>51.0</td>
<td>50.5</td>
</tr>
<tr>
<td></td>
<td>66.0</td>
<td>82.5</td>
</tr>
<tr>
<td>13</td>
<td>31.0</td>
<td>68.0</td>
</tr>
<tr>
<td></td>
<td>47.5</td>
<td>87.0</td>
</tr>
<tr>
<td>14</td>
<td>28.0</td>
<td>66.5</td>
</tr>
<tr>
<td></td>
<td>60.5</td>
<td>90.0</td>
</tr>
<tr>
<td>15</td>
<td>52.5</td>
<td>62.5</td>
</tr>
<tr>
<td></td>
<td>53.5</td>
<td>83.5</td>
</tr>
<tr>
<td>16</td>
<td>52.5</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>74.0</td>
<td>98.0</td>
</tr>
</tbody>
</table>
The comparison of inactivity between boys and girls in Table 8 shows similarities between the sexes for the age groups 11 and 12 years before girls became less active than boys for the age groups 13, 14 and 15 years. The gap narrows for the 16 years age group.

The figures (column 3), which indicate the percentage of the sample who did less than 30 minutes activity, are higher than those for the percentage of the sample who did no activity, however the pattern is very similar between the two categories. There are similarities between the results at 11 and 12 years, but then the girls become less active for the age groups 13, 14 and 15 years before the gap closes again for the 16 year age group.

TABLE 9

The Percentage of All Boys and All Girls Inactive in Each School.

<table>
<thead>
<tr>
<th>Schools</th>
<th>Boys (%)</th>
<th>Girls (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.5</td>
<td>41.5</td>
<td>29.0</td>
</tr>
<tr>
<td>2</td>
<td>31.0</td>
<td>63.0</td>
<td>46.0</td>
</tr>
<tr>
<td>3</td>
<td>39.5</td>
<td>68.5</td>
<td>54.5</td>
</tr>
<tr>
<td>4</td>
<td>57.0</td>
<td>48.0</td>
<td>52.0</td>
</tr>
<tr>
<td>5</td>
<td>46.0</td>
<td>60.0</td>
<td>52.0</td>
</tr>
<tr>
<td>6</td>
<td>50.0</td>
<td>74.0</td>
<td>61.5</td>
</tr>
</tbody>
</table>

The results show a similarity in the lack of activity between Schools 2 to 6. However, the percentage of inactivity in School 1 (29%) is notably lower than the mean percentage for the 5 other schools (53.2%). No reason for this can be offered as School 1 was similar to the others in size, location and curriculum.
6.00 THE INTERVIEW RESULTS

Introduction

In this section it is intended to report the results of the interviews. They fall into the following categories:

1. Activity patterns and Leisure pursuits at weekends and during the week.
2. Subjects considered to be the most important.
3. Subjects considered to be the most enjoyable.
4. The most popular Physical activities.
5. The purpose of Physical Education.

Within each category the results are presented in several ways. These include tables, descriptions and quotations. By using these methods of presentation it is intended to illustrate patterns of response combined with the reasons or explanations the sample provided for these patterns.

In this way a balance should be established between quantitative and qualitative data in order to provide a comprehensive description of the samples responses.

6.1 The first set of results (Table 10) report the findings of the questions covering levels of physical activity, both during the week and at weekends. The sample were asked to describe their regular recreational activities to identify if any form of physical activity featured in their lifestyle. Only 16.8% of the sample mentioned any form of vigorous exercise after school hours.
### Leisure Patterns

<table>
<thead>
<tr>
<th></th>
<th>Weekdays</th>
<th>Weekends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Activity</td>
<td>83.1%</td>
<td>82.0%</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>16.9%</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

*Table 10*
The most common response was playing sport, followed by dancing and swimming, but other responses mentioned included martial arts, riding a bike, horse riding and activity at cadets and scouts. There were some responses which mentioned ice skating, gardening and walking. These results suggest that during the week 16.8% of the sample engaged in some form of physical activity, while 83.2% are inactive.

The results of questions concerning physical activity at weekends indicate that 18.0% of the sample did some form of physical activity, while 82% were engaged in passive activities. The physical activities mentioned for weekends were exactly the same as those reported for weekdays. These results would suggest that those of the sample who were active during the week were likely to be active at weekends and were also likely to be doing the same activities.

By far the most common passive leisure pursuits during the week were watching television, visiting friends, doing homework and listening to music. Nearly three quarters of the sample maintained that they spent most evenings after school, doing these activities. A smaller number also mentioned playing with computers, reading, drawing, shopping, working, cooking and playing music.

Not surprisingly there was a greater diversity of passive activities at the weekends because of the greater amount of time available. The most common were - shopping, visiting friends, staying-in and visiting relatives. These activities were mentioned by 55.4% of the sample.

Other less frequently mentioned activities included homework, going to church, watching sport, watching video films, playing with a
computer, playing music, listening to music, doing housework, working, going to Sunday School and doing nothing.

The major finding of interest was the amount of time, during a week, that the sample spent with their friends. Over the two parts of the week (weekdays and weekends) this was easily the most popular pastime.

It should also be noted that these results did not differ significantly with age, school or sex, although there were indications that boys were more likely to be involved in sport rather than for example, swimming or dancing, which were mentioned more often by girls, although it is difficult to generalise about the behaviour patterns of such a small percentage - weekdays 16.8% and weekends 18.0% of the sample.

6.2 Table 11 illustrates the results of the subjects which the sample thought were the most important. Predictably English and Mathematics feature strongly, however over half the sample (52.9%) placed Physical Education in third place.

When the reasons expressed by the sample for why they thought Physical Education was important were analysed the following categories emerged, presented here with typical quotations:–

Over half of the sample (57.4%) thought Physical Education was important because it:

Keeps you fit

"To keep you fit"

"To keep in shape"

"For if you don't get any physical activity"
% of subjects placed in the top 5 most important
102 respondents

<table>
<thead>
<tr>
<th>Subject</th>
<th>% of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>96.0</td>
</tr>
<tr>
<td>Maths</td>
<td>96.0</td>
</tr>
<tr>
<td>German</td>
<td>12.2</td>
</tr>
<tr>
<td>French</td>
<td>10.7</td>
</tr>
<tr>
<td>Physics</td>
<td>8.8</td>
</tr>
<tr>
<td>Chemistry</td>
<td>8.8</td>
</tr>
<tr>
<td>Biology</td>
<td>6.8</td>
</tr>
<tr>
<td>Woodwork</td>
<td>6.8</td>
</tr>
<tr>
<td>Metalwork</td>
<td>6.8</td>
</tr>
<tr>
<td>P.E.</td>
<td>34.3</td>
</tr>
<tr>
<td>Health</td>
<td>34.3</td>
</tr>
<tr>
<td>D.S.</td>
<td>52.9</td>
</tr>
<tr>
<td>Commerce</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>1.0</td>
</tr>
<tr>
<td>Drama</td>
<td>4.9</td>
</tr>
<tr>
<td>Music</td>
<td>4.9</td>
</tr>
<tr>
<td>T.D.</td>
<td>4.9</td>
</tr>
<tr>
<td>Geography</td>
<td>7.8</td>
</tr>
<tr>
<td>R.E.</td>
<td>19.6</td>
</tr>
<tr>
<td>History</td>
<td>30.3</td>
</tr>
<tr>
<td>Comp. Studies</td>
<td>34.3</td>
</tr>
</tbody>
</table>
To stay healthy  "To stay healthy"
(19.1%)  "To relax you"
"So that you don't get fat and lazy"

For jobs in sport  "If you want a fit job"
(8.8%)  "In case you want to be a teacher"
"You can get into football clubs"
"To do something in sport"

As a break from work  "To give you a break from your hard
(7.4%)  school work"
"To enjoy yourself"
"To have fun"

To learn about sport  "To learn about different sports"
(5.9%)  "For my sport"
"To learn about sport"

Other reasons mentioned by individuals which did not fit into the
categories above were:
"It's just another subject"
"To help you get on with other people"
"We just do it"

It was interesting to note that Health Education was placed equal
fourth, with computer studies in these results despite the fact
that in four out of the five schools in which the interviews were
conducted, Health Education was not a time-tabled subject.

Closer examination of these results show some differences in results
between boys and girls:
TABLE 12
A Comparison of the Subjects Boys & Girls Place in Order of Importance.

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English 98%</td>
<td>Maths 90%</td>
</tr>
<tr>
<td>2</td>
<td>Maths 96%</td>
<td>English 88%</td>
</tr>
<tr>
<td>3</td>
<td>Physical Ed. 53%</td>
<td>Physical Ed. 52%</td>
</tr>
<tr>
<td>4</td>
<td>Computer St. 47%</td>
<td>Health Ed. 39%</td>
</tr>
<tr>
<td>5</td>
<td>Geography 33%</td>
<td>Geography 27%</td>
</tr>
<tr>
<td>6</td>
<td>Health Ed. 31%</td>
<td>Computer St. 25%</td>
</tr>
</tbody>
</table>

These figures were consistent between schools and age ranges. They show that the same 6 subjects feature in the six most important subjects, but the order changes for the positions 4, 5, and 6, with girls placing a greater emphasis on Health Education. Also the percentages for Physical Education and Computer Studies are much closer for boys than illustrated in the overall table.

It is worth reporting the reasons expressed by the sample for placing Health Education in such an elevated position of importance. The majority thought it was important to:

- Learn about yourself, your body and how it works.
  
*E.g.*  'Everyone has got to know about health'

  'To know about yourself'

  To learn about the body'

  'To learn how to look after yourself better'
Others mentioned its value in terms of:—

**Avoiding illness and keeping fit**

* e.g. 'How to avoid getting ill'
  'To make you aware of diseases'
  'To keep fit'

Also mentioned, but to a much lesser extent were:—

**Sports Injuries, Child Care and Diet**

* e.g. 'For strains and pulls'
  'In case you have children'
  'To know what you’re eating'

A quote which seemed to sum up the attitudes underlying these responses, was that it was important:—

'To learn how to look after yourself'

6.3 The subjects that the sample thought most enjoyable are illustrated by Table 13, which shows that Physical Education was the most popular.

A closer examination of these results is provided by Table 14 which compares the results of boys with girls.

**TABLE 14**

**A Comparison Between Boys & Girls of Most Popular Subjects**

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>53%</td>
<td>Physical Education 33%</td>
</tr>
<tr>
<td>Physical Education</td>
<td>53%</td>
<td>Physical Education 33%</td>
</tr>
<tr>
<td>Maths</td>
<td>43%</td>
<td>English 25%</td>
</tr>
<tr>
<td>English</td>
<td>27%</td>
<td>Maths 23%</td>
</tr>
<tr>
<td>Art</td>
<td>13%</td>
<td>Art 15%</td>
</tr>
</tbody>
</table>

This table shows that Physical Education, English and Maths are significantly more popular than the fourth placed subject, which is Art, and Maths is more popular with boys than girls.
### Subjects most enjoyable – Max of 4 per person

102 respondents

<table>
<thead>
<tr>
<th>Subject</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maths</td>
<td>35</td>
</tr>
<tr>
<td>Geography</td>
<td>45</td>
</tr>
<tr>
<td>P.E.</td>
<td>8</td>
</tr>
<tr>
<td>Physics</td>
<td>16</td>
</tr>
<tr>
<td>Woodwork</td>
<td>9</td>
</tr>
<tr>
<td>Drama</td>
<td>5</td>
</tr>
<tr>
<td>French</td>
<td>2</td>
</tr>
<tr>
<td>Comp. Studies</td>
<td>10</td>
</tr>
<tr>
<td>R.E.</td>
<td>18</td>
</tr>
<tr>
<td>History</td>
<td>7</td>
</tr>
<tr>
<td>T.D.</td>
<td>3</td>
</tr>
<tr>
<td>Art</td>
<td>5</td>
</tr>
<tr>
<td>Science</td>
<td>5</td>
</tr>
<tr>
<td>D.S.</td>
<td>5</td>
</tr>
<tr>
<td>Biology</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Metalwork</td>
<td>1</td>
</tr>
<tr>
<td>German</td>
<td>1</td>
</tr>
<tr>
<td>Needlework</td>
<td>2</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Euro Studies</td>
<td>1</td>
</tr>
<tr>
<td>Commerce</td>
<td>2</td>
</tr>
<tr>
<td>Life Skills</td>
<td>1</td>
</tr>
<tr>
<td>Statistics</td>
<td>2</td>
</tr>
<tr>
<td>Typing</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>26</td>
</tr>
</tbody>
</table>
These results appear to be consistent across ages, schools and sexes. However one important trend to be observed is a decline in the popularity of Physical Education among 5th year girls compared to other years.

The popularity of Physical Education tends to be confirmed by the findings to the question:
"Which face would be yours immediately before a Physical Education lesson?" as illustrated by Table 15. This table shows that 79.4% of the sample looked forward to their Physical Education lessons.

An examination of the differences between boys, girls and age ranges showed that 90% of boys looked forward to their Physical Education lessons and 10% were either undecided or unhappy.

The girls results showed that 66% looked forward to their Physical Education lessons, with 34% undecided or unhappy. However it was observed that girls became less happy about Physical Education as they became older. These results were consistent in each school.

Analysis of the reasons why the pupils thought Physical Education was enjoyable and why they looked forward to it produced the following categories of response:

**Physical Education is a break or release from 'normal' school work, (31.0%).**

* e.g. 'You don't have to write so much or think so much'
  'Because it gets you out'
  'I like activity, I don't like writing'
  'You're not writing or sitting down all the time'
  'It's a break from lessons'
  'You can take it easy. You've got no worries. It's like free time'
  'After maths Physical Education is good to relax'
102 Responses

79.4%  5.8%  14.7%
It's fun, enjoyable, a laugh, (28.4%).

e.g. 'It's fun, you have a laugh'
    'You have a great laugh'
    'It makes you happy'
    'You know you are going to enjoy what's coming'

Liking the activities, (14.9%).

e.g. 'I like Physical Education because I'm good at it'
    'Because you get good exercise'
    'I like to try and get better at games'
    'When you play football you can let yourself go'

You are with friends, (13.5%).

e.g. 'Because I'm with my friends and we do things I like'
    'I enjoy playing games with my friends'
    'You look forward to an hour of fun and games with friends'
    'I can get to have a talk to my friends'

It keeps you fit and healthy, (12.2%).

e.g. 'I enjoy Physical Education because it keeps me fit'
    'I like Physical Education because you get fitter'
    'It keeps me fit'
    'It's good for you, for your health'

These results were consistent between sexes, ages and schools.

The reasons why pupils were unhappy about Physical Education were categorized as follows, although it is difficult to generalize about these results due to the small size of the sample.
The majority mentioned:

**A dislike of particular activities.**

e.g. 'I'm sad if it's football, I can't play football to save my life'

'If it's cricket I don't like it. You get bored, I'm not good at it'

'I don't like gymnastics, I'm not very good at it and I don't like it'

'It depends on the lesson and what we are doing'

'Sometimes we have to do things I don't like to do'

**The weather.**

e.g. 'I don't like when its outside and cold'

'I don't enjoy it when its wet and cold'

'I don't like it when they make us go out in the rain'

**The Teacher.**

e.g. 'It depends on who we've got for Physical Education'

'A lot of them groan because of the teacher'

'I don't like it. Everything I do I seem to get told off. I don't think the teacher likes me and I don't like her much'

**The physical demands.**

e.g. 'Some people groan because it's too much of a strain'

'I don't like it if there's lots of running'

'I hate Physical Education because of the size of me'

'I don't like it because it gets very tiring'

**Peers - one interviewee said:**

'It depends on which lesson. On Fridays there are a few nasty people in the group, the rough end of the school'
The results of the questions concerning preference of activities are illustrated by Table 16. This shows that over half of the sample (52.9%) would prefer to do a physical activity other than games if they had the choice. This is despite the fact that games dominated the Physical Education curricula of the survey schools.

A further analysis of these results produced the following comparison of preference between boys and girls.

**TABLE 17**

The Preference of Boys for Physical Education Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact games</td>
<td>37%</td>
</tr>
<tr>
<td>Non-contact games</td>
<td>12%</td>
</tr>
<tr>
<td>Individual activities</td>
<td>8%</td>
</tr>
<tr>
<td>Fitness activities</td>
<td>16%</td>
</tr>
<tr>
<td>Water activities</td>
<td>28%</td>
</tr>
</tbody>
</table>

**TABLE 18**

The Preference for Girls for Physical Education Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact games</td>
<td>9%</td>
</tr>
<tr>
<td>Non-contact games</td>
<td>26%</td>
</tr>
<tr>
<td>Individual activities</td>
<td>16%</td>
</tr>
<tr>
<td>Fitness activities</td>
<td>20%</td>
</tr>
<tr>
<td>Water activities</td>
<td>26%</td>
</tr>
</tbody>
</table>

-103-
Categories of Activities

- Contact games - 22.5%  
- Non-contact games - 24.5%  
- Individual activities - 10.8%  
- Fitness activities - 17.6%  
- Water activities - 24.5%  

Total: 47.0%
These tables show:-
- A notable preference for activities other than games for girls, compared with a nearly even division of preference for boys.
- A marked preference for non-contact games against contact games for girls, compared with an equally marked preference in reverse for boys.
- A similar preference between boys and girls for water activities and fitness activities.
- The relative unpopularity of non-contact games and individual activities among boys.
- The unpopularity of contact games among girls.

These results were consistent across the age ranges and for each sex. Some differences were observed between schools, despite similarities between facilities and Physical Education programmes. Teachers in these schools suggested the following influences in participation within the geographical locations of their schools.

(a) Local sports clubs
(b) Parental interests
(c) Public leisure facilities

The reasons expressed by the pupils for their preferences can be categorized, with examples, as follows:-

1. Contact Games:-

   Affiliation - the security of being with and playing with friends.
   e.g. 'You're with all of your mates and you can help each other out'
   'I like being in a team'
   'I like playing with my friends'
An Alternative - to the pressure of being personally responsible for success or failure

e.g. 'In a team you don't have to blame yourself; you're together, you work together'

'When you are on your own it's up to you, but in a team game if you make a mistake, perhaps someone can put it right'

Excitement - a feeling generated by competing, expressing yourself or winning.

e.g. 'I like to stand out'

'Football is exciting'

2. Non-contact Games:

Self-esteem - you are responsible for your own success.

e.g. 'If you win you can feel proud of yourself'

Involvement - you are 'playing' all the time.

e.g. 'I like running about'

'There's a lot of running after things'

Safety - they are less physically dangerous.

e.g. 'With contact games you have contact, and they end up with arguments'

3. Individual Activities

Autonomy - a preference for working and learning on your own.

e.g. 'I like doing things by myself'

'I work better by myself than in a team'

Peer Pressure - you don't have others telling you what to do or shouting at you.

e.g. 'I like doing things on my own without other people in groups telling you what to do'

'You don't have a partner shouting at you'
4. Fitness Activities

Personal Value - fitness activity is of more personal value than mastering a technique (e.g. as in a game).

e.g. 'In fitness your moving all the time, in some games you just stand there and move a little or occasionally you walk around'

'Games is just learning how to do a game. It isn't much, but when you're doing fitness, like cross country, you are doing distances and getting your energy up'

Anxiety Free - it is not competitive.

e.g. 'You don't necessarily have to be competitive to do it'

Technique Free - you do not need a 'skill' to participate.

e.g. 'You don't need a skill'

'You don't have to learn any special techniques'

5. Water Activities

Affiliation - provides a context for play and fun.

e.g. 'You can play with friends'

'You have more fun'

'You can have a good time'

Fitness - It is a valuable means of keeping fit.

e.g. 'It's good for health'

'You use more muscles'

'It keeps your whole body fit'

Skill Value - It provides you with the ability to save others in difficulties.

e.g. 'You can save yourself'

'In games you can have a lot of fun, but in swimming you can learn to swim as well'

'I like playing in the water and it can be useful'

These categories were appropriate for both age ranges and sexes.
The initial response to the question - "Do you know why you do Physical Education in school?", was that 50% of the sample answered 'NO'. It became necessary with nearly all of the sample to allow time for reflection on their experiences and perceptions of Physical Education in order to articulate their response to the question. After reflection and probing, the following categories of response were observed. The percentage of responses in each category is indicated and examples for each category also noted.

**To Keep Fit - 55.5%**.

- e.g. 'So that you can get some physical activity'
- 'In case you don't do any physical activity'
- 'To keep you fit'
- 'Builds up strength'
- 'To get muscles working better'

**A 'Break' from Lessons - 31.0%**.

- e.g. 'To give us a break from normal lessons'
- 'To relax you'
- 'To give us a bit of fun'
- 'To get enough energy for other subjects'

**To Learn About Sport - 13.5%**.

- e.g. 'If you want to be a sportsman'
- 'To teach you sport'
- 'To give you a hobby'
- 'To do activities other people can do'
CHAPTER 7

7.00 A DISCUSSION OF THE FINDINGS OF THE RESEARCH

Introduction

The results of this survey have highlighted the following as areas demanding further discussion:-

1. Do Pupils Value Physical Education?
2. Implications for the Physical Education Programme
3. Attitudes of Girls Towards Physical Education
4. Implications for Girls Physical Education
5. The Activities Offered in Physical Education
6. Health Education
7. Physical Education as a Facilitator and Motivator for Participation in Physical Activity During Leisure Time
8. Sex Differences in Levels of Physical Activity
9. Implications for Physical Education
10. Conclusion

Do Pupils Value Physical Education?

The results of this survey appear to indicate that young people value Physical Education. It was placed third in an order of most important subjects and placed first in an order of most enjoyable subjects. On face value it would seem logical to assume that this positive attitude towards Physical Education was due to the activities and teaching methods currently employed in many schools, because these programmes have been constructed to fulfill the aims of the Department. In Underwood's study (1983) the two aims generally
given priority were (a) skill acquisition and (b) recreation for leisure. It is therefore possible that many Physical Education teachers observe a positive response by the majority of their pupils as confirmation of the success of the aims of the Physical Education department and the methods employed to achieve those aims.

However, further investigation into this area has identified a potentially serious misconception to the previously stated interpretation of these results.

When questioned further about why they thought Physical Education was important or why it was enjoyable the sample produced a pattern of responses which became predictable but had little connection with what most Physical Education teachers would hope would be the aims of their programmes.

Over threequarters of the sample thought that Physical Education was important because they needed to keep fit or to give them a 'break' from lessons.

Analysis of the time allocation for Physical Education and the content of Physical Education programmes (Hill 1986), with the dominance of games, shows that it cannot and does not keep pupils fit. This instrumental perception of Physical Education by pupils demonstrates their lack of understanding and knowledge of physical fitness and Physical Education. This indicates a mismatch between what pupils perceive as the purpose of Physical Education and the aims of the subject.

This mismatch is strengthened by the finding that nearly one third of the sample thought Physical Education was important because
it gave them a 'break' from normal lessons. A similar, but much more difficult response was found to why the sample enjoyed Physical Education. Nearly seventy percent indicated that it provided them with a 'break' from lessons. However a subtle difference was observed between these two apparently similar responses.

A 'break' when referred to in the context of being important meant structured activity which did not have any overt academic or intellectual overtones. This was seen as a valuable part of school life, in a therapeutic sense, in that it placed the pupil in a more receptive frame of mind for the 'academic' demands of the classroom.

A 'break' when referred to in the context of being enjoyable meant the opportunity to be with and play with friends. A 'break' here meant recreative activity in a secure social setting. Many older pupils mentioned their preference for the option system, which allowed them to be with their friends. This was clearly more important for the majority, than the activity itself. In fact only 14.9% of the sample mentioned the activities as the reason why they enjoyed Physical Education lessons.

Implications for the Physical Education Programme

This study has found considerable evidence that most young people enjoy Physical Education and also consider it to be important. They think it is important because they value being fit and consider that Physical Education lessons will fulfill this need. They enjoy Physical Education because it gives them a 'break' from 'normal' lessons and the chance to be with their friends. This suggests that Physical Education may provide an enjoyable 'social' experience. It may be valuable to use this perception to re-educate these young
people so that they can become aware of the contribution Physical Education makes to their physical, emotional and social development as a means of enhancing their quality of life.

Many Physical Education teachers may also have to critically examine the content of their programmes. If their pupils value fitness as a valuable personal condition, then perhaps the focus of Physical Education programmes should be centred on health and fitness, through the variety of activities available, rather than just acquisition of skill which appears to be the major focus at the moment.

Also many pupils value the social context which Physical Education offers. This lends weight to the argument that Physical Education can be a valuable medium for work on personal and social development. However, for many Physical Education programmes this may only be part of the 'hidden curriculum'. Perhaps we should focus on this area.

**Attitudes of Girls Towards Physical Education**

As the results of this research began to become clear, a significant trend could be observed concerning girls attitudes towards Physical Education which warranted particular reference.

This trend indicated that although positive attitudes towards Physical Education could be observed during the age of eleven and twelve, there was a marked deterioration in attitude with age. This trend could also be compared with the progressive lack of physical activity, identified by the questionnaire survey, in which there was a steady decrease in the level of activity until the age of sixteen years, when 80% of that age group were inactive.
Similar patterns of activity and attitude have been observed by an ILEA Study Group (1984) and a Schools Council Report (Leaman, 1984). These reports stress the inadequacy of Physical Education in dealing with the psychological qualities of maturation.

'Teachers of girl's Physical Education sometimes try to argue with their pupils, that the activities on offer as part of the curriculum in school will help them become slim and graceful, healthy and attractive. Yet the fact that girls tend to reject this approach suggests that the psychological rather than the physical aspects of femininity which are so important. What is involved is not so much a physical change (although that is involved too) but a felt need to reorientate one's thinking to fit into new social presuppositions of how one ought to behave and relate to others'. (Leaman, 1984).

The ILEA Study Group (1984) reported in a similar way to Leaman, except they placed more emphasis on the conflict of attitudes between male and female as the reason for inhibiting woman's participation in physical activity.

'The reactions of other people, particularly males, to them as females participating in physical activities was viewed with the utmost importance. It was very apparent that the attitudes held by males was an inhibiting factor to their participation and consequently, the girls tended to equate physical activities with masculinity'.

They were also able to explain why younger girls were not subject to these inhibitions.
'The younger girls were still children and although they were aware that even at such an early age, there was differentiation between the sexes and their appropriate behaviour, physical activity did not fit into this category.'

This survey substantiates these reports by also identifying that the value attached to Health Education by 16 year old girls was notably higher than for any other age groups of girls or boys. This finding suggests that older girls are interested in their health and physical well-being, but not as provided by current Physical Education programmes.

The Implications for Girls Physical Education

The evidence of this survey and other reports suggests that the programmes offered to girls, in Physical Education, provide only a few with any long-term benefit in the sense that they find personal value and meaning in physical activity.

The results would suggest that girls Physical Education is an area which needs an immediate examination so that programmes can be developed which take the following factors into account:-

(a) Sex stereotyping in school and society.
(b) Incorporating local and national trends of female participation with the school curriculum.
(c) A focus on health and well-being.
(d) To encourage and provide information or opportunities for girls to adopt positive attitudes towards physical activity in their leisure time.
(e) To provide programmes for mixed classes in which success may be more reliant on co-operation, creativity, understanding and skill, rather than strength, competitiveness or aggression.
The Activities Offered in Physical Education

All the evidence available at this time indicates that Physical Education programmes have not changed a great deal during the last decade. The traditional Physical Education department is still dominated by games, in the curriculum and as extra-curricular activity. Some time is devoted to gymnastics, swimming, athletics and dance, but it is generally fragmented and intermittent.

Within this setting the attitudes of the sample towards the activities they are offered make interesting reading.

Over half the sample would prefer to do a physical activity other than games, despite the fact that games dominate the curriculum. This difference was even more pronounced for girls (35% preferred games - 62% preferred other activities). In the light of these findings the predominance of the games experience in the Physical Education programme must be critically examined. This need is further enhanced when the reasons why the sample chose their preferences were examined.

Those who expressed a preference for games did so, not for the competitive nature of the activity, which is very often encouraged by teachers, but because the activity provided them with the opportunity to be with and 'play' with friends. This provides evidence for the notion that when co-operation and inter-action are the focus in games teaching, a medium can be provided through which the personal and social development of the participants can be enhanced.

The other categories of reasons for why the sample preferred activities other than games shows the following identifiable characteristics.
1. Time spent on fitness activity or swimming has more personal value than simply learning games techniques.

2. Young people want to relate to physical activity on a personal level.

3. Young people prefer to engage in physical activity that is free from pressures of results, performance or peers.

4. Many of the older age ranges like physical activity when they are not in competition with others.

5. Many young people like physical activity that does not demand technical competence in order to participate.

6. Young people enjoy physical activity as a personally controlled social experience.

When these factors are considered in the light of current Physical Education programmes, there is a mismatch between what the pupils perceive as activity with personal meaning and what teachers provide as Physical Education. Perhaps greater attention needs to be paid to the needs of young people as expressed above when planning and teaching Physical Education programmes. This idea is given further impetus when applied to the place of Health Education in the results of this study.

Health Education

Health Education was placed equal fourth with Computer Studies in the list of most important subjects. This was despite the fact that in four out of the five schools in which the interviews were conducted, Health Education did not appear on the timetable.

When the reasons why the sample placed Health Education in this position were analysed, it quickly became obvious that young people
want to know how to look after themselves. They perceive being fit and healthy as an attractive personal condition. However Physical Education programmes, in general, do not cater for this need.

Indeed it may be that with this finding and the way in which young people suggest Physical Education should keep them fit, they are telling us of a perceived need which ought to be catered for. Perhaps the profession should listen to these young people and begin to plan programmes which allow them to be involved in the process and direction of their education. In this way the perceived needs and aspirations of these young people can be combined with the experience, knowledge and insight of their teachers to provide courses which are relevant to their (the pupils) present and future development.

**The School as a Health Promoting Agency - The Role of Physical Education**

In the introduction reference was made to the role Physical Education may have in the overall concept of the school as a Health Promoting Agency.

The results of this survey strongly indicate that the young people want to know how to look after themselves. They want to look and feel good; also they think that Physical Education is on the timetable to keep them fit.

Based on the results of this study, it is clear that young people do not know how to look after themselves, and that Physical Education lessons cannot and do not keep them fit.

It would appear that young people are describing a prescribed
need as they see it which is not being matched by the curriculum of the school, or in particular by that of Physical Education departments. It might in fact be argued that there is a mismatch between the perceptions of young people and that of teachers as to the purpose of Physical Education.

Implications:

The results of this study suggest that young people are interested in their health and well-being, but they are not knowledgeable about health and fitness. Physical Education has an important role in transmitting experiences and knowledge about health and fitness in such a way that these young people can make intelligent and informed decisions about their physical well-being so that they incorporate this concept into their lifestyles.

The ways in which the general public are made aware of health and fitness is usually through the media, word of mouth or attending fitness centres or classes. The result has been that the public's knowledge of this concept is fragmented, imbalanced and sometimes based on myth.

It is vital that these people become educated about health and fitness and are provided with information, facilities and support which encourages physical activity which is controlled, safe, purposeful and fun.

I would suggest that a crucial time for the development of good fitness habits based on sound knowledge, is during the years of schooling. It is in this area that Physical Education has a vital role to play in promoting appropriate life-long physical activity.
which can be reinforced by other areas of the curriculum and by the school commitment to promoting Health within the institution and the community.

In this way a concern for health becomes part of everyday life, and by careful planning and implementation of such a programme people become knowledgeable about themselves and health, and the school can become a centre for co-ordinating the promotion of community health.

**Physical Education as a Facilitator and Motivator for Participation in Physical Activity during Leisure Time**

Many Physical Educationalists have described the role of Physical Education in encouraging young people to become active as a regular part of their lives (Almond 1984, Fox 1984, Laventure 1985, Taylor 1985). Underwood (1983) identified a major aim of most Physical Education curricula was to provide courses in which the focus was on sport as a valuable and enjoyable recreational pursuit. There is therefore a consensus among all levels of the Physical Education profession that the school curricula should, amongst other things, encourage people to be active.

However, the findings of this study indicate that young people are not active during their leisure time.

Despite the difficulties associated with obtaining self report data on frequency, intensity and duration of vigorous physical activity, the findings of this research provide overwhelming evidence of the lack of appropriate physical activity for the majority of young people between the ages of eleven to sixteen years. Both methods of
assessing levels of activity - the questionnaire and the interview - produced similar results, which gives grounds for trusting this evidence.

If these results are representative of other local authorities and different times of the year, then there may be important implications for the short and long term health of young people in this country.

The paediatric evidence described in the review of the literature supports the notion that many of the benefits associated with physical activity for adults can also be applied to young people. (Armstrong and Davies 1980, 1982, 1984, Gilham et al 1977, Wilmore et al 1981). This research suggests that although the risk factors associated with coronary heart disease manifest themselves in adult life, their origins are observable in childhood. Links have been identified between regular physical activity and a reduction in both primary and secondary risk factors associated with coronary heart disease.

It would appear therefore that physical activity is important for young people, and yet the survey suggests that in their leisure time they are largely inactive.

**Sex Differences and Levels of Activity**

The survey results show that the problems associated with inactivity are particularly serious for girls, (the percentage inactive rose steadily from 45.5% at 11 years to 80.0% by 16 years). These figures highlight an alarming trend which deserves further investigation.

On face value the figures suggest that boys are much more active than girls. While this appears to be the case further analysis
of the pattern of activity would give cause for concern. It appears that levels of activity are similar to girls up to the age of 12 years; however during the adolescent period (13 - 15 years), activity increases only to fall dramatically again at 16 years. Further research would need to be done to verify this finding and to see if the trends are consistent beyond 16 years and before 11 years. However if the trend observed at 16 years were to continue then the implications of lack of activity would be as serious for boys as for girls.

**Implications for Physical Education**

In Physical Education, the 'options programme', which has been adopted by the majority of secondary schools, is usually identified as that part of the programme in which pupils can chose from a wide range of activities, a sport which they are particular interested in. The idea is that by offering a wide range of sports the pupil may find something he/she enjoys doing and might therefore continue to do after school.

As a method of encouraging further participation this method is likely to have only limited success. Many young people have already decided, by the time they leave school, that organised competitive sport is not for them.

However, many young people are interested in their health and in keeping fit. Perhaps option programmes should be planned around the concepts of appropriate physical activity, year-long physical activity and life-time physical activity. Sport plays a part in implementing such a programme, but the focus is on physical well-being through a variety of physical challenges and experiences to develop
an understanding of the short and long term benefits of health related fitness.

If Physical Education is going to encourage young people to participate in physical activity and develop within them an understanding of the value of activity, then teachers need to adopt an individualised approach to learning, which promotes the concept of pupils being involved in the learning process.

It may also be an aid to the success of health and fitness work in schools, for teachers to have an understanding of:-

1. The principles underlining the maintenance of physical fitness.
2. The motivations which affect participation in physical activity.
3. Appreciate the problems associated with adherence to physical activity.

**Conclusion.**

If the data from this study is accurate, which the research methodology indicates, and if these results are consistent throughout the country, then there is hard evidence for a complete review of the Physical Education curriculum in schools.

The major findings of this study strongly suggest that:-

1. Young people need to engage in physical activity in their own time.
2. Young people enjoy Physical Education because it provides them with a 'break' in the school day when they can play with their friends.
3. Young people want to know how to look after themselves. They value feeling and looking good.
As a study into the activity patterns of young people and their attitudes and perceptions of Physical Education, the survey gathered a considerable amount of important information which has serious implications for the Physical Education curriculum.

However, this research needs to be replicated in other parts of the country with different samples and at different times of the year if generalisations are to be made about the whole population.

Also, this research has identified areas which demand further attention by other studies. These areas include:

(a) Activity levels before 11 years and after 16 years.

(b) The attitudes of girls towards physical activity and Physical Education.

(c) Attitudes of Physical Education Teachers towards Physical Education.

This research also indicates that the following areas should be considered by the Physical Education departments involved in the study:

(a) The role of Physical Education in encouraging active life styles.

(b) A review of the Physical Education curricula with particular reference to the value of certain activities in the programme.

(c) A review of curricula to avoid sex stereotyping in schools.

(d) A move towards adopting individualised teaching methods and involving pupils in the process and direction of their education.

(e) A review of the purpose and aspirations of Physical Education and how these can be communicated to the pupils.
As a result of this study the following are suggestions as areas which warrant further consideration:—

(a) The activity patterns questionnaire used in this study was the result of a rigorous developmental process. However, the validity of self reported data is inevitably questionable. There appears to be a need for further study into appropriate research instruments for collecting data of a behavioural nature based on self report.

(b) The interview schedule raised interesting questions and produced valuable data, however, it was clear that it had only begun to address the area of pupil perceptions, which may provide the central focus in further studies.

(c) It may be valuable for further research to replicate this study, but at different times of the year, in different geographical locations and with other age groups, (e.g. 11 to 18 year olds). If the development of a data base is considered to be necessary, then these recommendations may provide a more clear indication on a national scale of the behaviours and perceptions of young people.

(d) It may also be valuable to link this research with a physical fitness survey to provide increasingly comprehensive evidence about the well-being of young people in this country.
BIBLIOGRAPHY

ALLSEN P, HARRISON J, VANCE B 'FITNESS FOR LIFE - AN INDIVIDUALISED APPROACH', 3rd ed, W C B DUBUQUE, IOWA 1984

ALMOND L

'A RATIONALE FOR HEALTH RELATED FITNESS IN SCHOOLS', BULLETIN OF PHYSICAL EDUCATION, Vol. 19 No. 2 5-10, 1983

ALMOND L

'HEALTH RELATED FITNESS' BRIT. J. OF PHYSICAL EDUCATION Vol. 14 No. 2 1983

ALMOND L

HEALTH BASED PHYSICAL EDUCATION PROJECT - A PROGRESS REPORT. THE BULLETIN OF PHYSICAL EDUCATION Vol. 22 No. 2 SUMMER 1986

ANDREW G M & PARKER V O

'FACTORS RELATED TO DROPOUT OF POST MYOCARDIAL INFECTION PATIENTS FROM EXERCISE PROGRAMMES'. MEDICINE AND SCIENCE IN SPORTS 1979 11, 376-378

ANDREW et al

REASONS FOR DROPOUT FROM EXERCISE PROGRAMMES IN POST - CORONARY PATIENTS. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE 1981 13, 164-168

ARMSTRONG N


ARMSTRONG N & DAVIES B


ARMSTRONG N & DAVIES B


ARMSTRONG N & DAVIES B


ARMSTRONG N


ASTRAND et al

'GIRL SWIMMERS' - ACTA PAEDIATR. SUPPL. 147. 3-75 (1963)

BAILEY D A

'THE GROWING CHILD AND THE NEED FOR PHYSICAL ACTIVITY' (Ed. ALBINSON J.G. - CHILD IN SPORT AND PHYSICAL ACTIVITY) UNIVERSITY PARK PRESS 1976 81-93

-125-


Bar Or O & Zwiren L D  'PHYSIOLOGICAL EFFECTS OF INCREASED FREQUENCY OF PHYSICAL EDUCATION CLASSES AND OF ENDURANCE CONDITIONING ON 9 TO 10 YEAR OLD GIRLS AND BOYS'. (Ed. O. Bar Or pp 163-198. Israel: Wingate Institution (1973)

Bayman D  'SECONDARY SCHOOLS PHYSICAL EDUCATION IN LIVERPOOL' - Unpublished Study (1982)


BJontorp et al  'PHYSICAL TRAINING IN HUMAN OBESITY 111, EFFECTS OF LONGTERM PHYSICAL TRAINING ON BODY COMPOSITION'. Metabolism 22, 1467-1475


Booth S  'A SURVEY OF LOCAL EDUCATION AUTHORITIES TO INVESTIGATE ANY INITIATIVES TAKEN FOR THE INTRODUCTION AND DEVELOPMENT OF HEALTH AND FITNESS WITHIN THESE AREAS' HEALTH BASED PHYSICAL EDUCATION PROJECT - Loughborough University 1986

Boyall J  'PHYSICAL EDUCATION IN LEICESTERSHIRE SECONDARY SCHOOLS' - Unpublished Study (1979)

British Columbia P E Contract Team  'BRITISH COLUMBIA PHYSICAL EDUCATION ASSESSMENT - GENERAL REPORT TO THE MINISTRY OF ED., PROVINCE OF BRITISH COLUMBIA' July, 1980


'THE EFFECTS OF PHYSICAL TRAINING UPON SELF-CONCEPT AND BODY ATTITUDE'. J. OF CLINICAL PSYCHOLOGY 27, 211-412

'AN AEROBICS CONDITIONING PROGRAMME FOR THE FORT WORTH TEXAS SCHOOL DISTRICT' - THE RESEARCH QUARTERLY Vol. 46 No.3, 345-350 (1972)

'FITNESS FOR A LIFETIME' - BRIT. J. OF PHYSICAL EDUCATION Vol. 16 No.2 44-46 (1985)

'CONCEPTS OF PHYSICAL FITNESS WITH LABORATORIES'.5th Ed. W C B DUBUGNE, IOWA (1985)

'EXERCISE PROGRAMMES FOR THE ELDERLY' - JAMA JULY 27 Vol. 252 No. 4 544-546 (1984)


'T.V.E.I. - A CHALLENGE FOR PHYSICAL EDUCATION' - HEALTH AND PHYSICAL EDUCATION NEWSLETTER No. 4 BRITISH JOURNAL OF PHYSICAL EDUCATION Vol. 17 No. 3 1986

'PSYCHOBIOLOGIC INFLUENCES ON EXERCISE ADHERENCE' V. OF SPORT PSYCHOLOGY, 1980 2, 295-310

'ENERGY, WORK AND LEISURE' LONDON (1967)

'COMPARISON OF EXERCISE SELF-REPORT METHODS: FAMILY HEALTH PROJECT 1. RESEARCH QUARTERLY FOR EXERCISE AND SPORT (IN PRESS) 1983

'GIRL SWIMMERS' - ACTA PAEDIATR. SUPPL. 147, 3-75 (1963)

'A PHYSIOLOGICAL ANALYSIS OF FORMER GIRL SWIMMERS'. ACTA PAEDIATR. SCAND. SUPPL. 217, 68-72 (1971)

'A CURRICULUM TO MEET YOUNG PEOPLES NEEDS' - EDUCATION FOR AN ACTIVE LIFE: TOWARDS A RELEVANT CURRICULUM. SEMINAR REPORT 1984

'THE CASE FOR EXERCISE' SPORTS COUNCIL REPORT (1976)

'TEACHING PHYSICAL LIFE SKILLS' - BRIT. J. OF PHYSICAL EDUCATION Vol. 14 No. 5 126-128 (1983)
FOX K

'PHYSICAL LIFE SKILLS' - BRIT. J. OF PHYSICAL EDUCATION Vol. 14 No. 3 68 1983

FOX S, NAUGHTON J, HASKELL W


GILLIAM T B & FREEDSON

'EFFECTS OF A 12 WEEK SCHOOL PHYSICAL FITNESS PROGRAMME ON PEAK VO2, BODY COMPOSITION AND BLOOD LIPIDS IN 7 TO 9 YEARS OLD CHILDREN'. INT. J. SP. MED. 1, 73-78 (1980)

GILLIAM T B et al

'PREVALENCE OF CORONARY HEART DISEASE RISK FACTORS IN ACTIVE CHILDREN 7 TO 12 YEARS OF AGE'. MED. SCI. SP. 9: 21-25 (1977)

GLASEFORD R G et al

'A STUDY OF COMPULSORY PHYSICAL EDUCATION PROGRAMMES IN ALBERTA'. ALBERTA DEPT. OF ED. APRIL 1977

GREENFIELD C

'PHYSICAL EDUCATION IN SECONDARY SCHOOLS' (1981/82) 'TRAFFORD SCHOOLS SURVEY' (1982)

GUBA F G & LINCOLN Y S

'NATURALISTIC ENQUIRY' SAGE PUBLICATIONS, LONDON (1985)

GUBA F G & LINCOLN Y S

'SUMMARY OF TECHNIQUES FOR ESTABLISHING TRUSTWORTHINESS' (1984)

HEINZELMAN F & BAGLEY R W

'RESponse TO PHYSICAL ACTIVITY PROGRAMMES AND THEIR EFFECTS ON HEALTH BEHAVIOR'. PUBLIC HEALTH REPORTS 1970, 1985, 905-911

HENDRY L B

'SCHOOL, SPORT AND LEISURE - THREE DIMENSIONS OF ADOLESCENCE'. LEPUS BOOKS, LONDON (1978)

HILL C

'DERBYSHIRE SCHOOLS SURVEY' - UNPUBLISHED DISSERTATION LOUGHBOROUGH UNIVERSITY (1984)

HOVELL M F et al

'AN EVALUATION OF ELEMENTARY STUDENTS'. 'VOLUNTARY PHYSICAL ACTIVITY DURING RECESS'. THE RESEARCH QUARTERLY Vol. 49, No. 4, (1978)

ILEA STUDY GROUP

'PROVIDING EQUAL OPPORTUNITIES FOR GIRLS AND BOYS IN PHYSICAL EDUCATION.' - ILEA COLLEGE OF PHYSICAL EDUCATION (1984)

ILLMARINEN J & RUTENFRANZ

'LONGITUDINAL STUDIES OF THE CHANGES IN HABITUAL PHYSICAL ACTIVITY OF SCHOOL CHILDREN AND WORKING ADOLESCENTS'. IN K BERG AND B O ERIKSSON (Eds) CHILDREN AND EXERCISE IX - BALTIMORE, UNIVERSITY PARK PRESS (1980) .
KANE J

'PHYSICAL EDUCATION IN SCHOOLS' - SCHOOLS COUNCIL SURVEY (1974)

KAPLAN N M

'JOGGERS MAY LIVE LONGER'. VAMA JULY 27 Vol. 252, No. 4 528 (1984)

KENYON G S

'SIX SCALES FOR ASSESSING ATTITUDE TOWARDS PHYSICAL ACTIVITY' - RESEARCH QUARTERLY 39: 566-574 (1968)

KOCH G

'MUSCLE BLOOD IN PREPUBERTAL BOYS' IN MEDICINE AND SPORT; PAEDIATRIC WORK PHYSIOLOGY (Ed. J BORMS AND M HEBBELNICK) pp 39-46, BASEL KARGER (1978)

LATARJET & FOURESTIER


LAUER R M et al

'CORONARY HEART DISEASE RISK FACTORS IN SCHOOL CHILDREN'. THE MUSCATIVE STUDY JOURNAL. PAEDIATR. 86. 697-706 (1975)

LAVENTURE B

'PROMOTING AN ACTIVE LIFE STYLE: A MODEL FOR CURRICULUM CHANGE'. BRIT. J. OF PHYSICAL EDUCATION Vol. 16, No. 4 136-138 (1985)

LEAMAN O

'SIT ON THE SIDELINES AND WATCH THE BOYS PLAY': SEX DIFFERENTIATION IN PHYSICAL EDUCATION. SCHOOLS COUNCIL PROG. 3 LONGMANS (1984)

MARTINS F L & GRANT B

'A SURVEY OF DAILY PHYSICAL EDUCATION IN CANADA' CAHPER JOURNAL MAY/JUNE 1980 30-38

MARTINS F L

'THE BLANSHARD PROJECT - AN ELEMENTARY SCHOOL PROGRAMME EMPHASISING PHYSICAL EDUCATION'. STUDY REPORT 1979 UNIVERSITY OF VICTORIA

MARTIN J E

'EXERCISE MANAGEMENT: SHAPING AND MAINTAINING PHYSICAL FITNESS' - BEHAVIOURAL MEDICINE ADVANCES 1981 4, 3-5

MARTIN V E & DUBBERT P M

'EXERCISE APPLICATIONS AND PROMOTION IN BEHAVIOURAL MEDICINE: CURRENT STATUS AND FUTURE DIRECTION'. V. OF CONSULTING AND CHEMICAL PSYCHOLOGY Vol. 50, No. 6 1004-1017 (1982)

MOCELLIN R & WASMUND U

'INVESTIGATIONS ON THE INFLUENCE OF A RUNNING TRAINING PROGRAMME ON THE CARDIOVASCULAR AND MOTOR PERFORMANCE CAPACITY IN 53 BOYS OF A SECOND AND THIRD PRIMARY SCHOOL CLASS'. IN PROCEEDINGS OF PAEDIATRIC WORK PHYSIOLOGY (Ed. L. BAR OR) ISRAEL: WINGATE INSTITUTE
McCUSKER J


MORGAN W D

'INVOLVEMENT IN VIGOROUS PHYSICAL ACTIVITY WITH SPECIAL REFERENCE TO ADHERENCE'. IN L.L. GEDVILAS AND M.E. KNEER (Eds) NATIONAL COLLEGE OF PHYSICAL EDUCATION PROCEEDINGS OFFICE OF PUBLIC SERVICE. UNIVERSITY OF ILLINOIS AT CHICAGO (1977)

MORRIS J N et al

'VIGOROUS EXERCISE IN LEISURE TIME AND THE INCREASE OF CORONARY HEART DISEASE'. LANCET 1, 333-339 (1973)

NADER et al


NASH J B

'PHILOSOPHY OF RECREATION AND LEISURE', WM. C BROWN CO. DUBUQUE, IOWA (1953)

OFFICE OF DISEASE PREVENTION & HEALTH PROMOTION, U.S. DEPT. OF HEALTH & HUMAN SERVICES


OLDRIDGE N B

'COMPLIANCE OF POST MYOCARDIAL INFARCTION PATIENTS TO EXERCISE PROGRAMMES' - MEDICINE AND SCIENCE IN SPORT 1979 11, 373-375

OLDRIDGE N B

'COMPLIANCE WITH EXERCISE PROGS. IN M.C. POLLOCK AND D.H. SCHMIDT (Eds) HEART DISEASE AND REHABILITATION'. BOSTON: HOUGHTON MIFFLIN (1979)

PAFFENBARGER R S & HALE W E

'WORK ACTIVITY AND CORONARY HEART MORTALITY'. NEW ENGLAND J. MED. 292, 545-550 (1975)

PAFFENBARGER R et al


PAIN S

'SPORT FOR ALL, INCLUDING LOSERS' THE GUARDIAN FEB. 26th. 1985

POLLATSCHEK J L


POLLOCK M L et al

'EFFECTS OF FREQUENCY AND DURATION OF TRAINING ON ATT AND INCIDENCE OF INJURY - MEDICINE AND SCIENCE IN SPORTS 1977 9, 31-36'
ROSENBURG M J et al

'ATTITUDE ORGANISATION AND CHANGE' LONDON: YALE UNIVERSITY PRESS (1960)

ROSENBURG M J

'SOCIETY AND THE ADOLESCENT SELF-IMAGE' NEW JERSEY: PRINCETON UNIVERSITY PRESS (1968)

RUSKIN H

'COMMUNITY ORIENTATED PROGRAMMES IN HEALTH, PHYSICAL EDUCATION AND RECREATION' - ICPHER CONFERENCE PAPERS - MEXICO (1977)

SARIS W H M et al

'PREVALENCE OF CORONARY HEART DISEASE RISK FACTORS IN ACTIVE CHILDREN 7 TO 12 YEARS OF AGE'. MED SCI. SP. 9: 21-25 (1977)

SELGIER V et al

'THE HABITUAL ACTIVITY AND PHYSICAL FITNESS OF 12 YEAR OLD BOYS'. ACTA PAEDIATR. BELG. 28, 54-59 (1974)

SHEPHERD R T et al

'PHYSICAL EDUCATION IN THE PRIMARY SCHOOL - AN EXPERIMENT IN FRENCH CANADA' S.A. JOURNAL OF RESEARCH IN SPORT', PHYSICAL EDUCATION AND RECREATION Vol. 2, No. 1 63-72 (1979)

SIMON J A & SMOLL


SOUTH WESTERN COUNCIL FOR SPORT AND RECREATION

'FROM SCHOOL TO COMMUNITY' (1984)

SPORTS COUNCIL


STAMLER J et al

'CORONARY RISK FACTORS' MED. CLIN. OF NORTH AMERICA 50: 230-254 (1966)

STEVENS J E R

'DEVELOPING POST-SCHOOL YOUTH PARTICIPATION IN SCHOOL AND RECREATION' - BRIT. J. OF PHYSICAL EDUCATION Vol. 16, No. 4 134-135 (1985)

TELAMA R

'SECONDARY SCHOOL PUPILS PHYSICAL ACTIVITY AND LEISURE TIME SPORTS: AGE AND SPORTS ACTIVITIES.' INSTITUTE FOR EDUCATIONAL RESEARCH REPORT No. 107 UNIVERSITY OF JYRASKYLA, FINLAND (1971)

THOMAS A

'REPORT BY DARTFORD FACULTY OF EDUCATION AND STUDIES' - THAMES POLYTECHNIC (1980)

UNDERWOOD G

'THE PHYSICAL EDUCATION CURRICULUM IN THE SECONDARY SCHOOL': PLANNING AND IMPLEMENTATION - FALMER PRESS (1983)
WEAR C L
'THE EVALUATION OF ATTITUDE TOWARD PHYSICAL EDUCATION AS AN ACTIVITY COURSE'. RESEARCH QUARTERLY 22 (1): 114-126

WEINER J S & LOURIE J A

W.H.O.
EXECUTIVE BOARD 27, FEBRUARY 1969 BR. HEART J. 33: 145 (1971)

WILLIAMS L R T et al a

WILLIAMS L R T & COLDICOTT b

WILLIAMS L R T & NELSON L R a

WILLIAMS L R T & O'NEILL S M b

WILMORE J H et al

WILMORE J H & McNAMARA J J
'PREVALENCE OF CORONARY HEART DISEASE RISK FACTORS IN BOYS 8 TO 12 YEARS OF AGE'. JOURN. PAEDIATR. 84. 527-533 (1974)

WILLIAMSON R
'BETWEEN HOME AND SCHOOL - THE SOCIAL AND RECREATIONAL INTERESTS OF 9 TO 13 YEAR OLD CHILDREN AND THEIR VIEWS ON THEIR LEISURE ENVIRONMENTS' (1985)

WILLIAMSON T

WILMORE V H et al
'CORONARY ARTERY DISEASE RISK FACTORS IN 13 TO 15 YEAR OLD BOYS'. MED. SCI. SP. AND EX. 13: 99 (1981)

YOSHIDA et al
'EFFECT OF ENDURANCE TRAINING ON CARDIO-RESPIRATORY FUNCTIONS OF 5 YEAR OLD CHILDREN'. INT. J. SP. MED. 1. 91-94 (1980)
APPENDIX A

SUPPLEMENTARY RESULTS

1. All charts include: Number of Sample, Mean, Median, and Standard Deviation. Standard Error was not included as the results did not have a normal curve of distribution. This was due to the majority of responses being grouped together under one of two categories.

2. The vertical axis on each chart describes the percentage of the sample and the horizontal axis describes the duration of activity.

3. Each diagram has a number at the top of each block which represents the number of the sample identified in that category.

4. Diagrams 6 - 20 have a number in brackets which is just above the horizontal axis. This is the category number to be used when identifying the statistical information.

5. The total activity levels for the week are slightly misleading, compared to the daily results. This is due to 356 of the sample completing the full weeks questionnaires, compared with an average of 450 completing the questionnaires each day. Based on manual observation of the questionnaires it was more likely to be those of the sample who were inactive who did not complete the full weeks questionnaires.
DIAGRAM 2

DAY 2

- 473
MEAN - 1.694
MEDIAN - 1.209
STANDARD
DEVIATION - 1.360

PERCENTAGE OF SAMPLE

ACTIVITY MINS MINS MINS MINS HRS HRS HRS HRS

0-5 48 43 23 11 6 3 3
6-15
16-30
31-45
46-60
1-2
2-24
2.21-
3.00-
3.30-
4.00-
5.45

-135-
DIAGRAM 3

DAY 3

<table>
<thead>
<tr>
<th>NO.</th>
<th>465</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>1.552</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>1.164</td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>1.195</td>
</tr>
</tbody>
</table>

PERCENTAGE OF SAMPLE

-345-
**DIAGRAM 5**

**DAY 5**

<table>
<thead>
<tr>
<th>Activty</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>0-5</td>
<td>1-2</td>
<td>2-4</td>
<td>2.3-</td>
<td>3.0-</td>
<td>3.3-</td>
<td>4.0-</td>
<td>5.4-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>290</td>
<td>41</td>
<td>27</td>
<td>11</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Mean: 1.530
- Median: 1.160
- Standard Deviation: 1.208
DIAGRAM 6

TOTAL ACTIVITY
FOR THE WEEK
BOTH SEXES - ALL AGES

<table>
<thead>
<tr>
<th>NO.</th>
<th>356</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>8.040</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>5.667</td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>6.687</td>
</tr>
</tbody>
</table>

STATISTICS DRAWN FROM CATEGORY NUMBER, I.E. THAT NUMBER BRACKETED

<table>
<thead>
<tr>
<th>NO. ACTIVITY</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>171</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-15</td>
<td>27</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.31-3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00-3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.31-4.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00-5.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Diagram 7

Girls
Total activity for the week

<table>
<thead>
<tr>
<th>NO.</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.075</td>
</tr>
<tr>
<td>Median</td>
<td>5.337</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>5.633</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. ACTIVITY</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-15</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-2.5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00-3.31</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.30</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00-5.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DIAGRAM 8

BOYS
TOTAL ACTIVITY FOR THE WEEK

<table>
<thead>
<tr>
<th>NO.</th>
<th>176</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>8.943</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>7.029</td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>5.577</td>
</tr>
</tbody>
</table>

-141-
DIAGRAM 9

GIRLS - 11 YEARS OLD

<table>
<thead>
<tr>
<th>No.</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>10.045</td>
</tr>
<tr>
<td>Median</td>
<td>6.500</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>13.650</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY MINS</th>
<th>NO.</th>
<th>MINS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>6-15</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16-30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1-2</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>2-2½</td>
<td>1</td>
<td>3.00</td>
</tr>
<tr>
<td>3.00-3.30</td>
<td>2</td>
<td>3.30</td>
</tr>
<tr>
<td>3.31-4.00</td>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>4.00-5.45</td>
<td>1</td>
<td>5.45</td>
</tr>
</tbody>
</table>
DIAGRAM 10

BOYS - 11 YEARS OLD

- No. - 17
- Mean - 7.278
- Median - 6.883
- Standard Deviation - 2.347
DIAGRAM 11

GIRLS - 12 YEARS OLD

<table>
<thead>
<tr>
<th>No.</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.162</td>
</tr>
<tr>
<td>Median</td>
<td>5.750</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.176</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>17</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.31-3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00-3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.31-4.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00-5.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DIAGRAM 12

BOYS - 12 YEARS OLD

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>NO.</th>
<th>MEAN</th>
<th>MEDIAN</th>
<th>STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>24</td>
<td>7.698</td>
<td>5.396</td>
<td>3.864</td>
</tr>
<tr>
<td>6-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-2%</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.31-3.00</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DIAGRAM 13

GIRLS - 13 YEARS OLD

<table>
<thead>
<tr>
<th>NO.</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>6.440</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>5.235</td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>3.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>MINS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.31-3.00</td>
<td>3.00</td>
<td>3.30</td>
<td>4.00</td>
<td>5.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-146-
BOYS - 13 YEARS OLD

<table>
<thead>
<tr>
<th>NO.</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>10.955</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>7.500</td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>7.625</td>
</tr>
</tbody>
</table>

DIAGRAM 14
DIAGRAM 15

GIRLS - 14 YEARS OLD

<table>
<thead>
<tr>
<th>No.</th>
<th>0-5</th>
<th>6-15</th>
<th>16-30</th>
<th>31-45</th>
<th>46-60</th>
<th>1-2</th>
<th>2-2.99</th>
<th>3.00-3.99</th>
<th>4.00-4.99</th>
<th>5.00-5.99</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Mean = 6.267
- Median = 5.250
- Standard Deviation = 2.924

Girls 14 years old: 30

- Activity MINS MINS MINS MINS MINS HRS HRS HRS HRS HRS
- Percentage of sample 0-100
DIAGRAM 16

BOYS - 14 YEARS OLD

NO. - 32
MEAN - 9.656
MEDIAN - 8.250
STANDARD DEVIATION - 6.414

PERCENTAGE OF SAMPLE

0-5 6-15 16-30 31-45 46-60 1-2 2-2½ 2.31- 3.00 3.00- 3.31- 4.00- 5.45
NO. ACTIVITY MINS MINS MINS MINS MINS HRS HRS HRS HRS HRS

-149-
DIAGRAM 17

GIRLS - 15 YEARS OLD

<table>
<thead>
<tr>
<th>NO.</th>
<th>MEAN</th>
<th>MEDIAN</th>
<th>STANDARD DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>6.689</td>
<td>5.304</td>
<td>2.827</td>
</tr>
</tbody>
</table>

PERCENTAGE OF SAMPLE

ACTIVITY | MINS | MINS | MINS | MINS | HRS | HRS | HRS | HRS | HRS | HRS | HRS | HRS
---|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
0-5      | (5)  | 2    | 2    | 5    | 3   | 3   | 2   | (11) | (12) | (13) | (14) | (15) | (16) |
6-15     | (6)  | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
16-30    | (7)  | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
31-45    | (8)  | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
46-60    | (9)  | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
1-2      | (10) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
2-2½     | (11) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
2½-3     | (12) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
3-3½     | (13) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
3½-4     | (14) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
4-4½     | (15) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
4½-5     | (16) | 2    | 2    | 3    | (9) | (10) | (10) | (10) | (10) | (10) | (10) | (10) | (10) |
BOYS - 15 YEARS OLD

- 0-5
- 6-15
- 16-30
- 31-45
- 46-60
- 1-2
- 2-2.4
- 2.31-3.00
- 3.00-3.30
- 3.31-4.00
- 4.00-4.45

DIAGRAM 18

NO. - 42
MEAN - 8.738
MEDIAN - 7.833
STANDARD DEVIATION - 4.073
DIAGRAM 19

GIRLS - 16 YEARS OLD

<table>
<thead>
<tr>
<th></th>
<th>0-5</th>
<th>6-15</th>
<th>16-30</th>
<th>31-45</th>
<th>46-60</th>
<th>1-2</th>
<th>2-2½</th>
<th>2.31-</th>
<th>3.00-</th>
<th>3.31-</th>
<th>4.00-</th>
<th>5.45</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAN</td>
<td>6.333</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDIAN</td>
<td>5.250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STANDARD DEVIATION</td>
<td>3.352</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PERCENTAGE OF SAMPLE

-152-
Diagram 20

Boys - 16 Years Old

- Mean: 10.263
- Median: 5.450
- Standard Deviation: 8.465

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Mins</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-2½</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.31-3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00-3.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.31-4.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00-5.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Number: 19

- Percentage of Sample:
  - 0-5: 2%
  - 6-15: 1%
  - 16-30: 1%
  - 31-45: 1%
  - 46-60: 2%
  - 1-2: 1%
  - 2-2½: 1%
  - 2.31-3.00: 1%
  - 3.00-3.30: 1%
  - 3.31-4.00: 1%
  - 4.00-5.45: 1%

- Total: 100%

-153-
THE ACTIVITY PATTERNS QUESTIONNAIRE WITH SURVEY INSTRUCTIONS

A SURVEY INTO PHYSICAL ACTIVITY PATTERNS OF YOUNG PEOPLE IN SANDWELL HIGH SCHOOLS

This questionnaire is designed to find out the amount of VIGOROUS PHYSICAL ACTIVITY which you take part in during a school week. Please fill in one questionnaire each day.

Your answers will not be shared with anyone else.

Please fill in the following:

Name :-
Age:
School:-
Boy/Girl (cross out which one does not apply)

Date:  DAY  MONTH  YEAR (e.g. 1.3.85)

Please answer the questions in the order in which they are given.

Remember, THIS IS NOT A TEST, THERE ARE NO 'RIGHT' or 'WRONG' ANSWERS. We are only interested in what you did yesterday.

Read each question carefully and follow the instructions before answering it.

Some questions have one answer, some may have more than one. If you have any problems, please ask for help.
SECTION 1 - BEFORE THE START OF THE SCHOOL DAY

1. Before you went to school did you do any of the following? Please tick each activity which you did.
   - Do a paper round (walking)
   - Do a paper round (cycling)
   - Walk the dog
   - Visit the shops (walking)
   - Visit the shops (cycling)
   - Exercise programme
   - Go for a run (1 mile or more)
   - Watch T.V.
   - No physical activity

   Any other physical activity not mentioned above:

2. What was your main method of getting to school? Please tick ONE answer.
   - Bus
   - Walk
   - Cycle
   - Car

   Any other method of travel not mentioned above:

3. What did you do when you arrived at school, but before the start of lessons?
   - Play in the playground
   - Play an indoor game
   - Go to a sports club/practice
   - Talk to friends
   - No physical activity
Other PHYSICAL ACTIVITY (please write them down)

4. Did any of the VIGOROUS PHYSICAL ACTIVITIES that you took part in before school make you sweat or become breathless?

Please tick ONE answer

YES □ NO □ DON'T KNOW □ □

5. If YES, which ones? Please write them down

6. How long, in total were you sweating or breathless, during this part of the day?

No activity
0 - 5 min
6 - 15 min
16 - 30 min
31 - 45 min
46 - 60 min
1 - 2 hrs
2 or more hrs
**SECTION 2 - DURING THE SCHOOL DAY**

1. What did you do at break-time?

   - Play in the playground
   - Play an indoor game
   - Go to a sports club/practice
   - Talk to friends
   - No physical activity

   Any other physical activity

2. What did you do at dinner-time?

   (a) On the school grounds (tick each activity you did)

   - Play in the playground
   - Play an indoor game
   - Go to a sports club/practice
   - Talk to friends
   - No physical activity

   Any other physical activity (please write them down):--
(b) Outside School

<table>
<thead>
<tr>
<th>Activity</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk to the shops</td>
<td>27</td>
</tr>
<tr>
<td>Cycle to the shops</td>
<td>28</td>
</tr>
<tr>
<td>Talk to friends</td>
<td>29</td>
</tr>
<tr>
<td>Play a game</td>
<td>30</td>
</tr>
<tr>
<td>No physical activity</td>
<td>31</td>
</tr>
</tbody>
</table>

Other physical activity (please specify):

<table>
<thead>
<tr>
<th>Activity</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32-33</td>
</tr>
<tr>
<td></td>
<td>34-35</td>
</tr>
<tr>
<td></td>
<td>36-37</td>
</tr>
<tr>
<td></td>
<td>38-39</td>
</tr>
<tr>
<td></td>
<td>40-41</td>
</tr>
</tbody>
</table>

3. If you did not go home immediately, what activities did you do, either in school or on the school grounds, before going home?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground game</td>
<td>42</td>
</tr>
<tr>
<td>Indoor game</td>
<td>43</td>
</tr>
<tr>
<td>Inter-school match</td>
<td>44</td>
</tr>
<tr>
<td>Sports club/practice</td>
<td>45</td>
</tr>
<tr>
<td>No physical activity</td>
<td>46</td>
</tr>
</tbody>
</table>

Other physical activity:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47-48</td>
</tr>
<tr>
<td></td>
<td>49-50</td>
</tr>
<tr>
<td></td>
<td>51-52</td>
</tr>
<tr>
<td></td>
<td>53-54</td>
</tr>
<tr>
<td></td>
<td>55-56</td>
</tr>
</tbody>
</table>

4. Did any of the vigorous physical ACTIVITIES you took part in during the school day make you sweat or become breathless?

YES [ ] NO [ ] DON'T KNOW [ ]

5. If YES, which ones?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>58-59</td>
</tr>
<tr>
<td></td>
<td>60-61</td>
</tr>
<tr>
<td></td>
<td>62-63</td>
</tr>
<tr>
<td></td>
<td>64-65</td>
</tr>
<tr>
<td></td>
<td>66-67</td>
</tr>
</tbody>
</table>
6. How long were you sweating or breathless during this part of the day?

<table>
<thead>
<tr>
<th>No activity</th>
<th>31 - 45 mins</th>
<th>36 - 45 mins</th>
<th>46 - 60 mins</th>
<th>61 - 90 mins</th>
<th>1 - 2 hours</th>
<th>2+ hours</th>
</tr>
</thead>
</table>

SECTION 3 - AFTER SCHOOL

1. What was the main method of getting home?

- Bus
- Walk
- Cycle
- Car

Any others not mentioned:

2. What did you do at home?

- Watch T.V.
- Exercise programme
- Paper Round (Walking)
- Paper Round (Cycling)
- Listen to Music
- Go for a run (1 mile or more)
- No physical activity

Any other physical activity:
3. If you went out, what did you do?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Club training/matches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dance classes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep fit classes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play a game</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listen to music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk to friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No physical activity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other physical activity:

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-30</td>
<td></td>
</tr>
<tr>
<td>31-32</td>
<td></td>
</tr>
<tr>
<td>33-34</td>
<td></td>
</tr>
<tr>
<td>35-36</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
</tr>
<tr>
<td>38-39</td>
<td></td>
</tr>
<tr>
<td>40-41</td>
<td></td>
</tr>
<tr>
<td>42-43</td>
<td></td>
</tr>
<tr>
<td>44-45</td>
<td></td>
</tr>
<tr>
<td>46-47</td>
<td></td>
</tr>
</tbody>
</table>

4. Did any of the VIGOROUS PHYSICAL ACTIVITIES you took part in after school make you sweat or become breathless?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>48</td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>DON'T KNOW</td>
<td></td>
</tr>
</tbody>
</table>

5. If YES, which ones:-

<table>
<thead>
<tr>
<th>Activity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>49-50</td>
<td></td>
</tr>
<tr>
<td>51-52</td>
<td></td>
</tr>
<tr>
<td>53-54</td>
<td></td>
</tr>
<tr>
<td>55-56</td>
<td></td>
</tr>
<tr>
<td>57-58</td>
<td></td>
</tr>
</tbody>
</table>

6. How long were you sweating or breathless during this part of the day?

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No activity</td>
<td>59</td>
</tr>
<tr>
<td>0 - 5 mins</td>
<td></td>
</tr>
<tr>
<td>6 - 15 mins</td>
<td></td>
</tr>
<tr>
<td>16 - 30 mins</td>
<td></td>
</tr>
<tr>
<td>31 - 45 mins</td>
<td></td>
</tr>
<tr>
<td>46 - 60 mins</td>
<td></td>
</tr>
<tr>
<td>1 - 2 hours</td>
<td></td>
</tr>
<tr>
<td>2+ hours</td>
<td></td>
</tr>
</tbody>
</table>

THANK YOU FOR YOUR HELP. PLEASE RETURN THE COMPLETED FORM TO YOUR TEACHER.
A Survey into Physical Activity patterns of young people in Sandwell High Schools

There has been a suggestion that young people are not as fit and active as their predecessors and there is mounting evidence that the risk factors associated with coronary heart disease in adults can also be identified in children. If this is so, schools may well have an important role to play in educating young people about the benefits of keeping fit.

The purpose of this survey is to identify the physical activity patterns of young people through a) a questionnaire, and b) selected interviews.

The survey will last for one school week (5 days) beginning on a Tuesday and finishing on the following Monday.

Pupils involved in this survey should have the opportunity to read the questionnaire before the survey week begins. This will allow them to become familiar with the questions and the information that is required. At this time they should also be told that:-

a) They are part of a survey being conducted throughout the authority.
b) Their selection for the survey has been purely random.
c) All their answers are confidential.
d) It is not a test. There are no wrong or right answers.
e) They should make sure the correct date is written on the front page.
f) Names are required on the front page as selected interviews may need to be carried out.

The pupils should be given the questionnaire at the same time and place every morning, at the beginning of the school day. When it is completed it should be immediately handed back to a member of staff, who should keep the completed responses together and secure.

The completed sample (5 responses from each pupil) should be stored carefully and safely to await collection.

Thank you for your help and co-operation.
APPENDIX C

INTERVIEW SCHEDULE

1. 'How do you spend your spare time after school?'
   'What do you do regularly?'
   'How much time do you spend doing it?'
   'What do you do at weekends?'
   'What would be a typical weekend for you?'

2. 'Here are a list of subjects regularly found in secondary schools. Pick out the ten that you think are most important and place them in a rank order'.


   'Would you explain why you have selected your choice?'

   'From the same list of subjects would you select the ten that you find most enjoyable and again place them in a rank order. Would you explain why you have selected your choice?'

3. 'Which of the following would be your face immediately before a Physical Education lesson?'

   Happy - Sad - Neutral.

   'Would you explain your selection'.
The following are categories, with examples of activities commonly found in Physical Education programmes. If you had the choice which category would you prefer and why?

Games (contact):
e.g. Rugby, Soccer, Hockey.

Games (non-contact):
e.g. Tennis, Badminton, Netball.

Fitness Activities:
e.g. Cross Country, Aerobics, Circuit Training, Jogging.

Water Activities:
e.g. Swimming, Canoeing, Life-saving.

Individual Activities:
e.g. Athletics, Gymnastics.

'Do you know why Physical Education is on the school curriculum?'

'Why do you think you do Physical Education?'
Dear Colleague

As you may be aware, I am conducting a survey into the activity patterns and attitudes of young people towards physical activity and Physical Education within the authority.

May I request your co-operation in conducting this survey at your school. If you feel able to be involved could you send the reply slip, below, to me at the address above so that I may contact you by telephone to arrange a meeting between ourselves and your head teacher, to discuss in more detail the survey and how it may be implemented in your school.

Yours faithfully

Bernard Dickenson

I would be interested in discussing how the survey may be conducted at my school.

Name

School