

**An Investigation into the Impact of a Sport Intervention in Three London  
Secondary Schools**

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## Abstract

Sports interventions programmes for children have gained popularity in recent years as a response to a number of welfare issues, including rising levels of obesity, declining fitness, academic attainment and delinquent behaviour. Faith in sport to address these different issues indicates that it is seen as an expedient 'cure all' solution. However, despite calls for evidence, few studies have addressed the impact of a programme on children's health, fitness and well-being.

This study investigates the impact of a sport intervention programme called "Move It" on ( $n = 785$ ) participants (11-14 years of age) attending 3 secondary schools in inner city London between 2004 and 2007. Various measures were undertaken to monitor health, fitness, and self-evaluated self-esteem, academic attainment and behaviour. In addition, Case Study was used to understand more about a programme's implementation at a particular school and to uncover any features that were not apparent in the earlier analysis.

Results indicated that, over three years, there was no conclusive evidence of positive outcomes to health, fitness, and self-evaluated self-esteem, academic attainment and behaviour. Moreover the level of engagement of a school was not found to have an impact on quantitative outcomes. However, Case Study evidence indicated that a programme can be managed toward outcomes specifically targeted by the school, such as creating personal development avenues, opportunities for pupils, and improving social cohesion. Findings are discussed with respect to theoretical and policy developments and recommendations for future research are offered.

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**CHAPTER 1**  
**OVERVIEW**

## **1. Chapter 1 - Overview**

Sport has been seen as a means of promoting positive outcomes for a range of social policy issues beyond health and fitness such as social inclusion and academic attainment (Green, 2006). However, these claims are largely based upon the belief that taking part in sport is 'good for you' rather than the result of rigorous evaluation of sports initiatives. Furthermore, there is an ongoing debate relating to methodological problems inherent within the measurement of outcomes (Coalter, 2007).

In this chapter, I introduce the issues surrounding the development and implementation of sporting interventions. I consider some of the difficulties in evaluating those interventions and introduce some of the areas where sport is purported to show benefits beyond health and fitness. Finally, I introduce my own research project, describing its aims and objectives and provide an outline of the structure of the thesis.

For purposes of brevity, sport, physical activity and exercise will henceforth be referred to simply as 'sport'. This is in accordance with the definition provided by the Council of Europe's European Sport Charter (2001) wherein "sport means all forms of physical activity which, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming relationships or obtaining results in competitions at all levels" (p.1).

### **1.1. Introduction – the context**

Participation in sport is perceived to have benefits beyond health and fitness. It is seen as a way of promoting social inclusion and community regeneration (Adam Smith Institute, 2003). As a consequence it has commanded attention from Government and media alike with the promise of providing potential solutions to a range of issues in disparate domains (Rowe, on behalf of Sport England, 2005). This belief was first outlined by the Minister of Sport in 2002 as the then Government (Labour 1997-2010) sought a way of achieving its stated policy objectives (Caborn, 2002). Consequently, the Labour Government made a substantial investment in sport. For example, the Department for Education and Skills (DFES) invested £459 million between 2003 and 2006 on school-based sport related programmes to promote health, physical and technical development, socialisation, citizenship, creativity, and innovation in schools

(Ashton, 2003). Moreover, between 2003 and 2010 £2.3bn was invested in school sport in addition to an investment of £5.5bn in community sport between 1997 and 2010. However since the aim was to achieve social objectives in a cost-effective manner, this investment in sport has also brought with it a need for justification and accountability (Sport England, 2003).

At the same time, after its election in 1997, the then Government (Labour 1997-2010) took a greater interest in academic and applied research in order to form policy on the basis of evidence, according to their undertaking to deliver 'evidence based policy' (EBP) (Solesbury, 2001). In 2000, the then Secretary of State for Education and Employment, declared that "social science should be at the heart of policy making" (Blunkett, 2000). The research community responded to this apparently bold invitation by a shift toward conducting research that was both usable and useful (Solesbury, 2001). However although including social science in the policy process makes for good rhetoric, it is questionable what the Government's interest in social science really meant. Is evidence based policy a case of gathering data from which policy can be formed or adapted, or is it simply used to justify a pre-determined ideology or existing policy (Young, Ashby, Boaz & Grayson, 2002)? In practice EBP may be little more than pressure placed upon the research community to justify a particular approach to solving a problem.

Although interest in the instrumental value of 'sport' has increased there has also been criticism of the lack of 'hard' evidence to demonstrate the beneficial outcomes associated with taking part in it (Long & Sanderson, 2001). While rigorous evaluation was celebrated as being crucial to policy formation (Caborn, 2003), a number of issues relating to the establishment of evidence have been raised by various researchers (e.g. Coalter, 2002; Davies, Nutley & Smith, 2000; Pawson & Tilley, 1997). Coalter (2002) has suggested that unquestioning assumptions about the 'therapeutic' potential of sport account for the relative lack of 'hard' evidence. Smith and Waddington (2004) have warned that to view sport as "an unambiguously wholesome and healthy activity in both a physical and a moral sense" (p. 281) is one-sided and ignores evidence that sport participation can also engender anti-social and unhealthy behaviour. Indeed, assumptions that sport is 'good' have undermined the development of a clearly thought out rationale for research to establish the effects (positive and/or negative) of sporting interventions on young people's behaviour (Smith & Waddington., 2004).

Those methodological issues that arise when attempting to determine a programme's efficacy have tended to add a layer of complexity and confusion to the debate. For example, problems in the evaluation of sports interventions have been widely reported within the literature (see Tacon, 2007; Long on behalf of the Centre for Leisure and Sport Research (CLSR) 2002). In their landmark paper, Pawson and Tilley (1997) suggested that understanding the context within which a programme is set is vital to determining its impact. Therefore a 'realistic evaluation' must consider 'where' and 'how' a programme was run as this may be key to uncovering the reasons why a particular programme works or fails to work.

In addition, theory-based approaches to evaluation such as 'Theories of Change' (Owen & Rodgers, 1999) and 'Realistic Evaluation' (Pawson & Tilley., 1997) contend that the impact of social programmes can only be determined if the researcher can establish the conditions of 'how' and 'why' it worked. Thus, understanding context is vital if one is to replicate findings in other settings (Government Social Research Unit (GSRU), 2008). To this end, Coalter's (2002) manual for the evaluation of sporting interventions recommends approaching an evaluation by considering the process and management of the programme and the impact that this may have had upon the outcomes and upon the nature and quality of the experience for participants.

In summary, intervention programmes intended to improve health and impact upon social policy constituted a significant part of the previous Government's agenda to address entrenched social problems (Blamey & MacKenzie, 2007). Meanwhile the espousal of evidence based policy-making by Government ministers brought the requirement to evaluate to the forefront of media and public engagement with the research agenda for sport.

This study was carried out during the term of the previous Government (Labour 1997-2010). The intervention programme called "Move It", which is described in detail in section 1.3, was the brainchild of a Labour MP, and, as such, was intended to fit ideologically with the then Governments' approach to welfare issues. The evaluation sought to ascertain the impact of the programme and perhaps thereby contribute towards the wider debate regarding the effectiveness of this approach. Despite the change of Government during 2010 learning more about the impact of interventions remains valid.



## **1.2. Sport as a panacea**

In addition to the health benefits that are linked to regular exercise (e.g. Bahr, 2001; Morris, 1983) it has also been assumed that regular exercise is useful in the management of obesity and overweight in childhood (Lobstein, Baur & Uauy for the IASO International Obesity Task Force, IASO, 2004). Sports participation has also been viewed as a means of promoting the social inclusion agenda. For example, the Scottish Office (1999) proposed to counter social exclusion by giving young people a purpose ([www.scotland.gov.uk](http://www.scotland.gov.uk)). The Department of Culture, Media and Sport (DCMS, 2001) progress report on social inclusion asserted that sport could have a “powerful impact” (DCMS, 2001, p.8) on social exclusion, particularly in renewing deprived areas. It has also been suggested that it has benefits for academic attainment, delinquent behaviour, employment and community regeneration (e.g. Gameplan, 2002; Sport England, 1999).

### **1.2.1. Obesity and overweight in childhood and adolescence**

The IASO's (2004) report on the child obesity and overweight ‘epidemic’ (IASO, 2004) flagged the fact that diseases and illnesses previously seen only in the adult population were now occurring in children. Illness in adulthood is increasingly linked to having been overweight or obese as a child and the report also warned of the ensuing health problems that the present generation of obese children will experience as they move into adulthood. Obesity and overweight in the UK is estimated to cost the health services £3.6billion by 2010 (Lobstein, James & Cole, 2003).

Although the causes of obesity and overweight encompass a range of biological and social factors, social and cultural changes have led to an increasingly sedentary lifestyle (Anderson & Butcher, 2006). The Foresight Report (Jebb, Kopelman & Butland, 2007a) concluded that the modern lifestyle results in what is essentially a “passive obesity” (p.2). Indeed, in one speech, the Secretary of State for Culture, Media and Sport suggested that children are undertaking insufficient physical activity to burn off the calories they consume (Jowell, cited in Freedland, 2005). In the United States (US), recommendations for reducing obesity pointed to increased physical activity as a “promising approach” to prevention in children (Nestle & Jacobson, 2000, p.21). As a result, intervention programmes that promote physical activity have been at the forefront of the obesity prevention strategies across America (Deforche, De Bourdeaudhuij & Hills, 2007).

However currently there is no consensus as to the validity of claims that sporting interventions play a role in managing levels of childhood obesity, and there is increasing recognition that a wide range of factors over and above being physically active contribute to overweight and obesity (e.g. Foresight, 2007b; IASO, 2004).

### **1.2.2. The social inclusion agenda**

In the United Kingdom (UK) the social inclusion agenda has concentrated on the reversal of those factors considered to be responsible for the continued existence of social exclusion of those at the margins of society (Centre for Economic and Social Inclusion, 2002). The concept of social exclusion has attained a significant political profile following the setting up of the Social Exclusion Unit by the Government in 1997 and social inclusion underpinned by sport participation has been the cornerstone of much of the Government's policy making in this area (Department for Culture, Media and Sport (DCMS) 2001; Lucas, 2003). The belief that the provision of sporting opportunities will go some way to removing participatory barriers and promote social cohesion can be seen in the review undertaken by the Policy Action Team 10 (PAT10, 1999) where sport, art and leisure interventions were perceived to impact positively upon disadvantaged communities by strengthening the ties of those at risk with their local communities. Furthermore, PAT10 (1999) suggested that "in addition to the well-established benefits to physical health, regular moderate intensity exercise can contribute to greater self-esteem, improved mental well-being and, in certain circumstances, improved mental acuity" (PAT10, 1999, p.2). However, in terms of youth delinquency Smith and Waddington (2004) observed that taking part in sport has an indirect impact and that there is little evidence of direct impact. In addition, pre-existing tensions between groups or gangs, in certain circumstances, can be exacerbated by sport encounters thus reinforcing disaffection and social exclusion (Krouwel, Boonstra, Duyvendak & Veldboer, 2006).

Thus, while sport represents a key strategy for public policy makers in bringing about positive changes to the lives of those who, for whatever reason, feel excluded. It seems that there is little evidence available to support current policy developments. In light of this the present study was conceived.

### **1.3. The current study**

The purpose of this research is to determine the impact of an extracurricular sporting intervention called “Move It” which was provided to pupils (11-14 years of age) attending three schools in a London Borough. For the purposes of this study, schools are seen as the most logical and effective setting for childhood sport programmes given the ability to access large numbers of children quickly, and enabling regular contact with participants (Deforche et al. 2007; IASO, 2004).

#### **1.3.1. “Move It”**

“Move It” offered an additional two hours of sport per week on top of existing curriculum and extra-curricular sporting provision in each of the three participating schools. Typically, the type of sport offered varied every four to six weeks and not only provided pupils with choice (to maintain interest) but also an opportunity to explore sporting aptitude. Sports on offer included football, rugby, hockey, dance, boxercise, basketball, volleyball, cricket, tennis, athletics, netball, table-tennis and dance. Sport coaching was provided by external coaches as every aspect of “Move It” was intended to be additional to that which was already in place at school. The stakeholders (from local government) anticipated that the programme would be able to “demonstrate the effectiveness of sport in positively changing young people’s lives” (Kotulecki, 2005a, Appendix A, p.1). “Move It” is described in more detail in Chapter Three, (see section 3.2.4.1).

#### **1.3.2. This study**

This study comprised two parts. Firstly it was a longitudinal study and planned to identify and monitor changes in health, fitness, self-esteem, academic attainment and delinquent behaviour, if any, over a three year period. Secondly, it sought to find out whether factors such as institutional (i.e. school) investment and pupil enjoyment had an impact upon the success of “Move It”.

According to Coalter (2002) it is important to find out how a programme is managed in order to determine the efficacy of change. He argued that the potential impact of sport relies on how a programme is managed and therefore the processes of provision, management and participation can have implications for its success or failure. The idea of engagement also features in discussions about the efficacy of sport.

Researchers and programme providers recognise that sport is more effective when it engage people's enthusiasm and interest (e.g. Coalter, 2002; Charlton Athletic Football Trust (CAFT), 2010). However the success of a programme may be influenced by the providers interest, efficacy and enthusiasm (Durlak & Dupre, 2008) plus other factors relating the particular setting of a programme such as;

- the nature and quality of facilities
- the attitude and approach of coaches and leaders
- the type of activity that is offered and its relevance to participants needs
- the involvement of participants in planning and managing or leading activities

Secondly, Coalter (2002) argued that outcomes were reliant upon institutional investment which can be measured in terms of

- the frequency of occurrence
- the expenditure of sufficient emotional and physical intensity
- adherence to the programme over an adequate period of time

### **1.3.3. Origin of research**

The stakeholders (from local government) involved in launching "Move It" stressed the importance of learning lessons from the programme from which policy could be developed. Using methods of systematic implementation and evaluation they envisaged that "Move It" would show what many, including the Government, already believe: that a significant increase in sporting activity by young people will benefit them in many aspects of their lives and in the 'life of their community' (Kotulecki, 2005b, Appendix B,). According to best practice guidelines set out by the United Kingdom Evaluation Society (UKES), the commissioners of the evaluation acknowledged the benefits of independent and external evaluation ([www.evaluation.org.uk](http://www.evaluation.org.uk), 2008).

### **1.3.4. Conceptual framework**

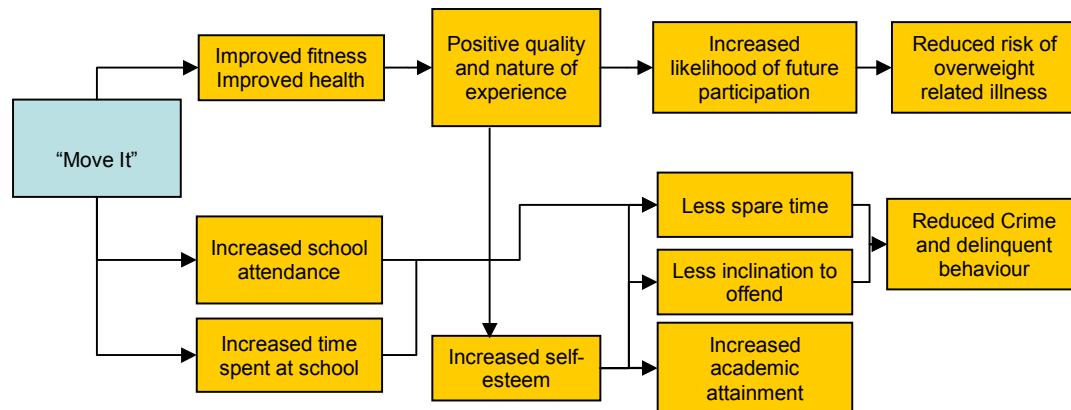
"Move It" is multi-faceted and as such, through sport, it is intended that it not only facilitated increased attainment, but in line with the then Government's policy, it also (theoretically) facilitated a reduction in anti-social behaviour, as well as providing practical benefits such as improved health and fitness. Consequently, the measurement of the programme's impact becomes complex (Coalter, 2002).

A theory-based method or framework provides a means of unpacking the logical sequence by which an intervention may bring about change (e.g. Davies, Nutley & Tilley, 2000; The Government Social Research Unit's (GSRU), 2009). The GSRU 'Policy Hub' guidelines for evaluative practice warn that a theory-based method or framework is vital since failure to be clear about the causal sequence by which an intervention is expected to work can result in outcomes that are contrary to those that were anticipated. Furthermore, there is an implicit complexity in trying to account for outcomes that may not present themselves as a direct consequence of an intervention (i.e. a reduction in youth crime and delinquency). However, according to Coalter (2002), this complexity can be inferred by highlighting any hypothetical or presumed links between participation and environmental outcomes.

A conceptual model, as presented below, can be used to demonstrate the implicit theory of stakeholders or policy makers. It shows the proposed causal links among a set of variables that are related hypothetically to the problem under scrutiny (Earp & Ennet, 1991). Models often draw on one or more theories, and they serve to (i) summarise and integrate knowledge, (ii) provide explanations for causal knowledge and (iii) generate hypotheses (Earp & Ennet, 1991). They can be provisional allowing for the revision of relationships among variables during the process of analysis or they can be fixed (Miles & Huberman, 1991).

It is important to acknowledge that outcomes may occur via direct, as well as indirect or strategic means (Coalter, 2007). While direct changes can occur as a direct result of sport participation (e.g. increased fitness), indirect changes can be the result of a generalised change in attitude (e.g. increased self-esteem, increased confidence) which, in turn, may bring about other tangible outcomes, such as increased academic attainment (though a causal link may be difficult to demonstrate fully). Finally, the accumulated outcomes (direct and indirect) may then in turn result in strategic or policy driven social change (e.g. reduced juvenile crime and delinquent behaviour). Figure 1.1 outlines the implicit links between taking part in the intervention, in this case "Move It", and the proposed outcomes.

Figure 1.1 Theory of implicit relationship between sport participation and proposed outcomes: (adapted from Coalter, 2002).

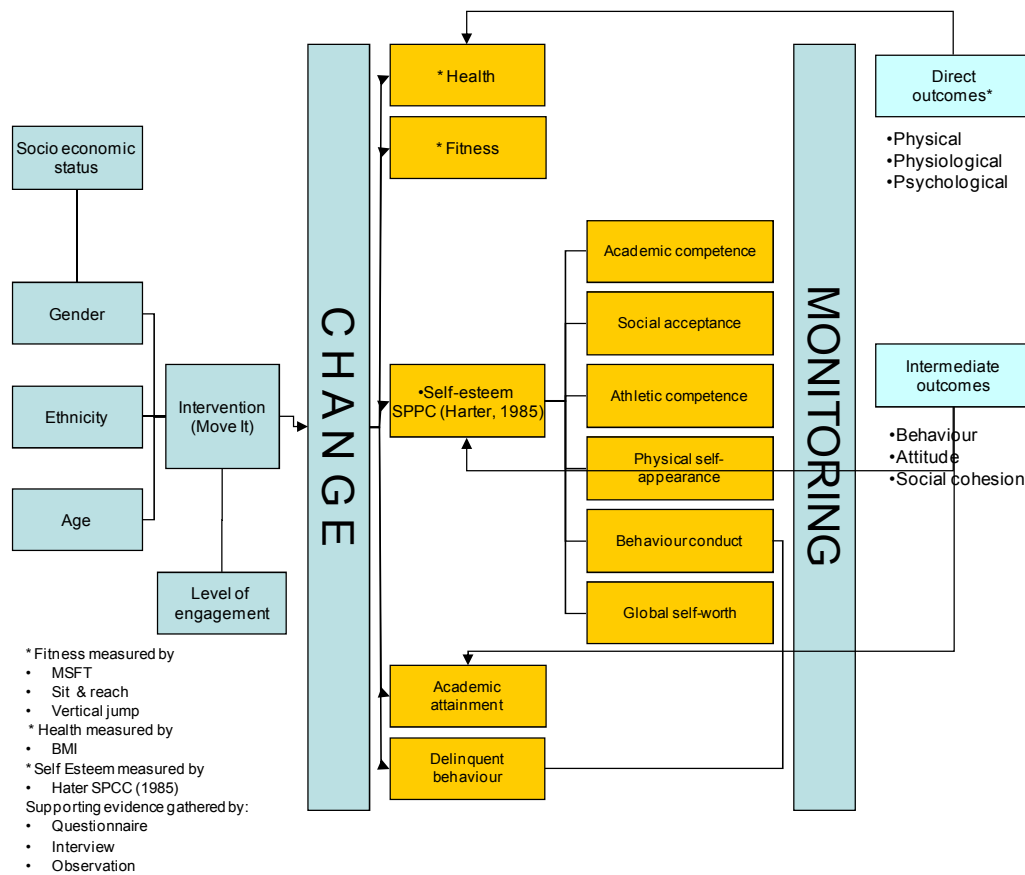


“Move It” takes place after school so in order to attend, participants must attend school first and therefore, as the model shows, school attendance might be a direct outcome of the introduction of the programme because some pupils may attend school in order to attend “Move It”. Attending “Move It” also increases the actual length of time spent at school on a given day. Thus participants have less available spare time and, potentially, less opportunity to offend or engage in anti-social behaviour. At the same time, if participants have a good experience participating in “Move It” and enjoy taking part in different sports they may feel better about themselves and experience a general change in attitude (i.e. improvement in self-esteem). This change in attitude may then impact upon other factors such as academic attainment, or, for those at risk of offending, reducing the likelihood that they will engage in anti-social behaviour.

Additionally, whilst there are direct links between sport and improved health and fitness, if the experience of taking part is positive it is more likely that participants will want to do sport in the future (Sharp, 1997). In turn, can reduce the risk of being overweight or obese and, therefore, improves the prognosis for future health.

With this model in mind a research design was formulated. Figure 1.2 highlights the complex assumptions underpinning participation in “Move It” and the impact it will have upon different areas of health, fitness and behaviour. It also demonstrates the research model designed to measure change.

Figure 1.2 Conceptual Model of the Research



Changes in fitness were measured by physical testing. Participants took part in three physiological tests to measure (i) flexibility [Sit and Reach], (ii) explosive power [Vertical Jump] and (iii) cardiovascular fitness [Multi Stage Fitness Test, MSFT]. Changes in health were measured by body fat [BMI] which was calculated from height and weight. This was converted to show the whether a participant's body fat indicated that they were obese, overweight or at an acceptable level.

Self-esteem was measured using Harter's (1985) Self-Perception Profile for Children (SPCC). This questionnaire measures self-rated perceptions in eight areas of one's life: academic attainment, social acceptance, athletic competence, physical appearance, behavioural conduct, and overall or 'global' self-worth. An area of particular interest in this study related to participants' assessment of their own behaviour which was used as a proxy for a measure of pro-social and anti-social behavior. The justification for these measures is contained in the methodology

### **1.3.5. Managing for outcomes**

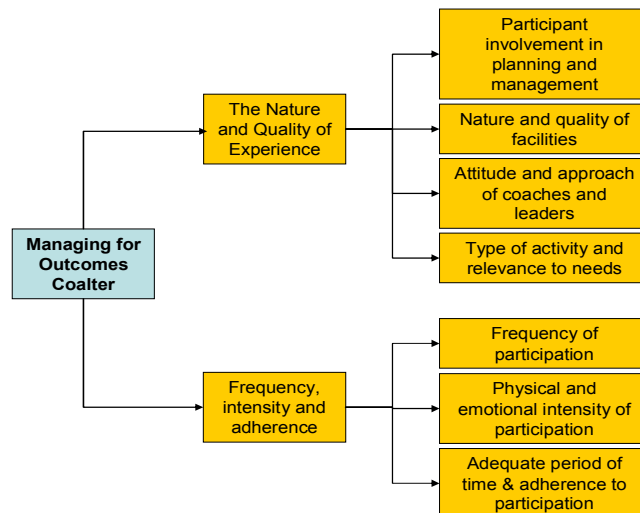
Leading advocates of theory-based approaches to evaluation emphasise the importance of the context in which a programme takes place in order to understand how outcomes are achieved (e.g. Blamey & Mackenzie., 2007; Pawson, 2006). According to Coalter's (2002) evaluation manual, providers should manage a programme toward the achievement of specific outcomes. Thus, this study considers impact of engagement with the programme and seeks to understand how this may impact outcomes. As Coalter (2007) noted, "it's not what you do but the way that you do it" (p.36) and also by using a case study of "Move It" at a particular school, this study aimed to move beyond a solely outcome based approach towards understanding the interaction of processes within the programme.

The rationale for using Coalter's (2002) guidelines rather than other evaluative guidelines relates to its strength as a means of examining elements within the programme that might influence outcomes. Coalter (2002) draws from Pawson and Tilley's (1997) realistic approaches to evaluation, and Weiss's (1997) work on theory-based evaluations. These emphasise the importance of understanding the process and mechanisms of a programme in order to find out how they affect outcomes. However, it is important to note that Coalter's (2002) framework does not deal effectively with unexpected outcomes that and so caution was used in its application.

Figure 1.3 shows the main factors that need to be managed in order to achieve outcomes (Coalter, 2002).



Figure 1.3 Coalter's Framework for Managing for Outcomes (2002)



As indicated previously the difficulty in establishing causal links between “Move It”, the way it is managed and the outcomes should not be under-estimated. Each outcome has a different measure and the time scale for each change is arguably different. For example, fitness outcomes are expected over the shorter term whilst changes to anti-social behaviour may become apparent over the longer term. Indeed, wider community-based changes are likely to involve a timescale beyond the length of the research exercise. Finally, factors outside the scheme may be influential in changing behaviour (e.g. policy shift) and it is difficult to identify or control for these (Coalter, 2002).

#### 1.4. Why this study is needed

Despite the reported increase in awareness of the need to evaluate the possible benefits of sports intervention programmes, no study was found that looks at the corresponding outcomes of sport across different domains. The studies which were found tend to concentrate on specific areas such as health and fitness (e.g. Stratton et al., 2009) or self-esteem (e.g. Fox, 2000) or academic attainment (e.g. Marsh & Kleitman, 2003) or delinquent behaviour (e.g. Krouwel et al., 2006). However although popular rhetoric in support of sport claims that it delivers wide range of benefits there is a

gap in the literature in that no study has examined whether a sport intervention can deliver the assumed benefits simultaneously.

In addition, no study was found that combines an evaluation of quantitative outcomes with qualitative methods that delve deeper into the processes that underlie the outcomes. Since many experts (e.g. Coalter, 2002) have commented that the provision of a programme is an important determinant of its success and that the experience of participation is likely to be as important as achieving measurable outcomes, it seems important to consider outcomes against the backdrop of their context and how the programme was managed and delivered.

It is hoped that this study will take a deeper look into issues and provide new insights, and thereby address some of the gaps that were identified from a review of the literature. In order to provide evidence about future policy, an evaluation needs to identify the specific impacts of a programme and suggest how these can be replicated elsewhere (Davies, Nutley & Tilley, 2000). Thus, it seems that practitioners need evidence regarding what works and how it works in order to develop effective sports interventions and it is hoped that the implications of this study will be disseminated to an audience including researchers, politicians and teachers.

#### **1.4.1. Personal interest and motivation**

The researcher was initially involved in a Department for Education and Skills (DFES) evaluation of "Move It". However, within the remit of this investigation there was no opportunity to dig deeper into particular issues and so the value of making an independent study became apparent. Also, having noticed the gaps in the literature and the tendency for political rhetoric about sport I was interested to find out whether the claims for sport have any real basis.

Personal intuition also played a part in the desire to carry out this study. Having played sport all my life I understand, from direct experience, that it can deliver many benefits to some individuals but I was curious to see whether sport could satisfy the many demands placed on it on a more general basis.

### **1.4.2. Aims and research questions**

The research questions are set out in Chapter Two after the review of the literature, (see section 2.9.3) because it was felt to be important to present them in the context of current thinking about the impact of sport and related issues. The questions take into account any present gaps in the literature as well as pertinent themes.

### **1.4.3. Thesis structure**

This thesis consists of six chapters. Chapter One (this chapter) introduces the context and the origins of the research. Chapter Two presents a critical overview of the literature relating to the political agenda surrounding sport and social research, the existing research literature in respect of relevant areas such as childhood obesity, and social inclusion, and a discussion around methodological challenges involved in programme evaluation. **The research questions are also presented in this chapter.**

Chapter Three describes the research design and measures that were used in this thesis and provides a rationale for their use. The measures used to collect data are set out in some detail. The chapter also includes a description of the intervention programme (“Move It”).

Chapter Four presents the findings from the quantitative data collected by measures relating to health, fitness, self-esteem, academic attainment and self-reports of pro-social and anti-social behaviour reported with inferential statistical analyses determining the significance of the findings. It also presents the results from the qualitative data that was collected. Data includes participants’ opinions about the nature and quality of their experience of “Move It” which is analysed thematically. Chapter Five presents the case study, a study of “Move It” in one particular school, which investigated the ways in which the programme was managed and how this may have contributed toward outcomes. Case study is a research method which focuses on understanding the real-life dynamics which may be present in the provision of “Move It”.

Chapter Six summarises the findings, and critically interrogates them in relation to the research questions. Findings are then considered in the context of the existing literature and recommendations for future practice are proposed. The limitations of the research are outlined and suggestions for future research are made.

**CHAPTER 2**  
**LITERATURE**

## **2. Chapter 2 –Literature**

The aim of this chapter is to review and critically analyse the existing literature relating to this study. It also aims to highlight the complexity and challenges and raise questions that presently appear to be unanswered.

The review of the literature is divided into the following sections; section one examines (i) the context surrounding the provision of childhood sports intervention programmes. It describes why sport has been moved onto the social policy agenda and why evaluation is required; (ii) the impact of sport on health and fitness is discussed in the next two sections (see sections 2.3 and 2.4), including how sport is perceived to help address overweight and obesity and the importance of fitness to overall health; (iii) the next section (section 2.5) is concerned with sport in relation to psychological well-being and looks at literature on self-esteem, self-concept and subjective well-being; (iv) academic attainment and juvenile crime and delinquent behaviour are then examined, including some of the challenges involved in gathering evidence (see sections 2.6 and 2.7). Then, some of the issues regarding methods of evaluation are presented and critically appraised (see section 2.8) and, finally, the research questions are presented (see section 2.9).

### **2.1. Sport and the political agenda - The impact of sport**

The Government has expressed the intention “to build a culture of prevention and early intervention” in terms of pressing social issues, such as health, fitness and social inclusion (Balls, in Cricket holds the answer, 2009, p.16). This aim has been underscored with explicit statements about the ‘power’ of sport to achieve this goal. Sport is seen as a way not only to resolve those social issues but also to capture public attention. Importantly, in their statement, the Department for Culture Media and Sport argues that “sport has an unmatched ability to mobilise and excite people in their millions. Sport matters to most people, but fewer of us play sport or are physically active on a regular basis” (DCMS, 2009, p.1).

This faith in sport’s ability to achieve social policy goals of the Government has been set out in various political statements. In 1999, in a report on how to achieve social

inclusion objectives, the then Secretary of State for Culture, Media and Sport (DCMS) stated that;

Sport can not only make a valuable contribution to delivering key outcomes of lower long-term unemployment, less crime, better health and better qualifications, but can also help to develop the individual pride, community spirit and capacity for responsibility that enable communities to run regeneration programmes themselves (p.2).

At the same time Sport England, the governing body of sport, were instructed that their main aim should be to use sport in ways that sustain cultural diversity and combat social exclusion (PAT10, 1999).

The then Prime Minister promised continued investment in curricular and extracurricular sport at school. Linking sport to the achievement of wider ambitions and goals, he said, “We are prepared to put the money in, even in these difficult economic times. It will inspire fitness and help tackle obesity. What parents want to know is that when their children go to school they will be able to fulfill their dreams” (Brown, 2008 in Summers, p.10).

Statements have also been made about how sport can bring about change. For example, in 2008 Secretary of State for Children, Schools and Families (DCSF) urged schools in England to use cricket to raise standards across the school curriculum.

Cricket is part of our national identity. Not only does it have obvious health benefits for young people, it also develops them in other ways – co-ordination, balance, teamwork, tactics, and remaining calm under pressure. I am convinced it can have benefits across the curriculum too. Cricket is often called an art and a science – it is time for schools to demonstrate that (Balls, in Cricket holds the answer, 2009, p.5).

In 2007, the then Chancellor of the Exchequer presented sport as a means of self-development “it’s also about people’s development as individuals, playing as a member of a team”. In his view, “I think people do better when challenged and you are challenged when involved in teams and competitions” (Brown in Webster & Dickinson, 2007, p.12-13.).

In light of this, the Labour Government made an undertaking to increase the amount of sport that children do and to make sport accessible to groups at risk of social exclusion. It pledged to give every child access to a two or three hours of sport a week on top of two hours in school time (Labour Party Manifesto, 2005) and to provide access to sport as an alternative to teenagers hanging around in gangs on street corners and on estates (Brown in Webster & Dickinson, 2007).

However, despite the faith vested in sport the idea that sport can bring about social change is complex. I now introduce the background to the currency of sport on the political agenda.

### **2.1.1. The sports panacea**

Sporting interventions have become fashionable in recent years (Tacon, 2007). This is partly explained by the fact that the Government adopted sport as a ‘cure all’ approach to many different social problems. The idea that positive outcomes will occur over and above health and fitness (e.g. academic attainment, crime and delinquent behavior) makes it attractive to Government. They argue that if sport can resolve different problems on the social agenda then a sporting intervention that resolves several problems at once presents itself as a one stop, cost-effective ‘panacea’.

For example, Sport England’s website ([www.sportengland.org](http://www.sportengland.org), 2008) listed the social areas and research categories to which sport can contribute as;

- Participation
- Physical Fitness and Health
- Psychological Health and Well-being
- Education and lifelong learning
- Social capacity and cohesion
- Crime reduction and community safety
- Economic Impact and regeneration of local communities

It is an attractive rhetoric and policy option: it is (i) cost-effective (ii) apolitical in nature (iii) it captures the public’s attention and (iv) people have to participate in the solution. The shift in thinking is notable. Instead of the traditional idea that sport is

something that can be developed *in* the community, the idea is that the community can be developed *by* sport (Coalter, 2002). Sport is no longer viewed as something people can do but as something that can do things to people.

Evidence of this view can be seen in 'Gameplan', the Framework for Sport in England (Sport England, 2002) which was based on the Government's strategic plan for sport. The framework showed the aims and objectives for the intended instrumental role of sport in addressing social issues. The main aim was "to increase [sport] participation across all social groups, leading to improvements in health and other social and economic benefits" (p.1). The intended impact featured social policy items of educational attainment, equal access to opportunity and community regeneration. Indeed, of the seven impacts only two involved sporting issues of participation and performance.

The idea that sport might bring about many different benefits is not new, but it gained currency under New Labour (Coalter, 2007). Since its election in 1997, New Labour rhetoric often referred to Giddens' (1998) 'the third way' as a new approach to social issues (Andrews, 2004). According to Giddens (1998), the state and the individual must take joint responsibility for the resolution of social issues. According to this theory, the state provides the means to the solution and encourages people to be stakeholders in their own well-being. However, the individual is then expected to take an active part in the process of achieving the solution. Thus, intervention via sport is seen as an ideal way to apply policy (Jarvie, 2003). In short, the state or sponsors provide the intervention programme and the public take an active part in the scheme and thereby change is achieved.

The view of sport as a 'cure all' seems to ignore Pawson and Tilley's (1997) assertion that the context in which an intervention is provided and the way in which it is provided can determine outcomes. Thus, a particular intervention may work in certain contexts but not in others, and for some groups but not for others (Coalter, 2007). Comments by politicians and stake-holders (.e.g. Caborn, 2002; Lucas, 2003) also demonstrate other important but potentially inaccurate assumptions, including the view that (i) changes will take place in a number of different areas by virtue of the same intervention, (ii) that the outcomes will be positive and that (iii) the results can be evidenced in order to 'confirm' that the intervention works. The relevance of these points is discussed below;



Participation in sport does not guarantee specific outcomes (Coalter, 2002). However, the relationship between sport and presumed outcomes often relies on an intervening chain of assumed links between participation and outcomes and these links may be different according to the area in which change is anticipated. Change may be direct, indirect or strategic, and the timescale for change is likely to be different according to the nature of change anticipated (Coalter, 2002).

For example, direct links have been established between sport and physical health, and it is also thought that participation in sport can help improve mental health (e.g. Morris et al., 1953, 1990; Sharp, 1996). However, sport participation is also thought to facilitate change indirectly. For example, changes in attitude based on doing sport might bring about changes in behaviour. Typically, this hypothetical model is presumed to describe how changes to academic attainment and juvenile crime and delinquency can occur. Finally, strategic outcomes such as improved cohesion and quality of community life might occur based on collective and cumulative changes that take place at an individual level (Coalter, 2002). Some of the grounds on which these claims are advanced are discussed later on in this chapter, (see section 2.7.3).

It cannot be assumed that sport brings only positive outcomes. Parkinson's (1998) point is succinct, "Sport, like most activities, is not a priori good or bad, but has the potential of producing both positive and negative outcomes" (p.15). Likewise, the result will not be the same for every participant. Coalter (2005) warned that sport is not a homogenised product or experience and therefore the effects and the experience will vary. In 2009, the Secretary of State for Culture, Media and Sport enthused "it's so striking to me, the transformational power of sport. What's going on in terms of transforming people's lives and communities" (Bradshaw, 2009, p.8), and yet all too often Danish and Nellen's (1997) warning that programmes must be specially designed if they are to assist participants personal development is ignored. This underlines that it is necessary to challenge assumptions about the effects of sport and to understand the conditions that are necessary for sport to have beneficial outcomes, and to identify for whom these outcomes may be beneficial.

It is also the case that increased investment in sport has been accompanied by explicit statements, which make promises about the power of sport. For example, the then Prime Minister, Tony Blair, expressed the view that; "Sport is a powerful and often

under-utilised tool that can help Government achieve a number of ambitious goals” (Blair, 2002, p.1). Although such statements assume that sport works, ironically, the Government also called for evidence (Caborn, 2002; Blunkett, 2000). Therefore, the need for sport to be accountable intensified the pressure to justify increased expenditure and to validate the ambitious claims made by policy makers.

In short, the Labour Government became an evidence stakeholder with respect of the benefits of sport. Furthermore, it is concerned with short-term effects, definitive answers, value for money and the influence of public opinion (Rowe, 2005). However, as political and public statements of faith in sport are often generally positive and are made in the knowledge that sport captures public attention (Green, 2006), negative outcomes are often overlooked.

Before looking at specific areas of health, fitness, self-esteem, educational attainment and juvenile delinquency, it is relevant to introduce the concepts of social inclusion, which is often referred to in policy discourses, and in relation to the power of sport (e.g. Bradshaw, 2009).

## **2.2. Social inclusion and social exclusion**

According to Boushey, Fremstad, Gragg & Walle (2007), social inclusion incorporates multiple dimensions of well-being and “is based on the belief that we all fare better when no one is left to fall too far behind and the economy works for everyone” (p.1). However, the concepts of social inclusion and exclusion are closely related and it is difficult to discuss one without the other (Hayes, Gray & Edwards, 2008).

There has been interest in social exclusion since the 1980s because it affects “the equity and cohesion of society as a whole” (Levitas, Pantazis, Fahmy, Gordon, Lloyd, & Patsios, 2007 p.9). It is an important factor in the development of policy approaches to social inclusion as many governments aim to reduce the indicators of exclusion in order to realise social inclusion (e.g. UK, France and Australia; Hayes et al., 2008). Broadly speaking, the aim is to increase social inclusion and reduce social exclusion. Therefore, in any discussion of social inclusion, an understanding of social exclusion is required.

Although social exclusion is a contested term, the Social Exclusion Unit (SEU, 1997) defined it as; “what can happen when individuals or areas suffer from a

combination of linked problems, such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown” (Bryant, 2001, p.3). However, Atkinson (1998) identifies three themes, namely that social exclusion is (i) relative to the norms and expectations of society (ii) caused by an act of some individual, group or institution, in that an individual may exclude themselves by choice or they may be excluded by the decisions of other people, organisations or institutions and (iii) is not just the result of current circumstances but means that an individual’s future prospects are limited. Furthermore, as Hayes et al., (2008) emphasise, “social exclusion is a process rather than an outcome at a particular point in time (e.g., being in poverty)” (p.7). According to (Eurostat Taskforce on Social Exclusion and Poverty Statistics, 1998), this process is dynamic and downward as some disadvantages lead to exclusion, which results in more disadvantages and more exclusion. This makes it important to understand its causes.

The pathways to being at risk of social exclusion are well established, as are the factors that promote resilience (see Silburn, 2003; Appendix C). As Hayes (2007) contends, “risk is not destiny” (p.27) but positive pathways must be available at the right time in order to affect change. At school, potentially positive influences include a positive environment, a pro-social peer group, responsibility and helpfulness, sense of belonging and bonding, having opportunities for some success at school and recognition of achievement, school norms regarding behaviour and avoiding delinquent peer involvement (Hayes et al., 2008). According to Gillard (2008), social inclusion refers to having opportunities for employment, access to public services, connecting with others, dealing with personal crises and being heard. Among children, social exclusion is associated with poorer physical health, and learning and behavioral problems (Hayes et al., 2008).

Living in a disadvantaged neighbourhood can have a substantial effect on the well-being of residents, although individual and family characteristics are thought to be more significant (Hayes et al., 2008). Persistent disadvantage across many generations of the same family is also an issue. According to the Organisation for Economic Co-operation and Development (OECD) summary of the literature on the intergenerational transmission of disadvantage (d’Addio, 2007), “when inter-generational mobility is low, poverty during childhood will not only undermine the health, nutrition and education prospects of children, but will also increase the chances that the children of the next

generation will grow up in low-income households” (p. 11). Furthermore, Sen (1999) warns that the cause of exclusion is the lack of ability to take advantage of opportunity, rather than the lack of opportunity. Hayes et al. (2008) concur, stating that, to access opportunities, individuals must be able to relate, communicate and collaborate.

Sport is seen as a way to foster social inclusion. For example, in Australia, the FaHCSIA (FaHCSIA (Department of Families, Housing, Community Services and Indigenous Affairs), 2010) claims that social inclusion is a foremost benefit of sport because it “brings people together in a way that transcends race, religion, gender, creed and wealth” and forges community cohesion and spirit”. Therefore, sporting interventions are seen as a way to promote social inclusion on the basis that they provide a means of involvement in activities, and that the involvement in itself can be interpreted as synonymous with inclusion (Long, 2002) and it is often within this setting that sport is presented as a social instrument.

### **2.3. Obesity and overweight**

This section will (i) define both obesity and overweight (ii) explain the potential health consequences of being obese or overweight (iii) outline the current picture and (iv) describe some of the main areas of debate about the causes of the current situation and possible solutions.

#### **2.3.1. What is obesity?**

The idea that there is an obesity and overweight crisis among children and adults has become a primary concern of public policy. Concern is necessary because obesity is both a disease in its own right and a major cause of chronic ill health (WHO, 2003).

Obesity can be defined as an excess concentration of body fat or adipose tissue (Kirk, 2006). The definition of ‘overweight’ differs slightly in that it refers to a status in which body weight is above a standard of acceptable weight, which may or may not be due to increases in body fat. Within the literature the terms are often used interchangeably (Evans, 2003).

However concerns about obesity and overweight go beyond the matter of carrying extra body fat. Being obese or overweight increases an individual’s vulnerability to illness. Spiegelman and Fliers’s (2001) definition captures this point. For them obesity

and overweight can be defined as “a state of increased body weight, more specifically adipose tissue, of sufficient magnitude to produce adverse health consequences” (p. 531).

### **2.3.2. Health consequences of obesity**

The health consequences associated with obesity and overweight are sufficiently wide ranging to affect all the organs of the body. They include type 2 diabetes, pulmonary dysfunction, liver disease, shortened life expectancy, osteoarthritis, cancers, hypertension, sleep apnoea and gastro esophageal reflux disease (GERD) and increased levels of cholesterol (De Sousa, Cercato, Mancini & Halpern, 2008; Fontaine, Redden, Wang, Westfall & Allison, 2003; Sise & Friedenber, 2008). Until the last decade many of these diseases were rarely seen in children, but the IASO (2004) reported that they are now routinely observed in child populations.

The leading obesity-related health risks to children are pulmonary dysfunction, fatty liver disease, type 2 diabetes, menstrual abnormalities and delayed maturation (see Table 2.1). Severe pulmonary disorders include sleep apnoea and hypoventilation syndrome, which can link to secondary disorders such as hyperinsulinaemia. Importantly, sleep related disorders have clinically significant effects on learning and memory function. As the IASO (2004) warned, not only are the conditions severe in themselves, but they carry lifetime consequences for health and well-being.

Table 2.1 Physical consequences of childhood and adolescent obesity

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Pulmonary
Sleep apnoea
Asthma
Pickwickian syndrome
Orthopaedic
Slipped capital epiphyses
Blount's disease (tibia vara)
Tibial torsion
Flat feet
Ankle sprains
Increased risk of fractures
Neurological
Idiopathic intracranial hypertension (e.g. pseudotumour cerebri)
Gastroenterological
Cholelithiasis
Liver steatosis / non-alcoholic fatty liver
Gastro-oesophageal reflux
Endocrine
Insulin resistance/impaired glucose tolerance
Type 2 diabetes
Menstrual abnormalities
Polycystic ovary syndrome
Hypercorticism
Cardiovascular
Hypertension
Dyslipidaemia
Fatty streaks
Left ventricular hypertrophy
Other
Systemic inflammation/raised C-reactive protein

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The early onset of puberty is an issue of concern, as there is evidence of a link between it and obesity (Dunger, Ahmed & Ong, 2005; Wang, 2002). The consumption of more calories from an early age is seen as a possible cause (e.g. Berkey, Gardner, Frazier & Colditz, 2000; Merzenich, Boeing & Wahrendorf, 1993; Meyer, Moisan, Marcoux & Bouchard, 1990). For girls, there is also a risk of early menarche (IASO, 2004). For example, Freedman et al. (2003) found that girls who went through early menarche (before the age of 12 years) had higher body weight and BMI in adulthood compared to those who went through menarche after age 13.5 years.

### **2.3.3. Other consequences of obesity and overweight**

Negative psychological and social consequences of being obese are also reported. For example, overweight and obese people have been reported to experience

more depression and low self-esteem (Miller & Downey, 2006; Nauta, Hospers & Jansen, 2001). Harter (1997) found that generally an individual's idea of he/she looks (physical self-appearance) is the strongest predictor of his/her overall self-esteem, even if one is competent in other areas of life. It is therefore not surprising that obesity can lead to the development of depression, low self-esteem and weight stigmatisation (Chen & Brown, 2005). This is particularly pervasive in Western society, which values physical appearance and slimness (Sparkes, 1997).

However, evidence of the psychological consequences of child and adolescent obesity is equivocal. IASO (2004) reported that different studies have produced contrasting evidence in respect of whether obese children had fewer friends than non overweight children (peer popularity), whilst research into the effect on self-esteem has shown either a weak association between low self-esteem and obesity or no association. This is surprising given that research has also shown that prejudice occurs at very early ages (Staffieri, 1967), and that 'fat' people can be stereotyped as early as 3 years old (Cramer & Steinwert, 1998). However, Hill (2007) found that obese girls and boys had significantly lower self-esteem than children of normal weight. Also, there is evidence that being obese as a child negatively influences inclusion with friends (Gately, 2009). For example, Strauss and Pollack (2003) asked children to identify their three best friends. Obese children had the least number of reciprocal nominations suggesting that obesity increases the risk of exclusion from peer groups. Hill and Murphy (2000) found that obese children who were teased about their weight had lower self-esteem than peers of normal weight. However there was no difference in self-esteem between obese children who had not been teased about their weight and normal weight children.

#### **2.3.4. Measurement of obesity and overweight**

The Body Mass Index (BMI) is a widely used method of assessing body fatness and is a recommended measure of health in childhood and adolescence, as elevated BMI correlates to negative health consequences (IASO, 2004). Also known as Quetelet's Index (Garrow & Webster, 1985), BMI uses height and weight to establish whether an individual is at their ideal weight or not using the following formula:

$$\text{BMI (kg/m}^2\text{)} = \frac{\text{Weight (kg)}}{\text{Height}^2 \text{ (m}^2\text{)}}$$

The values obtained are then compared with cut-off values and the higher the value the greater the health risks incurred. Since BMI varies with age and gender a given value of BMI therefore needs to be evaluated against age- and gender-specific reference values. Two studies, have calculated child-specific cut-off points for BMI, namely Cole, Bellizzi, Flegal & Dietz (2000), calculated child-specific cut-off points using BMI data from children in Brazil, Great Britain, Hong Kong, the Netherlands, Singapore and the US (see Appendix D) and Chinn and Rona (2002) defined BMI cut-off points for children in a Caucasian population (see Appendix E). These are discussed in more detail in Chapter 3, methods.

### **2.3.5. The prevalence of obesity**

Obesity is now a global problem and its escalation has been likened to an epidemic (IASO, 2004). In Britain, Foresight (2007b) reported that being overweight has become a normal condition and that by 2050 Britain could be a predominantly obese society. Using scientific modelling techniques, they showed that if the current rate of escalation in the UK continued, by 2050, 60% of adult men, 50% of adult women and 25% of children under 16 could be obese. Worse, they warned that 90% of today's children could become obese or overweight in adulthood and that their children too will fall mostly into these groups.

Globally, the WHO (2006) estimated that 20 million, under the age of five alone, met the classification for overweight in 2005 (WHO, 2006). Regionally, based on data compiled from various studies, Kostis and Panagiotakos (2006) found that the regions with greatest number of cases of child and adolescent obesity were the Americas (27.7 million), Europe (25.5 million) and the European Mediterranean (23.5 million).

In the UK, recent UK data from the 2007 Health Survey of England (HSE) showed that out of 13 million children 4.5 million are now obese. The reality is stark; one in three children has a weight that will predispose them to ill health and lower quality of life (Gately, 2009). Furthermore, although the percentage cost of prevention is much greater than the percentage cost of treatment the actual costs are not comparable and the obese population accounts for one third of the overall healthcare costs for children (Gately, 2009).



In the UK, data demonstrates that the current problem is severe and that the trend is upward;

The National Centre for Social Research (NCSR, 2006) analysis of the Health Survey for England (HSE 2003) reported overweight including obesity levels of 38% for girls and 35% for boys, for the age range 11-15 years.

Trend analysis of childhood obesity data (1995-2004) showed an increased proportion of obese boys (14% to 24%) and of obese (14% to 19%) and overweight girls (15% to 26%) (Information Centre for Health and Social Care, 2006). The 2003 HSE data also showed that more children are moving in the obese range (NCSR, 2006).

Obesity is not something that children tend to grow out of. Fifty-five per cent of 6-9 year olds and 79 per cent of 10-14 year olds who are obese will remain so into adulthood (Johnson, 2008).

Trends indicate that people get fatter as they age. Therefore, as the UK population gets older, there will be an underlying trend towards more overweight (Marmot, 2009; Foresight, 2007a).

There is evidence that certain criteria place a child as more at risk of obesity and overweight. These include the following social and demographic aspects:

Region; the prevalence of obesity varies according to region. London has the highest estimated numbers of obese children and the highest prevalence of obesity (20%) and obese and overweight combined accounts for 37% of the child population (NCSR, 2006).

Ethnicity; comparisons for age range 11-15 years showed that a higher proportion of non white children were overweight or obese compared to white children 44% to 33% for boys and 48% to 37% for girls (NCSR, 2006).

Gender-ethnicity; Asian boys had a similar body fat percentage to Asian girls, although white boys and black boys had significantly lower body fat percentages than white girls and black girls respectively. (Duncan, Woodfield & Al-Nakeeb, 2004).

Social class; girls from manual households are more at risk of obesity than those from non-manual households (14% to 19%); no significant difference was found for boys (NCSR, 2006).

Parenting; the most significant predictor of childhood obesity is parental obesity. Obesity in a parent increases the risk of childhood obesity by 10% (Foresight, 2007).

### **2.3.6. The causes**

Obesity is caused by long-term energy imbalance (Gately, 2009). Unhealthy weight gain is often seen as a case of individual choices about eating, exercise and lifestyle. The view that people become obese or overweight by 'eating too much and doing too little' has been at the core of recent attempts to address the problem, which have concentrated on increasing levels of activity and encouraging a healthier diet. However, other factors have contributed toward the current situation. As Professor Michael Marmot said, "Anybody looking at the evidence would say there must be social and economic causes of that. It can't be that 20 million people individually said, 'I'll think I'll get fat'" (Marmot, 2009, p.7).

The problem has escalated gradually over the last thirty years. Due to changes in the environment, people have become more vulnerable to weight gain (Foresight, 2007b). Causes include the ready availability of energy dense food, changed dietary patterns, based on changes in the world food economy (IASO, 2004), a more sedentary lifestyle, and a trend towards vicarious experiences of activities (Tomkinson, Leger, Olds, & Carzola, 2003). At an individual level, the main causes of obesity are physiological factors, eating habits, the amount of physical activity and psychosocial influences, such as whether an individual chooses to follow a healthy lifestyle (Jebb & More 1999). However, decisions about choosing the healthy option are often influenced by other factors. For example, the steady decline in number of children who walk or cycle to school is thought to be largely due to concerns over child safety generally and on the roads due to increased traffic (Tomkinson et al., 2003). Recently, the economic recession has led to booming sales for fast food chains as people seek cheaper food options. This highlighted that the cheaper option is not necessarily the healthy option. Clearly, therefore, a concerted response on a global scale is required (Marmot, 2009).

Other social factors may also be influential. For example, NOP (2003) found that meal time rules were likely to be less strict among families with obese children. Rules included helping to prepare food, sitting down to eat together, and not watching television whilst eating. Parental influence in the choice and quality of food at home was underlined by Hill (2004) who found that parents of obese children were less likely to value the idea that food should be healthy than parents of non obese children. Also, as Bradford and McNamara (2007) warn, young people are differentiated in their acquisition of knowledge about health and in their disposition to act on the knowledge. However, Gately ("Child obesity," 2010) is unequivocal about the cause of childhood obesity "Parents are in denial about the real cause of the problem - that they are to blame." He explains that parents often claim that their child has a slow metabolism when in fact 'they are unable to read food labels properly' and are overfeeding their child.

The solution lies in resolving the intake - expenditure imbalance (Foresight, 2007a). However, the debate continues regarding whether people eat more or do less. Firstly, there is some evidence that people are not necessarily eating more than in previous years. Commenting on findings that modern day children eat less calories than children in the 1930's, Sharp (1997) concluded that children in past decades were eating more, mainly because they were expending more energy on physical activity. Similarly, in the US, there was little change in calorific intake in the US during the 1980s and 1990s, leading James (1995) to conclude that decreases in daily energy expenditure are the most likely cause of obesity. However, there is also evidence that the problem has been caused by a decrease in energy expended rather than increased calorific intake (e.g. Jebb & Moore, 1999).

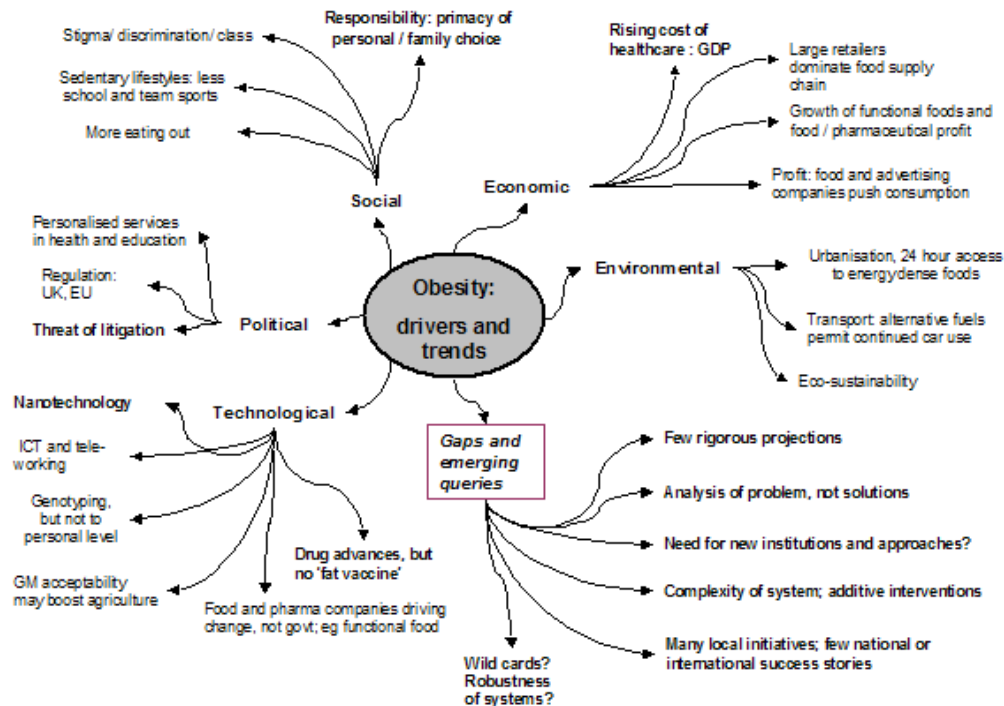
There is a difference between living a less sedentary life and doing more sport. Foresight (2007a) pointed out that incidental exercise occurs on a daily basis, whilst, for most people, taking part in sport accounts for a very small proportion of total energy expenditure and is therefore likely to "play only a minor role in preventing obesity" (Foresight, 2007a, p.48). This view is supported by Carter (2005). In his Review of the National Sport Effort (2005), comparisons of the rate of sport participation amongst adults in England and other peer countries showed that England's rate of participation (21%) was better than Italy (11%) but worse than France (24%) and Germany (27%) and far behind the leaders in participation levels, Finland (52%) and Australia (46%). However, both Finland and Australia had higher relative obesity rates than England.

Carter's (2005) interpretation was that figures showed that Finland and Australia contained "many confirmed 'sports nuts' and 'couch potatoes' but few 'undecided'" (p.19). In other words, people were either very active or did nothing. It seems that if the rate of sport participation is high it does not follow that obesity levels will be low.

In the US, the Department of Health and Human Services recommend that children do sixty minutes of sport per week, although "even greater amounts of physical activity may be necessary for the prevention of weight gain, for weight loss, or for sustaining weight loss" ([www.surgeongeneral.gov](http://www.surgeongeneral.gov), 2009, p. 5). However, looking at pre-intervention data on children aged nine to ten in Liverpool, Stratton et al. (2009) found that children who did less than 60 minutes per week of physical activity carried approximately 30% body fat compared to 27% in children who engaged in >60 but less than 90 minutes, and 26% in children who engaged in >90 minutes. According to Stratton (2009) this shows that 60 minutes per week is not enough physical activity to maintain a healthy amount of body fat. Stratton et al. (2009) also found that taking part in an additional two hours of sport limited the accumulation of body fat amongst nine to ten year old children. However obesity was not decreased and those who were over fat remained so.

Having identified the trends and drivers of obesity (see Figure 2.1) Foresight (2007c) made the following caveat; "The growing incidence of obesity may reflect changes in individual's choices and behaviour. It is unclear whether it is the environment that is abnormal and people's behaviour that is normal or vice versa" (p.2). In other words, there is no simple cause.

Figure 2.1 Foresight (2007c) Summary of obesity drivers and trends



### 2.3.7. Solutions to the obesity epidemic

Foresight (2007b) warned that the solution to the obesity epidemic can only be achieved via whole scale environmental and organizational change. Also, as the problem has been building over time it could take 30 years before the outcomes of trend reversal, such as a reduction in associated diseases, are seen.

Increasingly, the solution is recognized as a process of individual and collective responsibility. In 2008, Department of Culture, Media and Sport (DCMS) underlined that the process of obesity control was a synthesis of government and individual responsibility “Of course, Governments job is not to tell people what to do. Its role is to give people the opportunities they need to make healthy choices for themselves and for their families. This is a responsibility that the Government is collectively taking very seriously” (Foresight, 2008, p.22).

Marmot (2009) called for individuals to take responsibility for themselves and their children, while stressing the need for action from governments, multinational corporations, civil society, industry, workplaces, schools, the media and health professionals. He cited the provision of cycle lanes, gyms and swimming pools as measures encouraging people to exercise. He welcomed the congestion charge in London as having prompted more people to cycle to work.

At an individual level, interventions that improve nutrition and increase physical activity can improve the health prognosis; “There is no doubt that positive changes in diet and activity are likely to result in health benefit, both in relation to, and independent of, body weight (Foresight, 2007a, p.48). However, levels of youth participation in sport are reported to be at the highest ever (e.g. Sport England, 2003). This underlines that taking part in sport cannot in itself resolve the overall problem. Indeed people may eat more calories if they feel hungrier than usual after exercise. It is clear that interventions intended to manage or prevent obesity also need to educate participants about diet and health to compliment the sport participation and this can be particularly effective if it is promoted within schools (IASO, 2004).

In recognition of the two-fold nature of the problem, the Department of Health’s (DoH) ‘Change4 Life’ campaign aims to help people “eat better and move more” (Change4Life, 2010). However they refer to “building physical activity into people’s lives”, rather than doing more sport (Healthy Weight, Healthy Lives, 2008) reflecting Foresight’s (2007a) faith in incidental exercise, not sport, as the most effective way to manage weight via activity. Also, reflecting the concern over the potential influence of parents, the programme has adopted an early prevention approach by targeting at risk families of families with children aged 5-11, who are at risk of becoming overweight or obese (Change4Life, 2009). Nevertheless, sport remains part of the governments’ overall strategy as the DCMS concentrates on sport as a means to make children more active and thereby to prevent obesity (Sutcliffe in Foresight, 2008).

### **2.3.8. A real crisis or just a moral panic? A confounding perspective**

Some researchers have challenged the notion of an obesity crisis (e.g. Evans, 2003, Campos, Saguy, Ernsberger, Oliver & Gaesser, 2005). In the US, Campos et al., (2005) claimed that most people have gained 3 to 5 kg more than a generation ago and that this constitutes a modest gain rather than an epidemic. Although they conceded that

the heaviest have shown significant weight gains, they argued that the situation does not constitute a crisis unless BMI increases are analogous to contracting life threatening illness.

However, a possible BMI – mortality link has been criticised as speculative. Evans (2003) called the existing research evidence ‘faulty’ (p.98) whilst Basham and Luik (2008) argued that existing data on obesity and overweight were “limited, equivocal, and compromised in terms of extent [sic] and the reliability of the measurements and the populations sampled.” (p. 244). Campos et al. (2005) stated that many studies do not control for other influential factors such as fitness and exercise habits and those that do have relied on participants self-reports. Evans (2003) concurred that the link is unfounded. He pointed out that reducing obesity to weight concern fails to grasp the point which is that society is preoccupied with body culture and that it is preoccupation this that has escalated the perception of an obesity crisis.

Indeed, there may be several causal pathways to mortality across the weight spectrum. Jonas (2002) argued that it is possible to healthy and overweight whilst Diaz, Mainous and Everett (2005) found that amongst adults sudden weight gain, rather than stable obesity, carries a greater threat to life. However evidence continues to suggest that it is dangerous to disregard the potential link between BMI and ill health and early mortality since fitness affects mortality and BMI is linked to fitness (Lee, Blair and Jackson, 1999). Also, the contribution of adiposity toward the onset of specific diseases such as cancer has been evidenced (e.g. Anderson, Connor, Andrews, Davis Buller et al., 1996).

The media has also been accused of generating a public panic over obesity. Basham and Luik (2008) accuse the media of exaggerating the extent of the problem, whilst Evans (2003) believes that it misleads the public by presenting obesity as a self-evident epidemic. Others have criticized the ideological spin on obesity provided by the media. Oliver and Lee (2005) observed that the media presents obesity as a consequence of a lack of personal discipline and standards, thereby reinforcing the view of the poor and minorities as lazy. According to Pence (2004) the perceived links between obesity and moral laxity thereby place the blame on individuals rather than on healthcare costs, and this suits vested parties such as government and pharmaceutical companies. Evans (2003) concurs that conditions constitute reasons why some people

are overweight and inactive and that obesity is more likely to be a symptom rather than a contributory 'cause' of illness. However, the role of the media is complex since, as Leiss (2001) points out, to negotiate risk, people must first be informed.

### **2.3.9. Summary and unanswered questions**

Obesity is caused by an imbalance in energy consumed and energy expended (Gately, 2009). Therefore increasing the energy expended (via sport) is thought to reduce or prevent obesity. However, Foresight (2007a) points out that because many factors have caused the current situation (e.g. more time spent watching television and playing computer games, the decline of free, unsupervised play) there is no one solution. Also, they stress the need to live a less sedentary life by increasing incidental exercise, rather than doing more sport. Likewise, IASO (2004) views sporting interventions as insufficient to bring about change because the problem is caused by more factors than just insufficient exercise.

There is no agreed threshold at which sport improves health and fitness (Twisk, 2001) and the evidence is equivocal. For example, Stratton et al. (2009) found that sixty minutes of sport per week is insufficient to maintain a healthy amount of body fat. Also, although taking part in an extra two hours of sport limited the accumulation of body fat, it did not reduce obesity. This raises the question as to what amount and intensity of sport is sufficient to stem or reduce obesity?

Also, given that other factors increase the likelihood of being obese, such as choice of food at home, and eating habits (Hill, 2004), can sport intervene successfully if other factors that are influential in obesity are outside its sphere of influence?

Having established the issues surrounding obesity and the role of sport in resolving those issues, I now examine the benefits of fitness and the current aspects of concern.

## **2.4. Fitness**

According to Tomkinson et al. (2003) children are not as fit as they once were. While there is no consensus about the fitness threshold for children's health (Twisk, 2001) the seminal work of Morris et al. (1953, 1990) established the link between physical health and sport activity. However, benefits to health through fitness rely on



doing physical activity of the appropriate type, intensity, frequency and duration to maintain or improve health (Armstrong & Welsman, 1997). This is different from incidental exercise that may occur as part of the daily routine (Roberts & Brodie, 1992).

Being fitter may benefit physical and mental health and prevent the onset of illness (Sharp, 1996). Regular physical activity can also prevent coronary heart disease, reduce blood pressure, counter obesity, lower lipids, slow down osteoporosis and improve psychological well-being (Armstrong, 1993). Other benefits include cardio-pulmonary fitness, muscular strength, muscular endurance, flexibility and body composition.

For children being fitter can also benefit physical maturation, skeletal health, skill development and psychological well-being, including the development of positive attitudes (Blair, Clark, Cureton & Powell, 1989). Exercise is necessary for reasonable growth of the musculo-skeletal system, and may help the immune system. Sport also helps children learn and develop motor skills. This can include flexibility, agility, balance, coordination, reaction time, power and speed. Importantly, developing complex skills is dependent on learning fundamentals (Sharp, 1996). This is exemplified by Stratton et al. (2009) who examined the effect of an extra two hours of sport per week on children aged nine to ten in Liverpool. He found improvements in heart function, heart size and blood pressure whilst the rate of increased body fat had slowed down. However, the most encouraging results were in fundamental movement skill proficiency, (e.g. throwing a ball, hopping and jumping); although he noted that pre-intervention baseline levels had been poor.

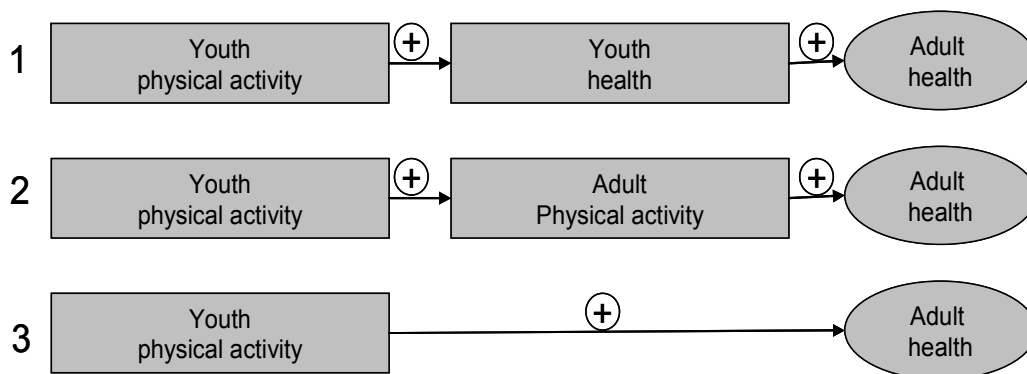
Conversely, participants' cardiovascular fitness declined, from which Stratton et al. (2009) concluded that the intensity of the sport provided by the intervention was insufficient to improve fitness. Tomkinson et al. (2003) explain that fitness in running can be reduced by lower aerobic fitness, or increased fatness, and, that the median increase in BMI amongst children since 1980 compares to the rate of decline over the same period.

Childhood fitness is also important because it is thought that adults' health and well-being has its origins in exercise habits established during childhood and

adolescence (e.g. Twisk, 2001; Armstrong & Welshman, 1997). So it has implications for health in the adult population (Sharp, 1997).

Figure 2.2 shows Twisk's (2001) diagram of the possible relationships between sport in childhood and adolescence and adult health status. (1) Physical activity during youth is related to health in youth (2) physical activity during youth is related to adult physical activity; (3) physical activity during youth is directly related to adult health status (p.619).

Figure 2.2. Possible relationships between physical activity during childhood and adolescence and adult health (Twisk, 2001)



#### 2.4.1. The Importance of fitness for mental health

Children who are physically inactive are at more risk of depressive symptoms than those who are physically active (Tomkinson et al., 2003). Physical activity in childhood is correlated to physical activity in adulthood and the continuity of childhood to adulthood depression is robust. Also, there is a negative relationship between adult physical activity and depression (Malina, 2001). Hence the correlation of depressive symptoms and exercise in childhood may have implications for the propensity to depression across the lifespan and may predict inactivity patterns in adulthood.

#### 2.4.2. Policy direction

Although insufficient exercise (hypo-activity) may be a direct or indirect cause of many pediatric diseases, there is no established threshold, duration or amount of participation necessary to confer or consolidate health benefits for children (e.g. Twisk,

2001; Bar-Or, 1983). However, in the UK, the government has made recommendations for those under the age of 18 to participate in 60 minutes of exercise everyday and for individuals over the age of 18 to participate in at least 30 minutes of exercise, five times a week (DirectGov, 2008). Similar recommendations also exist in other countries, including the US (Centers for Disease Control & Prevention, 2008a, 2008b), Australia (Department of Health and Ageing, 2007) and New Zealand (Ministry of Health, 2008).

Current UK policy represents an about turn from the approach of the 1980's and 1990's, which were notable for the decline of school sport (Biddle & Armstrong, 1992). For example, in 1994, Britain had the lowest provision of physical education in secondary schools amongst 21 European countries whilst a 1997 survey of 25 countries found only 3 countries offered at least 3 hours per week on Physical Education, and that no European country offered sport daily (McManus, 1997). The problem has its roots in the past and evidence suggests that Sharp's (1996) warning has been realised; "if adult health related activity patterns are significantly determined in childhood, then the falling energy-expenditure levels of children give grounds for considerable concern, both intrinsically and for their adult future" (p.119).

#### **2.4.3. Tracking of sport through the lifespan**

Given that a health prognosis is improved by being physically active, the idea that attitude toward exercise that are formed as a child track into adulthood is important, especially in light of the health risks associated with a sedentary lifestyle. As Sharp (1997) noted, "it seems intuitively correct that if one teaches children a range of individual sports and skills, there will be a greater chance they will utilise such skills, than if they had not been taught them" (p.3).

Although the faith placed in tracking is logical, the evidence remains inconclusive. For example, significant tracking was observed over a 6 year period involving Finnish youth ( $n = 961$ ) who were aged 12, 15 or 18 at baseline (Raitakari, Porka, Taimela, Telema, Räsänen & Viikari, 1994). The tracking was better in boys than girls and better for the younger age group compared to the older, however findings that 57 percent initially classified as inactive remained inactive after the six year follow-up suggest that inactivity may track better than activity. The Amsterdam study (a 15 year longitudinal study), did not find that being active in sport as a youth tracked into adulthood. Although habitual physical activity did not track longitudinally (Kempner,

1995), those who had been physically active were distinguished by coping style, handling stress and health. This did track longitudinally between young adulthood to adulthood (Snell & van Mechelen, 1995).

#### **2.4.4. Summary and unanswered questions**

Physical activity is beneficial to children's health and fitness (Twisk, 2001). The recent corresponding decline in children's fitness and increase in childhood obesity underlines the link between the two (Australian Sport Commission, ASC, 2004; Tomkinson et al., 2003). Also, according to Tomkinson et al.'s (2003) meta analysis, fitness continues to decline leading from which they concluded that sports interventions (and school PE) fail to address the problem. On the other hand, literature from the nineties predicted that decreases in the amount of sport at school would bring about a decline in children's fitness levels (Armstrong & Welshman, 1997; Durnin, 1992) with corresponding damage to health also likely (Sharp, 1996). Thus, it has been argued both ways, namely that intervening (increased sport) does not increase fitness and also that reducing sport leads to decreased fitness.

Stratton et al. (2009) and Twisk (2001) contend that the effect of a sport on fitness depends on the intensity of the sport, whilst others point out that doing something is better than doing nothing especially amongst otherwise inactive children and that it is a preventative medicine for health in later life (Sharp, 1996).

However despite the consensus that sport can improve fitness and the required intensity, duration and adherence to the sport are not clear. Indeed, the intensity of the same activity may be very different for different individuals, and, also, different absolute levels of aerobic fitness between individuals can have important implications for how much energy is expended on an activity (Twisk, 2001). Finally, different sports confer different gains to fitness and health, for example football might improve cardiovascular fitness whilst table tennis develops anaerobic fitness, motor skills and co-ordination. Therefore it seems that claims for the effects of sport on 'fitness' are very general and need to be considered as follows 'what sport?', 'how much?', 'how long?' and 'for whom?'

## **2.5. Psychological well-being**

### **2.5.1. Introduction**

This section will look at (i) the process by which taking part in sport is thought to lead to improved psychological well-being (ii) the definition of self-esteem (iii) theoretical models of self-concept and (iv) evidence in respect of the link between sport and self-esteem.

Sport can help people feel better about themselves and improve their psychological well-being (Coalter, 2007). There is evidence that taking part in sport can improve self-esteem (e.g. Gruber, 1986; Harter, 1982), subjective well-being (Dubbert, 2002); and self-efficacy (Bandura, 1990); and improve cognitive functioning (Dubbert, 2002).

Sport can be effective in improving mental well-being via improved mood and physical self-perception (Fox, 1999). This can be partly explained by physiological and biochemical changes which improve cognition and fitness, and, in turn, can lead to better mood and feeling more positive (Coalter, 2007). Also, changes to specific areas of psychological well-being may occur indirectly (Shephard, 1997). For example, self-esteem may improve via an indirect process in which people increase their self-efficacy (Bandura, 1986) through a sense of achievement in sport (for example, executing motor skills, or achieving goals) which in turn can enhance self-esteem. This is then expected to lead to improved behaviour and an increased desire to learn and to behave in a socially acceptable way (Shephard, 1997). The relationship between sport and self-esteem underpins much of thinking about how sport can bring about academic attainment and reduce anti-social behaviour on the grounds that high self-esteem is linked to academic attainment and that low self-esteem is linked to anti-social behaviour.

Increasingly, however, the idea that high or low self-esteem is linked to academic attainment or anti-social behaviour has been challenged. Coalter (2007) warned that it is part of the 'established repertoire' regarding the value of sport and is based on assumptions. Emler (2001) stated that there is no hard evidence in support of the claims for self-esteem on behaviour and that indeed, "young people with very high self-esteem are more likely than others...to reject social pressures from adults and peers and engage in physically risky pursuits'(p.19).

The concept of self-esteem and its complex association with sport will now be examined.

### **2.5.2. Self-esteem**

Self-esteem refers to a self-appraisal of 'how I am doing' (Fox, 2000) and is strongly linked to adaptive behaviour, coping and affect (Harter, 1992). Some parties consider it to be the main determinant of behaviour over and above direct perceptions of ability, motivational variables and personality differences (e.g. Campbell, 1984). For Biddle, Fox & Boutcher (2000) self-esteem underlies adaptive functioning such as seeking challenges, exerting effort and persisting in the face of obstacles. Furthermore, Mueller and Dweck, (1998), state that it is self-esteem, rather than ability and outcomes (success or failure), that decides whether an individual seeks out the opportunity to use their skills and then invests effort and persistence.

Self-esteem can also mediate positive or negative affect (Brown, Dutton & Cook, 2001). Harter, Marold & Whitesell (1992) found that feelings of depression can be produced by perceived discrepancies between how one would like to be and how one perceives oneself.

Self-esteem is a popular construct within the literature because; (i) high or low self-esteem can predict behaviour (ii) self-esteem can change as an outcome of various experiences and (iii) it can mediate other behaviours. Also, there are also different ways in which the term 'self-esteem' is meant. Brown et al. (2001) explained these as follows;

'Global self-esteem' is used to refer to how people feel about themselves. This is an overall feeling in which for example high self-esteem is characterized by feelings of general fondness or love for oneself. Low self-esteem is characterized by ambivalence or loathing towards the self.

'Self-evaluated self-esteem' refers to the way people evaluate specific abilities and personality characteristics.

'Feelings of self-worth.' Self-esteem is used to refer to emotional states, particularly those which arise from positive or negative outcomes.

According to Bandura (1986), self-esteem lends itself to evaluation well because it pertains to self-worth and "how well one's behavior matches personal standards of

worthiness" (p.410), whereas, for example, the concept of self-efficacy is concerned with personal capabilities. For this reason self-esteem can be evaluated whereas self-efficacy responses tend to be descriptive (Bandura 1986). He also warned against the overuse of global (or overall) measures in self-concept research because they cannot demonstrate the complexity and variation of self-evaluations. In turn this detracts from the power to explain and predict behaviour.

Marsh (1990) advocated that the self appraisal should be approached from a multidimensional perspective, and should not rely on global self-ratings. Fox (1997) reiterated that self-evaluation should look at how one is doing in various areas of one's life. Several tools that take this approach to measuring the self by including subscales for measuring athletic, academic and social self-esteem (e.g. Harter's Self-Perception Profile for Children (SPPC, 1985) SPPC, Fox's Physical Self Perceptions Profile (PSPP; 1990), the hierarchical and multidimensional model of self-concept (Shavelson, Hubner & Stanton, 1976) and Marsh's, Barnes, Cairns & Tidmans' Self Description Questionnaire (SDQ, 1984).

### **2.5.3. Theoretical perspectives on Self-Esteem**

Given that many changes take place during childhood and adolescence, such as maturation and changes in the relative influence of parents and peers, a theory-driven approach has been recommended when examining psychological issues and outcomes associated with youth sport participation (Duda, 2005).

#### **2.5.3.1. Competence Motivation Theory (Harter, 1986)**

According to Harter's (1985) Competence Motivation Theory, one's self-esteem is made up of one's perceptions of competence in different areas of one's life. Harter (1985) defined the main areas for children and youth as academic attainment, social acceptance, athletic competence, physical self-appearance and behavioural conduct. A sixth aspect, global self-worth, refers to the extent to which one likes oneself and is generally happy with the way one is leading one's life. Therefore, for Harter (1997) overall self-esteem is a "global judgement of one's worth as a person, rather than a domain specific competence" (p.6).

Harter's (1985) theory combines the views of James (1892) and Cooley (1902) in that both self-evaluated competence and the perceived regard of others counts.

Therefore, the impact of one's self-rated competence on overall self-esteem varies according to (i) how important one believes that area to be and (ii) how important this competence is perceived to be in terms of gaining approval from friends and family. Thus, people give more attention to performance in areas that they consider to be important, which suggests that self-esteem is founded on cognitive evaluation of competence compared to aspirations (James, 1892 cited in Harter, 1985).

According to Cooley (1902, cited in Harter 1985), the perceived regard of others is a strong predictor of self-worth. Also the importance one attaches to being competent in a particular area may increase if the individual perceives that it will draw approval (Harter, 1985).

For children and youth, making distinctions and evaluations becomes easier and more sophisticated as they mature cognitively (Harter 1985, 1986). Children begin to evaluate themselves in different areas by age eight and during middle childhood the ability to differentiate between different areas and to make other referenced competence assessments increases (Whitehead & Corbin, 1997). Since adolescence is a key time in the development of one's identity (Fox, 1997), the perceived opinion of peers is particularly relevant to self-esteem ratings at this age (Harter, 1985). Social support is an important determinant of self-esteem from middle childhood onward as self-evaluations related to close friendships become integrated into one's self-evaluations (Harter, 1985). Therefore, it seems that middle childhood and early adolescence are an ideal time to assess seminal influences on self-esteem and subsequently to promote healthy behaviour and adjustment patterns (Roberts, Brown, Johnson & Reinke, 2002).

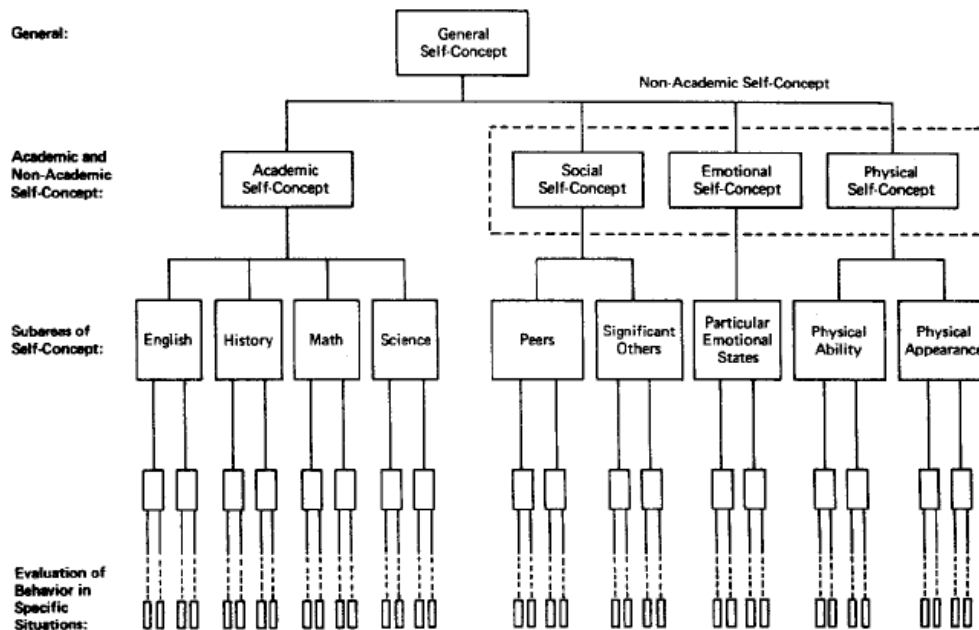
To test her theoretical models and for clinical diagnostic purposes, Harter constructed measures to examine self-esteem at different ages. These are the Self-Perception Profile for Children (SPPC, 1986) for ages 8 to 13, the Self-Perception Profile for Adolescents (Harter, 1988) for ages 14 to 18; and the Self-Perception Profile for Adults, (Messer & Harter, 1986) for ages 20-55. Differences between the questionnaires reflect the different areas of importance at different ages. For example, the self-perception profile for adolescents (SPPA) is different from the self-perception profile for children (SPPC) in that it contains three additional subscales (job competence, close friendship and romantic appeal) which reflect the concerns of adolescents.



**2.5.3.2. *The hierarchical and multidimensional model of self-concept (Shavelson, Hubner & Stanton, 1976)***

Shavelson et al. (1976) saw self-concept as hierarchical and multidimensional (Marsh, 1990). Their review of self-concept research concluded that self-concept is multidimensional with one overall concept and several specific aspects (Shavelson et al., 1976). They defined self-concept as one's perception of oneself and stressed the influence of evaluations about ability or outcomes on one's self. These perceptions are formed through experience with, and interpretations of, one's environment. Their work concentrated on establishing the affective outcomes of educational attainment. They gave two main reasons for this interest, namely (i) that improvements in a student's self-concept should be valued as an educational outcome in its own right and (ii) "Self-concept whether used as an outcome itself or as a moderator variable that helps explain achievement outcomes, is a critical variable in education and in educational evaluation and research" (p.408). Their model (see figure 2.3) shows the relationship between self-concept, self-evaluations and academic achievement. It places the 'general self' at the top and at the next level it distinguishes between academic and non academic self-concept. Academic self-concept is divided into self-concepts in particular subject areas (e.g. Mathematics, English). Non-academic self-concept is divided into social self-concept, (relations with peers and significant others), emotional self-concept; and physical self-concept, which is subdivided into physical ability and physical appearance. Like Harter (1985), for Shavelson et al. (1976) there is a distinction between the descriptive nature of overall self-esteem and performance evaluation. For example, individuals may describe themselves as "I am happy" and evaluate themselves "I do well in mathematics" (Marsh, 1990, sec.8).

Figure 2.3 A hierarchical and multidimensional model of self-concept (Shavelson et al., 1976)



**2.5.3.3. Attribution Theory (Weiner, 1985.)**

Attribution refers to how individuals interpret events, their own behaviour and the behaviour of others. Weiner’s attribution theory is mainly about achievement and it suggests that an individual’s self perceptions will influence their interpretations of success and failure. According to Weiner (1985), the most important factors affecting attributions are ability, effort, task difficulty, and an element of luck which is unquantifiable. Furthermore the theory assumes that individuals are motivated by outcomes that make them feel good about themselves and hence attributions can influence motivation because perceptions of success and failure may determine the amount of effort they will exert on the activity in the future.

According to Weiner (1985), the explanations for success or failure fall into three categories, namely stability (being either fairly permanent or unstable), locus of causality (internal or external causes) and locus of control (factors outside one’s control). Weinberg and Gould (2006) commented on the implications of Attribution Theory (Weiner, 1985) for sport performance. They suggested that ‘stable’ factors include talent

or ability whilst 'unstable' factors include luck. Locus of causality refers to whether the cause of one's behaviour is internal or external. Internal causes might be seen as internally caused such as winning due to trying hard or to an external factor such as the poor level of opponents. Finally outcomes may be either controllable or uncontrollable. A controllable factor is one that the individual has mastery over, such as how hard they try, whilst an uncontrollable factor might be the condition or aptitude of the opponents. Attributions have implications for sport participation since, how individuals explain or attribute their performance affects their expectations and emotional reactions which in turn influence future motivation (Weinberg et al. 2006). For this reason, they advocate that it is appropriate to assess and correct inappropriate motivations, as they may have implications for adherence, effort and outcomes.

Given that there is an unquantifiable element of 'luck' involved, attribution theory (Weiner, 1985), although an interesting theory, was not considered appropriate for this study.

#### **2.5.3.4. *Self-esteem and physical self-perceptions***

There is evidence that physical self-appearance is the strongest predictor of overall self-esteem (e.g. Harter, 1990; Fox, 1997). According to Fox (2000), body image and self image are closely linked because the body is the main interface between the self and the world. Sparkes (1997) takes this point further saying that the body is a form of 'social capital' within societies where 'how you look' features strongly in the values of the culture (Sparkes, 1997). In other words, appearance is a focal point of social interactions and is therefore pivotal to self-esteem (Fox, 2000).

Physical appearance is central to building self-esteem in childhood and adolescence. For example, children rate themselves on appearance by age 11 (Fox & Corbin, 1989) whilst amongst adolescents, physical self-evaluations, which play an important role in the development of self-esteem, show a strong and enduring correlation with global self-worth (e.g. Harter, 2001). The importance of physical self-evaluations in shaping overall self-esteem is underlined by consistent findings that perceived appearance has a stronger correlation to self-esteem than perceived social acceptance and perceived competence amongst young adolescents (Harter, 1996). Low self-esteem is linked to depressed feelings with physical appearance leading the way as the main

cause of the low self-esteem (Harter et al., 1992). Evidence of a negative relationship between child depression and physical activity (Michaud et al., 2003) and evidence that sport can improve one's physical self-perception seem relevant.

To address some of these issues, Fox and Corbin (1989) developed the Physical Self-Perception Profile (PSPP) (Fox, 1990). This questionnaire measures the following aspects of physical self-worth; self-assessed perceived sport competence, body attractiveness, perceived strength and physical condition. Lately, they recommended that this approach be combined with the Perceived Importance Profile, (PSI) in order to establish the relative importance of particular areas of self-perception.

#### **2.5.3.5. Does sport improve self-esteem? An exploration of evidence**

Although there is a consensus that sport can improve self-esteem (e.g. Whitehead & Corbin, 1997; Fox, 2000) caution is urged (Coalter, 2007). Firstly, sport seems to act on self-esteem via a psycho physical process by which doing exercise results in a physiological effect of feeling physically better and improved mood. Being in better mood generally is thought to improve one's self-regard, which, in turn, leads to higher self-esteem ratings. On the other hand, Fox (2000) warned that evidence that some people experience greater benefits to self-esteem than others does not support the idea of a generic psycho physical effect.

Secondly, since sport acts on self-esteem indirectly, establishing the direction of causality is problematic. Fox (2000) stated that "it is impossible to determine the degree to which self-perception are determinants or outcomes of sport performance' (p.115).

Thirdly, the relationship between global or overall self-esteem is inconsistent (Fox, 1997). Fox's (2000) review of existing research found inconsistency in both cross sectional and longitudinal findings leading him to refute the idea that doing sport will generically improve self-esteem. Coalter (2007) emphasized that outcomes depend on the context of the sport; specifically (i) the nature of population involved (ii) the nature of the environment and (iii) individual characteristics.

The evidence confirms that the sport-self-esteem association is complex. For example, it seems that physical changes do not have to take place for people to feel better about their self-appearance after sport. According to Mutrie and Davidson (1994, cited in Fox, 1997) actual changes to fitness or physical competence have a low or

moderate correlation to self-perceptions of the physical self and changes in self-perceptions are not necessarily reflected in actual changes in physical fitness or skill.

Also, the greatest improvement in self-esteem occurs amongst those who have most to gain (Spence, McGannon & Poon, 2005). For example, Mutrie and Davidson (1994) found that significant positive effects for self-esteem associated with sport are generally reported from groups with a lower initial self-esteem rating and that the greatest improvements found in those with most to gain physically from exercise and those who start with low self-esteem. Furthermore, gender differences exist in self-rating of overall self-esteem and physical self-esteem; males self-rate themselves higher in physical self-appearance and females self-rate lower (Whitehead & Corbin, 1988). The length of a programme may also be important since if it runs more than two weeks there is an increased likelihood of self-esteem changes (Fox, 1997).

The social nature of participation may play an important role in self-esteem, more so than the sport itself. Coalter (2007) suggests that “it’s not what you do but who you do it with” (p.106). Thus, self-esteem can benefit group activity because individuals feel a part of the group by virtue of collective engagement in a shared objective.

Among children, sport can help to develop self-esteem, particularly in improving low self-esteem. Whitehead and Corbin (1997) found evidence that presenting the sport in a mastery and self-development context was important and recommended that when seeking to improve self-esteem via sporting interventions, organisers should establish positive effort-benefit ratio perceptions; set attainable goals and avoid the use of exercise as a punishment. They also noted that, given that adolescence is a key period in the development of self-esteem (e.g. Harter, 1985) it is important to focus on personal not comparative standards, offer alternative sports and provide sport in a way that challenges rather than reinforces gender based stereotypical views of sport.

Fox (1997) summed up the situation by saying that evidence suggests that claims should be made with caution. However he appears to contradict himself by concluding that ‘exercise clearly helps people feel better about themselves and thereby contributes to their mental well-being and quality of life’ (p.116)

### **2.5.3.6. Subjective well-being**

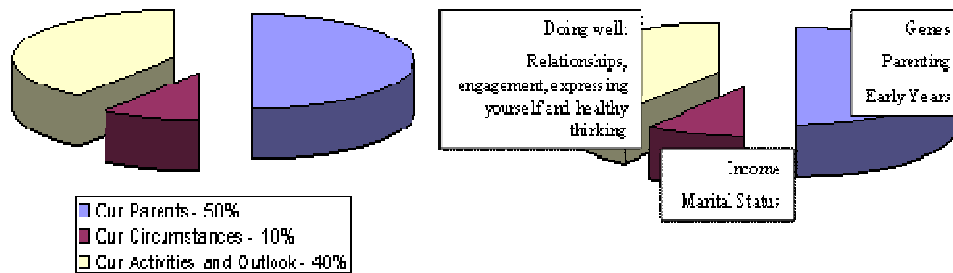
Subjective well-being (SWB) is often used within the literature to denote 'happiness' (Diener, Suh & Oishi, 1997). Happiness "consists of a measure of positive and negative affect and a cognitive appraisal of one's life" (Diener, Eunkook, Lucas & Smith, 1999, p.277). Evaluations of happiness include conscious evaluative judgements (cognitions) and the experience of unpleasant or pleasant moods and emotions in reaction to life events (affect). Since SWB theory (Diener, 1984) concentrates on people's views about their well-being, it is not synonymous with mental or psychological health. The main components of SWB are satisfaction, pleasant affect and low levels of unpleasant affect (Diener, 1984). According to Diener et al., (1997) "how we perceive and think about the world determines our SWB" (sec.3). SWB appears to have consequences for coping style (Diener et al., 1997). Happy people are more likely to initiate adaptive and helpful thoughts and behaviours whereas unhappy people are more likely to focus on blame and avoid looking for solutions to problems (McCrae & Costa, 1986).

Friedrickson (1998) stated that positive emotions, including joy, interest, contentment, pride and love are important because they broaden people's repertoire of thoughts and actions and build enduring personal resources. Therefore, positive emotions carry hidden advantages for peoples' physical, intellectual, social and psychological resources (Friedrickson, 1998). According to Diener (1984), the experience of positive well-being is linked to general life satisfaction, awareness of one's own strengths and the perception that one has the ability to meet challenges effectively. Happiness is underlain by a generally positive mood and attitude toward life. Negative well-being is characterised by feelings of distress, negative mood and apprehension about anticipated challenges.

The sources of feelings of well-being are often (i) parents, i.e. a combination of genes, parenting and experiences of early years (50%), (ii) participation in meaningful activities and one's dispositional outlook (40%) and (iii) circumstances (10%) (Marks, on behalf of the New Economics Foundation, 2007, see Figure 2.4). On this basis, Marks (2007) warned that it is dangerous to assume that providing people with opportunities will necessarily lead to an increased sense of well-being. This view is supported by Long (2002) who cautioned against presuming that interventions will result in personal

development, such as increased self-esteem, self-confidence and empowerment. He also warned that it is hard evidence since measurement usually relies on subjective measurement.

Figure 2.4 Where does our happiness come from? (Marks, 2007)



By way of contrast, Diener et al.'s (1997) review of SWB concluded that factors such as the economic growth and the cultural homogeneity of a society do not correlate with the average levels of SWB. However, life satisfaction is likely to be lower among those who experience poverty and deprivation. Thus, income only influences SWB at lower levels where physical needs are at stake, but that increasing levels of wealth above this level make little difference to happiness (Diener et al., 2002; Diener et al., 2003).

#### 2.5.4. Motivation

Motivational theories attempt to explain why people act in certain ways (Vallerand, Fortier & Guay, 1997). Theories that look specifically at motivation in children, such as competence motivation theory (Harter, 1986), expectancy-value theory (Eccles, 1983) and achievement motivation (Duda & Nicholls, 1992) take the developmental and social aspects of childhood into account. They have been used to examine childhood behaviour in sport and also in the classroom (Brusted, Babkes & Smith, 2001). As Hagger and Armitage (2004) pointed out, a theoretical approach is valuable because it allows the psychological antecedents of sport behaviour to be identified. In turn this makes it easier to plan future strategies to promote sport. Some key theories are outlined in the following section.

**2.5.4.1. Achievement goal theory – (Duda & Nicholls, 1992; Nicholls, 1984)**

According to achievement goal theory (Nicholls, 1984) individuals are goal directed. Their main aim is to demonstrate competence based on the criteria by which success is assessed (Maehr & Nicholls, 1980). This theory is distinguished from other theories of motivation and achievement because it views the meaning of achievement as subjective and challenges the idea that success and failure are outcomes (Roberts, 2001). In short, success and failure are states of mind based on an individual's interpretation of how well they are doing in comparison with the goal. Therefore, what is success for one may not be success for another (Maehr & Nicholls, 1980). The theory was developed and tested in academic settings by Nicholls and the contribution of Duda and Nicholls (1992) was largely to extend it into sport settings.

Since perceived ability is central to evaluating whether one is successful or not, an individual's goal orientation is linked to how they construe competence (Nicholls, 1984). According to Nicholls (1984), individuals can demonstrate competence either by mastering a task (task orientation) or by performing better than others (ego orientation). Individuals are likely to prefer one or other orientation based on their own predisposition and the climate of the environment where the task is carried out.

The fundamental difference between task and ego oriented individuals is the way they define and judge competition. Task orientation describes a self-referenced perception of achievement in which subjective experience of improving skills represents the criteria underlying success. The goal is to learn or master a skill. Ego orientation relates to gaining positive judgements of one's ability (or avoiding negative judgments) by doing better than others, and so the goal emphasis is on performance outcomes and the normative assessment of success and failure.

Finally, the type of goal (ego or task) predicts the kind of decision that someone will make in its pursuit (Maehr & Nicholls, 1980). According to Nicholls (1984), individuals whose main goal is to master a task are more likely to adapt, persist, seek challenges and be resilient to setbacks. Because the emphasis is on mastering a task, perceptions of demonstrated competence are self-referenced. It is therefore assumed that task orientation develops one's perceptions of ability and encourages the exertion of effort.



However, ego involved individuals are concerned with how good they are at a task and their perceptions of their own ability are formed in relation to others' ability. If an ego oriented individual perceives that they are highly able and they are able to show this ability (by performing better than others) then it is likely that they will persist at the task. They are also likely to think that demonstrating ability with little effort is evidence of even higher ability. However, if they perceive their ability to be low, they are unlikely to demonstrate competence. Then, they may give up or withdraw effort (Nicholls, 1984). It follows that ego orientation can often decrease enjoyment and interest in a task, whilst task orientation involvement increases intrinsic interest and enjoyment (Roberts, 2001).

Although individuals are thought to differ in their dispositional goal orientation, situational factors can affect which motivation is adopted since situations may be more or less ego or task involved depending on the social environment (Nicholls, 1984). Nicholls (1989) found that, in class-room settings, children who perceived that the environment was more task oriented were more positive towards the class and used more effective learning strategies. However, children who perceived an ego oriented environment tended to focus on ability and tended to attribute failure to lack of ability. This finding has important implications because individuals are more likely to keep trying if they consider effort to be a precursor of success (Roberts, 2001).

#### **2.5.4.2. Participatory motivation**

A great deal of research has been conducted into the psychological aspects associated with youth sport has concentrated on finding out why children participate. According to Brusted et al.'s (2001) review, there is a consensus that social, psychological and developmental factors influence how much children enjoy taking part in sport. Also, as such, motivational factors, affective outcomes and the opinions of significant others, (parents, peers and coaches) can influence why children take part in sport (Brusted et al., 2001).

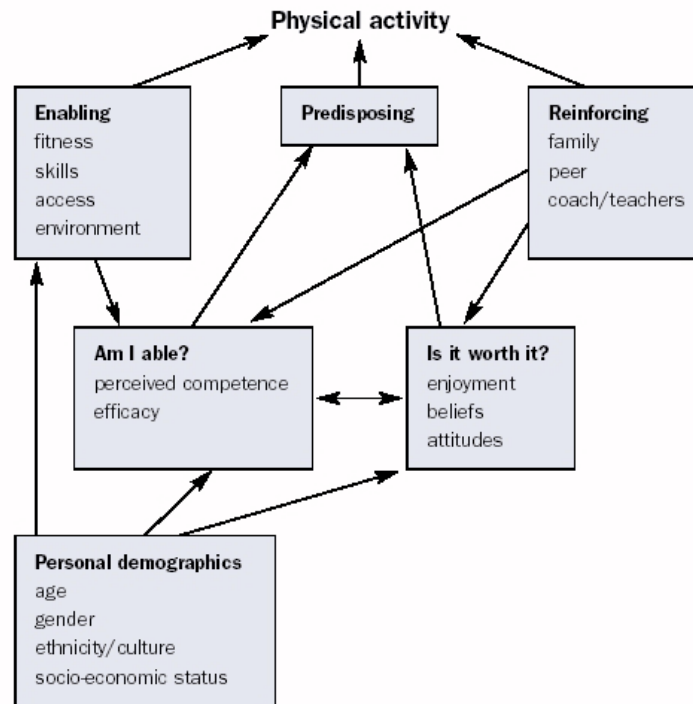
According to Harter (1986), favourable emotional consequences predict that someone will retain their motivation to participate. Weiss and Petlichkoff (1989) found that the main reasons for participation in sport during youth were to demonstrate competence, social connectedness, fitness and fun. This underlines why 'the nature and extent of any effects will depend on the nature and quality of the experience' (Coalter, 2002 p. 48). Indeed, most children between 9 and 15 years old appear to be motivated

to participate based on having fun. A School Fitness Survey by Tuxworth, Nevill, White & Jenkins (1986) found that 70 percent of the children between 9 and 15 years participated in sport 'for enjoyment' while only 18 percent cited fitness motives. Eighteen years later, a study of ten thousand children by the Australian Sport Commission (ASC, 2004) concurred that enjoyment was a key determinant of whether children wanted to do sport. However, Biddle et al., (1992) found that whilst boys appear to enjoy sport for its own sake girls depend more on supportive adult opinion as a determinant of their enjoyment. Thus, the context in which a sport is conducted seems to be important for girls especially.

Biddle et al.'s (1992) finding corresponds with points raised by Brusted et al. (2001). Commenting on existing research, Brusted et al. (2001) warned that significant others, such as peers, parents and coaches, were influential in determining participation amongst children. Since the opinions of others are relevant to a child's self-perceptions and motivational characteristics they often have consequences for the whether a child wants to take part in sport or not, and how they view the experience of participation. For example, amongst Special Educational Needs (SEN) children, those who had positive experiences of sport felt supported by adults whilst those who did not enjoy sport experienced feelings of inadequacy and self-doubt, and reported that they felt ignored or excluded from the sport by adults (Coates & Vickerman, 2008).

Based on a study of over four thousand children aged between 9–15 years, the ASC (2004) produced a model of different variables that influence whether children are motivated to take part in sport (see figure 2.5)

Figure 2.5 Why Children take part in sport; the different variables that lead to physical activity (Australian Commission of Sport, ASC, 2004)



Source: Adapted from Welk, Corbin & Dale 2000

The reason why children and youth take part in sport is complex because the factors that influence participation, such as motivation, attrition and affective outcomes need to be examined in the context of the diverse social, psychological and developmental aspects that occur during childhood (Brusted et al., 2001). Also, the reasons why children participate are likely to change during childhood and adolescence as they develop physically and as the opinion of their peers becomes more important. Therefore, Brusted et al. (2001) warn that all these aspects are relevant to understanding reasons for their participation or non participation.

### 2.5.5. Summary and unanswered questions

According to Harter (1985) self-esteem can be enhanced by feeling competent in areas that an individual values and which are also likely to gain approval from others. However, given that not everyone is competent at sport or even enjoys sport, many researchers have concentrated on the link between the physical self-appearance and

overall self-esteem to explain why sport can improve self-esteem (e.g. Sparkes, 1997). As Fox (1997) explained, it seems that some people feel better about themselves generally because they feel that they look better, although physical changes do not necessarily occur. Also, a sense of empowerment from doing something can increase self-esteem, although some groups (e.g. those in the poorest condition in the first place) make larger gains than others. However there is no evidence that those gains are sustained.

Duda and Nicholls's (1992) model of motivation argues that individuals want to show that they are competent and that, how they choose to do this will vary according to the demands of the environment and also to personal predisposition. Competence can be shown by mastering a task or by being better at something than someone else (i.e. achieving an outcome, such as 'winning'). Importantly those who concentrate on mastery are more likely to keep trying than those who rely on results to show competence. This begs the question as to whether a sports intervention that is oriented toward achieving outcomes (such as losing weight or getting fitter) is likely to provide an environment in which children's sense of competence can be developed. Also since children do sport largely to have fun, is putting the emphasis on outcomes at odds with the motivation of participants? Indeed, following Duda and Nicholl's (1992) reasoning, might this approach even put participants off sport, since goal orientation can result in giving up if the goal is not achieved?

## **2.6. Academic attainment**

In this section I look at the relationship between sport and academic attainment. Although education is not specified in definitions of social inclusion, it underlies lack of skills, unemployment and low income. Therefore ways to improve academic attainment are seen to be important because of the benefits that better education can bring about (Coalter, 2007).

There are three different professed attitudes toward the impact of sport on education (Coalter, 2007); (i) sport costs academic attainment because of the time and energy it demands, (ii) sport improves academic attainment because of its associated benefits, such as reduced absenteeism, and improved discipline which then lead to higher academic attainment, (iii) sport does not detract from academic attainment. It should be encouraged because it brings direct health benefits which in turn can improve

concentration and affect, which may help classroom behaviour. However, in terms of cause and effect, nothing can be proved.

The last point has become popular given the (by now) familiar methodological difficulties in ‘proving’ the link between sport and outcomes in other areas. Coalter (2007) warned that a review of the literature shows “mixed, inconsistent and often non-comparable results” (p.92) whilst conclusions are often speculative.

Several problems exist in terms of cause and effect. In addition to the general difficulties reported when trying to determine indirect outcomes of sport on other areas there are some issues that are specific to the link between sport and academic attainment. Firstly, it is difficult to establish whether intelligence led to sports success or the other way round (Shephard, 1997). Secondly, sport participation is often higher amongst those from higher socio-economic groups who are also more likely to achieve academic success (Coalter, 2007). Thirdly, in the event of a link between sport and academic attainment, success might be the result of one’s genes and of developmental factors, such as supportive parents (Tremblay 2000). However, despite concerns over proving causality, the theoretical models have been put forward to explain how sport can further academic attainment (e.g. Athletic Participation AP, Marsh 1993; Finn’s (1989) Participation/Identification Model, PI). The theory and evidence in will now be examined.

### **2.6.1. Theories of why sport improves academic attainment**

The literature suggests that there are three routes by which sport can contribute toward academic attainment. These are via (i) physiological changes which bring about improved health and fitness and improved cognition, which helps people to concentrate better and think more clearly, (ii) psychological changes, helping people to feel better about themselves and subsequently try a bit harder and (iii) sociological factors, such as ‘belonging’ to the school and identifying with its goals.

#### **2.6.1.1. *Physiological and psychological explanations***

Some researchers have argued that sport has the potential to improve academic performance because it can improve cognitive functioning. A meta analysis of existing research by Sibley and Etnier (2003) suggested that sport does improve cognitive functioning, with the greatest impact being on the cognition of children between the ages

of 6-13. It also seems that being fitter generally has positive consequences for concentration.

Psychological changes are thought to mediate the link between sport and academic attainment (Marsh, 1990). One view is that sport can improve self-efficacy and self-esteem, and based on these changes an individual may try harder and be more goal-directed in other achievement settings (Coalter, 2007). In short, positive feelings about the self which are experienced during sport can then be translated to the classroom (Coalter, 2007).

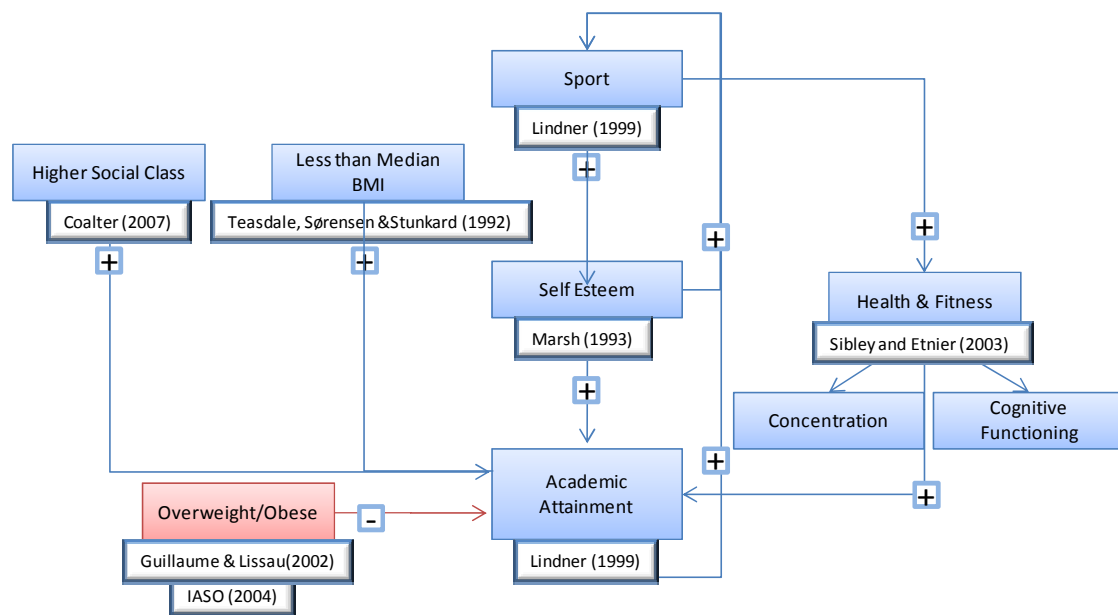
However, Sisjord (1993) found that adolescents who planned to attend higher education were more likely to do sport than those who planned to leave education after secondary school. Skille (2005) confirmed Sisjord's (1993) conclusion that future social class, measured by choice of secondary school and plans for future education, was the strongest predictor of adolescent sport participation. Also, Lindner (1999) found that those who showed more confidence in their academic ability were also more likely to be involved in sport. Lindner (1999) found that those who participated in sport had higher self-esteem on entering school and those with lower esteem were less likely to take part in sport. Therefore, Lindner (1999) argued, the idea that sport builds confidence which is then translated to the classroom is misleading. Instead those who do sport already have higher esteem which in turn explains why they do better. Lindner (1999) suggested that the sport academic attainment link should be viewed from another perspective, namely that there is no evidence that lack of sport causes low academic performance.

However, given that it is acknowledged that sport improves health and fitness (Sharp, 1997) and that being overweight or obese impacts upon academic performance (IASO, 2004) it is not surprising that a higher percentage of overweight children are among low-achievers than those who are not overweight (Guillaume & Lissau, 2002). In addition, in young adults, intelligence test scores and educational levels are higher among those with below median BMI (Teasdale, Sørensen & Stunkard, 1992). Given the link between health, fitness and activity (Twisk, 2001) it seems reasonable to contend that sport is a correlate of attainment via its link to improved health and fitness (Grissom, 2005). However this link may be mediated by other factors. Indeed, Coalter (2007) pointed out that since higher social class is associated with higher academic

achievement and better health it may be that the findings demonstrate the link between class and education as much as between sport and education.

Figure 2.6 depicts some of the proposed links between sport and academic attainment that are described above.

Figure 2.6 The relationship between sport and academic attainment



### 2.6.1.2. Sociological explanations

Snyder and Spreitzer (1999) argued that sport can enhance pupils' perceptions of school and academic attainment because they feel more energized and enthusiastic about their environment. Coalter (2007) built upon the work of Snyder and Spreitzer (1999) to demonstrate sociological reasons why sport influences academic attainment;

Identification with the school community - individuals may become more interested in the school and become more committed to its goals. They may also become more integrated and socialized within the school as a result of interactions with peers, teachers and coaches that take place during sport (Eitle, 2005). Students may also become more interested in achieving goals within the rules of school (Coalter, 2007).

Increased self-concept - pupils may feel better about themselves because they gain the approval of others during sport. Sport then becomes a social asset

which in turn increases one's feelings of belonging within the school (Marsh, 1993).

Increased attention from adults - Increased attention from teachers, coaches and parents can increase the desire to do well academically.

Membership of 'elite' groups - Sport can lead to being part of an elite group such as the school team.

Sport can be linked to higher education – the desire to take part in university sport can motivate pupils to try harder academically in order to achieve the grades required for entry.

'No pass, no play' approach - Sport participation can depend on academic performance - being allowed to take part in sport, or for example play for school teams, may depend on academic performance and general behaviour. This is likely to encourage a more positive attitude towards academic studies and it also reinforces the link between academic attainment and sport. Marsh and Kleitman (2003) pointed out that this approach can be particularly effective in encouraging disadvantaged students who may not otherwise value academic achievement.

Like Coalter, (2007), Marsh's (1993) Athletic Performance model cited mediating factors as key to the association between sport and academic attainment. He suggested that sport improves pupils' commitment, identification and involvement with the school in a way that enhances more closely defined academic goals. Specific aspects of this process include improved self-esteem, increased educational aspirations and increased identification with the school and a desire to achieve goals within the rules. Finn's (1989) PI Model also suggested that an increased engagement in school life could benefit performance in related areas. They predicted positive outcomes when pupils are engaged in many different forms of participation within the school.

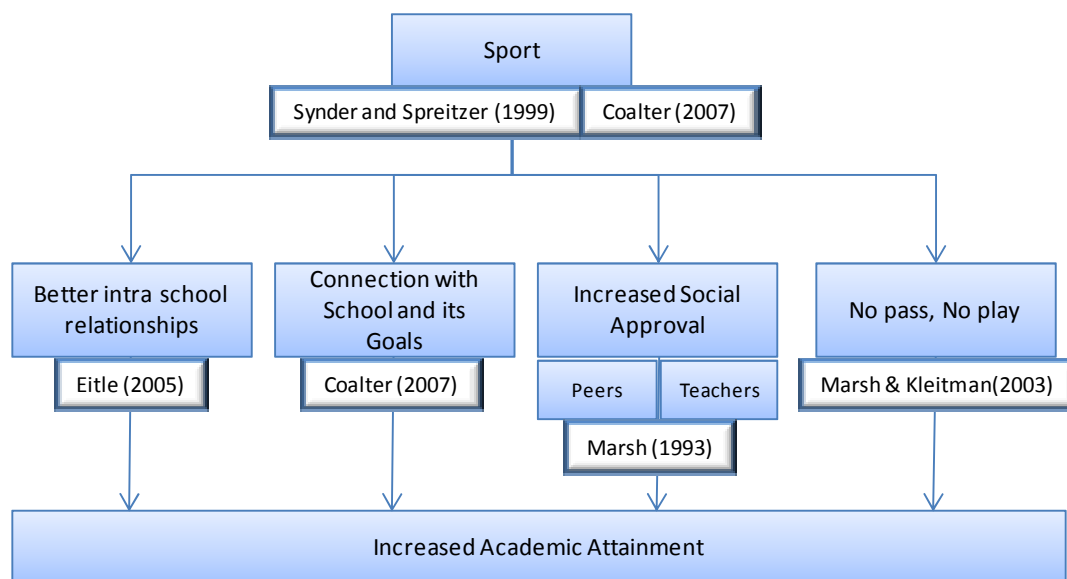
Indeed, there is evidence that sport is associated with more positive academic aspirations and that it can benefit all pupils (e.g. Marsh & Kleitman, 2003). Snyder and Spreitzer (1999) reported a modest positive relationship between sport and academic attainment amongst high school students. Furthermore, their meta analysis of existing research showed that academic performance was better amongst athletes than non athletes, leading them to conclude that sport participation enhances the academic



experience. Marsh’s (1993) longitudinal study on ten thousand school children concluded that sport had many positive benefits for school and no negative aspects. A subsequent longitudinal study (Marsh & Kleitman, 2003) reinforced the message that there was “mostly gain with little pain” (p.205). Pupils were tracked on sport participation and academic attainment from grades 8 to 12. The results showed that total sport participation was positively correlated with Grade 12 and postsecondary outcomes. In their conclusion, the authors strongly reinforced that point that school sport participation “complements rather than competes with traditional and curricular goals to enhance academic and non academic outcomes” (Marsh & Kleitman, 2003, p.223).

Figure 2.7 depicts a sociological model of how sport can improve academic attainment.

Figure 2.7 Theories of how sport improves academic attainment



### 2.6.2. Summary and unanswered questions

The literature explains three different ways by which sport can improve academic attainment. Sport improves fitness and being fitter can improve cognitive functioning (e.g. thinking skills and concentration) required for academic study. Others argue that self-esteem mediates the link between sport and academic attainment on the grounds that self-esteem and feelings of competence increase by doing sport, and translate into better performance in other areas, such as academic work. This view has been

challenged based on evidence that those who are more confident academically are more likely to be involved in sport (e.g. Skille, 2005; Linder, 1999). From this perspective, higher self-esteem and confidence underlie both sport involvement and academic attainment.

Marsh's (1993) AP model looks at it another way by taking the idea of engagement to be key. This model suggests that sport can improve the bond between a school and its participants. It can increase identification with the school and its goals, such as academic attainment, and enhance intra-school relationships and communication between staff and pupils. Longitudinal studies by Marsh and Kleitman (2003) and Marsh (1997) found evidence that sport participation at school correlates to academic attainment.

Based on the different findings (e.g. Linder 1999; Marsh & Kleitman, 2003) it seems that the question of how sport acts on academic attainment needs to be broken down further. Firstly, the potential interaction between sport and self-esteem, academic attainment and sport and academic attainment and self-esteem needs to be examined. Secondly, taking up Marsh's (1993) point about engagement, it seems important to ask whether the level at which a school engages with a sports intervention influences the interventions impact on attainment. Does a higher level of investment in the intervention, by the school and its staff, increase the power of sport to engage pupils, to strengthen bonds and build relationships, which in turn improve academic attainment, as Marsh (1993) proposes?

## **2.7. Juvenile crime and delinquent behaviour**

Although sport has featured strongly in policy discourse aimed at crime reduction and prevention, the effect of sport on these aspects is difficult to verify (Smith & Waddington, 2004). Despite this, sport has been placed firmly on the social inclusion agenda by virtue of faith in the theoretical argument that it can reduce the propensity to commit crime (Coalter, 2007).

So-called diversionary schemes concentrate on prevention. According to Farrington (2006), the basic idea of risk-focused prevention is very simple: "Identify the key risk factors for offending and implement prevention methods designed to counteract them. There is often a related attempt to identify key protective factors against offending

and to implement prevention methods designed to enhance them” (p.8). Increasingly, in recent years prevention schemes have combined sport with other developmental approaches designed to provide a corresponding informal education (Coalter, 2007). In Coalter’s view (2007) this reflects a more sophisticated understanding of how sport acts on other areas.

The Youth Justice Board (YJB), which aims to prevent offending among children and youth, suggests that sport can be used to weaken risk factors and strengthen protective factors which together influence rates of youth offending. According to the YJB, the specific risk and protective factors that sport can target are (YJB, 2005, [www.yjb.gov.uk](http://www.yjb.gov.uk)):

Disadvantaged communities

Alienation and lack of social commitment

Attitudes that condone offending

Leaders and coaches lead by example

Opportunities for involvement, social and reasoning skills and recognition and due praise

Healthy standards – prevailing social attitudes across the community

Social bonding

Resilient temperament, sense of self-efficacy, outgoing disposition

Although the YJB suggest that sport can target risk factors, Farrington (2006) states that this can only be achieved if elements of a programme are linked to risk factors, and he warned that currently, “there is often only a tenuous link between risk factors and prevention programmes” (p.31).

### **2.7.1. ‘Common sense’ or evidence?**

Despite the enthusiasm of the YJB (2005) and others involved in the policy discourse (e.g. PAT10, 2008), the case for the effect of sport on juvenile crime and delinquency is largely theoretical (Coalter, 2000). It has been argued that sport prevents crime and delinquent behaviour because it can divert individuals from other pursuits (McCormack, 1985), can act an antidote to boredom and use up surplus energy

(Scottish Office, 1999) and can instill values that are more likely to result in a positive attitude and in a willingness to accept social rules (Snyder & Spreitzer, 1976). However, proponents of this case have emphasised the 'common sense' idea that individual can get into less trouble if they are displaced from the opportunity to offend (e.g. McCormack, 1995). However, as Smith and Waddington (2004) pointed out this line of reasoning does not constitute an articulated logical model and moreover is based on assumptions, namely that the behaviour is temporarily and locally located and does not transfer from time to time or place to place.

The lack of evidence about whether sport prevents anti-social behaviour has been widely criticised (e.g. Smith & Waddington, 2004; Hartman, 2001). Reasons for its absence include (i) the complexity of the area of crime and delinquency and (ii) ensuing methodological problems in evaluating sports impact.

Evaluation of the potential contribution of sport to the reduction of crime appears to be problematic at a number of levels. Firstly, as Coalter (2007) pointed out crime can refer to a wide range of behaviours and some may be better suited to a sports intervention than others. Therefore, it is possible that the solutions may differ and it is unlikely that 'sport' can address them all (Coalter, 2007). Secondly, according to Farrington (2006), the risk factors for offending are complex and often interrelated. They include biological, individual, family, peer, school, neighbourhood and situational factors (Farrington, 2006). Furthermore, predictors of delinquency are well established and reproducible in comparisons of data from different countries. They include impulsivity, attention problems, low school attainment, poor parental supervision, parental conflict, an antisocial parent, a young mother, large family size, low family income, and coming from a broken family (Farrington & Loeber, 1999). Thirdly, the type of crime or anti-social behaviour changes with age. For example an individual may graduate from hyperactivity at age two to cruelty to animals at 6, shoplifting at 10, burglary at 15 and robbery at 20 (Farrington & West, 1993). Fourthly, there is significant continuity in terms of who offends, in that the antisocial child tends to become the antisocial teenager and then the antisocial adult, and the antisocial adult then tends to produce another antisocial child (Farrington, 2006). However, there is also a distinction between adolescence-limited and life-course persistent antisocial behaviour and in turn these follow different behavioural routes (Moffitt, 1993; Nagin, Farrington & Moffit, 1995). Fifthly, whether anti-social behaviour can be changed depends largely on individual choice. First an individual must

accept the definitions of behaviour conveyed within an intervention. Therefore, change relies on how participants perceive their behaviour. To this end, there is evidence that interventions need to include cognitive-behavioural skills training in order to address impulsiveness and low empathy (e.g. Ross & Ross, 1988; Farrington, 2006).

### **2.7.2. Evaluative challenges**

Performance monitoring has often relied on attendance figures or estimated reconviction rates. This seems to be partly due to problems in the design of programmes and associated evaluation issues. These aspects have been highlighted;

Problems in programme design; many programmes are not informed by a theory of change and do not have clear outcomes. This has implications for evaluation since it means that 'success' cannot be measured according to predetermined targets and the process by which change occurs cannot be identified (Granger, 1998).

Methodological difficulties in controlling for intervening variables and assessing cause and effect relationships (Taylor, 1999).

Quantitative indicators may not capture the essence of the scheme whilst qualitative methods may not adequately monitor complex outcomes (Taylor, 1999).

Mediating factors, such as changing values, are likely to mediate the relationship between sport and prevention of anti-social behavior. These are difficult to measure. Furthermore, there is no evidence that feeling better about oneself via improved self-esteem or self-efficacy in itself results in lower crime (Emler, 2001).

Finally many schemes have broad aims of 'promoting social inclusion' (Long, 2002). This means that a project must be assessed against a broad range of indicators which are assumed to be mutually compatible.

### **2.7.3. Evidence**

One of the difficulties in finding evidence about the effects of sport on juvenile crime and delinquency is that many schemes seek to address broad social inclusion aims rather than target specific aspects within inclusion, such as to reduce crime. Accordingly, they lack clear aims and it is difficult to assess change.

Among those who did evaluate outcomes to youth crime, it was reported that the 'Splash' Scheme, a Youth Justice Board (YJB) initiative which provided sport and art activities over the summer of 2000 and 2001, indicated a 5.2 percent reduction in youth crime in local areas (Loxley, Curtin & Brown, 2002). However, it was acknowledged that findings were based on comparisons with crime data from previous years, which was recorded differently during the years in question. This links to another problem, namely that crime statistics speak of recorded crime which does not include general anti-social behaviour and may not reflect actual levels of crime that have gone unrecorded or undetected.

In addition, many schemes are unable to collect data about participants or name them as being 'at risk'. Yet, information about how many people attended a programme does not indicate whether it reached its target group. This point was raised by Long (2002) in his evaluation of fourteen intervention schemes, three of which used sport as a means of engagement with 'at risk' groups. Long (2002) concluded that although all schemes were sufficiently attended it was difficult to say who attended. Long's (2002) point was born out by findings from the Sports City Programme (SCP), a social inclusion programme in Norway, designed to encourage more young people, especially inactive young people, to take part in sport. The scheme was designed to overcome some of the obstacles to participation that characterise conventional sport settings, thereby using sport to tackle problems associated with social inequality and social exclusion. However, Skille (2005) found that although the aim was to attract inactive urban youth from lower socio economic backgrounds, most attendees (64%) were already active in conventional sports, and were predominantly from middle class backgrounds. In fact, only four per cent of attendees had never been active in sport before attending SCP. Although the scheme had run nationally for nine years and was widely perceived to be successful, it had only been a limited success in terms of reaching its target group (Skille, 2005).

Perhaps the best known example of using sport to combat juvenile crime and delinquency among youth are the 'Midnight Basketball' programmes, which began in the USA during the 1990s. The target group was young males (aged 16 to 25) in poor inner-city urban areas with high levels of recorded crime and youth delinquency. The youth were engaged in supervised basketball matches during 'high crime' hours between 10.00 p.m. and 2.00 a.m. (Hartmann, 2001). However, as Smith and Waddington (2004) pointed out, the scheme was perceived to be successful due to its rapid growth and

attendance levels but there was little evidence of its effectiveness in crime reduction or prevention. Hartmann (2001) concluded that the scheme lacked a coherent theoretical rationale, and should therefore be viewed simply as a practical response to a perceived problem.

Despite Hartman's (2001) warning that there is no evidence that it reduces crime, the UK and Australia have reproduced the programme. In the UK, the Midnight Madness program was introduced in South London in 1999 to help combat gun crime in London, using a series of basketball 'open runs' through the night as a positive diversionary activity for 14-25 year olds. More recently, it was extended to local schools, resulting in a reported "compelling impact on behaviour and educational standards" (Davies, 2010). Also, there is evidence that it also impacts territorial boundaries associated with gangs, with girls travelling to neighbouring schools as early as 6.30am for basketball sessions. According to the Project Manager, "It has a positive effect on this whole issue around territorial stuff. Generally, kids will not go to other schools, but the inter-school sessions is breaking barriers, crossing the lines," (Dickens, 2010). In Australia, the programme also includes dinner and compulsory life skills workshops and tournament games are run in stadiums on Saturday nights from 7.30pm till midnight in an attempt to provide a safe and motivating environment (Midnightbasketball, 2010).

Generally, in terms of prevention, there is evidence that it is important to intervene at an early age and to include families in the process (Piquero, Farrington, Welsh, Tremblay & Jennings, 2008). Farrington (2006) reported on the success of school-based multiple component programmes (MCP) which train pupils, teachers and parents. This approach can increase the bonding of the pupils to the school and to their parents, whilst at the same time teachers and parents are taught how to recognise and reward pro-social behaviour (Farrington, 2006). However the content of the scheme, (e.g. including cognitive skills training), rather than the means of engagement (e.g. sport) is cited as vital to its success. Thus, sport was used to complement, rather than substitute, education and development.

Overall, however, Dunning and Waddington (2003) warned that more longitudinal evaluation is required to determine the efficacy of interventions, whilst Farrington (2006) concluded that;

It is hard to evaluate large-scale crime reduction strategies, and to answer questions about whether it is better (in terms of crimes saved per £ spent, for example) to invest in risk-focused early prevention, in physical or situational prevention, in more police officers or in more prison cells (p.43).

In summation, doubts exist about the impact of diversionary schemes in general. This underlines Coalter's (2002) view that it is a tall order to imagine that a sports intervention alone can guarantee change in such a complex area.

#### **2.7.4. Summary and unanswered questions**

This is perhaps the area in which the least questions are answered in respect of sport's impact. Firstly, like obesity, the causes of juvenile crime and delinquency are well established and complex. Also, the type of anti-social behaviour that an individual may engage in also changes according to age (Farrington, 2006). Therefore, it seems unlikely that one solution, i.e. sport, can address behaviour that stems from a variety of factors.

In particular, research from criminology shows that the most effective prevention schemes feature cognitive behavioural skills training (Farrington, 2006). This suggests that the activity (e.g. sport, arts) is as means of engaging participants rather than the end in itself. Likewise, programmes such as Summer Splash (Loxley et al., 2002) and Midnight Basketball (Hartmann, 2001) have attempted to reduce crime and delinquency by offering participants something else to do during 'high risk' periods of time. That said, sport is an attractive diversion but is it the act of being diverted or of doing sport that is the source of crime reduction? Also, it is usually difficult to ascertain whether the crime has been stopped or simply diverted to another time and place.

Finally, can providers be confident that sport helps to develop pro-social attitudes when there is evidence that it can make things worse, as sport offers a playground in which to act on pre-existing tensions (Krouwel et al. 2006)? It is relevant to ask under what conditions and in what context does sport enhance pro-social behaviour?



### **2.7.5. Evidence of inclusion from 'Count Me In'**

The findings of 'Count Me In' (Long, 2002) provide a good example of some of the challenges in finding evidence about the success of intervention schemes. Three sport projects were evaluated within the overall 'Count Me In' study, which evaluated fourteen projects designed to promote social inclusion. The projects aimed "to provide sporting opportunities as a socially acceptable focus for the energies of young people" (Long, 2002, p.2). However Long (2002) noted that this aim was largely implicit and that aims were not necessarily clear at the outset. Thus, the projects addressed social inclusion obliquely rather than via specific targets. For evaluative purposes, however, the projects were assessed against seven dimensions of social inclusion, namely; indicators of improved educational performance; increased employment rates, reduced levels of crime; improved health levels; social inclusion outcomes of personal development, social cohesion and making structures more open.

The three sport specific interventions included the youth charter for sport, culture and the arts in Manchester (YCSCA), the Sports Coach qualifications Charlton Athletic Race Equality (CARE) and the Leeds Football community link (LFCL). Although each scheme aimed to engage excluded groups via sport, the specific project aims, activities and target population differed.

The YCSCA attempted to establish lifelong pathways of learning and citizenship via sport, cultural or artistic participation for disadvantaged young people. There was competition for a place on the programme and participants were therefore required to make a personal commitment to citizenship. Long (2002) reported that the provision of various courses concerned with personal development and attendance was encouraged by a system of credits for tangible rewards and that this acts as the means of sporting engagement. The scheme aimed to offer opportunity and education that "will result in lifestyle adjustment" (Long, 2002, p.18) including reduced susceptibility to delinquency and drug abuse.

The CARE project offered courses and qualifications in a variety of sports with the aim of developing and utilising young people's leadership skills to educate peers on social issues drawing from their experience. Increased self-esteem, confidence and fostering of individuals commitment to anti-racism and justice were cited as the project

aims. Situated in the London Borough of Greenwich, the target group was socially excluded groups, particularly black and ethnic minority groups, disadvantaged and residents of large Greenwich estates. Once qualified as sport coaches, CARE participants delivered free coaching to CARE partners thereby gaining experience after they qualified as coaches.

The LFCL represented a city wide community safety initiative. The aim was to use the popularity of football to engage and divert those at risk from anti-social or delinquent behaviour. This scheme was provided for 5-16 year olds and aimed to build the skills and confidence in adult volunteers and strengthen community relations.

Although YCSCA, CARE and the LFCL, differed slightly in their target groups, the process and specific objectives, Long (2002) concluded that all the projects contributed to each of the seven social inclusion dimensions and that the initiatives “made a difference to the lives of the individuals within the selected target groups” (Long, 2002, p.81). However, he warned that whilst outputs and milestones provide feedback to government and sponsors, they do not necessarily inform whether social inclusion has been achieved. Furthermore, causal relationships are hard to establish. Also given that the schemes intend to attract those at risk of exclusion, Long (2002) pointed out that knowing who benefits is as important as finding out what the benefits are. However, few of the evaluated projects could identify the socio demographic composition of participants. This implies that, although the schemes were well attended, the providers could be not certain that they have reached their target group. Long (2002) concluded that in the absence of measurable outputs and longitudinal data “what is considered to ‘work’ is largely the instinctual response of the professionals responsible for the projects” (p.83).

## **2.8. Research approaches to assessing outcomes**

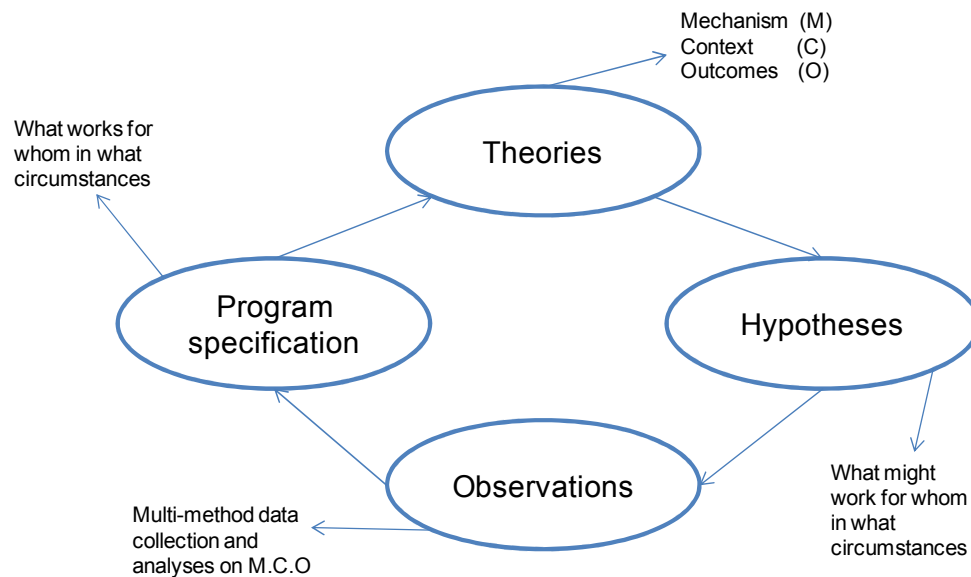
As the literature shows, sport can impact several different areas on the health and social agenda. Therefore funding for sport has increased as has the need to evaluate outcomes, in light of the government’s enthusiasm for evidence based policy. From the governments’ perspective evaluation is vital if they are to ascertain whether investment in sport is money well spent? However, many researchers (e.g. Solesbury, 2001; Davies et al., 2000) have warned that finding out ‘what works’ is a complex matter.

Several key points have been made. Firstly, according to Coalter (2002) the most important outcomes of participation are not necessarily those that can be quantified. Instead, he argues that the experience of participation is what matters because sport is more effective when it engages participants' enthusiasm and therefore a positive experience is more likely to bring about desired outcomes. Furthermore, outcomes may occur over the long-term on the basis that sport can change attitudes, which may later play out as behavioural change. Also, it is difficult to establish what caused an indirect outcome because other outside factors may be influential and factors inside and outside a scheme may have a large impact on outcomes (Weiss, Knapp, Hollweg, & Burrill, 2004).

Imbens and Wooldridge (2008) point out that predisposed individual differences can be influential and hard to control for. For example, "individuals who choose to enroll in a training program are by definition different from those who choose not to enroll. These differences, if they influence the response, may invalidate causal comparisons of outcomes by treatment status" (Imbens & Wooldridge, 2008, p.1). Finally, as Hartman (2001) concluded even if sport does appear to 'fix' a problem, such as delinquent behaviour, it may be that the problem has been shifted to another area or time.

However, over and above the methodological complexities of finding out what works, Pawson and Tilley (1997) argue that what works is not all that matters. Their (1997) 'realistic evaluation' theory, based on the work of Popper (1945) and of Campbell (e.g. Campbell, 1969; Campbell, 1957) advocates that the context and the mechanisms by which outcomes occur should be specified (see Figure 2.8). According to Tilley (2000), sensible lessons for policy and practice cannot be learnt from finding out whether intervention programmes do or do not produce outcomes. Instead, he said, the question is "what works for whom and in what circumstances?" (Tilley, 2000). The implications for the social policy agenda were pointed out by Solesbury (2001) who said that "what works, for whom, in what circumstances is what policy makers and practitioners really need to know. And to answer that there needs to be not just research that is evaluative, but also research that is descriptive, analytical, diagnostic, theoretical and prescriptive" (p.7).

Figure 2.8 The 'realist evaluation cycle' (Pawson & Tilley, 1997, p.85)



However, Farrington (2003) has argued against Pawson and Tilley (1997). Although Tilley (2000) said that Realistic Evaluation was founded partly on Campbell's work, Farrington sees it, instead, as a challenge to experimental research. He criticises their emphasis on the context, mechanism and process of outcomes, commenting that "it seems to me that 'does it work?' is the first and most basis question to address and that not addressing this question is like throwing the baby out with the bathwater" (p. 63). Farrington (2003) also dismisses Pawson and Tilley's (1997) statement that methodological failure could explain inconclusive or irreproducible results from previous evaluations. He likens this to shooting the messenger in that if results show that an intervention has not been effective or cannot be reproduced elsewhere, it does not mean that the method of evaluation was at fault.

Farrington's (2003) point is that valid findings are delivered by adhering to established research criteria not by changing the focus of evaluative research from 'does it work?' to 'what works for whom?' He reiterates Cook and Campbell's (1979)'s standards which state that before and after measures in experimental and comparable groups are required to determine cause and effect. If the cause precedes the effect, and is related to the effect, and other explanations can be excluded then the findings can be deemed valid (Farrington, 2003). From this perspective, the context and mechanism of outcomes, whilst valuable, are secondary to the overall effect size and to the influence of

moderators on the effect size. In short, cause and effect can be ascertained using methods that adhere to methodological quality criteria (Farrington, 2003). Findings can then be classified to show (i) what works (ii) what doesn't work (iii) what's promising (iv) what's unknown (Farrington, 2003).

Farrington (1998) also challenges Pawson and Tilley's (1997) view that qualitative methods are the best way to investigate the mechanisms (reasons) for change. He states that, "many psychologists are reluctant to ask people to give reasons for their behaviour, because of the widespread belief that people have little or no introspective access to their complex mental processes". Therefore, Farmington (2003) suggests that, according to the definition of realism, it is an experimental approach that is 'realistic' because it shows things as they are. He does not pull the final punch; "Pawson and Tilley have lost sight of the main aim of program evaluation—to assess the effect of an intervention on an outcome" (Farrington, 2003, p.66).

### **2.8.1. A standard approach to evaluation?**

Many parties advocate that a common approach to gathering and publishing evidence is required (Cabinet Office, 1999; Coalter, 2005; ASC, 2004). For example, a common approach can be useful to present and clarify findings and to standardise how evidence is collected and used (e.g. European commission, 2001). However, Owen (1999) reminds us that the research approach should be devised based on the aims and objectives that are specific to the intervention under evaluation. Therefore, as Fullan (1999) points out, in practice, it is tricky to transfer research approaches because good ideas are relative to the conditions in which the idea is conceived.

Long (2002) faced this problem when attempting to devise a common approach to the evaluation of fourteen sports and arts intervention schemes. Although each scheme aimed to address social inclusion, none had set goals or outcomes. Firstly, Long (2002) had to decide what constituted a successful outcome. He chose to define these as outcomes that advanced "the position of those who were socially excluded" (Long 2002, p.28). Then, to categorise different types of outcome Long (2002) used the DCMS (2002) aims of improved educational performance, increased employment rates, reduced levels of crime and better standards of health. He also added personal development and social cohesion in order to cover outcomes to self-esteem, personal performance, self-confidence, employability, inter personal skills, control over own

destiny, sense of ownership, relationships with peers and establishment groups, involvement in decision making, active citizenship, social connectedness, community cohesion and civic pride. However, he recognised that it was difficult to make a definitive list and that some areas crossed into one another.

Based on this, Long (2002) published the following list of indicators that could be used to evaluate outcomes in different areas (Table 2.2).

Table 2.2 Taxonomy of Measurable Indicators (Long, 2002, p.88)

Examples of outcome measures that might provide evidence	
<p><b>Education</b></p> <p>More/Improved educational qualification Improved attendance record Increased take-up of FE/HE places Improved social structures within a school community</p>	<p><b>Crime Prevention</b></p> <p>Reduced incidence of graffiti Reduced incidence of vandalism Reduced number of prosecution of identified sectors Reduce incidence of re-offending by identified sectors Reduced number of complaints re anti-social behaviour Reduction in litter/rubbish Reduction in drug trafficking</p>
<p><b>Health</b></p> <p>Reduction in drug abuse Reduction in teenage pregnancy More visits to GPs (for those not normally engaging with health practitioners) Fewer visits to GPs (for those frequently experiencing symptoms of ill-health)</p>	<p><b>Employment</b></p> <p>Reduction in unemployment levels More highly skilled and productive workforce Wider recruitment area (socially as well as geographically) for employers</p>
<p><b>Regeneration</b></p> <p>Increased incidence of new business in an area Reduction in damaged or dilapidated buildings Increased community pride</p>	<p><b>Equity</b></p> <p>Fewer incidents of disadvantage based upon: Gender Disability Ethnic origin Socio-economic status</p>
<p><b>Social Engagement</b></p> <p>Formation and growth of voluntary organisations (e.g. sport clubs, community networks, common interest groups) Increased voluntary support for the disadvantaged (e.g. Elderly or disabled)</p>	<p><b>Quality of Life</b></p> <p>Wider appreciation of the intrinsic benefits of wider range of culture Increased engagement of hitherto socially excluded groups with an increasing range of cultural activities</p>
<p>NB. The above list shows examples only. It is not intended that it constitutes an exhaustive or comprehensive list</p>	

### 2.8.2. Coalter's (2002) sport and community development manual

In 2002, drawing largely from the work of Pawson and Tilley (1997) and Weiss (1997), Coalter produced his 'sport and community development manual' to assist researchers and providers in the evaluation of sports interventions.

Firstly, like many evaluative researchers, (e.g. Anderson, 2003; Weiss, 1995), Coalter (2002) highlighted the importance of establishing a theory of change when looking at outcomes that may be the indirect result of participation. As Weiss (1995) stated, “Social programmes are based on explicit or implicit theories about how and why the programme will work” so a theory of change can explain how long-term change is produced. Coalter (2002) saw this as central to the design of the evaluation and explanation of results.

Although the manual then looks at the measurement of quantitative outcomes, Coalter (2002) emphasises that outcomes can be managed and that how a scheme is provided is influential in its effectiveness. For this reason, Coalter (2002) advised that ‘managing for outcomes’ should be evaluated along with outcomes that lend themselves to measurement. He broke this down into the following two aspects (see Figure 2.9);

1. The frequency, intensity and adherence to participation

These factors are important because participation must occur with sufficient frequency and intensity over a sufficient period of time in order to bring about benefits.

2. The nature and quality of the experience of participation

This is concerned with how the participants have experienced the intervention. It is important because having a positive experience increases the likelihood that participants will do something similar in future. Also, it informs providers about what can be done differently or better in order to meet the developmental needs of participants. For Coalter, (2002) the main determinants of the nature and quality of the experience of participation are;

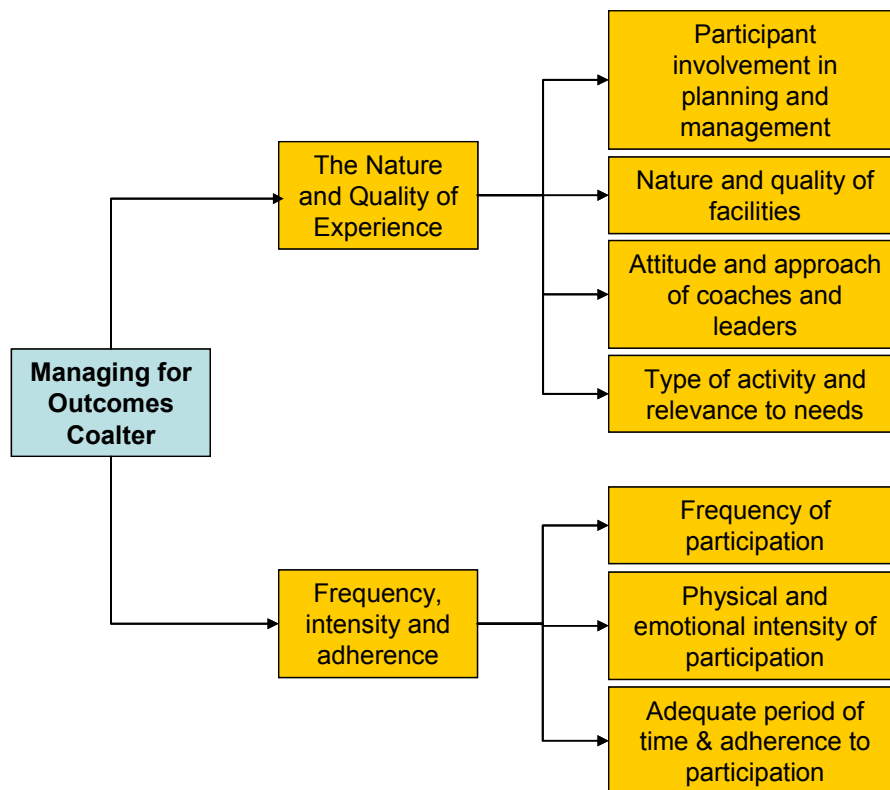
- The nature and degree of participant involvement

- The nature and quality of facilities

- Attitude and approach of sport leaders & coaches

- The type of activity provided

Figure 2.9 Managing for Outcomes (Coalter, 2002)



## 2.9. Summary and unanswered questions

Many agree that the evaluation of the impact of sport is complex (e.g. Tacon, 2007; Green, 2006). Firstly, indirect outcomes of taking part in sport are mediated by a proposed theory of how that change occurs. For example, the impact of sport on areas such as academic attainment, juvenile crime and delinquency is thought to be mediated by other factors (e.g. increased self-esteem, increased engagement with school and its goals). However, this can bring problems in establishing causality and in controlling for outside parallel influences. Secondly, according to Pawson and Tilley (1997) the context in which an intervention is provided and the mechanisms by which it operates can determine its outcomes. Therefore, according to realistic evaluation theory, evaluation should not be limited to measuring a series of variables, but should find out how the mechanisms involved in a programme can produce outcomes in particular contexts. Effectively, this means that each programme evaluation is seen as a case study (Tacon, 2007). However, does this have implications for the often expressed goal of methodological consistency amongst social science evaluations?



Indeed, Coalter (2002) intended that his manual might offer evaluators a common framework for evaluation. It seems that as yet no evaluations have taken up the challenge of assessing how outcomes have or have not been managed using the points set out by Coalter (2002) under 'managing for outcomes'. Also, as the importance of the experience of participation may be at least as important as any short-term outcomes, it seems important to examine this aspect using a methodological framework such as that proposed by Coalter's (2002) guidelines.

On the other hand, Farrington (2003) argues that research should first establish 'does an intervention work?' If methodological standards have been followed then negative, inconclusive or irreproducible findings should be accepted as such. He also warns against following hunches about how the context might explain results (Farrington, 2003). This advice is echoed by Kaul and Wei (2009); "when you have eliminated the impossible, whatever remains, however improbable, must be the truth" (p.713)

### **2.9.1. What this study addresses**

It is evident that sport now plays a leading role in policy makers thinking about social issues, (e.g. obesity, crime and juvenile delinquency). How much sport alone can achieve is open to debate. Changes ascribed to sporting interventions can be direct, indirect or strategic and it is likely that even then parallel influences outside, which are hard to control for, may play a part (Coalter, 2002). Whilst sport can improve an individual's health by virtue of the positive effects of physical fitness, its links to academic attainment are equivocal (Marsh & Kleitman., 2003). However, warnings not to expect too much from sport are salient. There is no guarantee that sport can change an individual's behaviour or values or result in better academic attainment or promote good behaviour (Coalter, 2007).

Also, if the intention is to achieve certain outcomes (e.g. weight loss, increased fitness, increased self-esteem) then, as Coalter (2002) advised, an intervention must be designed accordingly. However given that most children do sport to have fun (e.g. ASC, 2004), it is possible that using sport to attain specific outcomes might jeopardize that enjoyment, thereby making it less likely that they will do sport in the future. As taking part in sport as a child has been advocated as a major public health measure in terms of preventive medicine (e.g. Sharp, 1996) this approach could be counterproductive.

### **2.9.1.1. Key studies**

Creswell (2003) states that establishing the potential contribution of a study to the literature cannot be overemphasised. The impact of sport on health, fitness, self-esteem, academic attainment and juvenile crime and delinquent behaviour has been looked at in many ways. Therefore, a table of existing literature was created in order to consolidate the picture of existing research and thereby highlight possible gaps. Table 2.3 (Appendix F) summarises the key studies and evidence that are described in this chapter. It seems that two gaps exist. Firstly, a longitudinal study looking at outcomes in different areas is required. Despite the claims for the impact of intervention by sport in different areas, existing studies have concentrated on specific areas rather than looking at outcomes across the different where beneficial outcomes are often anticipated. Secondly, as yet, no study has evaluated how the level of engagement of providers may impact on the programme's outcomes.

### **2.9.1.2. Research Questions**

The literature shows that children do sport primarily to have fun (e.g. ASC, 2004) and that they are most engaged when mastering a skill is the main focus, and, according to theory, this type of environment can help develop self-esteem, resilience and persistence (Duda & Fry, 1997). On the other hand, contradictory evidence about the outcomes of sport suggests that an intervention must be designed to achieve specific goals rather than expecting improvements as a by-product. However, Farrington (2003) says that as a starting point it might first be established whether an intervention works.

Based upon the literature an investigation into the effects of a school-based sports intervention is warranted. The present study was designed to investigate the effects of a three year sports intervention (based on an extra two hours of sport per week) on participants health, fitness, self-esteem, academic attainment and on juvenile crime and delinquent behaviour.

Taking up the approach advocated by Farrington (2003) this study asks:

#### **What is the impact of “Move It”?**

To answer this, the research questions being addressed are:

What is the impact of sport in different (secondary school) settings?

Do outcomes vary as a function of the level of a school's engagement with the programme?

As sport is expected to work in various disparate areas, the research looks at specific outcomes to health, fitness, self-esteem, academic attainment and delinquent behaviour and asks;

Is there evidence of improved health?

Is there evidence of improved fitness?

Is there evidence of improved self-esteem?

Is there evidence of improved academic attainment?

Is there evidence of improved behaviour?

Also, the rise in childhood obesity and decline in children's fitness has created a focus on how to encourage a more active lifestyle (Foresight, 2007b). It seems to be important to find ways of making sport fun to do in order to encourage people to be more active (e.g. Rowe, 2005). So, the study looked at participants' experience of taking part in the intervention and considered factors likely to have an impact on this, and on the programme's effectiveness.

This study also looks into the impact of engagement on outcomes. Tilley (2000) says that the same measure is experienced differently according to different circumstances. Hence Pawson and Tilley (1997) expect measures to vary in impact depending on context. Based on this line of thinking, the effect of sport varies by context and it is necessary therefore to find out what conditions (context) are needed to trigger a particular outcome.

This can be explored by examining whether the outcomes of "Move It" are different according to school. Specifically the study asks;

**What is the possible impact of engagement on outcomes?**

Do the outcomes differ according to the school's level of engagement?

Does higher engagement result in better outcomes?

However, when looking at the impact of a programme, or phenomena as it may be called, it is often useful to look at the process of provision in order to gain an idea of how the programme (“Move It”) and the context, (school) interact to deliver outcomes. This may also go some way to explaining outcomes and reveal promising aspects that inform practice, which may also have been unforeseen. Hence the study looks at the programme in one setting and asks;

**What are the characteristics of this case and what do they reveal, if anything, about the impact of engagement on outcomes?**

Finally, as stated, Farrington (2003) challenged Pawson and Tilley’s (1997) theoretical approach on the grounds that establishing whether an intervention works should be the primary concern of research. Only then, he says, should the researcher consider the possible influence of different contexts on those results. Pawson et al. (e.g. 2003) refute this approach on the grounds that findings cannot be generalized across different contexts because the influence of the context on results is the most important factor. Therefore this study looks at the overall results according to Farrington’s (2003) view and then considers whether those results have been different according to environment.

The research is driven by an interest in the debate between Farrington (2003) and Pawson and Tilley (1997). Although Pawson and Tilley’s (1997) point about the importance of context is plausible, it cannot be tested using their approach because they refute comparisons between settings. However, Farrington (2003) advocates generalisable research and this study intends to examine the impact of context by examining and comparing the outcomes at the different schools.

**CHAPTER 3**  
**METHODOLOGY**

### **3. Chapter 3 – Methodology**

#### **3.1. Introduction**

This chapter begins with an overview of the aims of the study and an outline of the study design. This is followed by a description of the characteristics of the participants in both the control and intervention groups.

The next section provides an overview of the instruments used in the study. Tests used to assess (i) body composition (ii) flexibility, (iii) muscular power and (iv) cardiovascular fitness are described. The merits of the tests and the rationale for choosing them are discussed. Next, the questionnaires used to (i) measure self-esteem and (ii) obtain participants opinions about the intervention are described. An outline of their content and the associated scoring procedure is provided. Finally qualitative methods including the case study are introduced.

The following section explains the aims of the study, the rationale for using mixed methods and then introduces the participants and the intervention that are the subject of the evaluation.

##### **3.1.1. Aims of the study**

The Government's belief that sport can fix many of the problems that feature on the social agenda needs to be evaluated effectively. As the literature review shows, it is often claimed that sport can facilitate many different positive outcomes (e.g. Caborn, 2002; Ashton, 2003). Thus "Move It" offered an opportunity to evaluate the validity of such claims.

Although many studies have looked at how sport can impact different areas on the social agenda, few have considered the impact of sport on more than one particular area. Despite this, Government Ministers have claimed that sport can achieve positive outcomes in diverse areas. However, many experts have warned that providing sport is not likely to be enough to bring about successful outcomes (e.g. Coalter, 2002). Context and how the scheme is managed are thought to be vital to its success (e.g. Pawson & Tilley, 1997). Also, measurable outcomes do not tell the whole story (Solesbury, 2001). Therefore, it is important to extend the question 'what works?' to 'what works, for whom and in what circumstances?' (Tilley, 2000). Given that same sports intervention was run at three different schools this study took advantage of the opportunity to examine

whether the same sports intervention delivered the same outcomes in different settings, or whether the context and management had an impact on the effectiveness of the intervention. Also, in light of Marsh's (1993) point that sport can improve academic attainment because it strengthens the level of engagement between participants and their school, it was relevant to discover whether the level of engagement that each school made with the programme had implications for the outcomes.

Therefore the study is an investigation into the impact of a sports intervention in different secondary school settings. The research questions are described in the previous chapter, (see section 2.9.1.2), as they arose from the literature review and are not repeated here.

## **3.2. The research approach**

### **3.2.1. Purpose**

The purpose of this study was to investigate the impact of a sports intervention in different secondary school settings. Concurrent mixed methods were used. Quantitative methods were used to obtain statistical data about the outcomes. Qualitative methods were used to find out more about the provision of the intervention, to gain more insights and also to go some way to explaining results.

Statistical data from health, fitness and self-esteem tests conducted over a three year period was used to identify the outcomes of the sports intervention. The impact of "Move It" on academic attainment and behaviour, a proxy for delinquent behaviour, was considered via participants' self assessments. The study also looks at the impact of engagement on outcomes. At the same time, information about its provision, participants' experiences of the intervention and providers and teachers views was gathered via interview, focus groups, questionnaire and documentary evidence. This was to find out more about how the scheme was provided and what implications this might have.

Also, a case study focused on "Move It" in a particular setting (School 2). This approach allowed me to explore issues in depth, by describing and interpreting findings. I used a case study as a holistic and intensive approach to understanding a single case.

### **3.2.2. Methods of Inquiry**

The three leading methods that can be used to approach a research problem are quantitative, qualitative and mixed methods (Creswell, 2003). However, selecting the right approach to the research depends on matching the approach to the research problem (Creswell, 2003). According to Creswell (2003) three aspects inform this choice, namely the underlying theoretical perspective of the research, the strategies of enquiry needed to find out more about the research problem and the methods which best serve the enquiry.

#### **3.2.2.1. Quantitative approach**

This approach is used when the emphasis is measurement and observation. Data can be collected on predetermined instruments that yield statistical data. This is particularly appropriate when seeking to develop knowledge by ascertaining cause and effect (Creswell, 2003). For example, when the question is ‘does sport improve participants’ fitness?’ fitness tests can be used to gather statistical data which is then analysed. This approach is suitable to test or verify theories, such as, ‘sport improves fitness’.

Amongst the possible threats to the validity of quantitative measures Creswell (2003) views the main ones as (i) internal, which relates to problems with procedures that may threaten the ability to draw the correct conclusions from results, and (ii) external, which refers to the dangers involved when generalizing findings beyond the research sample to other settings.

#### **3.2.2.2. Qualitative approach**

This approach is appropriate when seeking to gather detailed information in order to understand the problem (Patton, 2002). Whilst quantitative data can inform on what happens, statistics in themselves cannot demonstrate why it happens (Solesbury, 2001). A qualitative approach allows the researcher to collect data about the context or setting of participants. Qualitative methods can be used to find out participants views, and to observe participants in their activities and Creswell (2003) points out that this can help to establish “the meaning of a phenomenon” (p.21). Silk (2005) stressed the value of this approach in sport studies, especially when the aim is to find out more about particular groups and to produce knowledge targeted toward the development of specific communities.



In qualitative research validity refers to whether the findings are accurate from the standpoint of the researcher and participants. Therefore, steps should be taken during the research process to verify the accuracy of findings (Creswell, 2003). Ways to do this include declaring researcher bias, triangulating different data sources and cross-checking findings with different members of the study (Creswell, 2003).

### **3.2.2.3. *Mixed methods***

In 2003, Creswell wrote that “mixed methods research has come of age” (p. 4) and since then it has continued to consolidate itself as a major approach in social science. The strength of mixed methods is that it can deliver “multiple forms of data which draw on all possibilities.” For this reason it is a pragmatic way to address problem centered and pluralistic research questions (Creswell, 2003). As the name suggests, mixed methods can be a mixture of the best of qualitative and quantitative approaches. This means that the researcher can generalise findings to a population and can also develop a detailed view of why those findings occur. Also, as mixed methods draws on the strengths of both quantitative and qualitative approaches it is useful when diverse types of data are required to understand the research problem (Creswell, 2003).

Within this approach different types of data can be collected sequentially or concurrently. For example, qualitative methods may be used to follow up and explain quantitative results. In this way, the researcher finds out what variables should be studied and then follows up with a small sample to find out more details about the topic. Alternatively, by looking at qualitative data first, the researcher can identify the variables that need further study, and collect data from a larger sample using quantitative measures which in turn may allow findings to be generalised to a wider population (Creswell, 2003).

As mixed methods are a fusion of quantitative and qualitative approaches, validity should be ensured by following the validity procedures that apply to each approach. Table 3.1 shows Creswell’s (2003) summary of the possible strategies of inquiry.

Table 3.1 Quantitative, qualitative and mixed methods procedures Creswell (2003)

	Quantitative	Qualitative	Mixed Methods
Degree of predetermination	Predetermined	Emerging methods	Both predetermined and emerging methods
Type of questions	Instrument based	Open ended	Both open ended and closed
Type of data (numeric/non numeric)	Performance data, attitude data, observational data	Interview, observation, document, audiovisual	Multiple forms of data
Type of analysis	Statistical	Text and image	Statistical and text

### ***Pragmatism***

Creswell (2003) stressed that mixed methods represents a pragmatic approach to knowledge. Pragmatism emphasises that knowledge arises from actions, situations and consequences rather than antecedent conditions. It is concerned with identifying solutions and with their practical application. Hence, according to pragmatism, the problem is seen as the most important aspect of research. Pragmatism was first defined by Peirce (1905) who articulated the pragmatic maxim; “Consider what effects that might *conceivably* have practical bearings you *conceive* the objects of your *conception* to have. Then, your *conception* of those effects is the whole of your *conception* of the object” (p.2).

Thus, the emphasis of the research must be on the problem and its context. This echoes Realistic Evaluation theory (Pawson & Tilley, 1997) which advocates the need to consider the outcomes of social science research in terms of ‘what works for whom?’ and ‘in what context?’ Also, pragmatism is not committed to one-way of studying the problem, thus lending itself to mixed methods as this approach enables the collection of all types of data in order to deliver an all round understanding of the problem.

### **3.2.3. Defining key terms**

The term ‘provider’ is used in reference to non research staff of the organisations who implemented “Move It” (i.e. the staff in the schools). The terms programme and intervention are used interchangeably to describe preventative approaches. The term ‘engagement’ is used to describe the level of organisational support, effective leadership in orchestrating and championing the programme, and more broadly the level of interest and enthusiasm for the programme.

### **3.2.3.1. How engagement was defined**

Engagement is often referred to in discussions about sport intervention programmes on the grounds that being more engaged in a programme can increase the likelihood of achieving beneficial outcomes (e.g. Coalter, 2002; Marsh, 1993). Despite this, a literature search did not reveal an operational definition of the term.

As engagement has been considered in the literature from different standpoints the following views of engagement were taken into account when defining the term for the purposes of this study. For example, according to Coalter (2002), if participants have a good experience of sport they may become more engaged with the programme. From this perspective, engagement is likely to be demonstrated by the frequency, duration and adherence of their participation, and possibly by participants' willingness to become actively involved in the programme. Furthermore, engagement can bring about positive outcomes because "research indicates that sports are at their most effective when they engage people's enthusiasm and interests and match their learning styles" (2002, p.29).

The idea of engaging communities is also popular and refers to the potential of sport to galvanise communities in deprived areas. Sport is seen as a way to strengthen the ties within a community because it is perceived to engage people in a collective activity which in turn may increase their sense of belonging and association with their community (Coalter, 2007; Jarvie, 2003).

Engagement is also linked to the desire and ability of stakeholders and providers to present a programme that will deliver positive outcomes. Thus, their level of ability, commitment and interest is seen as a pivotal determinant in creating a successful programme. This has implications for research studies, such as this one, since Durlak and DuPre (1998) argues that how well a proposed program or intervention is put into practice is "fundamental to establishing the internal, external, construct, and statistical conclusion validity of outcome evaluations" (p.5). Thus, a programme may vary across different settings and the level of implementation may influence outcomes.

### **3.2.3.2. Why the level of engagement became relevant to this study**

At the outset the initial aim of the study was to examine the impact of "Move It". During process of data collection, it became apparent that the schools were differentially engaged in the programme. This raised the possibility that the different approaches

might lead to the different outcomes and hence the idea of examining the impact of engagement on outcomes emerged. Hence the level of engagement assigned to each school in order to facilitate data analysis, was not pre-determined in order to satisfy the intended research design. Instead it presented itself as an important theme during the research cycle. Given Durlak and DuPre's (1998) warning that variations in programme implementation can have implications for outcomes which may compromise the validity of results, provided another reason to account for this aspect within the research design.

#### **3.2.3.3. *How the level of engagement was determined at each school***

The level of a school's engagement was determined from the data collected during the first phase. Initially, interest in engagement arose during the many visits to the schools that were necessary to arrange and conduct "Move It" testing. During these visits the different levels of enthusiasm and interest among the teaching staff who acted as the providers of "Move It" at each school became more apparent. At the same time, the initial qualitative research, originally intended to supplement the quantitative data, provided evidence of different levels of engagement with "Move It" between the schools. Thus, the importance of investigating the possible impact of engagement on outcomes became apparent. This was the starting point for building an evaluation of the impact of engagement into the research design.

#### **3.2.3.4. *What makes an engaged provider?***

As there is no definition of engagement the research drew on the literature and on the themes that emerged from the initial observations phase of this study for the characteristics by which the level of engagement for this study was determined. This is not intended to be an exhaustive list.

- Providers are enthusiastic and interested in the programme
- Able to see how "Move It" is appropriate for their organisation
- Willing to adapt the core model to suit specific needs and aims where appropriate.
- Championing of the programme and effective leadership through innovation, adaptation and sustainability.

### 3.2.3.5. *High, medium and low engagement*

As part of the core model of “Move It”, schools provided the venue, participants and managed the logistics of attendance by allocating pupils to various sports. This was the basic requirement for all schools.

Therefore, low engagement refers to the functional provision of “Move It”. Essentially, the providers accept the core programme and do not attempt to change or embellish it. Their involvement is restricted to providing the participants, the setting and the logistics of assigning pupils to sports. “Move it” is seen as one of many initiatives. This describes the approach at School 1.

High engagement describes a more holistic approach to “Move It” in that the core model is seen as something potentially beneficial that can become an integral part of school life, rather than an ‘add-on’. To achieve this, thought and initiative is required from implementation to sustainability. Also, adaptations to the core model may be initiated to suit local needs. The desire to make the best of the programme is present from the outset. This describes the approach at School 2.

Medium engagement describes a slow burning approach to embracing the programme and to seeing its particular benefits to the school. Although a functional approach was initially adopted, the providers recognise and implement some adaptations and embrace the programme more fully over time. This describes the approach at School 3.

The characteristics of high engagement are recapped in Table 3.2.

Table 3.2 Characteristics of High Engagement

Engagement
Deliver the core model
Providers are enthusiastic and interested in the programme at outset
Seeing benefits local to school
Prepared to adapt the core model to suit needs and aims
Championing the Programme & demonstrating effective leadership

The approach of providers at the high-level engagement school (School 2) exemplifies these characteristics. Although many initiatives were ongoing at the school,

the providers felt that the core programme addressed several issues but that it could be taken further. School 1, in contrast, was prepared to accept and implement the core model but did not appear to emphasise or develop it. School 3 warmed to “Move It” over the three years.

#### **3.2.4. Study design**

Participants ( $n=785$ ) were school children who took part in the intervention programme (“Move It”) between September 2004 and July 2007. The intervention was delivered after on school premises after core school hours, and involved taking part in two hours of sport. As this was a mixed methods study, teaching staff were additional participants of the qualitative research, taking part in interviews and informal conversations about “Move It”.

##### **3.2.4.1. Background information on “Move It”**

“Move It” was initiated by the MP for the London Borough of X. The original idea for “Move It” was derived from Gardiner's (2004) policy paper "Delivering Health for the Next Generation" which advocated that children should do more sport. The programme was designed to offer a choice of sports, some of which were outside the existing curriculum provision. External coaches were recruited to deliver the sport on the basis that “high quality coaches would enhance the experience for the participants and ensure that the two hours are fully utilised for their benefit” (Kotulecki, 2005b, Appendix B, p.3). As well as benefiting participants, it was envisaged that “Move It” would generate interest in sport among participants’ family members and school pupils who were not involved in the programme (Kotulecki, 2005b, Appendix B).

##### **3.2.4.2. Background information on schools**

The intervention was provided at three schools situated in a North London borough. This is the most ethnically diverse area in the UK. According to data from the 2001 census, this borough scored 0.85 on a diversity scale, which means that there is an 85 percent chance that two people chosen at random would be from different ethnic groups (<http://www.statistics.gov.uk>, 2006). Also, the 2001 census showed that nationally the borough had the highest proportion of residents (48.1%) born outside the UK (UK Polling Report, 2008). The area has limited sporting facilities and low participation rates in physical activity (Parliament, 2004). Information from the OFSTED inspections conducted at each school during the study is shown in table 3.3.

Table 3.3 Profile of schools

Data from OFSTED reports	School 1	School 2	School 3
Type of school (based on OFSTED classification)	Comprehensive	Secondary	Secondary
OFSTED category	Foundation	Community	Foundation
Specialist status	Science Maths Leading edge	Technology	Maths computing
Number of pupils on roll	1360	1014	1974
Age of pupils	11-19	11-18	11-18
Predominant ethnic group	Asian	No predominant group	Asian British Indian
OFSTED Overall effectiveness grade	Outstanding	Good	Satisfactory
Date of OFSTED inspection	2006	2005	2006

#### **3.2.4.3. School 1 (low-level engagement)**

According to the 2005 OFSTED inspection, pupils at School 1 (low-level engagement) were from ethnically diverse backgrounds, of which about two thirds of pupils came from Asian backgrounds and a fifth from black Caribbean and African background. Also, the inspection reported that a high percentage did not have English as a home language and that just over a fifth of students were entitled to free school meals, which was above the national average (OFSTED, 2005).

The report praised the school for converting average attainment on entry (at Key Stage 3) to standards that were well above national average (by the sixth form) and for offering high levels of support for students with learning difficulties and disabilities. It also noted that the school was known for its work on helping black African Caribbean boys to achieve academically. The school's overall effectiveness was outstanding (OFSTED, 2005).

#### **3.2.4.4. School 2 (high-level engagement)**

At School 2 (high-level engagement), according to OFSTED (2005) ninety five percent of pupils were from minority ethnic groups with no predominant group. Eleven percent of pupils were at the early stages of learning English and the proportion of students whose first language was not English was high (OFSTED, 2005). Also, at the time of the study, about one quarter of the students were asylum seekers and the school

accepted around forty students per year from war torn countries. The number of students with identified learning difficulties was slightly above average as was the proportion eligible for free school meals (OFSTED, 2005). OFSTED (2005) stated that “students start school at the age of eleven with knowledge and understanding that are below and sometimes well below the levels expected nationally for this group” (p.2).

Despite this, OFSTED (2005) found that since the previous inspection in 2003 the level of academic attainment had improved to around the national average. The report highlighted the positive relationship between staff and students and between students as a strength of the school and noted that ‘students enjoy being at school and contribute well to all aspects of school life’ (OFSTED, 2005, p. 2).

Also, the school continued to improve. The OFSTED inspection in 2008, after the intervention had finished, concluded that the school had improved greatly since the 2005 inspection (from satisfactory to outstanding) and that it was popular and oversubscribed (N.B. the school roll had increased from 1014 to 1343). The improvement was attributed to “an unrelenting determination to maximise the life chances of students in the school. Everything is done to remove barriers to learning.” (p.4).

### **3.2.4.5. School 3 (medium-level engagement)**

The 2006 OFSTED inspection noted that School 3 (medium-level engagement) was one of the largest secondary schools in the country. The majority of pupils were from an Asian British, Indian background and three quarters had English as an additional language (EAL). Other significant ethnic groups included White British, Pakistani, African and Black Caribbean. The school had a unit for pupils with visual and hearing impairment which explained why the percentage of pupils with statements of educational needs (SEN) was slightly higher than average (OFSTED, 2006). OFSTED (2006) found attainment was above the national average the school and that pupils’ behaviour was good.

However, the inspection warned that although the overall effectiveness of School 3 (medium-level engagement) was ‘satisfactory’ there was room for improvement. In particular, although pupils were keen to do well, the school did not always take advantage of its positive learning climate to engage them sufficiently. In consequence this impacted on pupils’ progress (OFSTED, 2006).



### 3.3. Participants

For the quantitative research, an initial 1012 participants (518 males and 493 female) were recruited for the study. After screening the data for complete test results across all testing phases (five in total), numbers were reduced to 785 participants (402 males and 383 females), aged 11-14 years (M: 12.86 years and SD: .66 years).

#### 3.3.1. Ethnicity

The schools were situated in the most ethnically diverse area in the U.K. (<http://www.statistics.gov.uk>, 2006). Therefore ethnicity is of particular note. Ethnicity is reported here according to the categories used by the Local Education Authority (LEA). Overall, the leading ethnic group was Indian (28.6%). This was sustained by school (School 1; 28.6%, School 2; 15.5%, School 3; 34.5%). Caribbean was the second main ethnic group overall (10.8%) and by school (School 1; 10.6%, School 2; 13.7%, School 3; 7.7%). Table 3.3 shows the top ten ethnic groups overall. Ethnicity by school is shown in Table 3.4.

Table 3.4 The principal ethnic groups involved in the study

	Frequency	Valid Percent
Indian	213.0	27.1
Caribbean	81.0	10.3
Black - Somali	46.0	5.9
Pakistani	41.0	5.2
White - British	39.0	5.0
Sri Lankan Tamil	33.0	4.2
Other Black African	28.0	3.6
Other Asian	25.0	3.2
Nepali	21.0	2.7
Any Other Black Background	20.0	2.5

Table 3.5 shows the principal ethnic groups involved in this study, by school

Table 3.5 The principal ethnic groups by school and percent

School 1		School 2		School 3	
Indian	28.6	Indian	15.5	Indian	34.5
Caribbean	10.6	Caribbean	13.7	Caribbean	7.7
Pakistani	8.8	Black - Somali	9.9	White - British	6.8
White - British	7.5	Nepali	6.9	Pakistani	6.5
Black - Somali	4.4	Other Black African	6.0	Sri Lankan Tamil	4.3
Sri Lankan Tamil	4.4	Other ethnic group	3.9	Any Other Black Background	4.0
Black - Ghanaian	4.0	Sri Lankan Tamil	3.9	Black - Somali	4.0
Any Other Black Background	3.1	Other Asian	3.4	Other Asian	3.4
Any Other Mixed Background	3.1	Kashmiri Pakistani	3.0	Other Black African	3.1
Other Asian	2.6	White - English	3.0	Iraqi	2.5

Indian and Caribbean were the leading ethnic groups for girls (Indian; 27.9%; Caribbean 11.2%) and boys (Indian; 26.4%; Caribbean 9.52%), see Table 3.6.

Table 3.6 The principal ethnic groups by sex and percent

Female		Male	
Indian	27.9	Indian	26.4
Caribbean	11.2	Caribbean	9.5
Black - Somali	6.3	Pakistani	7.2
Sri Lankan Tamil	4.7	White - British	5.7
White - British	4.2	Black - Somali	5.5
Other ethnic group	3.1	Other Black African	4.2
Pakistani	3.1	Other Asian	3.7
Other Black African	2.9	Sri Lankan Tamil	3.7
Any Other Black Background	2.6	Nepali	3.2
Other Asian	2.6	Any Other Black Background	2.5

### 3.3.2. Socio economic status

Free School Meals (FSM) represents a proxy measure of socio economic status. FSM entitlement relies on meeting any of the following criteria (School Food Trust, 2009);

- Income Support (IS);

- Income Based Jobseekers Allowance (IBJSA);
- An income-related employment and support allowance
- Support under part VI of the Immigration and Asylum Act 1999; or
- Child Tax Credit, provided they are not entitled to Working Tax Credit and have an annual income (as assessed by Her Majesty's Revenue and Customs) that does not exceed £16,040.
- The Guarantee element of State Pension Credit.
- Children who receive IS or IBJSA in their own right are also entitled to receive free school meals.

Of participants of this study, 20.9 per cent claimed FSM. School 1 had the highest per cent of participants entitled to FSM (24.7%) compared to School 2 (21.5%) and School 3 (17.8%). By sex, 19.3% of girls and 22.4% of boys were entitled to FSM. By school, sex, at School one 23.3% of girls, 25.8% of boys, at School two 23.1% of girls, 20% of boys and at School three 14.5% of girls and 21% of boys were entitled to FSM.

By ethnicity, data showed that Black Somali (70%), Iraqi (67%) and Kosovan (60%) had the highest per cent of participants entitled to FSM. Of the two main ethnic groups twenty two percent of Caribbean and five per cent of Indian participants received FSM. By school, and ethnic group data showed that Black Somali were the main ethnic group receiving FSM at School 1 (90%) and School 3 (69%). At School 2 (high-level engagement) all ethnically Iraqi participants received FSM (100%) (see Table 3.7).

Table 3.7 Top 15 Percent of participants by school by ethnic group with FSM

	School 1 (low-level engagement)		School 2 (high-level engagement)		School 3 (medium-level engagement)	
1	Black - Somali	90%	Iraqi	100%	Black - Somali	69%
2	Other Black African	75%	Bangladeshi	75%	Iraqi	63%
3	Afghan	75%	Black - Somali	61%	Greek Cypriot	50%
4	Kosovan	67%	Black and any other ethnic group	50%	Kosovan	50%
5	Iraqi	50%	White Eastern European	50%	Other Black African	50%
6	Bangladeshi	50%	Other Black African	43%	White Eastern European	50%
7	Pakistani	35%	Other ethnic group	33%	Afghan	40%
8	Greek Cypriot	33%	White and Black African	25%	Any Other Black Background	38%
9	Black - Ghanaian	33%	Afghan	20%	White and Black Caribbean	29%
10	Sri Lankan Tamil	30%	Asian and any other ethnic group	20%	Caribbean	28%
11	Caribbean	29%	Other Black	20%	Sinhalese	25%
12	Any Other Black Background	29%	Other Pakistani	17%	White and Black African	25%
13	White - British	18%	Kashmiri Pakistani	14%	Mixed	20%
14	Other Asian	17%	White - English	14%	Pakistani	19%
15	White and Black Caribbean	17%	Caribbean	13%	Other Asian	18%

### 3.3.2.1. Participants' ethnic status by sex and school

At School 1 (low-level engagement) all Afghan, Bangladeshi, Black Somali, Kosovan and Other Black African and Other Ethnic female participants claimed FSM (100%) as did all Iraqi and Other Black female participants at School 2 (high-level engagement), see Table 3.8. The leading groups at School 2 (high-level engagement) were Other Black African (100%) and Black Somali (64%). For boys at School 1 (low-level engagement), the highest per cent was Black Somali (86%), at School 2 (high-level engagement) all Bangladeshi, Black and Other Ethnic Group, and Other Ethnic Group (all 100%) and at School 3 (medium-level engagement) Afghan, Black-Somali and White and Black African (100%), see Table 3.9.

Table 3.8 Top 15 Percent of female participants by ethnic group with FSM by school

Female					
School 1 (low-level engagement)		School 2 (high-level engagement)		School 3 (medium-level engagement)	
Afghan	100%	Iraqi	100%	Other Black African	100%
Bangladeshi	100%	Other Black	100%	Black - Somali	64%
Black - Somali	100%	White Eastern European	75%	Greek Cypriot	50%
Kosovan	100%	Black - Somali	70%	Iraqi	50%
Other Black African	100%	Afghan	50%	White Eastern European	50%
Other ethnic group	100%	Bangladeshi	50%	Any Other Black Background	43%
Sri Lankan Tamil	67%	Kashmiri Pakistani	33%	Caribbean	27%
Pakistani	50%	Other Black African	29%	Mixed	20%
Caribbean	27%	Other ethnic group	25%	Sri Lankan Tamil	20%
Black - Ghanaian	20%	White - English	25%	White - British	10%
White and Black Caribbean	20%	Caribbean	8%	Afghan	0%
Indian	13%	Indian	7%	Any Other Mixed Background	0%
African Asian	0%	Asian and any other ethnic group	0%	Bangladeshi	0%
Any Other Black Background	0%	Black and any other ethnic group	0%	Black - Ghanaian	0%
Any Other Mixed Background	0%	Nepali	0%	Black - Nigerian	0%

Table 3.9 Top 15 Percent of male participants by ethnic group with FSM by school

Male					
School 1 (low-level engagement)		School 2 (high-level engagement)		School 3 (medium-level engagement)	
Black - Somali	86%	Bangladeshi	100%	Afghan	100%
Afghan	67%	Black and any other ethnic group	100%	Black - Somali	100%
Other Black African	67%	Other ethnic group	100%	White and Black African	100%
Any Other Black Background	50%	Other Black African	57%	Iraqi	75%
Black - Ghanaian	50%	Black - Somali	54%	Kosovan	50%
Iraqi	50%	White and Black African	50%	Sinhalese	50%
Kosovan	50%	Other Pakistani	33%	White and Black Caribbean	40%
Caribbean	33%	Asian and any other ethnic group	25%	Any Other Black Background	33%
Greek Cypriot	33%	Sri Lankan Tamil	25%	Other ethnic group	33%
Other Asian	33%	Other Asian	20%	Pakistani	31%
Pakistani	31%	Caribbean	16%	Caribbean	30%
White - British	27%	Indian	5%	Other Asian	29%
Sri Lankan Tamil	14%	Afghan	0%	Other Black African	29%
Indian	6%	Black - Nigerian	0%	White - British	25%
African Asian	0%	Greek Cypriot	0%	Indian	4%

There is evidence that ethnicity has implications for academic performance. The Department for Education and Skills (DfEs, 2006) reported that;

- Indian, Chinese, Irish and White & Asian pupils consistently achieve higher levels of attainment than other ethnic groups across all the Key Stages. However,
- Black, Pakistan, Bangladeshi, Gypsy/Roma, and Traveller of Irish Heritage, pupils consistently have lower levels of attainment than other ethnic groups across all the Key Stages.
- Most ethnic groups make more progress than White British pupils with similar characteristics and levels of prior attainment. However, Gypsy/Roma and White & Black Caribbean pupils make less progress at secondary school than similar White British pupils.

- All ethnic groups are less likely to achieve the predicted level in English at Key Stages 2 and 3. For Asian and Black pupils for whom English is an additional language (EAL) there are larger than average differences between the predicted level and test results.

There are also differences in attitude toward school between ethnic groups. Notably, Asian (Indian, Pakistani, Bangladeshi) pupils appear to have the most positive attitudes to school, work and lessons. Black African pupils also have a positive attitude. Conversely, Mixed Heritage pupils appear to have the least positive attitudes toward school, work and lessons (DfEs, 2006).

### **3.4. Instruments**

The following section describes the instruments that were used in the pre and post assessments of the participants. It outlines their merits, possible limitations and reasons why they were chosen. The instruments include measures of body composition, flexibility, explosive power and cardio respiratory fitness and self-esteem. These tests were carried out during assessment sessions held at each school.

#### **3.4.1. Body composition measures**

Overweight and obesity are excess concentrations of body fat or adipose tissue. Whether an individual is classified as obese depends on their Body Mass Index or BMI. This is calculated from height and weight measures and is the recommended main measure of overweight and obesity in childhood and adolescence, (IASO, 2004). It is also useful an efficient way of testing large groups of participants.

Obesity is determined by comparing BMI against specific cut-off points. It is necessary to use cut-off points devised specifically for children because unlike adults the BMI in childhood changes substantially with age. Amongst adults, obesity is defined as an excess of total body fat that is shown by a BMI of  $\geq 30$  kg/m<sup>2</sup> (National Heart Lung and Blood Institute, 1998). However, amongst children cut-off points for obesity and overweight vary by age and gender. By using child specific cut-off points, growth during childhood and the earlier onset of puberty in girls than boys can be accounted for (Cole, Bellizzi, Flegal & Dietz, (2000). To this end, two studies have calculated the BMI for the child population. The first, by Cole et al. (2000), calculated child-specific cut-off points using BMI data from children in Brazil, Great Britain, Hong Kong, the Netherlands,

Singapore and the US (see Appendix D). The second study by Chinn and Rona (2002) looked at BMI cut-off points for children in a Caucasian population (see Appendix E). Although it is not clear at which BMI level adverse health risk factors increase in children, the studies established cut-off points for males and females, aged 2-18 in Cole et al.'s (2000) study and aged 2 - 19.5 years in Chinn and Rona's (2002) study, which were calculated to pass through the BMI values for overweight (25 kg/m<sup>2</sup>) and obesity (30 kg/m<sup>2</sup>) at 18 years old and 19.5 years old for Cole et al.'s (2000) and Chinn and Rona's (2002) studies respectively. Unlike the cut-off points established for adults, the child cut-off points are based on age and account for the onset of early puberty for females.

The cut-off points devised for children by Cole et al. (2000) were selected over those devised by Chinn and Rona (2002) because they were appropriate for comparing BMI values in multiethnic groups of children, which reflected the participants in the current study. Also, this benchmark is recommended by the IASO (2004) in order to ensure consistency between different evaluations.

After collecting participants height and weight measurements BMI was calculated according to the following formula;

BMI = mass (kilograms) divided by standing height (metres) squared (mass/height<sup>2</sup>).

For example, where weight = 47 kilograms and height = 1.60m, the BMI calculation is;

$$47.0 / (1.60 * 1.60) = 18.22.$$

The definition of status and cut-off points for overweight and obesity for participants' age range in this study is shown in Table 3.10.



Table 3.10 International cut-off points for child overweight and obesity based on BMI (Cole et al., 2000).

School Year group	Age	Status	BMI Cut-off Point Females	BMI Cut-off Point Males
Year 7	11.5	Obese	26.05	25.58
Year 7		Overweight	21.2	20.89
Year 8	12.5	Obese	27.24	26.43
Year 8		Overweight	22.14	21.56
Year 9	13.5	Obese	28.20	27.25
Year 9		Overweight	22.98	22.27

Some concerns about using BMI have been raised (e.g. Aronne and Segal, 2002) because (i) BMI is not a direct measure of body fatness but a measure of relative weight for height. Therefore, as BMI does not distinguish between body fat, muscle or bone mass, there is a risk that some lean individuals who have high muscle mass may show a high BMI and be categorised as overweight (ii) BMI does not account for the distribution of body fat.

Another possible approach is based directly measuring body fat. The advantage is that it provides an accurate indication of the percentage of fatness and hence body composition whereas BMI is a relative measure. However, unlike BMI, there are no guidelines regarding to the point at which body fatness puts health at risk (ACSM, 2001). Therefore this approach has limited value in terms of determining an individual's health status and ACSM (2001) recommend that it is used to monitor change over time rather than as an indicator of health. Given this study's interest in the health of participants using BMI was more suitable than body fatness.

Measures of height and weight provide information on body growth. They also provide the basis for determining whether an individual is overweight or obese. The details of how the measures were taken are outlined in the section on 'Procedures'.

#### **3.4.1.1. Height**

Pre-adolescent growth is usually steady in both boys and girls but children grow taller rapidly during adolescence (Bayley & Davis, 2001). Height can be measured using

a tape measure or a stadiometer. A stadiometer (Seca Leicester Height Measure, Seca Ltd, London, UK) was used for this study, as it is accurate and easy to use.

#### **3.4.1.2. Weight**

Changes in weight during childhood can indicate normal, healthy weight gain or reveal either an underlying medical condition (e.g. metabolic disorders associated with the thyroids) or an eating disorder (e.g. anorexia nervosa and bulimia nervosa) (NHS, 2008). Also, rapid excess weight gain implies a risk of obesity because whilst some constitutionally lean individuals have a finely tuned appetite control system that matches energy intake to energy needs, others have a poorly tuned appetite control system which can mean that food intake is persistently above energy needs, making them more susceptible to obesity (Foresight, 2007).

Using digital scales, weight can be measured to the nearest 0.1 kg. Seca digital scales (Seca, Seca Ltd, London, UK) were used for this study.

#### **3.4.1.3. Fitness**

Physiological measures of flexibility, strength and aerobic endurance provide information about the physical fitness of participants.

Flexibility is the ability to move a joint through its complete range of motion (ROM). It relies on the ability of the muscle-tendon units to elongate within the physical restrictions of the joint (ACSM, 2000). Being flexible is important for body movement, execution of motor skills and for injury prevention and rehabilitation. Also being more flexible lessens the risk of back injury. Generally, females are more flexible than males, and children are more flexible than adults (Howley & Franks, 1998).

Flexibility is joint specific and therefore no single test can determine total body flexibility (ACSM, 2000). However, the sit and reach box test (Cranlea Medical Electronics, Birmingham, UK), is a simple field based test of lower back, hamstring and hip-joint flexibility. Poor lower back and hamstring flexibility can cause lower back pain and can account for poor motor skills (MacDougall, Wenger & Green 1991), and therefore sit and reach is an ideal flexibility test. This method was adopted, as it is ideal for testing large groups of participants, requires minimal physical contact with

participants and is cheaper and easier to use than flexometers and goniometers (Cale and Harris, 2005).

#### **3.4.1.4. Muscular power**

Muscular power is a combination of muscular strength and muscular endurance. It is needed for doing everyday physical tasks (ACSM, 2000). Muscular strength and power are important to most types of sport available within the intervention (“Move It”) since they are required for sports that involve jumping, sprinting and kicking. Muscular power also prevents functional instability (FI) which is a feeling of instability or recurrent, symptomatic injury to a joint due to proprioceptive and neuromuscular deficits (Tropp, 2002).

The vertical jump test provides an appropriate measurement of strength and power. It is a simple field based test which mimics certain skills in sport, such as blocking in netball, smashing in badminton and performing a layup in basketball (Grantham, 2007). Two types of vertical jump can be used: (1) a squat jump (SJ); and (2) counter-movement jump (CMJ). A portable electronic jump mat (Ergojump Jump Mat, Globus Italia, Codogno, Italy) was chosen for the study to measure the jump height accurately to the nearest 0.001 m

#### **3.4.2. Cardiovascular measures**

Cardio respiratory fitness (CRF) reflects the functional state of the respiratory, cardiovascular and skeletal muscle systems. It is related to one’s “ability to perform large muscle, dynamic, moderate-to-high intensity exercise for prolonged periods.” (Armstrong & Welsman, 2006, p.66). Endurance, or aerobic fitness, relates to the ability to sustain a given workload over a period of time, specifically it describes the body’s ability to transport oxygen and the utilisation of that oxygen by muscle. Aerobic and anaerobic functions increase as the result of progressive increases in the rate of energy expenditure, until the aerobic maximum is reached.

According to ACSM (2000) maximal oxygen consumption ( $VO_{2max}$ ) gives the best indication of overall CRF.  $VO_{2max}$  represents the maximum rate that oxygen can be taken up from the ambient air and transported to and used by cells for cellular respiration during physical activity (ACSM, 2000). This can be measured directly using an open-circuit spirometry whereby expired fractions of oxygen and carbon dioxide are

measured. However, the equipment is costly and each person has to be measured individually. This is time consuming and inefficient when testing large groups. Instead maximal or sub maximal tests are used as an indirect measure of VO<sub>2</sub>max.

VO<sub>2</sub>max can be estimated via the time to volitional fatigue using a field test protocol. Field tests consist of walking or running a certain distance in a given time. They are a good way by which to test large numbers of participants at one time with little equipment. However a disadvantage is that by their nature field tests are not monitored at an individual level and therefore the tests are presumed to be maximal. An individual's level of motivation and pacing capability may therefore have a profound impact on test results (ACSM, 2000).

The multistage fitness test (MFT) is a continuous test protocol suitable for field settings. It involves the progressive increase of power output over time. The combination of initial low intensity work with progressive increments is designed to achieve maximal aerobic power (MAP). Factors that may prevent the participants adhering until MAP is achieved include physical discomfort, boredom, anxiety, substrate depletion and body temperature (MacDougall, Wenger & Green, 1991). The test involves running in time with pre-recorded bleeps that are emitted from a tape or CD between two sets of cones 20m apart. As the test progresses, participants must adjust their running speed as the time between the bleeps decreases. Test scores can be converted into predicted VO<sub>2</sub>max values, using tables that were devised by the Department of Physical Education and Sports Science at Loughborough University in 1987 (NCF, 2005; Ramsbottom, Brewer & Williams, 1988) (see Appendix G).

Although there are other field tests for cardiovascular endurance such as the Rockport Fitness Walk Test, where participants must walk a mile as fast as possible, the ACSM (2006) state that the type of field test should be consistent with the primary activity that participants are going to do to address the issue at hand. Therefore, as the intervention involves being active in sports that involve movement over and above walking (e.g. football, basketball, aerobics) the MSFT was a suitable test. Also many of the participants were familiar with the test through school PE. This was an advantage when managing a test for large numbers of children.

### 3.4.3. Psychological measurement

Self-esteem is an important determinant of overall well-being since it reflects how one perceives oneself (Fox, 1997). It can be evaluated by finding out how people view their competence in various areas of their life and by their overall self-esteem which is not the sum of various competencies but a distinct overall idea of the self.

#### 3.4.3.1. *The Self-Perception Profile for Children (SPPC, Harter, 1985)*

The SPPC (Harter, 1985; Appendix H) measures self-reported competence in six areas, Scholastic Competence; Athletic Competence; Physical Appearance; Social Acceptance; Behavioural Conduct and overall (Global Self-esteem). The SPPC (Harter, 1985) is a revised version of the Perceived Competence Scale (Harter, 1982). It was designed specifically for children between 9 to 14 years old, and it has been tested in academic and sport settings.

There are six questions for each area set out in the following format;

Really True for me	Sort of True for me				Sort of True for me	Really True for me
		Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T.V.		

The participant reads the statement or, if necessary, the statements are read out to the participant. (For example, participants with English Additional Language (EAL) or Special Educational Needs (SEN) status may need the questions to be read). The participants must then decide which group of children they are more like. Once they have decided they go to the side that describes the child most like them and decide whether the statement is “sort of true” for them or “really true” for them. Of the six questions in each subscale, three are worded with the most adequate answer on the left and three on the right. Answers are scored on a Likert scale of 1 to 4. Higher scores indicate higher perceptions of competence as 1 indicates low perceived competence and 4 indicates high perceived competence.

The SPPC (Harter, 1985) is a reliable instrument for measuring self-esteem in children. The multi factorial structure, internal consistency and test-retest reliability are good (e.g. Van Dongen-Melman, Koot & Verhulst, 1993; Harter, 1985). Although the SPPC (Harter, 1985) has been mainly used amongst US and UK children, Eapen, Naqvi & Al-Dahaheri (2000) examined its validity amongst Muslim children in Iraq. They found that it was a reliable and internally valid instrument for use with Muslim children. However, behavioural conduct demonstrated the highest reliability score whilst, amongst western samples, behavioural conduct has demonstrated the lowest reliability score (e.g. Harter, 1985; Van Dongen-Melman et al., 1993).

Table 3.11 Cronbach’s Alpha

	Scholastic competence	Social acceptance	Athletic competence	Physical appearance	Behavioural conduct	Global self-worth
“Move It” year 7 July 2005	0.76	0.73	0.75	0.8	0.75	0.73
Harter Group a	0.8	0.8	0.84	0.81	0.75	0.84
Group b	0.85	0.8	0.86	0.82	0.77	0.8
Group c	0.82	0.75	0.81	0.76	0.73	0.78
Group d	0.8	0.75	0.8	0.8	0.71	0.78

#### 3.4.4. Rationale for research approach

This study used a mixed methods approach to evaluation. This was required in order to establish the outcomes of participation, and to find out about the context and setting in which those outcomes occur. Outcomes to health, fitness and self-esteem could be assessed quantitatively, whilst examination of the management of the process of provision which Coalter (2002) recommends to examine context lends itself to qualitative measures.

#### 3.4.5. Questionnaires

Finding out participants opinions about taking part in sport is important because the quality and experience of participation are likely to influence how much they benefit from a scheme and also whether they do sport in the future (Coalter, 2002).

#### **3.4.5.1. *The Activity Questionnaire 1***

No existing questionnaires suitable for this study were identified so a questionnaire was designed to find out what participants thought about the intervention scheme “Move It”.

Participants were asked about their opinion of the scheme, such as (i) enjoyment; whether they liked or did not like “Move It” and the reasons for their answers; (ii) attendance; how often did they attend “Move It”?; what factors, if anything, had prevented them from attending? For example, problems with travel home after staying at school late, or other clubs and activities or family or religious commitments that might clash with “Move It”.

The questionnaire was designed to provide quantitative data. There were fourteen questions of which seven closed questions closed questions were pre-coded with positive (yes) or negative (no) response applicable. Six multiple choice questions were provided with participants able to select one or more answers from a preselected list. An open ended question was used to collect data in respect of what participants would change about “Move It”.

The Activity questionnaire is contained in Appendix I.

#### **3.4.5.2. *The Activity questionnaire 2***

A second questionnaire was designed to follow up on themes identified from answers to the first Activity Questionnaire. Two versions of this questionnaire were constructed because the scheme was suspended for three months at Schools A and C. Participants from these schools were asked additionally whether they had missed doing the intervention during this time, however this question was not relevant for participants at School 2 (high-level engagement).

The questionnaire also aimed to find out when participants would prefer to do “Move It” if they had a choice, and what the reasons for their preference were. Free format answers were appropriate for the question which asked ‘why do you prefer this time?’ in order not to limit answers. Answers were coded into categories for quantitative analysis. The Activity Questionnaire 2 is shown in Appendix J.

### **3.4.6. Qualitative measures**

Important benefits of an intervention often relate to the experience of taking part. If participants enjoy themselves they are more likely to attend regularly, to adhere over time and to participate in similar activities in the future (Coalter, 2002). Secondly, schemes can be managed toward certain outcomes and so differences in context and approach can be important determinants of its impact (Pawson & Tilley, 1997). Qualitative research methods are useful when trying to find out how and why something happened. Usually, small, focused samples are appropriate for qualitative research.

Babbie (2009) considered that qualitative research in the field is valuable because;

- It provides observations that are not easily reduced to numbers.
- It allows the study of behaviours that are best understood within their natural setting.
- It helps makes sense of an ongoing process.
- It helps to understand process that take place over time.

#### **3.4.6.1. Interviews**

Interviews can be conducted individually or within groups. The advantage of this type of data collection is that specific or detailed information can be gathered, and that participants can be observed outside the field. Also interviews can open up new areas for research. On the other hand as Creswell (2003) noted, the information should be seen as 'indirect' information because the data are filtered by the views of the interviewees. Another consideration is that "people are not equally articulate and perceptive" (Cresswell, 2003, p.186).

Interviews allow the researcher to predetermine and guide the line of questioning. However since the advantage of interviews is that they can draw out new themes or particular details, a semi structured format can be used in which the order of questions varies according to what the interviewee says (Patton, 2001).



#### **3.4.6.2. Individual interviews**

In depth interviews were conducted with teaching staff to find out how they perceived the intervention and what they thought its impact was. Specific aspects of interest were the degree to which interviewees perceived the intervention to add value to school life and whether the intervention had become integrated into the school's activity or was seen as an add on to the school day.

#### **3.4.6.3. Group interviews**

Group interviews are a suitable way of interviewing children who may find them less daunting than one to one interviews (Cohen, Manion & Morrison, 2000). Using a semi structured format, interviews were conducted with groups of participants to find out what they liked and disliked about the intervention "Move It". Participants were also asked about factors how often they attended and what, if any, were the obstacles to attending. This data was used to supplement existing lines of data collection and it build up my overall understanding of the impact of "Move It".

These questions are shown in Appendix K.

#### **3.4.6.4. Supplementary data**

Documentary extracts, such as school records, brochures, websites, minutes of meetings and correspondence, are appropriate to support narrative description (Genzuk, 2003). Information about each school was collected from the OFSTED website ([www.ofsted.gov.uk](http://www.ofsted.gov.uk)) and from each school's website. Participant demographic data was supplied by schools at the start of each year.

### **3.5. Case study**

According to Cohen, Manion and Morrison (2004) building and verifying knowledge about children within a learning environment is a complex task. They suggest that case study is well suited to educational settings because many different phenomena can be observed which provide information about the unit of analysis. Also, a case study offers an interpretative and subjective complement to experimental research because the researcher typically observes, rather than manipulates the data (Cohen, Manion & Morrison, 2000). Therefore, in addition to carrying out a quantitative research at the three schools involved in "Move It", I intended to carry out an in-depth case study of one

school. Case studies are located in the interpretative worldview (Creswell, 2003) where the research attempts to gain insight by assigning meaning to the data collected. In this study, I will seek to describe, interpret and gain insight into the features of “Move It” at a particular school (School 2).

A case study will strengthen the overall study because it provides a way of getting detailed information about an individual or an institution, from which to build an in-depth understanding of a situation or phenomenon (Thomas & Nelson, 2001). It is particularly suitable for the study of topics and behaviours that are best understood within their natural setting (Babbie, 1995) and to explore processes, activities and events (Creswell, 2009).

### **3.5.1. Why this methodology was selected**

According to Bassey (2007), case studies are better suited to theory development or expansion than verification. For this reason he sees case study as a prime strategy for developing educational theory which can then inform practice. This approach suits my study which is intended to explore the phenomenon called “Move It” and to explain its impact. Also, case study relies on inductive reasoning, in that its purpose is to discover relationships, concepts and understanding. This enables me to gather qualitative data to supplement quantitative data and to gain potential insights into the outcomes revealed by quantitative data. Finally, a case study can also suggest tentative hypotheses for theory development, and this is synchronous with my aim of telling a meaningful story in a way that can contribute towards the wider knowledge base.

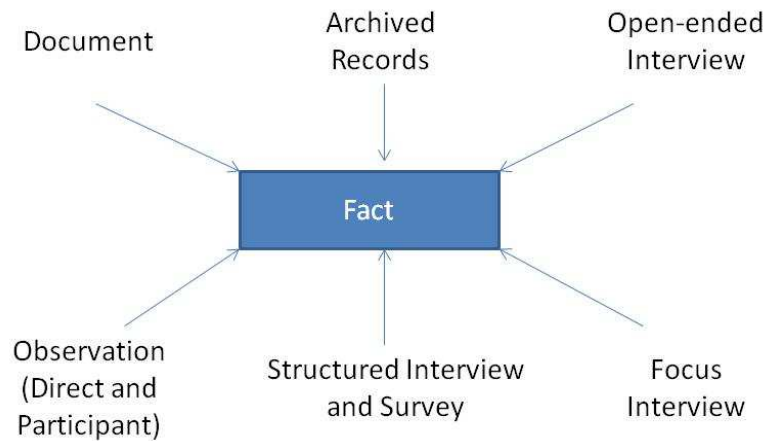
Bassey (2007) suggested a conceptual framework for educational case study. Table 3.12 shows how my research incorporates these aspects.

Table 3.12 Conceptual reconstruction of educational case study (Bassey, 2007)

Elements of a case study	How these are addressed in this study
Conducted within a localised (singular) boundary of space and time.	The focus is “Move It” at a single school
Explores interesting aspects of an educational activity, programme, institution, system.	School 2 (high-level engagement) is an educational institution. “Move It” is a sport programme intended to benefit the health, self-esteem, academic attainment and behaviour of pupils.
Located in a natural context with an ethic of respect for persons.	The school context is studied here. The tenets of Bassey’s (2007) ‘respect for persons’ test were observed (see p. 34).
Informs practitioners, policy makers or theory.	The case is told in a style that those interested can draw lessons for practical application.
Sufficient data collection enables: Exploration of significant features	Sufficient data was collected
Plausible interpretation	The study seeks to understand the impact of “Move It” and to shed light on quantitative outcomes.
Trustworthy interpretations	Bassey’s (2007) approach to trustworthiness was followed.
Construction of a valid (useful) case	The central idea is that high engagement increases the range of impacts of the programme.
Story related to relevant literature	The literature review (Chapter 2) cites relevant research and Discussion (Chapter 6) relates findings to research theory.
Story is credibly reported	The case study tells the story of “Move It” at a particular school.
Audit trail is provided.	This chapter provides an evidence trail.

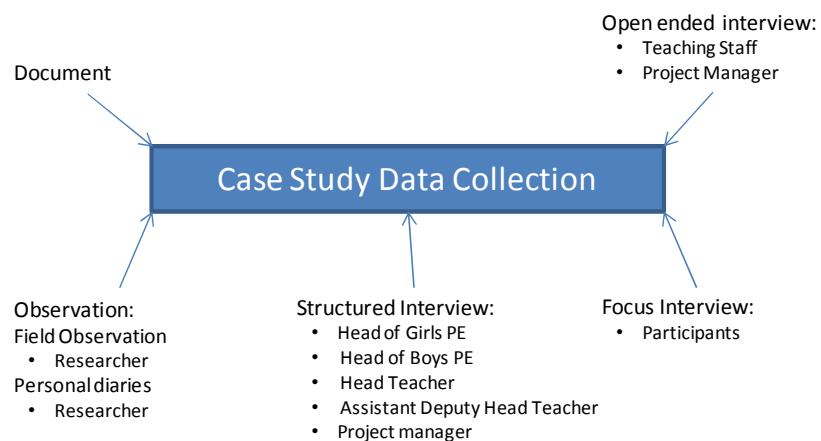
Although there is no accepted definition of what constitutes a case study approach, it is the study of singularity in which the subject is chosen because of its interest to the research (Bassey, 2007). Yin (2002) says that its strength is that evidence gained from different sources, such as interview, observation, and documents converges and divulges themes. Yin’s (2002) proposition is modelled in Figure 3.1.

Figure 3.1 Convergence of evidence (Yin, 2002)



School 2 (high-level engagement) was selected as the subject of a case study. Senior teaching staff took part in interviews, allowed the researcher to observe school life generally (e.g. break times, lessons) and also provided access to the records of attendance at the intervention and to internal documents regarding the intervention. The data collection model for the case study is shown in Figure 3.2.

Figure 3.2 Case study data collection model



### **3.5.2. In-depth interviews**

Semi structured interviews were conducted during the year with teaching staff to find out their observations and opinions of “Move It”. Interviews were conducted with the Head Teacher, the Assistant Deputy and the Head of PE.

### **3.5.3. Group interviews**

Group interview was used a part of the case study. There is evidence that this approach can enhance children’s understanding of a subject because they hear what others think and can challenge or extend ideas (Lewis, 1992). Cohen et al. (2000) recommend focus groups as a good way of combing a non directive approach to interview, because it allows the participants to build their understanding, but also gives the researcher more control of the discussion so that a residue of results can be built up.

### **3.5.4. Observation**

Although a case study can include a diverse range of research techniques, Cohen et al. (2000) state that observation lies at the heart of every case study. This is because observation is a natural process (Koshy, 2009). It is also a form of data collection in which the researcher observes behavior and events and takes notes about what happened (Creswell, 2003). However, as Creswell (2003) states, the researcher should follow a protocol in order to distinguish between description, (e.g. description of setting, accounts of particular events and activities and reconstruction of conversations) and reflection (e.g. researcher’s thoughts and impressions).

Observation is recommended to supplement data collected by other methods (Babbie, 2009). It can be done as a non participant or as a participant. The former approach relies on remaining separate from the group, whilst the latter involves engaging with the group in the activities that are being observed, often to the extent that participants view them as one of the group (Cohen et al., 2000). According to Bassey (2007), the researcher’s personal skills count toward ensuring that participants are at ease, whilst their ability to recognise significant aspects is also important.

### **3.5.5. Personal diaries**

Maintaining a personal diary provides a useful supplement to other data (Koshy, 2009). Also, as it involves reflective, this helps the researcher to construct the story of the case. However, Koshy (2009) warns that personal diaries must be maintained regularly in order to report the case as it unfolds and to avoid creating a biased picture by recording intermittent events.

I maintained a personal diary of my observations and of the informal conversations that took place during the research. In all, thirty visits were made to School 2 (high-level engagement), which provided ample opportunity to observe participants, pupils, teaching staff and “Move It” coaches and to find out more about the school.

Informal conversations were useful to find out the opinions of participants, PE staff, and school management. Conversations took place during the visits to School 2 (high-level engagement) to plan or carry out testing, steering meetings of stakeholders and at a sponsor meeting at the House of Commons. The Project Manager who was responsible for “Move It” communicated regularly on a formal and informal basis and provided data about how the intervention was run.

### **3.5.6. Documents**

Documents are usually considered to be a secondary source of data in that they talk about the subject rather than being the direct product of the research. However their contribution should not be underestimated since they can supply valuable contextual and historical information (Cohen et al., 2000).

School 2 (high-level engagement) supplied internal documents about the school itself and the provision of “Move It” and these are detailed in Chapter 5, Case Study and are listed in Appendix N.

### **3.5.7. Generalisation**

As a research method, case study is distinguished by the belief that human systems are not a series of traits but that they develop as a whole. Therefore, as Sturman (1994) explains, through in-depth investigation, the relationships between the component parts of the whole emerge and wider generalisations and predictions can then be made based on understanding these relevant interdependencies. However,

there is disagreement over how far the results of a case study can be generalised since the purpose of case study is to deliver a report of a particular experience. Atkinson and Delamont (1985) argue that unless the findings of a case study are applied to a general framework then the knowledge gained will be isolated, however Stake (1995) argues that case studies provide a weak basis for generalisation since they are not primarily conducted in order to understand other cases, but to understand this case. The latter view underpins criticism of case study as an effective research method (Yin, 2002).

However others state that it is possible to generalise from case studies provided that the research is designed with this in mind. Bassegy (2007) agrees with Schofield (1990) that generalisability depends on the “fit between the situation being studied and others to which one might be interested in applying the concepts and conclusions of that studied” (p.226). Therefore, thick descriptions of the case are vital in order to make an informed judgement about the fit between the situation under scrutiny and others (Bassegy, 2007). Accordingly the researcher uses tacit knowledge to make qualitative estimates of the generalisability of findings.

### **3.5.8. Validity**

Internal validity concerns the relationship between cause and effect and how the findings of the study match to the subject of the study. The longitudinal nature of this study facilitated internal validity as data was collected over three years, and was checked on an ongoing basis.

External validity is synonymous with generalising findings which as discussed, is a problematic outcome in case study research because a case is usually chosen for study due to its singularity and uniqueness (Bassegy, 2007). Instead, Bassegy (2007) concentrates on the concept of ‘trustworthiness’ by which he refers to the accurate reporting of ‘the truth’. Lincoln and Guba (1985) suggested eight questions as guidelines for establishing the trustworthiness of case study research. Table 3.13 shows how my study embraces the concept of trustworthiness.

Table 3.13 The tenets of trustworthiness from conception to completion of study (Lincoln & Guba, 1985)

The tenets of trustworthiness (Lincoln & Guba, 1985)	How these are addressed in my research
Engagement with sources should be prolonged so that researchers should spend sufficient time with sources to be immersed in the case.	It was a longitudinal study spanning three years and thirty two visits to the school.
Observation should be persistent in that relevant features should be identified and then observed over time in order to gain a clear understanding.	Participants were observed in a variety of contexts.
Raw data should be checked with its sources	Raw data was not checked as the tapes were sent away for professional transcription causing a long time delay.
Data should be triangulated.	Data was gathered in a variety of ways – interview, focus groups, informal conversation, observation, documentary evidence.  Findings were triangulated by the “Move It” Project Manager.
Analytical statements should be checked against the raw data.	The key findings emerged from the raw data.
A ‘critical friend’ should challenge findings.	Findings were reviewed by a research assistant who was helped to collect quantitative data at School 2 (high-level engagement).
Sufficient details should be provided in order to build confidence in findings	Quotations provide thick descriptions of the case and justify the findings.
Data should be systematically recorded thereby providing an effective audit trail.	Data was systematically recorded and personal diaries provide a supporting record.

### 3.5.9. Triangulation

Triangulation involves the use of one or more methods of data collection in the study of human behavior (Cohen et al., 2000). It is particularly suitable when seeking a holistic view of data in educational settings and also within case study research. The advantage is that it presents different perspectives of the same subject. However, this



does not guarantee validity given the subjective nature of qualitative research. Therefore, it has been suggested that triangulation can be used to guarantee authenticity rather than validity (Cohen et al., 2000).

Particular attention was paid to triangulation as it enhances the overall view of the case and boosts reliability and validity. Longitudinal triangulation was achieved due to the length of the study. Methodical triangulation was achieved as the same methods were used on different occasions, such as annual interviews, and different methods were used with the same people, such as interview, informal conversations and observation. Data was triangulated with the “Move It” Project Manager, who was an informed observer of the case, as he worked on the programme but was not an involved party at School 2 (high-level engagement).

#### **3.5.10. The expert as researcher**

Allen and Brown (2002) challenge Glaser and Strauss’s (1967) view that systematic analysis of the data will inevitably deliver theory from data. Although it is an important tool which can reveal aspects that might otherwise have been overlooked, they place the emphasis on the researcher’s approach and judgement since it is “the researcher who conceptualizes from data, a process that requires certain attitudes and qualities of creativity. In the last resort, research and theory construction will only be as good as the people doing it” (p.9).

#### **3.5.11. Ethics of case study research**

According to Bassey (2007), ethical dilemmas are likely to arise when collecting data and disseminating findings, since case study research largely involves taking data from people, extracting meaning and reporting this in a well-argued way to external audience. Although the ethical considerations of case study are complex, Bassey (2007) says that three aspects must be balanced, namely the researchers’ right to the freedom to conduct research, the right to be truthful in data collection and respect for those persons from whom data are taken. Here, I address the issue of respect for persons.

##### **3.5.11.1. *Permission to conduct the research***

Every participant consented to take part in the research and they were informed of their right to withdraw at any time. Consent for pupils was obtained as part of the consent for participation in the “Move It” research.

### **3.5.11.2. Respondent validation**

Respondent validation was not possible here as it would have been inappropriate to carry out the evidence validation with pupils, and due to the time delay between transcription, analysis and writing it was not possible to check raw interview data with the sources.

### **3.5.11.3. Identification or concealment of individuals and settings**

All information was held confidentially and all personal names were anonymised. The argument is not presented in a manner that could be offensive to participants. Teaching staff who were interviewed are likely to recognise themselves in the report.

### **3.5.11.4. Permission to publish the case report**

All participants knew that findings would be published as a thesis and disseminated thereafter.

## **3.5.12. Data analysis**

A certain amount of subjectivity is implicit in an interpretative study since the researcher must tacitly map the areas of study according to their knowledge and insight. Strauss and Corbin (1998) view this interplay between the researcher and data as both science and art because whilst maintaining scientific rigor, the researcher must use creative skills to name categories, make comparisons and extract innovative and integrated findings.

First, I sought out common characteristics among descriptive data. According to Strauss and Corbin (1998), at the beginning of the study, narrative analysis begins with detailed line-by-line analysis in order to identify initial categories (with their properties and dimensions) and to suggest relationships among categories. Also, differences or anomalies begin to emerge. Therefore the theory forming begins at this first stage of analysis although Strauss, Smith & Frame (1985) explain that this is “not a structured, static or rigid process” (p.58).

Then, I set about consolidating initial “hunches” by using axial coding to consider the relationships between these initial themes. This involves revisiting the data to re-define and refine categories and subcategories. This process reveals convergence and divergence by comparing categories to similar or different concepts in order to bring out

possible aspects that were not immediately evident. According to Woods (1985) this process creates categories of sensitised data, rather than merely descriptive, categories. Allan and Brown (2002) emphasise that the aim is to relate the data to general categories and that this stage of the analysis is concerned with linking categories into a wider framework. The coding and classification of these phenomena then enable the construction of theory. Thomas (1992) states that “The essence of the interpretive stance is a temporal cycle working backward from the present to help the construction of a defined, refined, corrected and coherent past”(p.5).

Although this section explains the process of data analysis, it was actually as highly iterative and dynamic since data was collected at many different stages, thereby making it necessary to revisit and reconsider the categories.

### **3.5.13. Possible limitations of a case study methodology**

The idea that a case study has a limited value as a research method has been raised on several grounds. The main criticisms are that researcher bias is inevitable and that this threatens the validity of the research, that it forces the case into an oversimplified narrative arc (e.g. Earls, 2008) and that, although a case study tells a story, there is no proof that the story is true (e.g. Lovell, 2008).

Denzin (1989) states that "interpretive research begins and ends with the biography and self of the researcher" (p.12). Therefore, the question of the potential bias of the researcher not only in case study but in qualitative research generally is an important one. Also, case study research involves interpersonal situations between the researcher and the subjects involved in the study. With this in mind, I concur with Kirkwood (1997) who argues that bias is inevitable, and that it needs to be recognised and controlled. However, although I included measures to triangulate the data, I acknowledge that, by its nature, this type of research is not value-neutral.

I also acknowledge the limited generalisability that is inherent in a single case design. However within this study the role of case study was to offer insights that might supplement quantitative data. Finally, I acknowledge that in real world situations the evidence is complex and mixed, and that there is a danger that different interpretations of a case could be supported by looking at particular aspects.

According to Bennett (2010), bias is an unacknowledged error in the research, which occurs when the researcher fails to identify validity problems or to state any

cautions about the research. Therefore by stating the above concerns, I intend that these concerns are transparent to the reader.

### **3.6. Procedures**

The intervention (“Move It”) began in September 2004 and ran until July 2007. It provided an extra two hours of sport a week, on top of the existing curricular and extra-curricular timetables at each participating school. The overall aim of the intervention was to help young people to be more active in sport and to encourage them to develop healthy habits based on a positive experience of being active (Kotulecki, 2005a, Appendix A). The sessions offered the opportunity to take part in a variety of different sports, such as dance, table tennis and fitness classes, in addition to those sports already provided during school P.E. During year 1 the sessions were conducted by external coaches at all schools. However, during years 2 and 3 of the intervention older pupils who were Sport Leaders became involved in coaching at School 2. The measures used aimed to explore the trends and experiences that could be drawn from taking part in the programme.

#### **3.6.1. Ethical procedures for the study**

##### **3.6.1.1. Ethical approval**

Ethical approval for this study was obtained from the ethics committee of the School of Sport and Education at Brunel University.

##### **3.6.1.2. Ethics**

Ethical concerns in educational research are subtle and complex (Cohen et al., 2000). However, the researcher must balance the need report reliable research without jeopardising the rights of participants.

Obtaining informed consent is a popular approach in social science research. It refers to a procedure in which an individual chooses whether to take part in a study having been informed of facts that may influence this decision. In the case of children informed consent should be obtained from parents or a significant adult, however it is advocated that children should be told as much as possible about their participation and about the research (e.g. Fine and Sandstrom, 1988).

### **3.6.1.3. *Informed consent***

Consent for participants' involvement in the study was obtained as part of the parental agreements for the pupils to take part in the intervention. Although the intervention was provided during 'controlled time' participants were expected by the schools and sponsors to participate in the intervention and also in the testing. However parents could specifically withdraw their child from participating in the intervention and or from participating in testing by writing a letter to the school.

### **3.6.1.4. *Withdrawal from testing***

Participants could withdraw from the tests at any point. The process was carried out in accordance with the School's normal practice in respect of participation in PE lessons. As testing took place during core school hours, teaching staff were responsible for the welfare of the participants in accordance with the principle of "in loco parentis." In a UK legal context, the term refers to the procedure which gives teachers the same authority over pupils as parents have over their children. Parents delegate their authority to the teacher to oversee the child's welfare during school hours and to maintain discipline both in the interests of the individual child and of the school as a whole (Steer, 2005). If a participant felt unwell either before or during testing they told a teacher who informed the test team of the participant's withdrawal. The teacher also called the First Aider who took charge of the pupil from thereon in accordance with school policy.

Participants were also given an opportunity at the beginning of the group interviews to decline from participating, once the researcher had explained the nature of the research.

### **3.6.2. *Procedure for testing***

There were five test phases during the intervention (Table 3.14). The test schedule was arranged with the member of the PE staff responsible for "Move It" at each school. Testing was arranged in order to keep the disruption to the school timetable to a minimum. The number of participants tested during each visit varied according to the timetable at each school. Where possible testing was conducted during PE lessons, however sometimes it caused less disruption to collect all data for a year group on one full day.

Table 3.14 Test phases

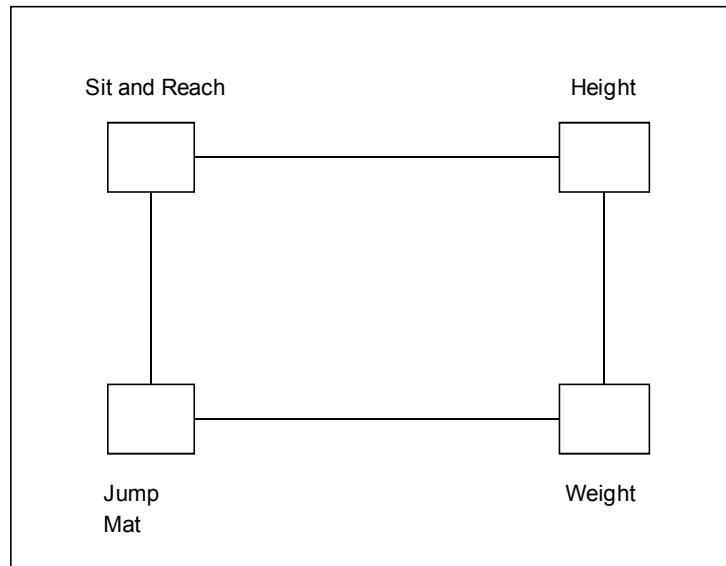
Test Phase	Test Cycle	Control Group	Intervention Group
First Year – Summer Term (Jul 05)	1	Year 8	Year 7
Second Year – Autumn Term (Sep 05)	2	Year 9	Year 8
Second Year – Summer Term (Jul 06)	3	Year 9	Year 8
Third Year – Autumn Term (Sep 06)	4	Year 10	Year 9
Third Year – Summer Term (Jul 07)	5	Year 10	Year 9

For the physical and physiological tests, two separate testing areas were set up. The first testing area was set up in the sports hall/gym, where the height, weight, sit and reach, and vertical jump stations were arranged into a rotational system (Figure 3.3). The second testing area, the multistage fitness test, was set up in an additional sports hall/gym that could accommodate the 20m distance needed for the test. Where this was not possible it was set up outside on the playground.

Before testing began, the purpose of the data collection and the procedure was explained to the participants as a whole group, before being split into smaller, manageable sized groups for each station. The classes were also split up by gender, so that female students were in one testing area, e.g. MSFT, whilst the male participants were in the other testing area.

Teaching staff instructed the participants to stand in a line at each station and queue for their test. The allocated tester also explained the procedure to participants at each subsequent testing station. A female tester was allocated to the weight station to account for sensitivity to the participants' weight measurements, particularly for the female participants. Participants were also told to wait a certain distance from the scales so that only the tester and the participant being weighed could see the reading. For the multistage fitness test, sit and reach, and vertical jump encouragement was given by testers, PE teachers and fellow students to motivate the participants.

Figure 3.3 Testing circuit for flexibility, height, weight and muscular power



### **3.6.2.1. Height**

Standing height was measured using a portable stadiometer. The accuracy of the height measure equipment was checked before testing by using a tape measure. Participants were instructed to remove their shoes and stand upright on the stadiometer base. They were also instructed to keep their head level and breath in before their height was measured and recorded.

### **3.6.2.2. Weight**

Body weight was measured using Seca scales. The scales were calibrated at Brunel University prior to testing to ensure accuracy. At the school they were set to measure weight in kilograms and tested by taking three measurements to check for consistent readings. Participants were instructed to remove their shoes and stand on the scales for a few seconds until the reading was stable. The tester recorded the measurement.

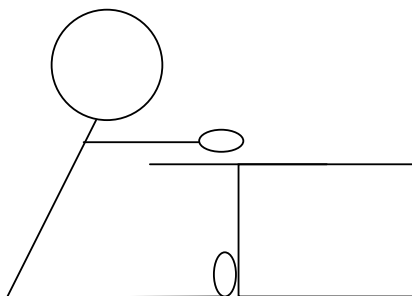
### **3.6.2.3. BMI**

Measurements for height and weight were used to calculate the BMI for the participants. The values were then compared with the cut-off points devised by Cole et al. (2000).

#### **3.6.2.4. Sit and reach**

Participants were instructed to remove their shoes, sit on the floor and place their feet up against the sit and reach box. They were instructed to reach forward as far as they could whilst maintaining straight legs. On holding maximum position, the result, in centimetres, was recorded as the point to which the participant is able to reach. Figure 3.4 portrays the sit and reach test.

Figure 3.4 The sit and reach test



#### **3.6.2.5. Vertical jump**

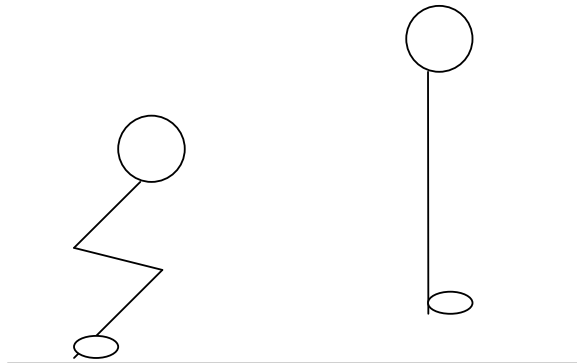
The electronic jump mat was programmed to measure jump height for squat jumps. Three test jumps were done to check for measurement accuracy. Participants were instructed to stand on the mat, with shoes on, and adopt a static squat position. Participants were instructed to jump from a standardised standing reference position and to land back on the mat with legs nearly fully extended to isolate the leg muscles and reduce the effect of variations in coordination of the arm movements. The jumps were performed with no arm movement. On the testers cue the participants jumped as high as possible and the jump height was recorded. The height of the jump was recorded based on the reading from the electronic jump equipment. Jump height was then calculated from the duration of the jump as follows;

$$\text{Jump height} = 4.9 \times (0.5 \times \text{Time})^2.$$

Figure 3.5 portrays the vertical jump test.



Figure 3.5 Vertical jump



#### **3.6.2.6. Multistage Fitness Test (MSFT).**

A calibrated Multistage Fitness test CD was used. The timing pips were pre-tested using a digital stopwatch to ensure that duration was accurate. The maximum number of participants taking the test at one time was 20.

A distance of 20 meters was measured and marked by cones with an additional metre allocated for turning space. Participants were instructed to run in time with the bleeps on the CD and complete the test with maximal effort. The test commenced at level one. Participants who failed to reach the line at the sound of the bleep received a warning that they must reach the 20m mark at the next bleep otherwise they would be eliminated. Those falling short of the line twice in succession were eliminated. Their scores were noted down and subsequently converted to provide VO<sub>2</sub>max values. A minimum of 4 testers were involved in carrying out this test due to the need to ensure that participants withdrew from the test once they could no longer reach the cones in time with bleep, and also to record their scores.

#### **3.6.2.7. Procedure for the completion of questionnaires**

The SPPC (Harter, 1985) was completed either in the gym or in a class room. The reason for collecting this data was explained to participants. Then, participants were instructed how to complete this questionnaire and were guided through an example question. This asked if given the choice 'some children' would rather play outside and 'some children' would rather watch TV. The participants were asked to (i) decide which group of children they are more like and then (ii) to choose whether they are 'quite' or 'very' like these children. The participants then ticked the appropriate box. It was

emphasised that there were no right or wrong answers. In cases where participants required help with reading or needed a question to be explained, a member of teaching staff read out the questions and supported the participant as they completed the questionnaire.

Then participants completed the Activity Questionnaire. At the end of year one (July 2005), they answered the Activity Questionnaire and at the end of year 2 (July 2006) they completed the follow up questionnaire, the Activity Questionnaire 2. Only the Intervention Group completed these questionnaires as they refer to the experience of taking part in the intervention. Again the reason for collecting the data was explained and it was emphasised that there were no right or wrong answers.

A large volume of data was collected due to the number of subjects and the variety of variables measured both pre and post intervention. Data recorded at testing was inputted into SPSS for analysis. The following chapter outlines the statistical analysis of the data.

### **3.6.3. Procedures for qualitative data collection**

#### **3.6.3.1. Interviews**

##### ***Group interviews***

Interviews with groups of participants were conducted at the end of each year of the scheme. Interviews were conducted in the presence of the “Move It” Project Manager but teaching staff were not present in order to encourage participants to express their views freely. Participants were invited to attend by teaching staff but participation was voluntary. Interviews were audio-taped and transcribed and analysed at a later date. This data was used to gather rich data regarding their experiences at “Move It” and to support the data collected via the Activity questionnaires.

##### ***In depth interviews***

Teaching staff were interviewed on a one to one basis regarding their views on the scheme. Interviews took place at the end of year 2 (2005-2006) and year 3 (2006-2007). Interviews with staff from School 2 (high-level engagement) were used for the case study. Interviews were audio-taped for later transcription and analysis. The interview schedule is shown in Appendix L.

### **3.6.3.2. Observation**

The researcher attended the intervention on an estimated twenty occasions without participants' prior knowledge to observe sessions (e.g. football, dance, tennis, table tennis, basketball). The participants, coaches and teaching staff could be observed during these sessions and during testing. Also, during breaks in testing, there was unobtrusive access to observe participants, staff and the school environment. A written record was kept for later analysis.

#### ***Detailed work with consultant***

There was regular communication with the "Move It" Project Manager throughout the evaluation. This was done by phone, email, and face to face meetings. The Project Manager provided regular updates regarding the current running of the scheme, background information and details of how the intervention was set up at each school. He also completed a detail sheet regarding of the scheduling, sports and involvement of coaches and sport leaders at the schools. These are shown in Appendix M.

#### ***Meetings***

A meeting was held each term between the Project Manager and a representative of PE staff from each school. The researcher attended as an observer.

### **3.6.3.3. Case study**

School 2 (high-level engagement) agreed to participate in a case study. Consent was given by the Head Teacher and by the Assistant Deputy Head. The school gave the researcher access to "Move It" documents and attendance records. Appendix N shows the documentary evidence provided by the school.

The Head Teacher, the Assistant Deputy Head, and the Head of PE took part in one to one interviews. Interviews took place at the end of each school year. Members of PE staff also gave their opinions in informal conversation. The researcher attended a "Move It" council meeting, held by participants and participants from School 2 (high-level engagement) took part in the group interviews described above.

## **3.7. Data analysis**

Analysis of data includes the initial analysis phase which is required in order to ensure the quality of the data, such as cleaning, transforming data, and statistical analysis concerned with answering the research questions. The process of data analysis

and the rationale for the choice of particular statistical tests is explained in the following section.

### **3.7.1. Initial data analysis**

According to Field (2009) the initial stage of data analysis should be concerned with establishing the quality of the data rather than addressing the original research question. Instead the data is prepared for the main analysis by a series of steps which determine its quality.

### **3.7.2. Missing data**

Missing data is a pervasive problem in data analysis. They can lead to biased estimates and may reduce or exaggerate statistical power (Acock, 2005). In social science research, missing values commonly occur when a participant misses a particular test cycle, drops out of the study before completion or skips or refuses to answer a question within a questionnaire. Within longitudinal or repeated measures designs the chances of this occurring are often increased due to attrition.

The seriousness of the problem depends on how much data is missing, the pattern of missing data and why it is missing (Tabachnick & Fidell, 2004). Although in principle the larger the sample, the more missing data can be tolerated, there are no published guidelines. Therefore, the researcher must make an informed decision in regard of how to handle missing data (Field, 2009).

Tabachnick and Fidell (2004) state that pattern of missing data is more important than how much is missing. This is because non-randomly missing values can jeopardise the generalisability of results. Therefore, firstly it is necessary to establish whether data is missing randomly or non-randomly and then to find out whether the missing data has the potential to affect results. To do this, Tabachnick and Fidell (2004) recommend constructing a dummy variable with two groups, missing and non-missing, and perform a means test of the results. If the differences are reliable and the  $n_2$  is substantial, then a decision must be made regarding how to handle the missing data.

There are several ways to handle missing data and the appropriate choice depends on whether random or non random data is missing, the number of cases missing and the intended analysis. Tabachnick and Fidell (2004) warn that “at best, the decision is among several bad alternatives” (p.59).

Leading approaches to missing values include case deletion, mean estimation and mean substitution. Case deletion is appropriate when only a few cases are missing and the data is random. However if data is missing from scattered cases and variables, as is often the case in a longitudinal study, then a substantial amount of data can be lost by case deletion. Alternatively, means can be estimated and inserted into the missing values. This can be done using prior knowledge of the data set, by which the researcher estimates the appropriate value using their knowledge of the sample, or by downgrading the data to a continuous variable. The disadvantage is that, for these cases, the standard deviation will be suppressed as there is no difference between the mean and the result. According to Field (2009) this approach causes problems if many values are missing but can be tolerated if the sample is large and the number of missing values is small. For longitudinal data, with repeated measures, Tabachnick and Fidell (2004) suggest that last observed value can be applied to fill in data missing from a subsequent time point. However this approach is only appropriate if changes over time are not expected.

Mean substitution involves inserting the means calculated from available data into missing values. However using the overall mean value can reduce the variability of scores for a variable. A less conservative approach is to insert the group mean for a value and Tabachnick and Fidell (2004) recommend this approach as being less conservative than insert overall means and less liberal than prior knowledge estimation. Table 3.15 summarises the points made by Tabachnick and Fidell (2004).

Table 3.15 Possible treatment of missing data values

Approach	What it means	When is it recommended?	Potential disadvantages
Delete missing cases	Cases are dropped from the sample	If a few and random cases are missing.	Loss of substantial amount of data. Distortion of sample
Estimate Means via prior knowledge	'Educated guess' based on knowledge of data	Small samples. Detailed knowledge of data	A 'best guess' Liberal treatment of data
Estimate Means	Convert continuous variable into discrete variable	To predict which category data would fall into (e.g. high or low).	May downgrade the data. Loss of information.
Estimate Means	Apply last observed value	Large scale studies	Requires expectation of no changes over time
Mean substitution	Calculated from data set. Conservative treatment of data	Small amounts of missing data.	May reduce standard deviation from the mean.
Mean substitution	Insert mean for particular group		Reduces in group variance

On the upside, Tabachnick and Fidell (2004) argue that missing data can become an asset instead of a liability. Firstly it can show the value of the variables of interest. They suggest creating dummy variable to identify when cases are complete and are incomplete and inserting the mean for missing values so that all cases are analysed and the dummy is used as a variable in analysis. Secondly, they suggest repeating the analysis with and without the missing data. If the results differ then the researcher must evaluate which set of data is closest to 'reality' or can report both sets of results.

### **3.7.3. Estimated means**

Missing value analysis was conducted to determine the pattern of missing data. If cases are systematically different from cases without missing values, the results can be misleading. Values were found to be Missing at Random (MAR). Estimated Means (EM) estimation depends on the assumption that the pattern of missing data is related to the observed data only. This allows data to be adjusted using available information. If the data are MAR EM estimation should be used. The EM method of assigning missing variables assumes a distribution for the partially missing data and bases inferences on the likelihood under that distribution. Data was MAR and therefore the approach to data imputation was adopted.

Field states (2009) that if two or more variables are present and correlated for most cases in the file "it replaces missing values with estimates far better than the mean" (p. 184).

The following steps were followed:

- check whether missing data is random or non random
- choose most appropriate approach for dealing with missing values.
- create a dummy variable to identify complete and incomplete cases
- repeat analysis with and without missing data.
- decide which set of data to report (or report both).

Where cases were missing one set of data EM was applied. Any cases missing more than one data were dropped from the study.

### **3.7.4. Exploring the data**

#### **3.7.4.1. Outliers**

An outlier is a score that is very different from other scores. Field (2009) explains that they can be problematic because they can bias the mean scores which can cause a Type 2 error by hiding a strong relationship that does really exist. Therefore, he warns that it is important to choose the best way of dealing with them in the context of a particular study. Popular approaches include removing, transforming or changing the data to a less extreme value.

However, as Clegg (2001) warns, these approaches involve changing the data, which may be regarded as data manipulation. Also, extreme cases may be relevant, particularly, in the case of this study, in regard to health and fitness. Personal communication with Professor Tim Cole who devised the (2001) Index for Obesity and Overweight in Children established that in obesity research there is no standard approach to dealing with outliers (Cole, personal communication, 2006). So, given that the chances that outliers will cause a Type 2 error diminish as the number of scores in a sample increases, and given the size of the sample, outliers were retained.

### **3.7.4.2. Parametric or non parametric data**

Different statistical tests are available according to whether data is parametric or non parametric and therefore it is important to determine the nature of the data before choosing evaluative tests (Clegg, 2001). Field (2009) notes that four assumptions underlie parametric data, namely that;

Data is normally distributed; the assumption is that the data are from one or more normally distributed populations. According to Field (2009), the rationale behind hypothesis testing is that data is normally distributed, and so, unless this assumption is met, the hypothesis test is flawed.

Homogeneity of variance; the different sets of data have a similar spread of scores. This is important when testing across different groups of participants, as it assumes that the data comes from populations with the same variance.

Interval data; data should be measured at the interval level. This means that distance of the scale is equal along all parts of the scale and as such it is possible to assess the size of the differences between them

Independent data; this assumes that data from different participants are independent and hence the behaviour of one participant does not influence the behaviour of another.

Following Field's (2005) recommendations, normal distribution of data was established using a Kolmogorov-Smirnov test to compare the scores in the data with a normally distributed set of scores. Homogeneity of variance was tested via Levene's test of significance. Finally, the assumptions of interval data and independence which Field (2005) says are best tested by the common sense of the researcher, were established.

### **3.7.5. Choice of tests for the analysis of data**

#### **3.7.5.1. ANOVA**

ANOVA (analysis of variance) is a statistical procedure used to analyse situations in which there are several independent variables. It shows how the independent variables interact and what effect these interactions have on the dependent variable (Field, 2005). According to Pallant (2001) a two-way ANOVA is appropriate to test for the effects of an intervention on individual groups as, using a pre and post test design, the difference in changes between groups on a score may be ascertained.

ANOVA tests whether the means are the same. It tests the hypothesis that all group means are equal. ANOVA is a way of comparing the ratio of systematic variance to unsystematic variance. This ratio of variance is shown by the F ratio. However the F ratio only shows whether means are equal or not and does show where any differences lie.

ANOVA assumes the assumptions of parametric tests, of normal distribution, independent observation and interval data. It is robust to variations of homogeneity of variance when the sample sizes are equal (Field, 2009), which was the case in this study. The strengths of the different types of ANOVA selected for use in this study are explained in the next section.

#### **3.7.5.2. One-way between groups ANOVA**

A one-way ANOVA will show whether there are significant differences in the mean scores on a dependent variable across three groups. It is appropriate when there is one independent variable (school) with three or more groups and a dependent continuous variable (e.g.BMI). This test compares the variance in the scores between different groups with the variability within groups. When interpreting the output, Pallant (2005) explains that a large F ratio shows that there is more variability between the groups caused by the dependent variable than within the group. A significant F ratio shows that the means are not equal but it does not say in what way.



### **3.7.5.3. Two-way between groups ANOVA**

A two-way ANOVA is used to look at the individual and joint effect of two dependent variables (e.g. school and gender) on an independent variable (e.g. BMI). Pallant (2005) states that this design tests the main effects for each independent variable and explores the interaction effect; “an interaction effect occurs when the effect of one dependent variable depends on the level of a second dependent variable” (p.229). For example the level of BMI may increase for females at a particular school but not for males.

### **3.7.5.4. Significance level**

Alpha was accepted at  $p < 0.05$ . The level of significance refers to the predetermined probability ( $p$ ) with which the null hypothesis can be rejected. Acceptance of alpha level of 0.05 is appropriate in behavioural research to control for a Type 1 error, the false rejection of the null hypothesis (Thomas & Nelson, 2001). Thus if  $p$  is  $< 0.05$  then it is considered statistically significant (Pallant, 2005) the effect size denotes the generalisability of results to a wider population. Significance is reported at alpha level  $p < 0.05$ . The effect size, which refers to the size of a result, is demonstrated by partial eta squared. It was interpreted as; .01 small effect, .06 moderate effect, .14 large effect, according to the commonly used guidelines recommended by Cohen (1988).

### **3.7.5.5. Post hoc tests**

Since an ANOVA cannot show in what way the means are different, post hoc tests or planned comparisons were required to find out where groups differ (Field, 2009). Post hoc tests are a multi comparison procedure that tests all the different combinations of the groups. According to Pallant, (2005) post hoc tests are stricter than planned comparison tests and although this protects against the likelihood of a type 1 error it makes it harder to obtain a statistically significant difference. Field (2009) and Pallant (2005) agree that post hoc tests are appropriate when there is no specific research prediction. In summary ANOVA was conducted to determine;

Are there differences and are they statistically significant?

How big is the effect size?

Where do the means differ?

**CHAPTER 4**  
**RESULTS**

## 4. Chapter 4 – Quantitative Results

This chapter presents the results of the quantitative research, which was appropriate to test the hypotheses in this study. The objective method of data collection and statistical analysis procedures suited the type of research questions that were presented.

Two-way between groups analyses of variance (ANOVA) were used to investigate the impact of the intervention (“Move It”) on physical and psychological tests across time.. The between-subject factor was ‘school’ (identified by three levels of engagement with the programme; high, medium and low) and the within-subject factor was ‘time’ (end of Year 7, Year 8 and Year 9 respectively). Main and interaction effects were explored using post-hoc Tukey HSD. In this chapter, effect sizes ( $\eta_p^2$ ) are also reported illustrating the degree of association between an effect and a dependent variable. The size of an effect is interpreted as follows: .01 is interpreted as a small effect, .06 as a moderate effect, .14 as a large effect (Cohen, 1988).

Subsequently, one-way ANOVAs were used to determine whether there were overall changes in mean scores within schools between Time 1 (end of Year 7) and Time 2 (end of Year 8) and between Time 1 and Time 3 (end of Year 9). Then, post-hoc Tukey HSD was used to look for between school differences in change scores across time. (Appendix O)

The following section begins with an overview of participants’ characteristics and adherence to the study. Following on from that, the findings from each of the physical and psychological measures are reported in order of the hypotheses outlined in Chapter 2.

### 4.1. Adherence

Of the 1012 participants who entered the study at baseline, 785 completed tests at all the assessment points (see Tables 4.1 and 4.2 below).

Table 4.1 Number of students participating in study by year and school

Year Group						
Year of Survey		N	Year 7	Year 8	Year 9	Year 10
Time 1	Low-level engagement School (1)	785	227			
	High-level engagement School (2)		233			
	Medium-level engagement School (3)		325			
Time 2	Low-level engagement School (1)	785		227		
	High-level engagement School (2)			233		
	Medium-level engagement School (3)			325		
Time 3	Low-level engagement School (1)	785			227	
	High-level engagement School (2)				233	
	Medium-level engagement School (3)				325	

Table 4.2 Number of students participating in study by sex, year and school

Year Group						
Year of Survey		N	Year 7	Year 8	Year 9	Year 10
Time 1	Girls	785	383			
	Boys		401			
Time 2	Girls	785		383		
	Boys			401		
Time 3	Girls	785			383	
	Boys				401	

## 4.2. Health and fitness results

### 4.2.1. Body Mass Index (BMI)

In terms of BMI, there was a statistically significant main effect for time,  $F(2, 2346) = 32.232$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .027$  (small). Tukey HSD indicated that the mean frequency for BMI at Time 1 ( $M = 19.53$ ,  $SD = 4.18$ ) was significantly lower than at the end of Timer 3 ( $M = 21.25$ ,  $SD = 4.29$ ).

There was a statistically significant main effect for school,  $F(2, 2346) = 16.518$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .01$  (small). There was no statistically significant interaction effect,  $F(4,$

2346) = 55.625, ns, indicating that variance in BMI could not be accounted for by the interaction of time and school.

Post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was significantly higher than at School 1 (low-level engagement) and School 3 (medium-level engagement). Other post hoc comparisons were not significant. The means and the standard deviations are presented in Table 4.3. The post hoc test is shown in Table 4.4

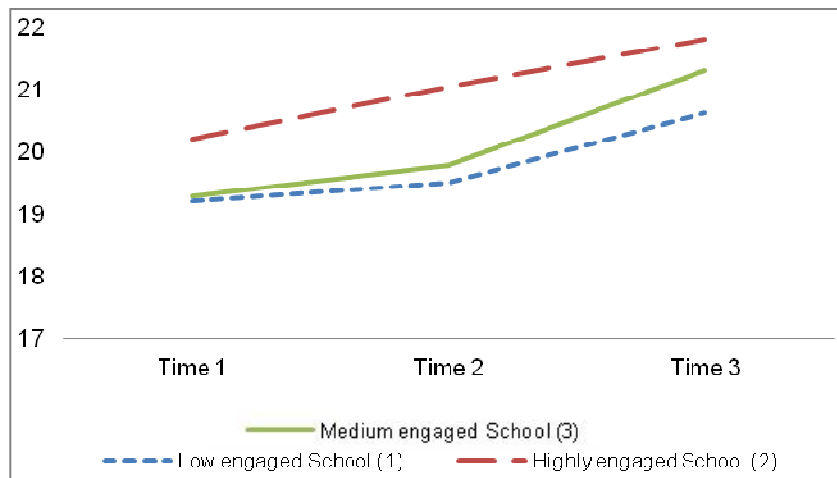
Table 4.3 Descriptive statistics for BMI with statistics test scores for time (1,2,3) and School (1,2,3)

	School	N	Mean	Standard Deviation
Time 1	Low-level engagement (1)	227	19.20	4.27
	High-level engagement (2)	233	20.20	4.28
	Medium-level engagement	325	19.28	4.00
Time 2	Low-level engagement (1)	227	19.51	4.01
	High-level engagement (2)	233	21.05	4.16
	Medium-level engagement	325	19.78	4.10
Time 3	Low-level engagement (1)	227	20.63	3.72
	High-level engagement (2)	233	21.80	4.49
	Medium-level engagement	325	21.30	4.47

Table 4.4 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
BMI	Low-level engagement (1)	High-level engagement (2)	-1.2396(*)	0.000	Y
		Medium-level engagement (3)	-0.3425	0.228	N
	High-level engagement (2)	Low-level engagement (1)	1.2396(*)	0.000	Y
		Medium-level engagement (3)	0.8971(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	0.3425	0.228	N
		High-level engagement (2)	-0.8971(*)	0.000	Y

Figure 4.1 BMI Results by school over time



Follow-up one-way ANOVA was conducted to show the difference in change mean scores over time. There were statistically significant differences in scores between the schools between Time 1 and Time 3,  $F(2, 782) = 5.304$ ,  $p \leq 0.05$ , but not between Time 1 and Time 2  $F(2, 782) = 2.555$ , ns. Post hoc comparisons using Tukey HSD indicated that significance was accounted for by the difference in scores between School 2 ( $M = 1.60$ ,  $SD = 2.21$ ) in comparison to School 1 ( $M = 1.43$ ,  $SD = 2.62$ ).

### Summary

As demonstrated in Figure 4.1, at no point over the three years did BMI change as a function of engagement with “Move It”.

#### 4.2.2. Weight status

This section presents results of height and weight measurements converted to BMI and compared to threshold indices of overweight and obesity provided by Cole et al. (2000).

A descriptive analysis was performed to determine the percentage of participants that met the criteria for overweight and obesity at Time 1 (end of year 7) and Time 2 (end of year 8) and Time 3 (end of year 9) according to school.

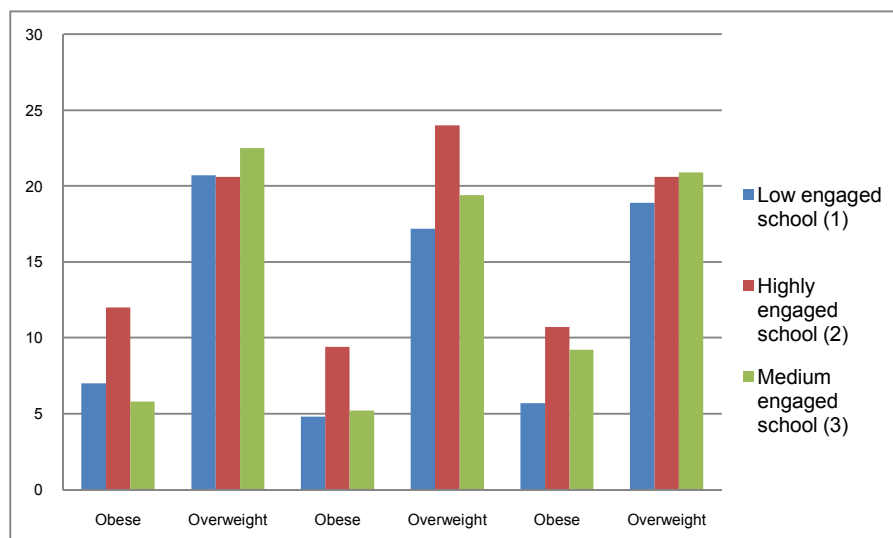
Results (see Table 4.5 and Figure 4.2) showed that throughout the study, participants in School 2 (high-level engagement) had the highest combined population percentage of obese or overweight pupils. However, the combined percentage of obese

and overweight pupils declined in School 1 (3.1%) and School 2 (1.3%), however, it increased in School 3 (1.1%).

Table 4.5 Percentage of obese, overweight participants by school

Time		Low-level engagement School (1)	High-level engagement School (2)	Medium-level engagement School (3)
1	Obese	7.0	12.0	5.8
	Overweight	20.7	20.6	22.5
	Combined	27.7	32.6	28.3
2	Obese	4.8	9.4	5.2
	Overweight	17.2	24.0	19.4
	Combined	22.0	33.4	24.6
3	Obese	5.7	10.7	9.2
	Overweight	18.9	20.6	20.9
	Combined	24.6	31.3	30.1

Figure 4.2 Percent of obese, overweight participants by school



### Summary

As demonstrated in Figure 4.2, there is no evidence that obesity and overweight reduced as a function of the level of engagement with “Move It”.

#### 4.2.3. Sit & reach

On the sit and reach test (leaning forward from a sitting position), the results indicated that there was a significant effect for time,  $F(2, 2346) = 9.576, p \leq 0.05, \eta_p^2 =$

.008 (small) with flexibility increasing across three years. The mean frequency for sit and reach at Time 1 ( $M = 12.79$ ,  $SD = 6.84$ ) was significantly lower than at Time 3 ( $M = 13.84$ ,  $SD = 7.74$ ). There was no statistically significant main effect for school,  $F(2, 2346) = 1.147$ , ns. However, there was a statistically significant interaction effect,  $F(4, 2346) = 7.014$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .01$  (small), indicating that variance could be accounted for by a combination of time and school. While post-hoc comparisons using Tukey HSD indicated that there were no significant differences in mean scores at each school (participants' flexibility did not increase at any one school). The means and the standard deviations are presented in Table 4.6. The post hoc tests are shown in Table 4.7

Table 4.6 Descriptive statistics for sit & reach with statistics test scores for time (1,2,3) and School (1,2,3)

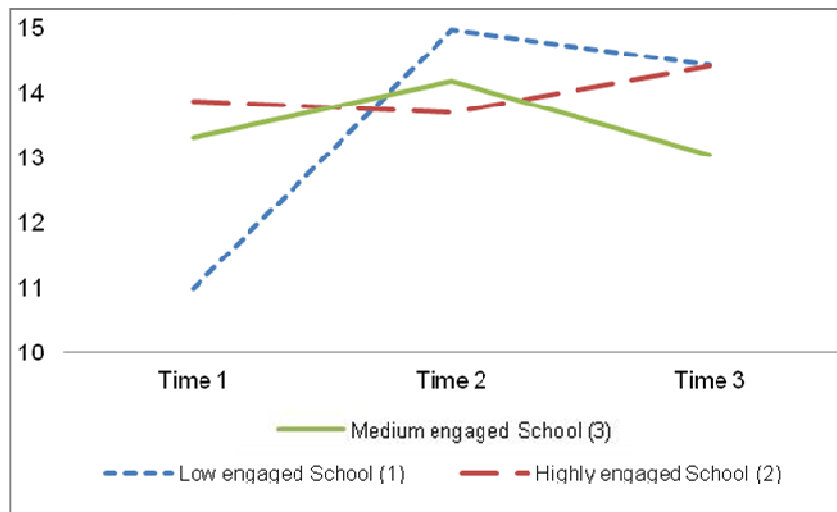
Time	School	N	Mean	Standard Deviation
T 1	Low-level engagement (1)	227	10.97	6.44
	High-level engagement (2)	233	13.86	7.00
	Medium-level engagement (3)	325	13.30	6.92
T 2	Low-level engagement (1)	227	14.96	6.77
	High-level engagement (2)	233	13.69	8.02
	Medium-level engagement (3)	325	14.17	7.10
T 3	Low-level engagement (1)	227	14.43	7.95
	High-level engagement (2)	233	14.41	8.25
	Medium-level engagement (3)	325	13.03	7.90

Table 4.7 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Sit & Reach	Low-level engagement (1)	High-level engagement (2)	-0.5284	0.38	N
		Medium-level engagement (3)	-0.0422	0.993	N
	High-level engagement (2)	Low-level engagement (1)	0.5284	0.38	N
		Medium-level engagement (3)	0.4862	0.38	N
	Medium-level engagement (3)	Low-level engagement (1)	0.0422	0.993	N
		High-level engagement (2)	-0.4862	0.38	N



Figure 4.3 Sit &amp; reach results by school over time



Mean scores for Sit and Reach were significantly higher in School 2 ( $M = 13.85$ ,  $SD = 7.00$ ) than School 1 ( $M = 10.97$ ,  $SD = 6.44$ ). Sit and Reach was also significantly higher at School 3 ( $M = 13.29$ ,  $SD = 6.92$ ) than at School 1 (low-level engagement). However there was no significant difference between School 2 (high-level engagement) and School 3 (medium-level engagement). All other pairwise comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference in scores for the three schools between Time 1 and Time 3  $F(2, 782) = 25.02$ ,  $p \leq 0.05$  and between Time 1 and Time 2,  $F(2, 782) = 37.186$ ,  $p \leq 0.05$ . Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = 3.46$ ,  $SD = 6.21$ ) than at School 2 ( $M = .54$ ,  $SD = 7.01$ ) and School 3 ( $M = -.27$ ,  $SD = 6.63$ ). The difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = 3.99$ ,  $SD = 5.55$ ) than at School 2 ( $M = -.16$ ,  $SD = 5.61$ ) or School 3 ( $M = .87$ ,  $SD = 5.16$ ).

### Summary

As demonstrated in Figure 4.3, at no point did flexibility change as a function of the level of engagement with “Move It”. School 1 (low-level engagement) made the greatest improvement in sit and reach scores whilst although School 3 (medium-level

engagement) made a small improvement scores at School 2 (high-level engagement) decreased.

#### 4.2.4. Vertical jump

For the Vertical Jump there was no significant main effect for time,  $F(2, 2346) = .632, p > 0.05, \eta_p^2 = .001$  (small), indicating that performance did not increase across the three years. There was also a statistically significant main effect for school,  $F(2, 2346) = 4.035, p \leq 0.05, \eta_p^2 = .01$  (small), and a statistically significant interaction effect between time and school,  $F(2, 2346) = 7.159, p \leq 0.05, \eta_p^2 = .012$  (small). Overall, post hoc comparisons showed that levels of Vertical Jump at School 1 (low-level engagement) were significantly higher than at School 3 (medium-level engagement) suggesting that participants at School 1 (low-level engagement) jumped higher than participants at other schools. All other post hoc comparisons were not found to be significant. The means and the standard deviations are presented in Table 4.8. The post hoc tests are shown in Table 4.9

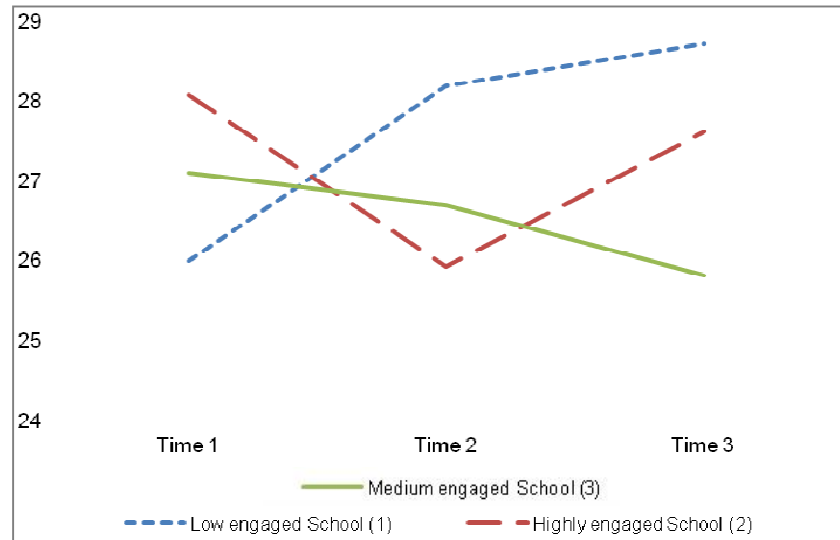
Table 4.9 Descriptive statistics for vertical jump with statistics test scores for time (1,2,3) and School (1,2,3)

Time	School	N	Mean	Standard Deviation
T 1	Low-level engagement (1)	227	26.00	6.45
	High-level engagement (2)	233	28.08	9.73
	Medium-level engagement (3)	325	27.10	6.23
T 2	Low-level engagement (1)	227	28.19	7.72
	High-level engagement (2)	233	25.93	6.76
	Medium-level engagement (3)	325	26.70	7.44
T 3	Low-level engagement (1)	227	28.72	10.35
	High-level engagement (2)	233	27.61	8.61
	Medium-level engagement (3)	325	25.81	7.78

Table 4.9 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Vjump	Low-level engagement (1)	High-level engagement (2)	0.4286	0.573	N
		Medium-level engagement (3)	1.0968(*)	0.015	Y
	High-level engagement (2)	Low-level engagement (1)	-0.4286	0.573	N
		Medium-level engagement (3)	0.6681	0.204	N
	Medium-level engagement (3)	Low-level engagement (1)	-1.0968(*)	0.015	Y
		High-level engagement (2)	-0.6681	0.204	N

Figure 4.4 Vertical jump results by school over time



When the results for the dependent variables were considered separately, pairwise comparisons showed that initially (i.e. at Time 1), mean performance in Vertical Jump was significantly higher for participants at School 2 ( $M = 26.42$ ,  $SD = 5.04$ ) than at School 1 ( $M = 23.98$ ,  $SD = 5.27$ ). However, a year later (Time 2) participants at School 1 ( $M = 26.02$ ,  $SD = 6.84$ ) were found to perform in the Vertical Jump significantly better than those in School 2 ( $M = 23.26$ ,  $SD = 5.44$ ). At Time 3, participants continued to improve in their Vertical Jump in School 1 ( $M = 22.21$ ,  $SD = 7.07$ ) than at School 2 ( $M = 22.63$ ,  $SD = 5.62$ ) or School 3 ( $M = 28.72$ ,  $SD = 6.21$ ). All other pairwise comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference in scores between the three schools between Time 1 and Time 3  $F(2, 782) = 16.631$ ,  $p \leq 0.05$  and between Time 1 and Time 2,  $F(2, 782) = 20.582$ ,  $p \leq 0.05$ . Post hoc comparisons using Tukey HSD indicated that, the difference in change scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = 2.72$ ,  $SD = 8.03$ ) than at School 2 ( $M = -.47$ ,  $SD = 10.7$ ) and School 3 ( $M = -1.29$ ,  $SD = 6.12$ ). The difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = 2.18$ ,  $SD = 6.59$ ) than at School 2 ( $M = -2.15$ ,  $SD = 9.09$ ) and School 3 ( $M = -.40$ ,  $SD = 6.27$ ). Also, the difference in change

mean scores at School 3 (medium-level engagement) was significantly greater than School 2 (high-level engagement).

### **Summary**

As demonstrated in Figure 4.4, at no point did explosive power improve as a function of the level of engagement in “Move It”. Having recorded the lowest scores amongst the schools at the end of year one, School 1 (low-level engagement) made the greatest improvement. It improved between Time 1 and Time 2 and continued to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall as did School 3 (medium-level engagement).

#### **4.2.5. Multi Stage Fitness Test (MSFT)**

For the Multi Stage Fitness Test (MSFT), across all schools the results indicated that there was a statistically significant main effect for time,  $F(2, 2345) = 9.087$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .008$  (small) with MSFT increasing during the course of “Move It”. The mean frequency for MSFT at Time 1 ( $M = 5.30$ ,  $SD = 2.18$ ) was significantly lower than Time 3 ( $M = 5.82$ ,  $SD = 3.86$ ). There was also a statistically significant main effect for school,  $F(2, 2345) = 69.263$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .056$  (medium). Finally, there was also a statistically significant interaction effect between time and school,  $F(2, 2345) = 8.218$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .01$  (small).

Post hoc comparisons using a Tukey HSD test showed that the mean score for School 1 (low-level engagement) was significantly higher than at School 2 (high-level engagement) and School 3 (medium-level engagement). School 3 was also significantly higher than School 2. These results indicate that participants attending School 2 (high-level engagement) were, on the whole less fit than at Schools 1 (low-level engagement) and 3 (medium-level engagements). The means and the standard deviations are presented in Table 4.10. The post hoc test is shown in Table 4.11

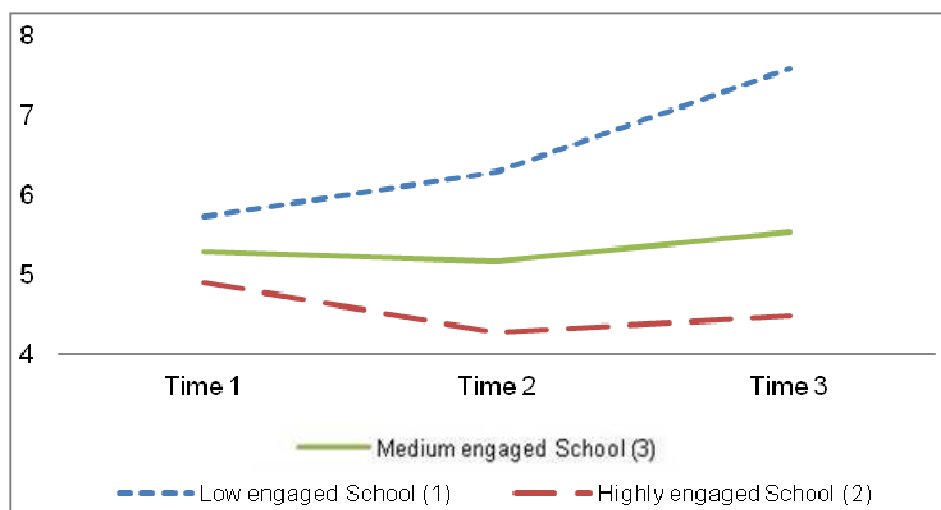
Table 4.10 Descriptive statistics for MSFT with statistics test scores for time (1, 2, 3) and School (1,2,3)

Time	School	N	Mean	Standard Deviation
T 1	Low-level engagement (1)	227	5.72	1.81
	High-level engagement (2)	233	4.91	2.65
	Medium-level engagement (3)	325	5.29	2.00
T 2	Low-level engagement (1)	227	6.28	2.19
	High-level engagement (2)	233	4.28	5.07
	Medium-level engagement (3)	325	5.17	2.24
T 3	Low-level engagement (1)	227	7.58	2.87
	High-level engagement (2)	233	4.48	5.30
	Medium-level engagement (3)	325	5.54	2.59

Table 4.11 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
MSFT	Low-level engagement (1)	High-level engagement (2)	1.9636(*)	0.000	Y
		Medium-level engagement (3)	1.1933(*)	0.000	Y
	High-level engagement (2)	Low-level engagement (1)	-1.9636(*)	0.000	Y
		Medium-level engagement (3)	-.7704(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	-1.1933(*)	0.000	Y
		High-level engagement (2)	.7704(*)	0.000	Y

Figure 4.5 MSFT Results by school over time



When the results for the dependent variables were considered separately, pairwise comparisons showed that at Time 1, MSFT was significantly higher at School 1 ( $M = 5.72$ ,  $SD = 1.81$ ) than School 2 ( $M = 4.90$ ,  $SD = 2.64$ ). At Time 2, MSFT continued to be significantly higher at School 1 ( $M = 6.28$ ,  $SD = 2.19$ ) than School 2 ( $M = 4.28$ ,  $SD = 5.06$ ) and also School 3 ( $M = 5.16$ ,  $SD = 2.24$ ). There was also a significant difference in performance between participants at School 3 and School 2 (high-level engagement) at this point. At Time 3, results at School 1 ( $M = 7.58$ ,  $SD = 2.87$ ) continued to be significantly higher than those at School 2 ( $M = 4.48$ ,  $SD = 5.30$ ) and School 3 ( $M = 5.54$ ,  $SD = 2.59$ ). Again, there was also a significant difference in performance between participants at School 3 (medium-level engagement) and School 2 (high-level engagement) at this point.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference in scores for the three schools between Time 1 and Time 3  $F(2, 782) = 23.903$ ,  $p \leq 0.05$  and between Time 1 and Time 2  $F(2, 782) = 6.641$ ,  $p \leq 0.05$ . Post hoc comparisons using Tukey HSD indicated that, the difference in change scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = 1.18$ ,  $SD = 1.98$ ) than at School 2 ( $M = -.42$ ,  $SD = 5.94$ ) and School 3 ( $M = .24$ ,  $SD = 2.02$ ). Also, the difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = .55$ ,  $SD = 1.62$ ) than at School 2 ( $M = -.62$ ,  $SD = 2.02$ ).

### **Summary**

Thus the greatest increase in MSFT was in School 1 (low-level engagement), with moderate increases in performance for participants in School 2 (high-level engagement). In School 3 (medium-level engagement) there was little change over time.

#### **4.2.6. Summary of significant differences**

The significant differences reported above are summarised in Table 4.12

Table 4.12 Summary of significant differences

	Time	Significant Difference
BMI	1	High-level engagement (2) > Low-level engagement (1); High-level engagement (2) > Medium-level engagement (3)
	2	High-level engagement (2) > Low-level engagement (1); High-level engagement (2) > Medium-level engagement (3)
	3	High-level engagement (2) > Low-level engagement (1)
Sit & Reach	1	High-level engagement (2) > Low-level engagement (1); Medium-level engagement (3) > Low-level engagement (1)
Vjump	1	High-level engagement (2) > Low-level engagement (1)
	2	Low-level engagement (1) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)
MSFT	1	Low-level engagement (1) > High-level engagement (2)
	2	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3); Medium-level engagement (3) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3); Medium-level engagement (3) > High-level engagement (2)

#### 4.2.7. Overall summary

Only participants at School 1 (low-level engagement) improved on the three physiological tests designed to measure flexibility, explosive power and fitness. Results showed that participants at School 2 (high-level engagement) decreased in explosive power and fitness although flexibility slightly increased ( $p \leq .054$ ). At School 3 (medium-level engagement) participants' flexibility and explosive power decreased and they retained the same fitness level. Although there was an in BMI at all schools, this should be expected based on physical maturation. When the BMI was compared to indices of childhood overweight and obesity, School 2 (high-level engagement) had the highest percent of overweight and obesity.

#### 4.2.8. Sex-wise comparisons

To find out more about where differences may lie in BMI, Sit and Reach, Vertical Jump and MSFT scores, the file was split by sex and further analysis was conducted. A two-way ANOVA was conducted to look for differences between the schools over time. Then, a one-way ANOVA was conducted to compare the differences between scores at Time 1 and Time 2 and Time 1 and Time 3

##### 4.2.8.1. Body Mass Index (BMI)

When the data was split by sex, among girls ( $n = 383$ ) there was a statistically significant main effect for time  $F(2, 1140) = 20.425, p \leq 0.05, \eta_p^2 = 0.35$  (large). The mean frequency for BMI at year one ( $M = 19.85, SD = 4.14$ ) was significantly lower than at the end of year 3 ( $M = 21.82, SD = 4.45$ ). There was a statistically significant main effect for school  $F(2, 1140) = 14.395, p \leq 0.05, \eta_p^2 = 0.03$  (small). The interaction effect between time and school was not found to be significant  $F(4, 1140) = .661, ns, \eta_p^2 = 0.02$  (small).

Among boys ( $n = 401$ ), there was also a statistically significant main effect for time  $F(2, 1197) = 12.848, p \leq 0.05, \eta_p^2 = 0.35$  (large). There was a statistically significant main effect for school,  $F(2, 1140) = 80.749, p \leq 0.05, \eta_p^2 = 0.008$  (small). The interaction effect between time and school was not significant,  $F(4, 1140) = .816, p \leq 0.05, \eta_p^2 = 0.003$  (small).

Post hoc comparisons showed that levels of BMI amongst girls and boys at School 2 (high-level engagement) were significantly higher than at School 1 (low-level engagement) and School 3 (medium-level engagement) suggesting that girls at School 2 (high-level engagement) incur significantly more risks to health than girls at other schools. All other post hoc comparisons were not found to be significant. The means and the standard deviations are presented in Table 4.13. The post hoc test is shown in Table 4.14



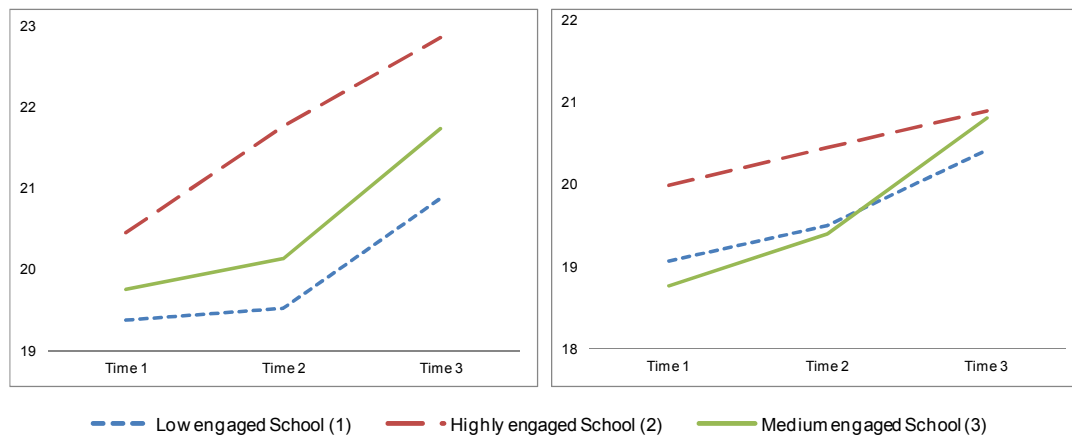
Table 4.13 Descriptive statistics for girls and boys BMI with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean BMI	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	19.37	4.53
		High-level engagement (2)	108	20.45	3.94
		Medium-level engagement (3)	172	19.76	4.02
T 2	Girls	Low-level engagement (1)	103	19.52	3.83
		High-level engagement (2)	108	21.76	4.38
		Medium-level engagement (3)	172	20.14	4.18
T 3	Girls	Low-level engagement (1)	103	20.87	3.85
		High-level engagement (2)	108	22.85	4.72
		Medium-level engagement (3)	172	21.74	4.52
T 1	Boys	Low-level engagement (1)	124	19.06	4.05
		High-level engagement (2)	125	19.98	4.56
		Medium-level engagement (3)	152	18.77	3.92
T 2	Boys	Low-level engagement (1)	124	19.50	4.18
		High-level engagement (2)	125	20.44	3.88
		Medium-level engagement (3)	152	19.40	3.99
R 5	Boys	Low-level engagement (1)	124	20.42	3.60
		High-level engagement (2)	125	20.89	4.09
		Medium-level engagement (3)	152	20.80	4.38

Table 4.14 Summary of post hoc test results for girls and boys by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
BMI Girls	Low-level engagement (1)	High-level engagement (2)	-1.7682(*)	0.000	Y
		Medium-level engagement (3)	-0.6294	0.097	N
	High-level engagement (2)	Low-level engagement (1)	1.7682(*)	0.000	Y
		Medium-level engagement (3)	1.1388(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	0.6294	0.097	N
		High-level engagement (2)	-1.1388(*)	0.000	Y
BMI Boys	Low-level engagement (1)	High-level engagement (2)	-.7782(*)	0.025	Y
		Medium-level engagement (3)	0.0219	0.997	N
	High-level engagement (2)	Low-level engagement (1)	.7782(*)	0.025	Y
		Medium-level engagement (3)	.8001(*)	0.014	Y
	Medium-level engagement (3)	Low-level engagement (1)	-0.0219	0.997	N
		High-level engagement (2)	-.8001(*)	0.014	Y

Figure 4.6 Results of ANOVA for girls and boys by school for BMI



One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls in scores for the three schools between Time 1 and Time 3,  $F(2, 380) = 5.002$ ,  $p \leq 0.05$  and for boys  $F(2, 399) = 7.317$ ,  $p \leq 0.05$  and also between Time 1 and Time 2 for girls,  $F(2, 380) = 9.212$ ,  $p \leq 0.05$ , but not for boys,  $F(2, 399) = .215$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in BMI between Time 1 and Time 3, was significantly greater at School 2 ( $M = 2.4$ ,  $SD = 1.38$ ) than at School 1 ( $M = 1.5$ ,  $SD = 2.92$ ) whilst, for boys, School 3 ( $M = 2.06$ ,  $SD = 1.91$ ) was significantly greater than School 1 ( $M = 1.36$ ,  $SD = 2.35$ ) and School 2 ( $M = .9$ ,  $SD = 2.54$ ). Between Time 1 and Time 2, the difference in change in BMI among girls at School 2 ( $M = 1.3$ ,  $SD = 2.36$ ) was significantly greater than at School 1 ( $M = .15$ ,  $SD = 3.06$ ).

### Summary

As demonstrated in Figure 4.6, at no point over the three years did BMI change as a function of engagement with “Move It”. Overall, results showed that BMI among girls from School 2 (high-level engagement) was significantly higher than at schools 1 and 3.

#### 4.2.8.2. Weight status

BMI was then compared to the cut-off points for obesity and overweight defined by Cole et al., (2000) to find out the per cent of girls and boys who were obese, overweight or ‘ok’ at Times 1, 2 and 3.

## Results

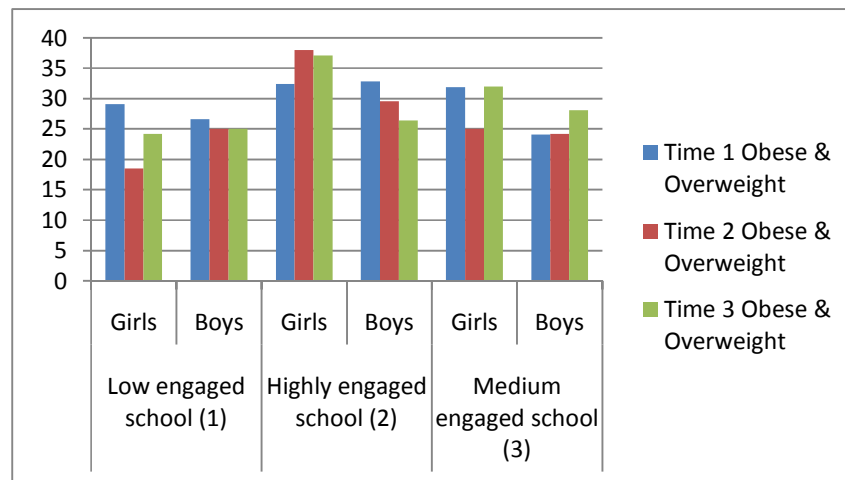
For girls, at School 1 (low-level engagement) obesity and overweight combined declined between Time 1 and Time 3 (29.1% to 24.3%). At both School 2 (high-level engagement) and School 3 (medium-level engagement) 32% of girls were obese or overweight at Time 1. This figure increased to 37% at School 2 (high-level engagement) at Time 3 and remained the same at School 3 (medium-level engagement). For boys, at School 1 (low-level engagement) there was a small reduction (1.6%) in the percent of obese and overweight between Time 1 (26.4%) and Time 3 (24.2). At School 2 (high-level engagement) there was also an overall decrease in obesity and overweight (6.4%) between Time 1 (32.8%) and Time 3 (26.4%), however at School 3 (medium-level engagement) there was an increase of 4.2% between Time 1 (24.2%) and Time 3 (28.1%).

The per cent of obese, overweight participants by sex is shown in Table 4.15 and is demonstrated in Figure 4.7.

Table 4.15 Percentage of obese, overweight participants by school by sex

		Low-level engagement School (1)		High-level engagement School (2)		Medium-level engagement School (3)	
		Girls	Boys	Girls	Boys	Girls	Boys
Time 1	Obese	8.7	5.6	12.0	12.0	5.2	6.5
	Overweight	20.4	21.0	20.4	20.8	26.7	17.6
	Combined	29.1	26.6	32.4	32.8	31.9	24.1
Time 2	Obese	4.9	4.8	10.2	8.8	5.2	5.2
	Overweight	13.6	20.2	27.8	20.8	19.8	19.0
	Combined	18.5	25.0	38.0	29.6	25.0	24.2
Time 3	Obese	5.8	5.6	13.0	8.8	8.7	9.8
	Overweight	18.4	19.4	24.1	17.6	23.3	18.3
	Combined	24.2	25.0	37.1	26.4	32.0	28.1

Figure 4.7 Percent of obese, overweight participants by school and sex



### Summary

As Figure 4/7 shows, at no point was the percent of participants who were obese or overweight reduced as a function of the level of engagement in “Move It”.

#### 4.2.8.3. Sit & Reach

When data was split by sex among girls there was a statistically significant main effect for time  $F(2, 1140) = 5.164, p \leq 0.05, \eta_p^2 = .009$  (small). The mean frequency for Sit & Reach at year one ( $M = 14.41, SD = 6.84$ ) was significantly lower than at the end of year 3 ( $M = 15.83, SD = 7.74$ ). There was no statistically significant main effect for school,  $F(2, 1140) = .696, p > 0.05, \eta_p^2 = .001$  (small). The interaction effect between time and school was found to be significant  $F(4, 1140) = 3.8, p \leq 0.05, \eta_p^2 = .013$  (small). Among boys, there was also a statistically significant main effect for time  $F(2, 1197) = 6.396, p \leq 0.05, \eta_p^2 = 0.011$  (small). There was a statistically significant main effect for school,  $F(2, 1197) = 5.711, p > 0.05, \eta_p^2 = .009$  (small). The interaction effect between time and school was also significant,  $F(2, 1197) = 4.06, p \leq 0.05, \eta_p^2 = .012$  (small).

Overall, post hoc comparisons showed that Sit and Reach scores amongst boys at School 2 (high-level engagement) were significantly higher than at School 3 (medium-level engagement). All other post hoc comparisons were not found to be significant among boys and girls. The means and the standard deviations are presented in Table 4.16. The post hoc test is shown in Table 4.17.

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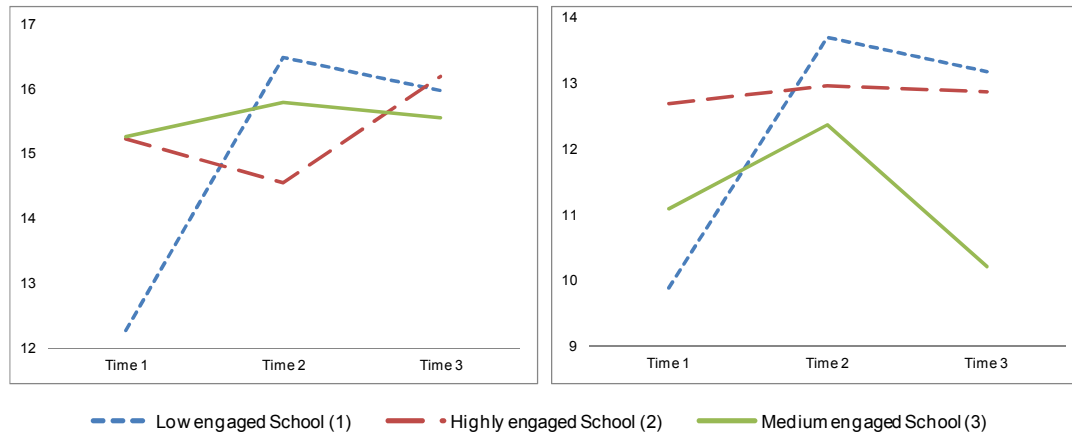
Table 4.16 Descriptive statistics for girls and boys sit & reach with scores for time (1,2,3) and school (1,2,3)

Time	Sex	School	N	Mean BMI	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	12.27	6.17
		High-level engagement (2)	108	15.21	6.98
		Medium-level engagement (3)	172	15.26	6.89
T 2	Girls	Low-level engagement (1)	103	16.48	7.20
		High-level engagement (2)	108	14.54	8.28
		Medium-level engagement (3)	172	15.78	7.35
T 3	Girls	Low-level engagement (1)	103	15.96	7.15
		High-level engagement (2)	108	16.19	8.09
		Medium-level engagement (3)	172	15.54	7.88
T 1	Boys	Low-level engagement (1)	124	9.89	6.49
		High-level engagement (2)	125	12.69	6.84
		Medium-level engagement (3)	152	11.09	6.28
T 2	Boys	Low-level engagement (1)	124	13.70	6.13
		High-level engagement (2)	125	12.96	7.75
		Medium-level engagement (3)	152	12.37	6.36
T 3	Boys	Low-level engagement (1)	124	13.17	8.38
		High-level engagement (2)	125	12.86	8.11
		Medium-level engagement (3)	152	10.20	6.93

Table 4.17 Summary of post hoc test results by girls and boys by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Sit & Reach Girls	Low-level engagement (1)	High-level engagement (2)	-0.4105	0.763	N
		Medium-level engagement (3)	-0.6250	0.466	N
	High-level engagement (2)	Low-level engagement (1)	0.4105	0.763	N
		Medium-level engagement (3)	-0.2145	0.911	N
	Medium-level engagement (3)	Low-level engagement (1)	0.6250	0.466	N
		High-level engagement (2)	0.2145	0.911	N
Sit & Reach Boys	Low-level engagement (1)	High-level engagement (2)	-0.5821	0.496	N
		Medium-level engagement (3)	1.0372	0.088	N
	High-level engagement (2)	Low-level engagement (1)	0.5821	0.496	N
		Medium-level engagement (3)	1.6193	0.003	Y
	Medium-level engagement (3)	Low-level engagement (1)	-1.0372	0.088	N
		High-level engagement (2)	-1.6193	0.003	Y

Figure 4.8 Results of ANOVA for girls and boys by school for sit &amp; reach



When the results for the dependent variables were considered separately, for girls pairwise comparisons showed that at Time 1, Sit & Reach was significantly higher at School 2 ( $M = 15.20$ ,  $SD = 6.97$ ) than at School 1 ( $M = 12.26$ ,  $SD = 6.16$ ) and at School 3 ( $M = 15.26$ ,  $SD = 6.89$ ) was significantly higher than at School 1 (low-level engagement). All other pairwise comparisons were not found to be significant. For boys pairwise comparisons showed that at Time 1, Sit & Reach was significantly higher at School 2 ( $M = 12.69$ ,  $SD = 6.84$ ) than at School 1 ( $M = 9.89$ ,  $SD = 6.49$ ). At Time 3, results at School 1 ( $M = 13.17$ ,  $SD = 8.38$ ) and School 2 ( $M = 12.86$ ,  $SD = 8.11$ ) were significantly higher than at School 3 ( $M = 10.20$ ,  $SD = 6.92$ ). However, other comparisons were not found to be significant. Also, no significant differences were found at Times 2 and 3.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls in scores for the three schools between Time 1 and Time 3,  $F(2, 380) = 10.830$ ,  $p \leq 0.05$  and boys,  $F(2, 399) = 14.858$ ,  $p \leq 0.05$ . There was also a significant difference between Time 1 and Time 2 for girls,  $F(2, 380) = 24.920$ ,  $p \leq 0.05$ , and boys,  $F(2, 399) = 13.615$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = 3.68$ ,  $SD = 6.08$ ) than at School 2 ( $M = .98$ ,  $SD = 6.38$ ) and at School 3 ( $M = .27$ ,  $SD = 5.64$ ). Among boys, School 1 ( $M = 3.27$ ,  $SD = 6.33$ ) was significantly greater than School 2 ( $M$

= .17,  $SD = 7.51$ ) and School 3 ( $M = -.88$ ,  $SD = 5.57$ ). For girls, the difference in change mean scores between Time 1 and 2 was significantly greater at School 1 ( $M = 4.2$ ,  $SD = 5.83$ ) than School 2 ( $M = -.66$ ,  $SD = 4.75$ ) and School 3 ( $M = .51$ ,  $SD = 5.24$ ). Similarly, for boys, the difference in change mean scores was significantly greater at School 1 ( $M = 3.8$ ,  $SD = 5.33$ ) than School 2 ( $M = .26$ ,  $SD = 6.24$ ) and School 3 ( $M = 1.27$ ,  $SD = 5.06$ ).

### Summary

As demonstrated in Figure 4.7, at no point did flexibility change as a function of the level of engagement with “Move It”. Between both times, girls and boys at School 1 (low-level engagement) made a substantial overall improvement than their peers at other schools.

#### 4.2.8.4. Vertical jump

When the data was split by sex, among girls, there was a statistically significant main effect for time,  $F(2, 1140) = 22.997$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .039$  (small). The mean frequency for Vertical Jump at year one ( $M = 25.34$ ,  $SD = 5.65$ ) was significantly higher than at the end of year 3 ( $M = 22.28$ ,  $SD = 6.29$ ). There was no statistically significant main effect for school,  $F(2, 1140) = .028$ ,  $p > 0.05$ ,  $\eta_p^2 = .00$  (small). The interaction effect between time and school was found to be significant,  $F(2, 1140) = 4.858$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .01$  (small). Among boys, there was a statistically significant main effect for time  $F(2, 1197) = 19.352$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .03$  (small). There was no statistically significant main effect for school,  $F(2, 1197) = 2.289$ ,  $p > 0.05$ ,  $\eta_p^2 = .004$  (small). The interaction effect between time and school was significant,  $F(2, 1197) = 4.875$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .016$  (small). Overall, all post hoc comparisons were not found to be significant for girls and there were no significant post hoc comparisons amongst boys. The means and the standard deviations are presented in Table 4.18. The post hoc test is shown in Table 4.19

Table 4.18 Descriptive statistics for girls and boys vertical jump with statistics test scores for time (1,2,3) and school (1,2,3)

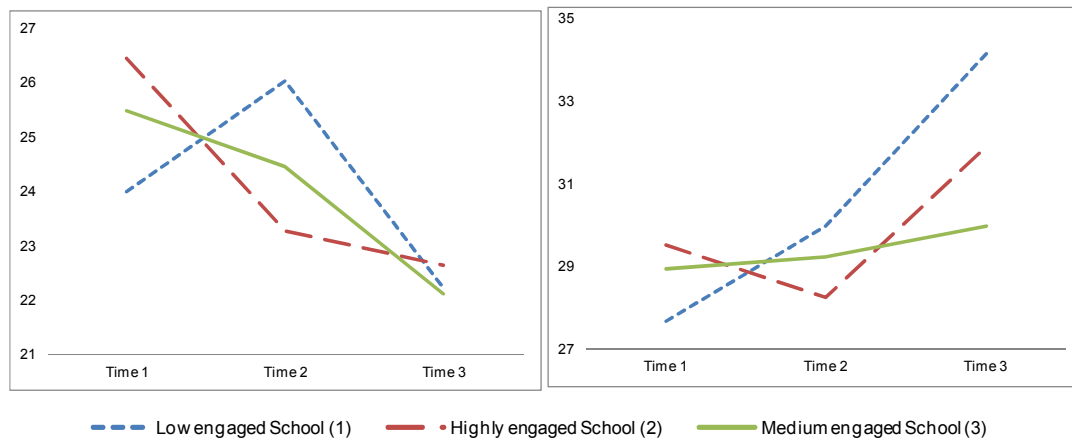
Time	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	23.98	5.28
		High-level engagement (2)	108	26.43	5.05
		Medium-level engagement (3)	172	25.48	6.08
T 2	Girls	Low-level engagement (1)	103	26.02	6.85
		High-level engagement (2)	108	23.26	5.45
		Medium-level engagement (3)	172	24.44	7.11
T 3	Girls	Low-level engagement (1)	103	22.22	7.07
		High-level engagement (2)	108	22.63	5.63
		Medium-level engagement (3)	172	22.10	6.21
T 1	Boys	Low-level engagement (1)	124	27.67	6.87
		High-level engagement (2)	125	29.51	12.28
		Medium-level engagement (3)	152	28.93	5.91
T 2	Boys	Low-level engagement (1)	124	29.98	7.96
		High-level engagement (2)	125	28.23	6.95
		Medium-level engagement (3)	152	29.23	6.98
T 3	Boys	Low-level engagement (1)	124	34.12	9.51
		High-level engagement (2)	125	31.90	8.43
		Medium-level engagement (3)	152	29.98	7.24

Table 4.19 Summary of post hoc test results for girls and boys by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference	Sig.	Sig Y/N
Vjump Girls	Low-level engagement (1)	High-level engagement (2)	-0.0332	0.997	N
		Medium-level engagement (3)	0.0655	0.988	N
	High-level engagement (2)	Low-level engagement (1)	0.0332	0.997	N
		Medium-level engagement (3)	0.0987	0.972	N
	Medium-level engagement (3)	Low-level engagement (1)	-0.0655	0.988	N
		High-level engagement (2)	-0.0987	0.972	N
Vjump Boys	Low-level engagement (1)	High-level engagement (2)	0.7089	0.458	N
		Medium-level engagement (3)	1.2112	0.083	N
	High-level engagement (2)	Low-level engagement (1)	-0.7089	0.458	N
		Medium-level engagement (3)	0.5024	0.647	N
	Medium-level engagement (3)	Low-level engagement (1)	-1.2112	0.083	N
		High-level engagement (2)	-0.5024	0.647	N



Figure 4.9 Results of ANOVA for girls and boys by school for vertical jump



When the results for the dependent variables were considered separately, for girls pairwise comparisons showed that at Time 1, Vertical Jump was significantly higher at School 2 ( $M = 26.42$ ,  $SD = 5.04$ ) than at School 1 ( $M = 23.98$ ,  $SD = 5.27$ ). At Time 2, Vertical Jump was significantly higher at School 1 ( $M = 26.02$ ,  $SD = 6.84$ ) than at School 2 ( $M = 23.26$ ,  $SD = 5.44$ ). For boys pairwise comparisons showed that at Time 3, School 1 ( $M = 34.11$ ,  $SD = 9.50$ ) was significantly higher than School 3 ( $M = 29.98$ ,  $SD = 7.24$ ). All other pairwise comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference in change mean scores for the three schools between Time 1 and Time 3, among girls  $F(2, 380) = 3.122$ ,  $p \leq 0.05$  and among boys  $F(2, 399) = 13.659$ ,  $p \leq 0.05$ . There was also a significant difference between Time 1 and Time 2 for girls,  $F(2, 380) = 19.379$ ,  $p \leq 0.05$  and for boys  $F(2, 399) = 5.914$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in change scores between Time 1 and Time 3 was significantly greater for boys at School 1 ( $M = 6.44$ ,  $SD = 7.19$ ) than School 2 ( $M = 2.39$ ,  $SD = 12.38$ ) and School 3 ( $M = 1.05$ ,  $SD = 5.8$ ). The difference in change scores between Time 1 and 2, was, for girls, significantly greater at School 1 ( $M = 2.04$ ,  $SD = 6.46$ ) than School 2 ( $M = -3.16$ ,  $SD = 6.20$ ) and School 3 ( $M = -1.04$ ,  $SD = 5.82$ ). Also, School 3 was significantly greater than School 2. For boys, School 1 ( $M = 2.3$ ,  $SD = 6.72$ ) was significantly greater than School 2 ( $M = -1.28$ ,  $SD = 10.95$ ).

### Summary

As demonstrated in Figure 4.8, at no point did explosive power improve as a function of the level of engagement in “Move It”. Boys at School 1 (low-level engagement) made a bigger overall improvement in explosive power than their peers at the other schools.

#### 4.2.8.5. Multi Stage Fitness Test (MSFT)

When the data was split by sex, among girls there was a statistically significant main effect for time  $F(2, 1140) = 3.642, p \leq 0.05, \eta_p^2 = .006$  (small). The mean frequency for MSFT at year one ( $M = 4.48, SD = 1.39$ ) was significantly higher than at the end of year 3 ( $M = 4.14, SD = 3.45$ ). There was a statistically significant main effect for school,  $F(2, 1140) = 56.404, p \leq 0.05, \eta_p^2 = .09$  (moderate). The interaction effect between time and school was also found to be significant,  $F(2, 1140) = 8.319, p \leq 0.05, \eta_p^2 = .028$  (small). Amongst boys, there was also a statistically significant main effect for time,  $F(2, 1196) = 24.561, p \leq 0.05, \eta_p^2 = .04$  (small). There was also a statistically significant main effect for school,  $F(2, 1196) = 38.333, p \leq 0.05, \eta_p^2 = 0.06$  (moderate). The interaction effect between time and school was also significant,  $F(2, 1196) = 7.673, p \leq 0.05$ . This was a small effect  $\eta_p^2 = .025$  (small).

Overall, post hoc comparison showed for girls that the mean score for School 1 (low-level engagement) was significantly higher than School 2 (high-level engagement) and School 3 (medium-level engagement). School 3 (medium-level engagement) was also significantly higher than School 2 (high-level engagement). Girls at School 1 (low-level engagement) were the fittest and girls at School 2 (high-level engagement) were the least fit. Amongst boys the mean score for School 1 (low-level engagement) was significantly higher than at School 2 (high-level engagement) and School 3 (medium-level engagement). School 2 (high-level engagement) and School 3 (medium-level engagement) did not differ significantly. Boys at School 1 (low-level engagement) were fitter than boys at the other schools. The means and the standard deviations are presented in Table 4.20. The post hoc test is shown in Table 4.21.

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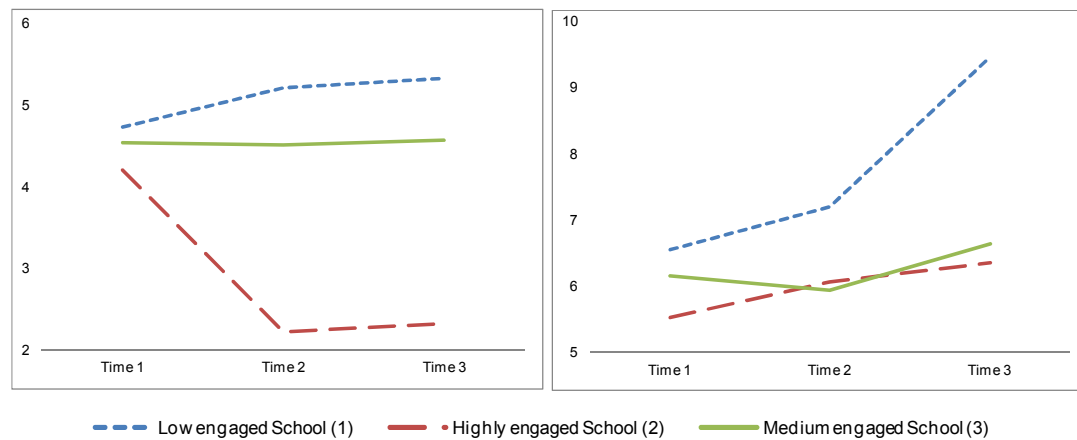
Table 4.20 Descriptive statistics for girls and boys MSFT with statistics test scores for time (1,2,3) and school (1,2,3)

Time	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	4.73	1.23
		High-level engagement (2)	108	4.20	1.27
		Medium-level engagement (3)	172	4.53	1.53
T 2	Girls	Low-level engagement (1)	103	5.20	1.39
		High-level engagement (2)	108	2.22	5.47
		Medium-level engagement (3)	172	4.50	1.38
T 3	Girls	Low-level engagement (1)	103	5.33	1.56
		High-level engagement (2)	108	2.32	5.72
		Medium-level engagement (3)	172	4.57	1.23
T 1	Boys	Low-level engagement (1)	124	6.55	1.81
		High-level engagement (2)	125	5.52	3.30
		Medium-level engagement (3)	152	6.16	2.12
T 2	Boys	Low-level engagement (1)	124	7.19	2.33
		High-level engagement (2)	125	6.07	3.92
		Medium-level engagement (3)	152	5.93	2.73
T 3	Boys	Low-level engagement (1)	124	9.45	2.32
		High-level engagement (2)	125	6.35	4.09
		Medium-level engagement (3)	152	6.63	3.22

Table 4.21 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
MSFT Girls	Low-level engagement (1)	High-level engagement (2)	2.1747(*)	0.000	Y
		Medium-level engagement (3)	.5528(*)	0.013	N
	High-level engagement (2)	Low-level engagement (1)	-2.1747(*)	0.000	Y
		Medium-level engagement (3)	-1.6218(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	-.5528(*)	0.013	N
		High-level engagement (2)	1.6218(*)	0.000	Y
MSFT Boys	Low-level engagement (1)	High-level engagement (2)	1.7293(*)	0.000	Y
		Medium-level engagement (3)	1.4894(*)	0.000	N
	High-level engagement (2)	Low-level engagement (1)	-1.7293(*)	0.000	Y
		Medium-level engagement (3)	-0.2399	0.473	N
	Medium-level engagement (3)	Low-level engagement (1)	-1.4894(*)	0.000	Y
		High-level engagement (2)	0.2399	0.473	N

Figure 4.10 Results of ANOVA for girls and boys by school for MSFT



When the results for the dependent variables were considered separately, for girls pairwise comparisons showed that at time two, MSFT was significantly higher at School 1 ( $M = 5.19$ ,  $SD = 1.38$ ) than at 2 ( $M = 2.21$ ,  $SD = 5.46$ ) and results at School 3 ( $M = 4.57$ ,  $SD = 1.23$ ) were higher than at School 2 (high-level engagement). At Time 3, MSFT was significantly higher at School 1 ( $M = 5.33$ ,  $SD = 1.52$ ) and at School 3 ( $M = 4.57$ ,  $SD = 1.23$ ) than at School 2 ( $M = 2.32$ ,  $SD = 5.72$ ). For boys pairwise comparisons showed that at Time 1, that MSFT was significantly higher at School 1 ( $M = 6.54$ ,  $SD = 1.80$ ) than at School 2 ( $M = 5.52$ ,  $SD = 3.30$ ). At Time 2, MSFT was significantly higher at School 1 ( $M = 7.18$ ,  $SD = 2.32$ ) than at School 2 ( $M = 6.07$ ,  $SD = 3.91$ ) and at School 3 ( $M = 5.92$ ,  $SD = 2.73$ ), and at Time 3, results at School 1 ( $M = 9.45$ ,  $SD = 2.31$ ) were significantly higher than at School 2 ( $M = 6.35$ ,  $SD = 4.09$ ) and at School 3 ( $M = 6.63$ ,  $SD = 3.21$ ). However other comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference in scores for the three schools between Time 1 and Time 3 for girls,  $F(2, 380) = 14.771$ ,  $p \leq 0.05$  and boys  $F(2, 399) = 18.279$ ,  $p \leq 0.05$ . There was also a statistically significant difference in scores between Time 1 and Time 2 for girls  $F(2, 380) = 16.291$ ,  $p \leq 0.05$ , but not for boys  $F(2, 399) = 2.658$ , ns.

Post hoc comparisons using Tukey HSD indicated that, among girls, the difference in change scores between Time 1 and Time 3, was significantly lower at School 2 ( $M = -1.87$ ,  $SD = 6.28$ ) than School 1 ( $M = .59$ ,  $SD = 1.71$ ) and School 3 ( $M =$

.04,  $SD = 1.22$ ). Among boys, the difference in change scores was significantly greater at School 1 ( $M = 2.90$ ,  $SD = 1.53$ ) than School 2 ( $M = .83$ ,  $SD = 5.35$ ) and School 3 ( $M = .47$ ,  $SD = 2.64$ ). For girls, difference the change scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = .46$ ,  $SD = 1.31$ ) than School 2 ( $M = -1.98$ ,  $SD = 6.02$ ) and School 3 ( $M = -0.30$ ,  $SD = 1.19$ ). School 3 (medium-level engagement) was also significantly greater than School 2 (high-level engagement).

#### 4.2.8.6. Summary

As demonstrated in Figure 4.10, at no point over the three years did fitness improve as a product of engagement with “Move It”. There was an overall decrease in fitness amongst girls at School 2 (high-level engagement) although girls at Schools 1 (low-level engagement) and School 3 (medium-level engagement) did not become less fit. Girls and boys at School 1 (low-level engagement) were fitter than girls and boys at School 2 (high-level engagement) and School 3 (medium-level engagement).

Table 4.22 Summary of significant differences

	Time		Significant Difference
BMI	1	Boys	High-level engagement (2) > Medium-level engagement (3)
	2	Girls	High-level engagement (2) > Low-level engagement (1); High-level engagement (2) > Medium-level engagement (3)
	3	Girls	High-level engagement (2) > Low-level engagement (1)
Sit & Reach	1	Girls	High-level engagement (2) > Low-level engagement (1); High-level engagement (2) > Medium-level engagement (3)
		Boys	High-level engagement (2) > Low-level engagement (1)
	3	Boys	Low-level engagement (1) > Medium-level engagement (3)
Vjump	1	Girls	High-level engagement (2) > Low-level engagement (1)
	2	Girls	Low-level engagement (1) > High-level engagement (2)
	3	Boys	Low-level engagement (1) > Medium-level engagement (3)
MSFT	1	Boys	Low-level engagement (1) > High-level engagement (2)
	2	Girls	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
	2	Boys	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)
	3	Girls	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)
	3	Boys	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)

### 4.3. Self-esteem results

This section shows the analysis of the measures used to examine the impact of sport on self-esteem, as measured by the SPPC (Harter, 1985). This questionnaire, which is described more fully in Chapter three, methods, measures self-esteem in six areas, namely scholastic competence, social acceptance, athletic competence, physical appearance, behavioural conduct and overall self-worth.

Two-way between groups analysis of variance (ANOVA), as suggested by Pallant, 2007, were used to investigate the impact of the intervention on physical and psychological tests across time. It allowed the inclusion of between-subjects and within-subjects variables in the one analysis. The between subject factor was school (3 levels) and the within subject factor was time (3 levels). The continuous dependent variables were the physical and psychological results that were measured at three time periods. The advantage of the mixed design is that it tests for main effects of each independent variable (school and time) and whether the interaction between the two variables is significant (Pallant, 2007). The interaction effect refers to the interaction of variables with one another to influence scores on the dependent variable (Pallant, 2007). This approach is necessary in order to understand whether variables have interacted with each other to determine outcomes. The ANOVA's revealed a number of significant effects and interaction. A two-way between groups ANOVA was conducted to compare scores on the sport on self-esteem as measured by athletic competence, social acceptance, athletic competence, physical appearance, behavior conduct and global self-worth at three different times, namely the end of school year 7, the end of school year 8 and the end of school year 9. Subjects were from three groups (schools). The schools are identified by their level of engagement with the programme, namely School 1 (1) 'low-level engagement', School 2 'high-level engagement' and School 3 'medium-level engagement'.

Significance was reported at alpha level  $p \leq 0.05$ . The effect size ( $\eta_p^2$ ) represents the degree of association between an effect and a dependent variable. This value was provided by partial eta squared which is an estimate of the degree of association for the sample. The size of an effect was interpreted as; .01 small effect, .06 moderate effect, .14 large effect, as suggested by Cohen, (1988). Post hoc comparisons using Tukey HSD test were conducted to determine significant differences between the schools. A

Bonferroni correction was applied to the probability at which significance was accepted as recommended by Pallant (2004).

The effects of interest were;

- within-subject effects (TIME). Specifically, was there a significant difference in results over time for each group of subjects?
- interactions between the two types of effects (GROUP\*TIME) specifically was there a significant difference in results over time within each group?
- between-subject effects (GROUP) specifically was there a significant difference over time in results between the groups?

Results were reported to answer the following questions;

Question 1: is there a significant difference (in scores) over time?

Question 2: is there a significant difference in scores over time within each group?

Question 3: is there a significant difference over time for scores between each group?

Pairwise comparisons were then made to identify where any significant differences lay.

#### **4.3.1. Results**

There was a significant main effect for time in all areas of self-esteem, except behavioural conduct. Having established this, a possible interaction between school and time was tested. An interaction between time and school was found for all tests except physical appearance.

##### **4.3.1.1. Self-evaluated academic competence**

Overall, there was no statistically significant main effect for time,  $F(2, 2346) = .680$ , ns,  $\eta_p^2 = .001$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 16.560$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .014$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 3.696$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .006$  (small) indicating that variance in academic competence over school could be accounted for by the interaction of time and school.

Post hoc comparisons using Tukey HSD test indicated that the mean score for School 2 (high-level engagement) was statistically different from School 1 (low-level engagement) and School 3 (medium-level engagement) also differed significantly from School 3 (medium-level engagement). School 1 and 3 did not differ significantly. Participants at School 2 (high-level engagement) gave themselves a lower self-rating of their academic competence than participants from Schools 1 and 3. The means and the standard deviations are presented in Table 4.23. The post hoc tests are shown in Table 4.24.

Table 4.23 Descriptive statistics for academic competence with statistics test scores for time (1,2,3) and school (1,2,3)

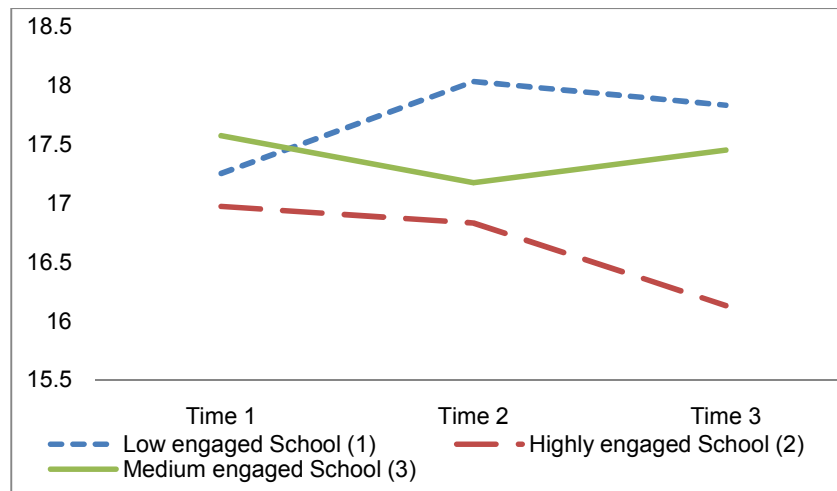
	School	N	Mean	Standard Deviation
Time 1	Low-level engagement (1)	227	17.25	3.791
	High-level engagement (2)	233	16.97	5.655
	Medium-level engagement	325	17.57	3.382
Time 2	Low-level engagement (1)	227	18.03	3.283
	High-level engagement (2)	233	16.83	2.946
	Medium-level engagement	325	17.17	3.012
Time 3	Low-level engagement (1)	227	17.83	3.082
	High-level engagement (2)	233	16.13	3.193
	Medium-level engagement	325	17.45	3.186

Table 4.24 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	1.06(*)	0.000	Y
	Medium-level engagement (3)	0.31	0.191	N
High-level engagement (2)	Low-level engagement (1)	-1.06(*)	0.000	Y
	Medium-level engagement (3)	-.75(*)	0.000	Y
Medium-level engagement (3)	Low-level engagement (1)	-0.31	0.191	N
	High-level engagement (2)	.75(*)	0.000	Y



Figure 4.11 Academic competence results by school over time



Mean scores showed that at Time 2 (the end of school year eight), academic competence was significantly higher at School 1 ( $M = 18.03$ ,  $SD = 3.28$ ) than at School 2 ( $M = 16.84$ ,  $SD = 2.94$ ) and at School 3 ( $M = 17.17$ ,  $SD = 3.01$ ) and academic competence was also higher at School 3 (medium-level engagement) than at School 2 (high-level engagement). At Time 3 (end of school year nine), results for School 1 ( $M = 17.83$ ,  $SD = 3.08$ ) was significantly higher than at School 2 ( $M = 16.13$ ,  $SD = 3.19$ ), and also was significantly higher at School 3 ( $M = 17.45$ ,  $SD = 3.18$ ) than at School 2 (high-level engagement). All other pairwise comparisons were not found to be significant. Results showed that over three years academic competence at School 2 (high-level engagement) was significantly lower than at School 1 (low-level engagement) and at School 3 (medium-level engagement).

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 5.740$ ,  $p \leq 0.05$ , and between Time 1 and Time 2  $F(2, 782) = 7.644$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .57$ ,  $SD = 3.20$ ) than at School 2 ( $M = -.74$ ,  $SD = 6.67$ ). The difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = .78$ ,  $SD = 3.30$ ) than at School 2 ( $M = -.13$ ,  $SD = 5.80$ ) or School 3 ( $M = -.39$ ,  $SD = 2.85$ ).

### Summary

As demonstrated in Figure 4.11, at no point did academic competence improve as a function of the level of engagement in “Move It”. Having recorded the highest scores among the schools at the end of year one, School 1 (low-level engagement) made the greatest improvement. It improved between Time 1 and Time 2 and continued to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall as did School 3 (medium-level engagement).

#### 4.3.1.2. *Self-evaluated social acceptance*

Overall, there was no statistically significant main effect for time,  $F(2, 2346) = 2.522, p > 0.05, \eta_p^2 = .002$  (small). There was a statistically significant main effect for school, ( $F(2, 2346) = 33.518, p \leq 0.05, \eta_p^2 = .028$  (small)). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 6.537, p \leq 0.05, \eta_p^2 = .011$  (small) indicating that variance in social acceptance over school could be accounted for by the interaction of time and school.

Overall post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was statistically lower from School 1 (low-level engagement) and School 3 (medium-level engagement). School 1 and 3 did not differ significantly. Participants at School 2 (high-level engagement) felt less socially accepted than participants from Schools 1 (low-level engagement) and 3 (medium-level engagement). The means and the standard deviations are presented in Table 4.25. The post hoc test is shown in Table 4.26.

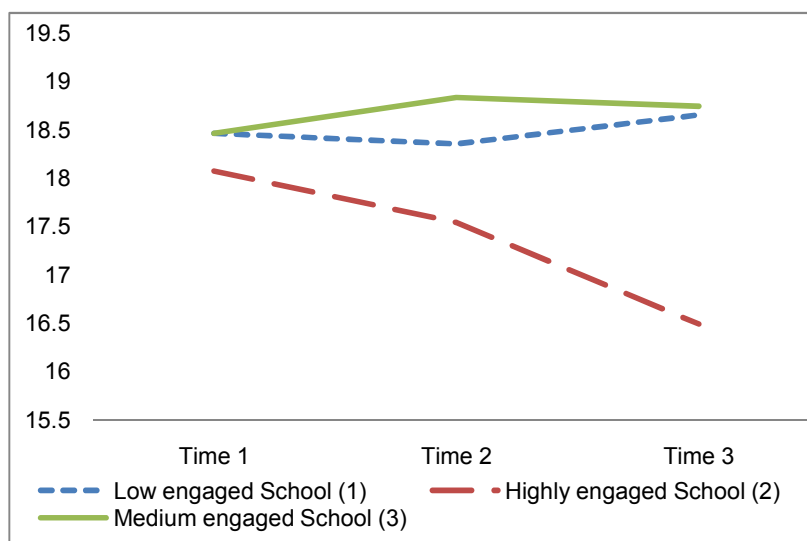
Table 4.25 Descriptive statistics for social acceptance with statistics test scores for time (1,2,3) and school (1,2,3)

	School	N	Mean	Standard Deviation
Time 1	Low-level engagement	227	18.46	3.44
	High-level engagement	233	18.07	3.86
	Medium-level	325	18.46	3.44
Time 2	Low-level engagement	227	18.35	3.23
	High-level engagement	233	17.54	3.16
	Medium-level	325	18.83	3.17
Time 3	Low-level engagement	227	18.65	2.97
	High-level engagement	233	16.49	3.62
	Medium-level	325	18.74	3.29

Table 4.26 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	1.12(*)	0.000	Y
	Medium-level engagement (3)	-0.19	0.511	N
High-level engagement (2)	Low-level engagement (1)	-1.12(*)	0.000	Y
	Medium-level engagement (3)	-1.31(*)	0.000	Y
Medium-level engagement (3)	Low-level engagement (1)	0.19	0.511	N
	High-level engagement (2)	1.31(*)	0.000	Y

Figure 4.12 Social acceptance results by school over time



Mean scores showed that at Time 2, Social Acceptance was significantly higher at School 1 ( $M = 18.35$ ,  $SD = 3.26$ ) than at School 2 ( $M = 17.54$ ,  $SD = 3.16$ ) and also Social Acceptance was significantly higher at School 3 ( $M = 18.83$ ,  $SD = 3.17$ ) than at School 1. At Time 3, results were significantly higher at School 1 ( $M = 18.65$ ,  $SD = 2.97$ ) and at School 3 ( $M = 18.74$ ,  $SD = 3.29$ ) than at School 2 ( $M = 16.49$ ,  $SD = 3.62$ ). All other pairwise comparisons were not found to be significant. Results showed that over three years social acceptance at School 2 (high-level engagement) was significantly lower than at School 1 (low-level engagement) and at School 3 (medium-level engagement).

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 17.894$ ,  $p \leq 0.05$ , and between Time 1 and Time 2  $F(2, 782) = 5.393$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .19$ ,  $SD = 3.83$ ) than at School 2 ( $M = -1.5$ ,  $SD = 4.94$ ) and at School 3 ( $M = .27$ ,  $SD = 3.01$ ) than at School 2 (high-level engagement). The difference in scores between Time 1 and Time 2 was significantly greater at School 3 ( $M = .37$ ,  $SD = 2.89$ ) than at School 2 ( $M = -.52$ ,  $SD = 3.43$ ).

### **Summary**

As demonstrated in Figure 4.12, at no point did Social Acceptance improve as a function of the level of engagement in “Move It”. Having recorded the lowest scores amongst the schools at the end of year one, School 1 (low-level engagement) made the greatest improvement. It improved between Time 1 and Time 2 and continued to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall.

#### **4.3.1.3. Self-evaluated athletic competence**

Overall, there was a statistically significant main effect for time,  $F(2, 2346) = 3.562$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .003$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 10.307$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .009$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 4.865$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .008$  (small) indicating that variance in athletic competence over school could be accounted for by the interaction of time and school.

Overall post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was significantly lower than School 1 (low-level engagement) and School 3 (medium-level engagement). School 1 (low-level engagement) and 3 did not differ significantly. Participants at School 2 (high-level engagement) had a lower perception of their athletic competence than participants from Schools 1 and 3. The means and the standard deviations are presented in Table 4.27. The post hoc test is shown in Table 4.28.

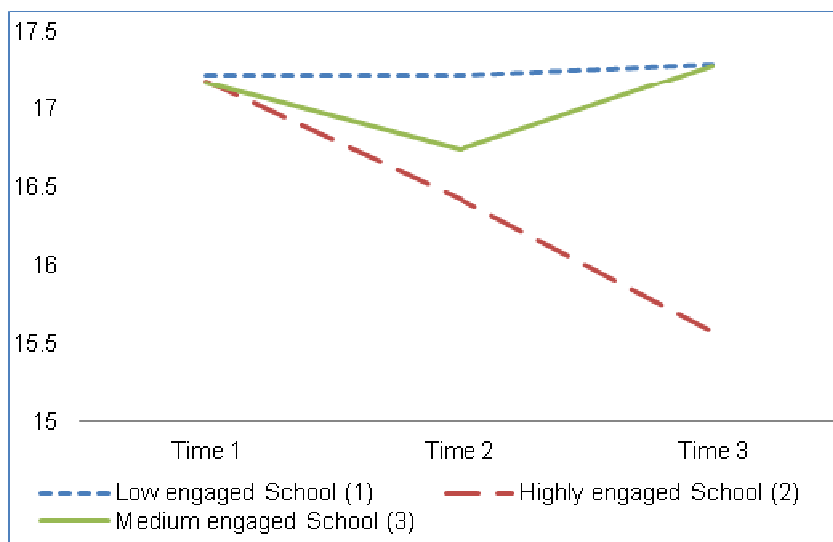
Table 4.27 Descriptive statistics for athletic competence with statistics test scores for time (1,2,3) and school (1,2,3)

	School	N	Mean TAC	Standard Deviation
Time 1	Low-level engagement (1)	227	17.22	3.85
	High-level engagement (2)	233	17.18	4.59
	Medium-level engagement	325	17.16	3.82
Time 2	Low-level engagement (1)	227	17.22	3.65
	High-level engagement (2)	233	16.42	2.92
	Medium-level engagement	325	16.74	6.31
Time 3	Low-level engagement (1)	227	17.29	3.51
	High-level engagement (2)	233	15.57	2.99
	Medium-level engagement	325	17.28	3.84

Table 4.28 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	.85(*)	0.000	Y
	Medium-level engagement (3)	0.18	0.596	N
High-level engagement (2)	Low-level engagement (1)	-.85(*)	0.000	Y
	Medium-level engagement (3)	-.67(*)	0.001	Y
Medium-level engagement (3)	Low-level engagement (1)	-0.18	0.596	N
	High-level engagement (2)	.67(*)	0.001	Y

Figure 4.13 Athletic competence results by school over time



Mean scores showed that at Time 2, athletic competence was significantly higher at School 1 ( $M = 17.29$ ,  $SD = 3.51$ ) than at School 2 ( $M = 15.57$ ,  $SD = 2.99$ ) and athletic competence was significantly higher at School 3 ( $M = 17.28$ ,  $SD = 3.84$ ) than at School 2 (high-level engagement). All other pairwise comparisons were not found to be significant.

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 14.197$ ,  $p \leq 0.05$ , but not between Time 1 and Time 2  $F(2, 782) = 2.376$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .07$ ,  $SD = 3.87$ ) than at School 2 ( $M = -1.6$ ,  $SD = 5.25$ ) and at School 3 ( $M = .11$ ,  $SD = 4.15$ ) than at School 2 (high-level engagement).

### **Summary**

As demonstrated in Figure 4.13, at no point did athletic competence improve as a function of the level of engagement in “Move It”. Having recorded the highest scores amongst the schools at the end of year one, School 1 (low-level engagement) made the greatest improvement. It improved between Time 1 and Time 3. School 2 (high-level engagement) decreased overall.

#### **4.3.1.4. Self-evaluated physical appearance**

Overall, there was no statistically significant main effect for time,  $F(2, 2346) = 1.102$ , ns,  $\eta_p^2 = .001$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 14.698$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .012$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 5.373$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .009$  (small).

Overall post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was statistically lower from School 1 (low-level engagement) and from School 3 (medium-level engagement). School 1 (low-level engagement) and 3 did not differ significantly. Participants at School 2 (high-level engagement) rated their behaviour lower than participants at School 1 (low-level engagement) and School 3 (medium-level engagement) rated their own behaviour. The

means and the standard deviations are presented in Table 4.29. The post hoc test is shown in Table 4.30.

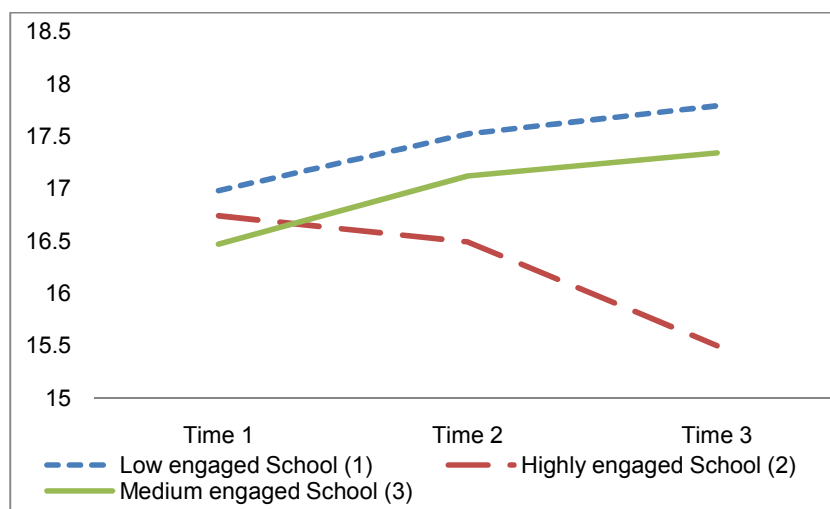
Table 4.29 Descriptive statistics for physical appearance with statistics test scores for time (1,2,3) and school (1,2,3)

	School	N	Mean	Standard Deviation
Time 1	Low-level engagement (1)	227	16.98	4.40
	High-level engagement (2)	233	16.74	4.85
	Medium-level engagement (3)	325	16.47	3.90
Time 2	Low-level engagement (1)	227	17.52	4.31
	High-level engagement (2)	233	16.49	3.85
	Medium-level engagement (3)	325	17.12	4.10
Time 3	Low-level engagement (1)	227	17.79	3.82
	High-level engagement (2)	233	15.50	3.43
	Medium-level engagement (3)	325	17.34	4.13

Table 4.30 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	1.18(*)	0.000	Y
	Medium-level engagement (3)	0.45	0.069	N
High-level engagement (2)	Low-level engagement (1)	-1.18(*)	0.000	Y
	Medium-level engagement (3)	-.73(*)	0.001	Y
Medium-level engagement (3)	Low-level engagement (1)	-0.45	0.069	N
	High-level engagement (2)	.73(*)	0.001	Y

Figure 4.14 Physical appearance results by school over time



Mean scores showed that at Time 2 physical appearance was significantly higher at School 1 ( $M = 17.52$ ,  $SD = 4.31$ ) than at School 2 ( $M = 16.49$ ,  $SD = 3.85$ ) and at Time 3 physical appearance at School 2 ( $M = 15.50$ ,  $SD = 3.43$ ) was significantly lower than at School 1 ( $M = 17.79$ ,  $SD = 3.82$ ) and at School 3 ( $M = 17.34$ ,  $SD = 4.13$ ). All other pairwise comparisons were not found to be significant.

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 16.093$ ,  $p \leq 0.05$ , and between Time 1 and Time 2  $F(2, 782) = 3.715$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .81$ ,  $SD = 4.06$ ) than at School 2 ( $M = -1.2$ ,  $SD = 5.86$ ) and at School 3 ( $M = .87$ ,  $SD = 4.18$ ) than at School 2 (high-level engagement). The difference in scores between Time 1 and Time 2 was significantly greater at School 3 ( $M = .65$ ,  $SD = 3.97$ ) than at School 2 ( $M = -.25$ ,  $SD = 4.48$ ).

### **Summary**

As demonstrated in Figure 4.14, at no point did Physical Appearance improve as a function of the level of engagement in “Move It”. Having recorded the highest scores amongst the schools at the end of year three, School 1 (low-level engagement) made the greatest improvement. It improved between Time 1 and Time 2 and continued to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall.

#### **4.3.1.5. Self-evaluated behavioural conduct**

Overall, there was no statistically significant main effect for time,  $F(2, 2346) = 2.519$ , ns,  $\eta_p^2 = .002$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 24.531$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .020$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 2.914$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .005$  (small).

Overall post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was significantly lower from School 1 (low-level engagement) and from School 3 (medium-level engagement). School 1 (low-level engagement) and 3 did not differ significantly. Participants at School 2 (high-level



engagement) rated their behaviour lower than participants at School 1 (low-level engagement) and School 3 (medium-level engagement) rated their own behaviour. The means and the standard deviations are presented in Table 4.31. The post hoc test is shown in Table 4.32.

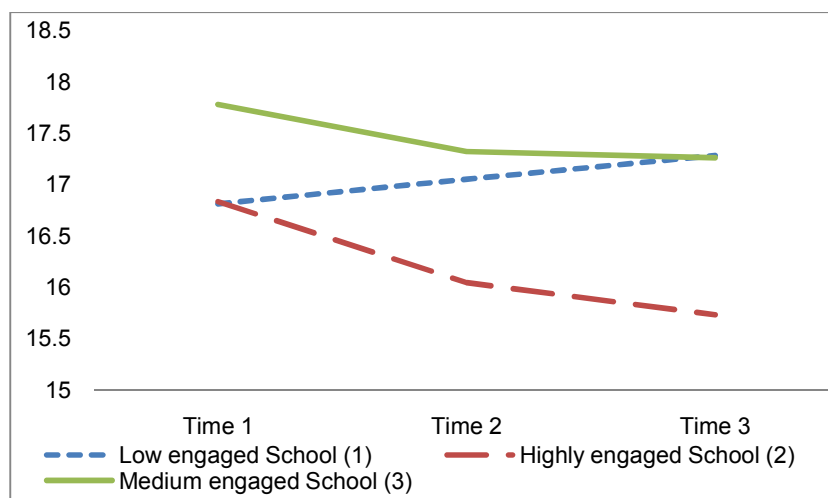
Table 4.31 Descriptive statistics for behavioural conduct with statistics test scores for time (1,2,3) and school (1,2,3)

	School	N	Mean	Standard Deviation
Time 1	Low-level engagement (1)	227	16.81	3.68
	High-level engagement (2)	233	16.83	5.30
	Medium-level engagement (3)	325	17.78	3.65
Time 2	Low-level engagement (1)	227	17.05	3.44
	High-level engagement (2)	233	16.04	3.18
	Medium-level engagement (3)	325	17.32	3.14
Time 3	Low-level engagement (1)	227	17.28	3.28
	High-level engagement (2)	233	15.73	3.08
	Medium-level engagement (3)	325	17.26	3.52

Table 4.32 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	.85(*)	0.000	Y
	Medium-level engagement (3)	-0.41	0.065	N
High-level engagement (2)	Low-level engagement (1)	-.85(*)	0.000	Y
	Medium-level engagement (3)	-1.25(*)	0.000	Y
Medium-level engagement (3)	Low-level engagement (1)	0.41	0.065	N
	High-level engagement (2)	1.25(*)	0.000	Y

Figure 4.15 Behavioural conduct results by school over time



Mean scores showed that at Time 1, behavioral conduct was significantly higher at School 3 ( $M = 17.78$ ,  $SD = 3.65$ ) than at School 1 ( $M = 16.81$ ,  $SD = 3.68$ ) and at School 2 ( $M = 16.83$ ,  $SD = 5.30$ ). At Time 2 behavioral conduct was significantly higher at School 1 ( $M = 17.05$ ,  $SD = 3.44$ ) than at School 2 ( $M = 16.04$ ,  $SD = 3.18$ ) and it was significantly higher at School 3 ( $M = 17.32$ ,  $SD = 3.14$ ) than at School 2 (high-level engagement). At Time 3, behavioral conduct at School 2 ( $M = 15.73$ ,  $SD = 3.08$ ) were significantly lower than at School 1 ( $M = 17.28$ ,  $SD = 3.28$ ) and at School 3 ( $M = 17.26$ ,  $SD = 3.52$ ). All other pairwise comparisons were not found to be significant.

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 7.460$ ,  $p \leq 0.05$ , and between Time 1 and Time 2  $F(2, 782) = 3.985$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .47$ ,  $SD = 3.23$ ) than at School 2 ( $M = -1.10$ ,  $SD = 6.13$ ) and at School 3 ( $M = -.52$ ,  $SD = 3.68$ ). The difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = .24$ ,  $SD = 3.54$ ) than at School 2 ( $M = -.79$ ,  $SD = 5.23$ ).

### **Summary**

As demonstrated in Figure 4.15, at no point did behavioral conduct improve as a function of the level of engagement in “Move It”. School 1 (low-level engagement) and School 3 (medium-level engagement) made improvements. They improved between Time 1 and Time 2 and continued to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall.

#### **4.3.1.6. Self-evaluated global self-worth**

Overall, there was no statistically significant main effect for time,  $F(2, 2346) = 1.668$ , ns,  $\eta_p^2 = .001$  (small). There was a statistically significant main effect for school  $F(2, 2346) = 24.498$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .020$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 8.798$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .015$  (small).

Overall post hoc comparisons using Tukey HSD test showed that the mean score for School 2 (high-level engagement) was statistically lower from School 1 (low-level

engagement) and from School 3 (medium-level engagement). School 1 (low-level engagement) and 3 did not differ significantly. Participants at School 2 (high-level engagement) rated their global self-worth lower than participants at School 1 (low-level engagement) and School 3 (medium-level engagement). The means and the standard deviations are presented in Table 4.33. The post hoc test is shown in Table 4.34.

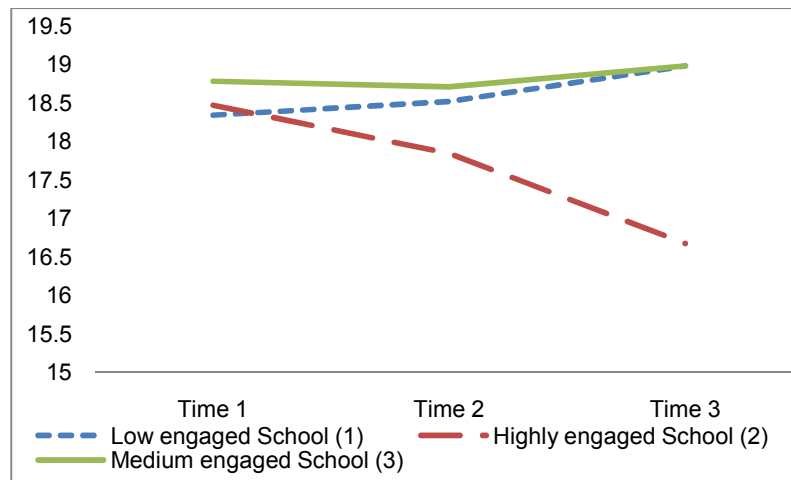
Table 4.33 Descriptive statistics for global self-worth with statistics test scores for time (1,2,3) and school (1,2,3)

	School	N	Mean TGSW	Standard Deviation
Time 1	Low-level engagement (1)	227	18.34	3.83
	High-level engagement (2)	233	18.47	3.05
	Medium-level engagement (3)	325	18.78	3.50
Time 2	Low-level engagement (1)	227	18.52	3.62
	High-level engagement (2)	233	17.84	3.09
	Medium-level engagement (3)	325	18.71	3.31
Time 3	Low-level engagement (1)	227	18.98	3.48
	High-level engagement (2)	233	16.67	3.69
	Medium-level engagement (3)	325	18.98	3.51

Table 4.34 Summary of post hoc test results by school (1,2,3)

(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Low-level engagement (1)	High-level engagement (2)	-6.29(*)	.001	Y
	Medium-level engagement (3)	-.21	.991	N
High-level engagement (2)	Low-level engagement (1)	6.29(*)	.001	Y
	Medium-level engagement (3)	6.08(*)	.001	Y
Medium-level engagement (3)	Low-level engagement (1)	.21	.991	N
	High-level engagement (2)	-6.08(*)	.001	Y

Figure 4.16 Global self-worth results by school over time



Mean scores showed that at Time 2 global self-worth was significantly higher at School 3 ( $M = 18.71$ ,  $SD = 3.31$ ) than at School 2 ( $M = 17.84$ ,  $SD = 3.09$ ), and at Time 3, global self-worth at School 2 ( $M = 16.67$ ,  $SD = 3.69$ ) was significantly lower than at School 1 ( $M = 18.98$ ,  $SD = 3.48$ ) and at School 3 ( $M = 18.98$ ,  $SD = 3.51$ ). All other pairwise comparisons were not found to be significant.

Follow-up one-way ANOVAs indicated that there were statistically significant differences between the schools between Time 1 and Time 3,  $F(2, 782) = 23.477$ ,  $p \leq 0.05$ , and between Time 1 and Time 2  $F(2, 782) = 3.299$ ,  $p \leq 0.05$ .

Post hoc comparisons using Tukey HSD indicated that, the difference in scores between Time 1 and Time 3, was significantly greater at School 1 ( $M = .63$ ,  $SD = 4.24$ ) than at School 2 ( $M = -1.80$ ,  $SD = 4.71$ ) and at School 3 ( $M = .19$ ,  $SD = 3.58$ ) than at School 2 (high-level engagement). The difference in scores between Time 1 and Time 2 was significantly greater at School 1 ( $M = .18$ ,  $SD = 3.81$ ) than at School 2 ( $M = -.63$ ,  $SD = 2.78$ ).

### Summary

As demonstrated in Figure 4.16, at no point did global self-worth improve as a function of the level of engagement in “Move It”. Having recorded the highest scores amongst the schools at the end of year three, School 3 (medium-level engagement) made the greatest improvement. It improved between Time 1 and Time 2 and continued

to improve between Times 2 and 3. School 2 (high-level engagement) decreased overall.

#### 4.3.1.7. Summary of significant differences

The significant differences reported above are summarised in Table 4.35.

Table 4.35 Summary of significant differences

	Time	Significant Difference
Academic Competence	2	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3); Medium-level engagement (3) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Social Acceptance	2	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > Low-level engagement (1)
	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Athletic Competence	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Physical Appearance	2	Low-level engagement (1) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Behavioural Conduct	1	Medium-level engagement (3) > Low-level engagement (1); Medium-level engagement (3) > High-level engagement (2)
	2	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Global Self-worth	2	Medium-level engagement (3) > High-level engagement (2)
	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)

#### 4.3.2. Sex-wise comparisons

To find out more about where difference may lie, the file was split by sex and further analysis was conducted. A two-way ANOVA was conducted to look for differences between the schools over time. Then, a one-way ANOVA was conducted to compare the differences between scores at Time 1 and Time 2 and Time 1 and Time 3.

##### 4.3.2.1. Self-evaluated academic competence

When the data was split by sex, among girls there was no statistically significant main effect for time  $F(2, 1140) = .359$ , ns,  $\eta_p^2 = 0.001$  (small). There was a statistically significant main effect for school  $F(2, 1140) = 13.666$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.023$  (small). The interaction effect between time and school was also found to be significant  $F(4, 1140) = 3.846$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.01$  (small).

Among boys, there was no statistically significant main effect for time  $F(2, 1197) = .550$ , ns,  $\eta_p^2 = 0.001$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 11.461$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.019$  (small). The interaction effect between time and school was also significant  $F(4, 1197) = 2.534$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.008$  (small).

Post hoc comparisons showed that levels of academic competence amongst girls and boys at School 2 (high-level engagement) were significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement). All other post hoc comparisons were not found to be significant. The means and the standard deviations are presented in Table 4.36. The post hoc test is shown in Table 4.37.

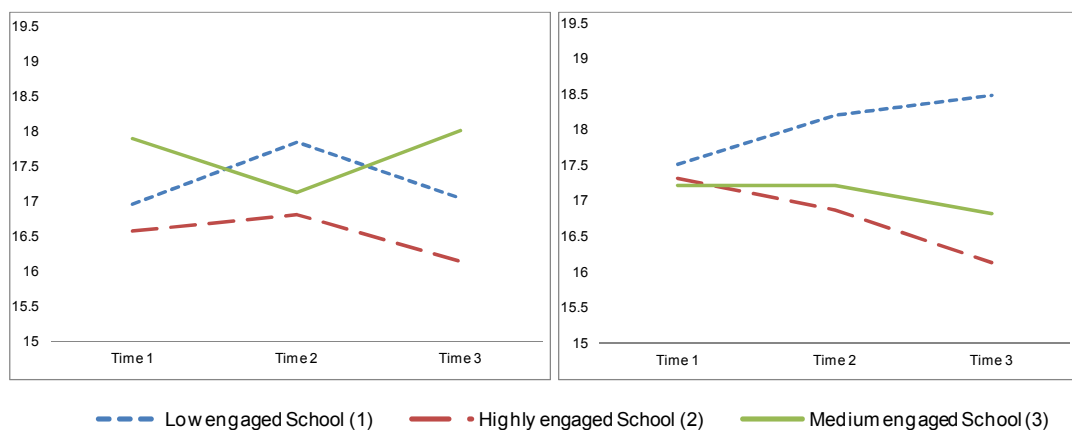
Table 4.36 Descriptive statistics for academic competence with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	16.96	3.766
		High-level engagement (2)	108	16.57	3.177
		Medium-level engagement	172	17.88	3.294
T 2	Girls	Low-level engagement (1)	103	17.84	3.151
		High-level engagement (2)	108	16.80	3.135
		Medium-level engagement	172	17.12	2.977
T 3	Girls	Low-level engagement (1)	103	17.03	3.090
		High-level engagement (2)	108	16.13	2.625
		Medium-level engagement	172	18.01	3.211
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T 1	Boys	Low-level engagement (1)	124	17.50	3.810
		High-level engagement (2)	125	17.31	7.133
		Medium-level engagement	152	17.21	3.454
T 2	Boys	Low-level engagement (1)	124	18.19	3.394
		High-level engagement (2)	125	16.86	2.784
		Medium-level engagement	152	17.22	3.060
R 5	Boys	Low-level engagement (1)	124	18.48	2.927
		High-level engagement (2)	125	16.13	3.622
		Medium-level engagement	152	16.82	3.048

Table 4.37 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Academic Competence Girls	Low-level engagement	High-level engagement (2)	.78(*)	0.006	Y
		Medium-level engagement	-0.39	0.194	N
	High-level engagement	Low-level engagement (1)	-.78(*)	0.006	Y
		Medium-level engagement	-1.17(*)	0.000	Y
	Medium-level engagement	Low-level engagement (1)	0.39	0.194	N
		High-level engagement (2)	1.17(*)	0.000	Y
Academic Competence Boys	Low-level engagement	High-level engagement (2)	1.29(*)	0.000	Y
		Medium-level engagement	.97(*)	0.001	Y
	High-level engagement	Low-level engagement (1)	-1.29(*)	0.000	Y
		Medium-level engagement	-0.32	0.467	N
	Medium-level engagement	Low-level engagement (1)	-.97(*)	0.001	Y
		High-level engagement (2)	0.32	0.467	N

Figure 4.17 Results of ANOVA for girls and boys by school for academic competence



When the results for the dependent variables were considered separately, for girls pairwise comparisons showed that at Time 1, academic competence was significantly higher at School 3 ( $M = 17.88$ ,  $SD = 3.29$ ) than at School 2 ( $M = 16.57$ ,  $SD = 3.17$ ). At Time 3, results for School 3 ( $M = 18.01$ ,  $SD = 3.21$ ) were significantly higher than at School 1 ( $M = 17.03$ ,  $SD = 3.09$ ) and at School 2 ( $M = 16.13$ ,  $SD = 2.62$ ). For boys, pairwise comparisons showed that at Time 2 academic competence was significantly higher at School 1 ( $M = 18.19$ ,  $SD = 3.39$ ) than at School 2 ( $M = 16.86$ ,  $SD = 2.78$ ) and at Time 3, results for School 1 ( $M = 18.48$ ,  $SD = 2.97$ ) were significantly higher than at School 2 ( $M = 16.13$ ,  $SD = 3.62$ ) and at School 3 ( $M = 16.82$ ,  $SD = 3.048$ ). All other pairwise comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for boys in scores for the three schools between Time 1 and Time 3 for boys,  $F(2, 399) = 5.399, p \leq 0.05$ , but not for girls,  $F(2, 380) = 1.028, ns.$  ) and between Time 1 and Time 2 for girls  $F(2, 380) = 10.745, p \leq 0.05$  but not for boys  $F(2, 399) = 1.718, ns.$

Post hoc comparisons using Tukey HSD indicated that, for boys the difference in academic competence between Time 1 and Time 3, was significantly greater at School 1 ( $M = .98, SD = 3.37$ ) than at School 2 ( $M = -1.1, SD = 8.24$ ). Between Time 1 and Time 2, the difference in change in academic competence among girls at School 1 ( $M = .88, SD = 3.70$ ) was significantly greater than at School 3 ( $M = -.76, SD = 2.66$ ) and School 2 ( $M = .22, SD = 2.47$ ) was significantly greater than at School 3 (medium-level engagement).

### Summary

As demonstrated in Figure 4.17, at no point did academic competence change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### 4.3.2.2. *Self-evaluated social acceptance*

When the data was split by sex, among girls there was no statistically significant main effect for Time  $F(2, 1140) = 1.612, ns, \eta_p^2 = 0.0013$  (small). There was a statistically significant main effect for school  $F(2, 1140) = 21.109, p \leq 0.05, \eta_p^2 = 0.036$  (small). The interaction effect between Time and school was not found to be significant  $F(4, 1140) = 1.037, ns, \eta_p^2 = 0.04$  (small).

Among boys, there was no statistically significant main effect for Time  $F(2, 1197) = 1.801, ns, \eta_p^2 = 0.003$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 15.392, p \leq 0.05, \eta_p^2 = 0.025$  (small). The interaction effect between time and school was also significant  $F(4, 1197) = 8.489, p \leq 0.05, \eta_p^2 = 0.028$  (small).

Post hoc comparisons showed that levels of social acceptance amongst girls and boys at School 2 (high-level engagement) were significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement) and also that among girls School 3 (medium-level engagement) had the highest social acceptance. The means



and the standard deviations are presented in Table 4.38. The post hoc test is shown in Table 4.39.

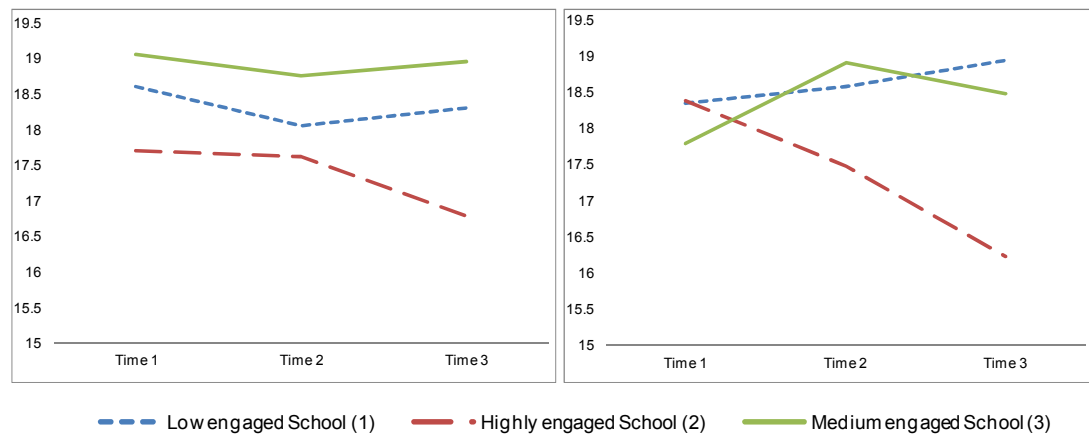
Table 4.38 Descriptive statistics for social acceptance with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	18.60	3.183
		High-level engagement (2)	108	17.71	4.312
		Medium-level engagement (3)	172	19.06	3.301
T 2	Girls	Low-level engagement (1)	103	18.06	3.379
		High-level engagement (2)	108	17.62	3.46
		Medium-level engagement (3)	172	18.75	3.173
T 3	Girls	Low-level engagement (1)	103	18.31	3.104
		High-level engagement (2)	108	16.79	3.49
		Medium-level engagement (3)	172	18.96	3.14
T 1	Boys	Low-level engagement (1)	124	18.35	3.648
		High-level engagement (2)	125	18.38	3.415
		Medium-level engagement (3)	152	17.78	3.495
T 2	Boys	Low-level engagement (1)	124	18.58	3.155
		High-level engagement (2)	125	17.48	2.90
		Medium-level engagement (3)	152	18.91	3.18
T3	Boys	Low-level engagement (1)	124	18.94	2.845
		High-level engagement (2)	125	16.23	3.720
		Medium-level engagement (3)	152	18.48	3.448

Table 4.39 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Social Acceptance Girls	Low-level engagement	High-level engagement (2)	.96(*)	0.001	Y
		Medium-level engagement (3)	-.60(*)	0.036	Y
	High-level engagement	Low-level engagement (1)	-.96(*)	0.001	Y
		Medium-level engagement (3)	-1.56(*)	0.000	Y
	Medium-level engagement	Low-level engagement (1)	.60(*)	0.036	Y
		High-level engagement (2)	1.56(*)	0.000	Y
Social Acceptance Boys	Low-level engagement	High-level engagement (2)	1.26(*)	0.000	Y
		Medium-level engagement (3)	0.23	0.572	N
	High-level engagement	Low-level engagement (1)	-1.26(*)	0.000	Y
		Medium-level engagement (3)	-1.03(*)	0.000	Y
	Medium-level engagement	Low-level engagement (1)	-0.23	0.572	N
		High-level engagement (2)	1.03(*)	0.000	Y

Figure 4.18 Results of ANOVA for girls and boys by school for social acceptance



Mean scores showed for boys that at Time 2, Social Acceptance was higher at School 1 ( $M = 18.58$ ,  $SD = 3.15$ ) than at School 2 ( $M = 18.21$ ,  $SD = 5.51$ ) and also School 3 ( $M = 18.91$ ,  $SD = 3.18$ ) was significantly higher than School 2 (high-level engagement). At Time 3, Social Acceptance for School 2 ( $M = 17.43$ ,  $SD = 6.62$ ) was significantly lower than at School 1 ( $M = 18.94$ ,  $SD = 2.84$ ) and as at School 3 ( $M = 18.48$ ,  $SD = 3.44$ ). However other comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for boys in scores for the three schools between Time 1 and Time 3 for boys,  $F(2, 399) = 23.525$ ,  $p \leq 0.05$ , but not for girls,  $F(2, 380) = 1.454$ , ns. ) and between Time 1 and Time 2 for boys  $F(2, 399) = 11.470$ ,  $p \leq 0.05$  but not for girls  $F(2, 380) = .695$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for boys the difference in Social Acceptance between Time 1 and Time 3, was significantly greater at School 1 ( $M = .59$ ,  $SD = 3.81$ ) than at School 2 ( $M = -2.15$ ,  $SD = 4.66$ ) and at School 3 ( $M = .70$ ,  $SD = 2.90$ ) than at School 2 (high-level engagement). Between Time 1 and Time 2, the difference in change in Social Acceptance among boys at School 1 ( $M = .23$ ,  $SD = 3.50$ ) was significantly greater than at School 2 ( $M = -.90$ ,  $SD = 3.93$ ) and School 3 ( $M = 1.13$ ,  $SD = 3.22$ ) was significantly greater than at School 2 (high-level engagement).

### Summary

As demonstrated in Figure 4.18, at no point did Social Acceptance change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### **4.3.2.3. Self-evaluated athletic competence**

When the data was split by sex, among girls there was no statistically significant main effect for time  $F(2, 1140) = 1.299$ , ns,  $\eta_p^2 = 0.002$  (small). There was no statistically significant main effect for school ( $F(2, 1140) = 1.116$ , ns,  $\eta_p^2 = 0.002$  (small)). The interaction effect between time and school was not found to be significant  $F(4, 1140) = 1.996$ , ns,  $\eta_p^2 = 0.07$  (small).

Among boys, there was a statistically significant main effect for time  $F(2, 1197) = 4.915$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.008$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 15.501$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.025$  (small). The interaction effect between time and school was also significant  $F(4, 1197) = 3.650$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.012$  (small).

Post hoc comparisons showed that levels of athletic competence amongst boys at School 2 (high-level engagement) were significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement). The means and the standard deviations are presented in Table 4.40. The post hoc test is shown in Table 4.41.

Chapter 4 – Results

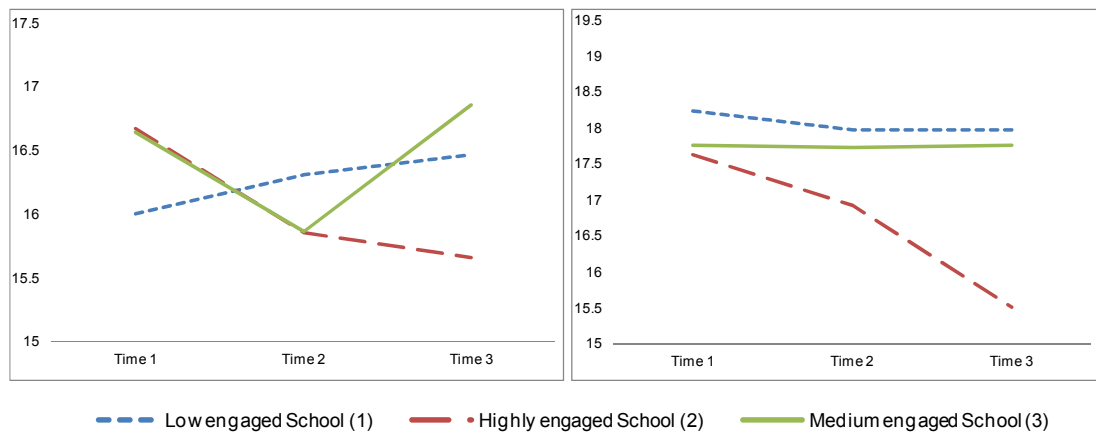
Table 4.40 Descriptive statistics for athletic competence with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	16.00	3.996
		High-level engagement (2)	108	16.67	4.098
		Medium-level engagement	172	16.64	3.824
T 2	Girls	Low-level engagement (1)	103	16.31	3.732
		High-level engagement (2)	108	15.85	3.142
		Medium-level engagement	172	15.86	3.875
T 3	Girls	Low-level engagement (1)	103	16.46	3.633
		High-level engagement (2)	108	15.66	2.839
		Medium-level engagement	172	16.85	4.007
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T 1	Boys	Low-level engagement (1)	124	18.23	3.441
		High-level engagement (2)	125	17.62	4.955
		Medium-level engagement	152	17.75	3.753
T 2	Boys	Low-level engagement (1)	124	17.97	3.416
		High-level engagement (2)	125	16.92	2.627
		Medium-level engagement	152	17.72	3.505
T3	Boys	Low-level engagement (1)	124	17.97	3.271
		High-level engagement (2)	125	15.50	3.128
		Medium-level engagement	152	17.76	3.599

Table 4.41 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Athletic Competence Girls	Low-level engagement	High-level engagement (2)	0.2	0.786	N
		Medium-level engagement	-0.2	0.745	N
	High-level engagement	Low-level engagement (1)	-0.2	0.786	N
		Medium-level engagement	-0.39	0.299	N
	Medium-level engagement	Low-level engagement (1)	0.2	0.745	N
		High-level engagement (2)	0.39	0.299	N
Athletic Competence Boys	Low-level engagement	High-level engagement (2)	1.38(*)	0.000	Y
		Medium-level engagement	0.31	0.418	N
	High-level engagement	Low-level engagement (1)	-1.38(*)	0.000	Y
		Medium-level engagement	-1.07(*)	0.000	Y
	Medium-level engagement	Low-level engagement (1)	-0.31	0.418	N
		High-level engagement (2)	1.07(*)	0.000	Y

Figure 4.19 Results of ANOVA for girls and boys by school for athletic competence



Mean scores for boys showed that at Time 3 athletic competence was significantly higher at School 1 ( $M = 17.97$ ,  $SD = 3.27$ ) than at School 2 ( $M = 15.50$ ,  $SD = 3.12$ ) and it was significantly higher at School 3 ( $M = 17.76$ ,  $SD = 3.59$ ) than at School 2 (high-level engagement).

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls, in scores for the three schools between Time 1 and Time 3  $F(2, 380) = 5.023$ ,  $p \leq 0.05$  and also for boys for boys,  $F(2, 399) = 9.078$ ,  $p \leq 0.05$ , and between Time 1 and Time 2 for girls  $F(2, 380) = 4.159$ ,  $p \leq 0.05$  but not for boys  $F(2, 399) = .929$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in athletic competence between Time 1 and Time 3, was significantly greater at School 1 ( $M = .46$ ,  $SD = 3.63$ ) than at School 2 ( $M = -1.01$ ,  $SD = 4.56$ ) and at School 3 ( $M = .21$ ,  $SD = 3.14$ ) than at School 2 and for boys the difference in Athletic Competence was significantly greater at School 1 ( $M = -.25$ ,  $SD = 4.05$ ) than at School 2 ( $M = -2.11$ ,  $SD = 5.74$ ) and at School 3 ( $M = .003$ ,  $SD = 3.23$ ) than at School 2 (high-level engagement). Between Time 1 and Time 2, the difference in change in Athletic Competence among girls at School 1 ( $M = .31$ ,  $SD = 3.47$ ) was significantly greater than at School 2 ( $M = -.82$ ,  $SD = 3.77$ ) and at School 3 ( $M = -.77$ ,  $SD = 2.92$ ).

### Summary

As demonstrated in Figure 4.19, at no point did Athletic Competence change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### **4.3.2.4. Self-evaluated physical appearance**

When the data was split by sex, among girls, there was no statistically significant main effect for time,  $F(2, 2346) = .474$ , ns,  $\eta_p^2 = .001$  (small). There was no statistically significant main effect for school,  $F(2, 2346) = 2.663$ , ns,  $\eta_p^2 = .005$  (small). There was no statistically significant interaction effect between time and school  $F(4, 2346) = 4.865$ , ns,  $\eta_p^2 = .005$  (small).

Among boys, there was no statistically significant main effect for time  $F(2, 1197) = 1.888$ ,  $p > 0.05$ ,  $\eta_p^2 = 0.003$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 16.441$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.027$  (small). The interaction effect between time and school was also significant  $F(4, 1197) = 5.489$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.018$  (small).

Overall, post hoc comparisons showed that levels of physical appearance amongst boys at School 2 (high-level engagement) were significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement), and School 1 (low-level engagement) had the highest score. The means and the standard deviations are presented in Table 4.42. The post hoc test is shown in Table 4.43.

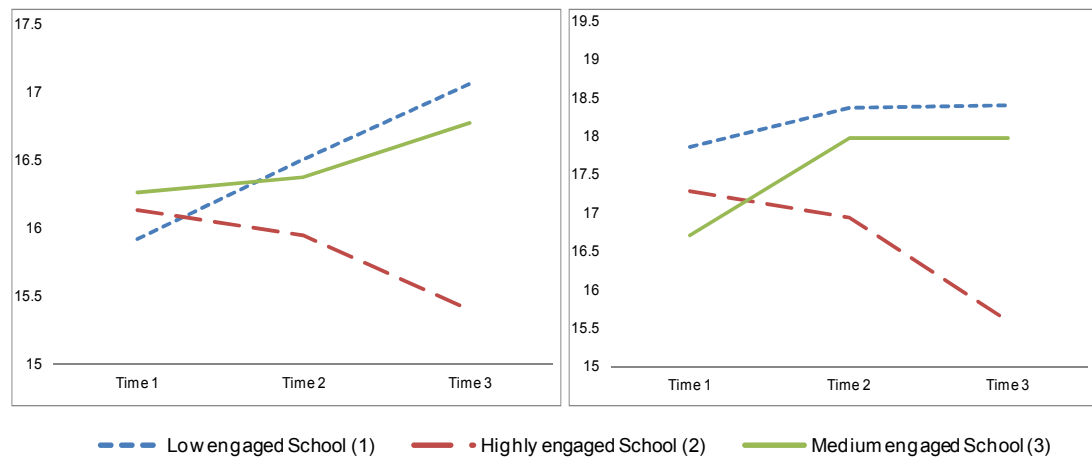
Table 4.42 Descriptive statistics for physical appearance with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	15.92	4.459
		High-level engagement (2)	108	16.13	4.356
		Medium-level engagement (3)	172	16.26	4.267
T 2	Girls	Low-level engagement (1)	103	16.50	4.593
		High-level engagement (2)	108	15.95	4.080
		Medium-level engagement (3)	172	16.37	4.389
T 3	Girls	Low-level engagement (1)	103	17.06	4.228
		High-level engagement (2)	108	15.40	3.310
		Medium-level engagement (3)	172	16.77	4.47
T 1	Boys	Low-level engagement (1)	124	17.86	4.167
		High-level engagement (2)	125	17.27	5.202
		Medium-level engagement (3)	152	16.70	3.461
T 2	Boys	Low-level engagement (1)	124	18.36	3.896
		High-level engagement (2)	125	16.94	3.609
		Medium-level engagement (3)	152	17.96	3.581
T3	Boys	Low-level engagement (1)	124	18.40	3.354
		High-level engagement (2)	125	15.59	3.543
		Medium-level engagement (3)	152	17.97	3.629

Table 4.43 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Physical appearance Girls	Low-level engagement (1)	High-level engagement (2)	0.66	0.128	N
		Medium-level engagement (3)	0.02	0.997	N
	High-level engagement (2)	Low-level engagement (1)	-0.66	0.128	N
		Medium-level engagement (3)	-0.64	0.089	N
	Medium-level engagement (3)	Low-level engagement (1)	-0.02	0.997	N
		High-level engagement (2)	0.64	0.089	N
Physical appearance Boys	Low-level engagement (1)	High-level engagement (2)	1.60(*)	0.000	Y
		Medium-level engagement (3)	.66(*)	0.036	Y
	High-level engagement (2)	Low-level engagement (1)	-1.60(*)	0.000	Y
		Medium-level engagement (3)	-.94(*)	0.001	Y
	Medium-level engagement (3)	Low-level engagement (1)	-.66(*)	0.036	Y
		Low-level engagement (1)	High-level engagement (2)	.94(*)	0.001

Figure 4.20 Results of ANOVA for girls and boys by school for Physical appearance



Mean scores for boys showed that at Time 1 physical appearance was significantly higher at School 1 ( $M = 17.86$ ,  $SD = 4.16$ ) than at School 3 ( $M = 16.7$ ,  $SD = 3.46$ ). At Time 2 physical appearance was significantly higher at School 1 ( $M = 18.36$ ,  $SD = 3.89$ ) than at School 2 ( $M = 16.94$ ,  $SD = 3.60$ ) and at Time 3, results at School 2 ( $M = 15.59$ ,  $SD = 3.54$ ) were significantly lower than at School 1 ( $M = 18.4$ ,  $SD = 3.35$ ) and at School 3 ( $M = 17.97$ ,  $SD = 3.62$ ). However other comparisons were not found to be significant.

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls, in scores for the three schools between Time 1 and Time 3  $F(2, 380) = 4.826$ ,  $p \leq 0.05$  and also for boys for boys,  $F(2, 399) = 13.155$ ,  $p \leq 0.05$ , and between Time 1 and Time 2 for boys  $F(2, 399) = 4.263$ ,  $p \leq 0.05$  but not for girls  $F(2, 380) = 1.214$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in physical appearance between Time 1 and Time 3, was significantly greater at School 1 ( $M = 1.14$ ,  $SD = 3.89$ ) than at School 2 ( $M = -.72$ ,  $SD = 5.04$ ) and for boys the difference in physical appearance was significantly greater at School 1 ( $M = .54$ ,  $SD = 4.20$ ) than at School 2 ( $M = -1.68$ ,  $SD = 6.47$ ) and at School 3 ( $M = 1.27$ ,  $SD = 3.86$ ) than at School 2 (high-level engagement). Between Time 1 and Time 2, the difference in change in physical appearance among boys at School 3 ( $M = 1.25$ ,  $SD = 3.86$ ) was significantly greater than at School 2 ( $M = -.33$ ,  $SD = 5.64$ ).



### Summary

As demonstrated in Figure 4.20, at no point did physical appearance change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### **4.3.2.5. Self-evaluated behavioural conduct**

When the data was split by sex, among girls, there was a statistically significant main effect for time,  $F(2, 2346) = 4.568$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .008$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 25.526$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .043$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 2.810$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .010$  (small).

Among boys, there was no statistically significant main effect for time  $F(2, 1197) = .120$ , ns,  $\eta_p^2 = 0.000$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 9.337$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.015$  (small). The interaction effect between time and school was not significant  $F(4, 1197) = 1.449$ , ns,  $\eta_p^2 = 0.005$  (small).

Overall, post hoc comparisons showed that levels of behavioural conduct amongst girls at School 3 (medium-level engagement) were significantly higher than at School 1 (low-level engagement) and School 2 (high-level engagement). Amongst boys, levels of behavioural conduct at School 2 (high-level engagement) were significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement). The means and the standard deviations are presented in Table 4.44. The post hoc test is shown in Table 4.45.

Chapter 4 – Results

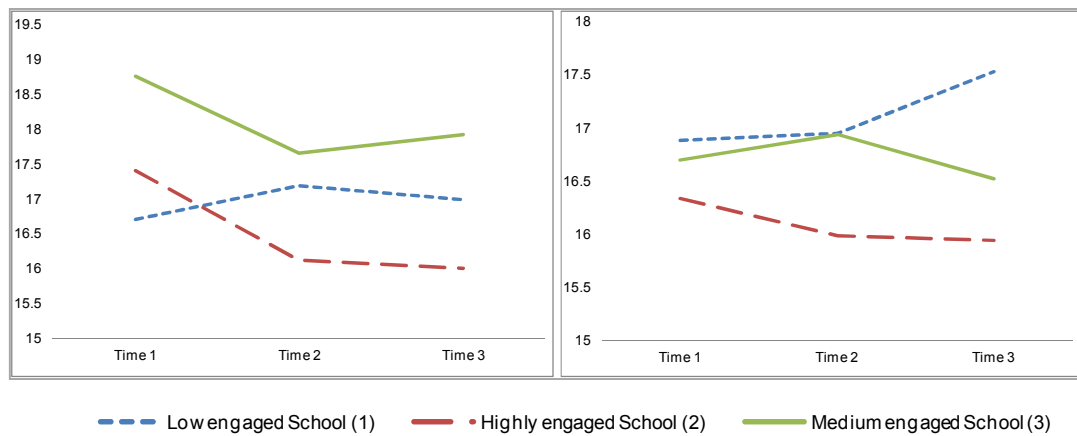
Table 4.44 Descriptive statistics for behavioural conduct with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	16.71	3.624
		High-level engagement (2)	108	17.41	3.219
		Medium-level engagement (3)	172	18.75	3.575
T 2	Girls	Low-level engagement (1)	103	17.18	3.28
		High-level engagement (2)	108	16.11	3.406
		Medium-level engagement (3)	172	17.66	3.188
T 3	Girls	Low-level engagement (1)	103	16.99	3.045
		High-level engagement (2)	108	16.00	2.732
		Medium-level engagement (3)	172	17.92	3.688
T 1	Boys	Low-level engagement (1)	124	16.88	3.742
		High-level engagement (2)	125	16.33	6.569
		Medium-level engagement (3)	152	16.69	3.444
T 2	Boys	Low-level engagement (1)	124	16.95	3.59
		High-level engagement (2)	125	15.98	2.989
		Medium-level engagement (3)	152	16.94	3.07
T3	Boys	Low-level engagement (1)	124	17.53	3.468
		High-level engagement (2)	125	15.94	4.593
		Medium-level engagement (3)	152	16.52	3.195

Table 4.45 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Behavioural conduct Girls	Low-level engagement (1)	High-level engagement (2)	0.45	0.204	N
		Medium-level engagement (3)	-1.15(*)	0.000	Y
	High-level engagement (2)	Low-level engagement (1)	-0.45	0.204	N
		Medium-level engagement (3)	-1.60(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	1.15(*)	0.000	Y
		High-level engagement (2)	1.60(*)	0.000	Y
Behavioural conduct Boys	Low-level engagement (1)	High-level engagement (2)	1.18(*)	0.000	Y
		Medium-level engagement (3)	0.4	0.289	N
	High-level engagement (2)	Low-level engagement (1)	-1.18(*)	0.000	Y
		Medium-level engagement (3)	-.78(*)	0.009	Y
	Medium-level engagement (3)	Low-level engagement (1)	-0.4	0.289	N
		High-level engagement (2)	.78(*)	0.009	Y

Figure 4.21 Results of ANOVA for girls and boys by school for behavioural conduct



Mean scores for girls showed that at Time 1 behavioral conduct was significantly higher at School 3 ( $M = 18.75$ ,  $SD = 3.57$ ) than at School 1 ( $M = 16.71$ ,  $SD = 3.62$ ) and at School 2 ( $M = 17.41$ ,  $SD = 3.21$ ). At Time 2, behavioral conduct was significantly higher at School 3 ( $M = 17.66$ ,  $SD = 3.18$ ) than at School 2 ( $M = 16.11$ ,  $SD = 3.40$ ) and at Time 3, results at School 3 ( $M = 17.92$ ,  $SD = 3.68$ ) were significantly higher than at School 2 ( $M = 16.00$ ,  $SD = 2.73$ ).

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls, in scores for the three schools between Time 1 and Time 3  $F(2, 380) = 5.481$ ,  $p \leq 0.05$  but not for boys,  $F(2, 399) = 2.732$ ,  $p \leq 0.05$ , and between Time 1 and Time 2 for girls  $F(2, 380) = 9.323$ ,  $p \leq 0.05$  but not for boys  $F(2, 399) = .598$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in behavioral conduct between Time 1 and Time 3, was significantly greater at School 1 ( $M = .27$ ,  $SD = 3.20$ ) than at School 2 ( $M = -1.41$ ,  $SD = 4.10$ ) and at School 3 ( $M = -.83$ ,  $SD = 3.89$ ). Between Time 1 and Time 2, the difference in change in behavioral conduct among girls at School 1 ( $M = .46$ ,  $SD = 3.80$ ) was significantly greater than at School 2 ( $M = -1.30$ ,  $SD = 2.87$ ) and at School 3 ( $M = -1.09$ ,  $SD = 3.25$ ).

### Summary

As demonstrated in Figure 4.21, at no point did behavioral conduct change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### **4.3.2.6. Self-evaluated global self-worth**

When the data was split by sex, among girls, there was no statistically significant main effect for time,  $F(2, 2346) = .519$ , ns,  $\eta_p^2 = .001$  (small). There was a statistically significant main effect for school,  $F(2, 2346) = 15.037$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .026$  (small). There was a statistically significant interaction effect between time and school  $F(4, 2346) = 2.875$ ,  $p \leq 0.05$ ,  $\eta_p^2 = .010$  (small).

Among boys, there was no statistically significant main effect for time  $F(2, 1197) = 2.814$ , ns,  $\eta_p^2 = 0.005$  (small). There was a statistically significant main effect for school  $F(2, 1197) = 13.577$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.022$  (small). The interaction effect between time and school was also significant  $F(4, 1197) = 7.123$ ,  $p \leq 0.05$ ,  $\eta_p^2 = 0.023$  (small).

Overall, post hoc comparisons showed that levels of global self-worth among girls at School 3 (medium-level engagement) were significantly higher than at School 1 (low-level engagement) and School 2 (high-level engagement). However, global self-worth among girls at School 1 (low-level engagement) was significantly higher than at School 2 (high-level engagement). Among boys, global self-worth at School 2 (high-level engagement) was significantly lower than at School 1 (low-level engagement) and School 3 (medium-level engagement). The means and the standard deviations are presented in Table 4.46. The post hoc test is shown in Table 4.47.

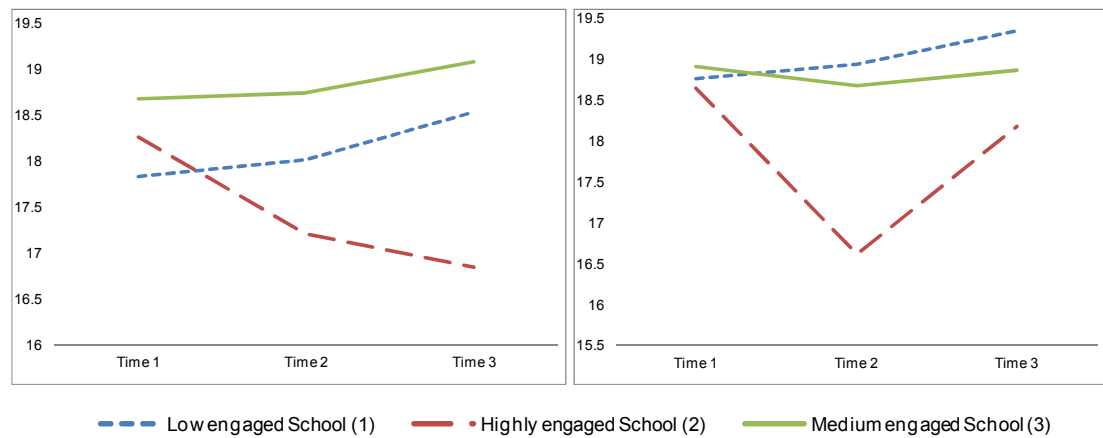
Table 4.46 Descriptive statistics for global self-worth with statistics test scores for time (1,2,3) and school (1,2,3)

	Sex	School	N	Mean	Standard Deviation
T 1	Girls	Low-level engagement (1)	103	17.83	3.949
		High-level engagement (2)	108	18.26	3.674
		Medium-level engagement (3)	172	18.67	3.464
T 2	Girls	Low-level engagement (1)	103	18.01	3.898
		High-level engagement (2)	108	17.21	3.674
		Medium-level engagement (3)	172	18.74	3.318
T 3	Girls	Low-level engagement (1)	103	18.53	3.675
		High-level engagement (2)	108	16.84	3.652
		Medium-level engagement (3)	172	19.08	3.49
T 1	Boys	Low-level engagement (1)	124	18.76	3.697
		High-level engagement (2)	125	18.65	2.408
		Medium-level engagement (3)	152	18.91	3.549
T 2	Boys	Low-level engagement (1)	124	18.94	3.335
		High-level engagement (2)	125	16.61	7.348
		Medium-level engagement (3)	152	18.67	3.32
T3	Boys	Low-level engagement (1)	124	19.35	3.28
		High-level engagement (2)	125	18.17	11.036
		Medium-level engagement (3)	152	18.87	3.544

Table 4.47 Summary of post hoc test results by school (1,2,3)

Tukey HSD	(I) School	(J) School	Mean Difference (I-J)	Sig.	Sig Y/N
Global Self-worth Girls	Low-level engagement (1)	High-level engagement (2)	.69(*)	0.044	Y
		Medium-level engagement (3)	-.70(*)	0.018	Y
	High-level engagement (2)	Low-level engagement (1)	-.69(*)	0.044	Y
		Medium-level engagement (3)	-1.39(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	.70(*)	0.018	Y
		High-level engagement (2)	1.39(*)	0.000	Y
Global Self-worth Boys	Low-level engagement (1)	High-level engagement (2)	1.17(*)	0.000	Y
		Medium-level engagement (3)	0.2	0.654	N
	High-level engagement (2)	Low-level engagement (1)	-1.17(*)	0.000	Y
		Medium-level engagement (3)	-.96(*)	0.000	Y
	Medium-level engagement (3)	Low-level engagement (1)	-0.2	0.654	N
		High-level engagement (2)	.96(*)	0.000	Y

Figure 4.22 Results of ANOVA for girls and boys by school for global self-worth



Mean scores for girls showed that at Time 2, global self-worth was significantly higher at School 3 ( $M = 18.74$ ,  $SD = 3.31$ ) than at School 2 ( $M = 17.21$ ,  $SD = 3.674$ ) and at Time 3, results at School 2 ( $M = 16.84$ ,  $SD = 3.652$ ) were significantly lower than at School 1 ( $M = 18.53$ ,  $SD = 3.67$ ) and at School 3 ( $M = 19.08$ ,  $SD = 3.49$ ). For boys, pairwise comparisons showed that at Time 3, global self-worth was significantly higher at School 1 ( $M = 19.35$ ,  $SD = 3.28$ ) than at School 2 ( $M = 16.52$ ,  $SD = 3.73$ ) and it was significantly higher at School 3 ( $M = 18.87$ ,  $SD = 3.54$ ) than at School 2 (high-level engagement).

One-way ANOVA was conducted to show the difference in change mean scores over time. There was a statistically significant difference for girls, in scores for the three schools between Time 1 and Time 3  $F(2, 380) = 8.396$ ,  $p \leq 0.05$  and also for boys,  $F(2, 399) = 15.340$ ,  $p \leq 0.05$ , and between Time 1 and Time 2 for girls  $F(2, 380) = 4.959$ ,  $p \leq 0.05$  but not for boys  $F(2, 399) = .578$ , ns.

Post hoc comparisons using Tukey HSD indicated that, for girls the difference in global self-worth between Time 1 and Time 3, was significantly greater at School 1 ( $M = .69$ ,  $SD = 4.13$ ) than at School 2 ( $M = -1.42$ ,  $SD = 4.91$ ) and at School 3 ( $M = .40$ ,  $SD = 3.70$ ) than at School 2 (high-level engagement), and for boys the difference in global self-worth was significantly greater at School 1 ( $M = .58$ ,  $SD = 4.36$ ) than at School 2 ( $M = -2.13$ ,  $SD = 4.52$ ) and at School 3 ( $M = -.03$ ,  $SD = 3.42$ ) than at School 2 (high-level engagement). Between Time 1 and Time 2, the difference in change in global self-worth among girls at School 1 ( $M = .18$ ,  $SD = 3.32$ ) was significantly greater than at School 2

( $M = -1.05$ ,  $SD = 2.62$ ) and at School 3 ( $M = .06$ ,  $SD = 3.60$ ) than at School 2 (high-level engagement).

### **Summary**

As demonstrated in Figure 4.22 at no point did global self-worth change as a function of the level of engagement with “Move It”. Girls and boys at School 1 (low-level engagement) made a bigger overall improvement than their peers at other schools.

#### **4.3.2.7. Summary of significant differences**

The significant differences reported above are summarised in Table 4.48.

Table 4.48 Summary of significant differences by sex

	Sex	Time	Significant Difference
Academic Competence BMI	Girls	1	Medium-level engagement (3) > High-level engagement (2);
		3	Medium-level engagement (3) > Low-level engagement (1); Medium-level engagement (3) > High-level engagement (2)
	Boys	2	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
		3	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)
Social Acceptance BMI	Girls	1	Medium-level engagement (3) > High-level engagement (2)
		2	Medium-level engagement (3) > Low-level engagement (1)
		3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
	Boys	2	Low-level engagement (1) > High-level engagement (2); Low-level engagement (1) > Medium-level engagement (3)
		3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Athletic Competence	Girls	3	Medium-level engagement (3) > High-level engagement (2)
	Boys	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Physical Appearance	Girls	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
	Boys	1	Low-level engagement (1) > Medium-level engagement (3)
		2	Low-level engagement (1) > High-level engagement (2)
		3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
Behavioural Conduct	Girls	1	Medium-level engagement (3) > Low-level engagement (1); Medium-level engagement (3) > High-level engagement (2)
		2	Medium-level engagement (3) > High-level engagement (2)
		3	Medium-level engagement (3) > High-level engagement (2)
	Boys	2	Low-level engagement (1) > High-level engagement (2)
Global Self-worth	Girls	2	Medium-level engagement (3) > High-level engagement (2)
		3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)
	Boys	3	Low-level engagement (1) > High-level engagement (2); Medium-level engagement (3) > High-level engagement (2)



#### 4.4. Subjective enjoyment - What do participants enjoy about “Move It”?

Participants were asked whether they enjoyed taking part in “Move It” and, if so, to give reasons why they enjoyed the programme. In answer to the question ‘what do you enjoy about “Move It”?’ participants were asked to tick as many of the nine options that applied to them, and, to write down any additional reasons of their own. As there could be several reasons for enjoying the programme, participants were not asked to prioritise reasons why they enjoyed “Move It”. Results are shown as a percent of total participants ( $n = 785$ ) who endorsed each reason.

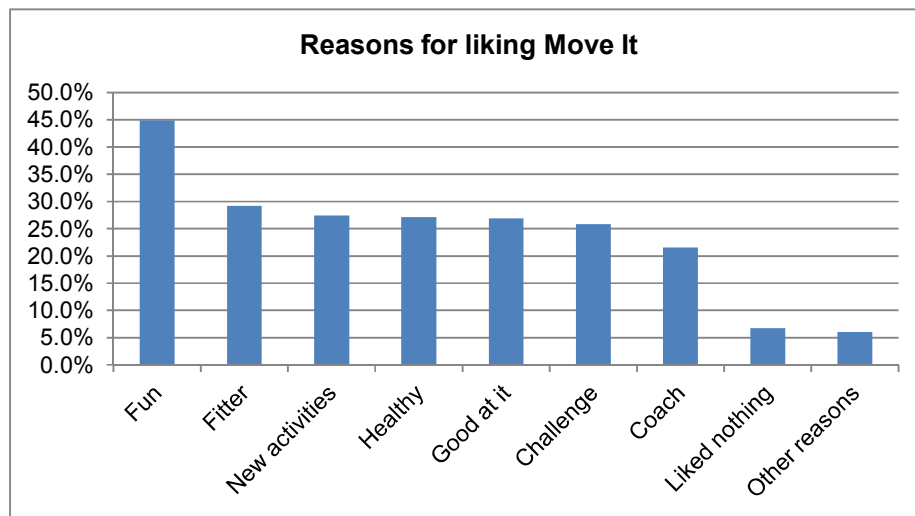
##### 4.4.1. Results

“Move It” is ‘fun’ was the most frequently given reason for enjoying taking part in the programme (44.8%). ‘Feeling fitter’ was the second most endorsed reason for enjoying “Move It” (29.2%). Other important reasons were the ‘opportunity to try new sports’ (27.4%), ‘feeling healthier’ (27.1%), ‘being good’ at an activity (26.9%) and finding the activity to be a ‘positive challenge’ (25.9%). The ‘coach made it interesting’ (21.5%) was seventh out of eight possible reasons suggesting that the contribution of the coach had not been influential in enjoying “Move It”. Table 4.49 shows the percentage of participants who endorsed a reason for enjoying “Move It” in rank order.

Table 4.49 Percentage of participants who endorsed a reason for enjoying “Move It” in rank order

	Fun	Feel Fitter	Try New Sports	Feel Healthier	Good at it	Challenge	Coach	Liked nothing	Other reasons
n	352	229	215	213	211	203	169	53	47
%	44.8%	29.2%	27.4%	27.1%	26.9%	25.9%	21.5%	6.8%	6.0%

Figure 4.23 Reasons for enjoying “Move It”



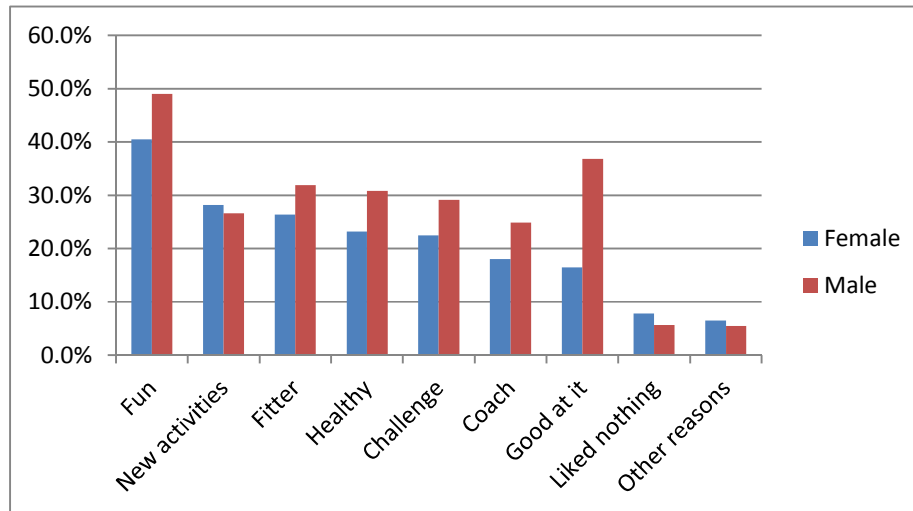
**4.4.2. Reasons for enjoying “Move It” by sex**

When data was split by sex, the percent of participants who rated “Move It” as ‘fun’ were comparable between girls (40.5%) and boys (49%). However, girls (16.4%) and boys (36.8%) differed as to whether they considered that they were good at the sports provided. Also, fewer girls (26.4%) than boys (36.8%) said that they enjoyed “Move It” because they felt fitter. Table 4.50 shows the percentage of participants who endorsed a reason for enjoying “Move It” in rank order by sex.

Table 4.50 Reasons for enjoying “Move It” by sex in rank order

		Fun	Try New Sports	Feel Fitter	Feel Healthier	Challenge	Coach	Good at it	Liked nothing	Other reasons
Girls	n	155	108	101	89	86	69	63	30	25
	%	40.5%	28.2%	26.4%	23.2%	22.5%	18.0%	16.4%	7.8%	6.5%
		Fun	Good at it	Feel Fitter	Feel Healthier	Challenge	Try New Sports	Coach	Liked nothing	Other reasons
Boys	n	197	148	128	124	117	107	100	23	22
	%	49.0%	36.8%	31.8%	30.8%	29.1%	26.6%	24.9%	5.7%	5.5%

Figure 4.24 Reasons for enjoying “Move It” by sex



#### 4.4.3. Why participants enjoyed “Move It” – participants’ reasons by school

When the data was split by school, results showed that ‘fun’ was the most popular reason at each school. This was important to the majority of participants (60.4%) at School 1 (low-level engagement) and to almost half of the participants at School 3 (47.1%; medium-level engagement). It was also the main reason given by participants at School 2 (26.6%; high-level engagement).

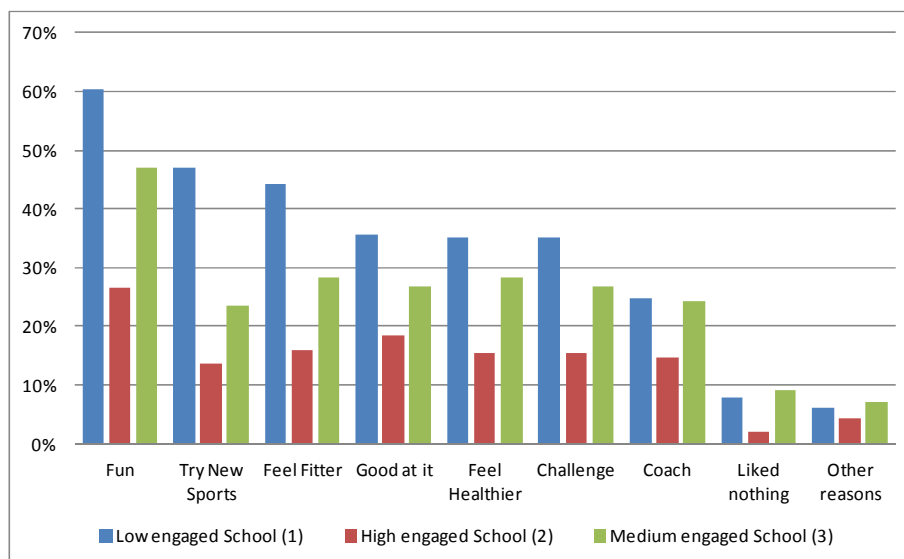
However, there were differences between the schools regarding other reasons for enjoying the programme. For example although 47.1 per cent of School 1 (low-level engagement) participants endorsed the chance to try ‘new sports’ that were not available during school PE, making it the second most cited reason for participants at School 1 (low-level engagement), it was only the seventh most popular reason at School 2 (13.7%) and School 3 (23.4%). At School 2 (high engagement) ‘being good’ at it (18.5%) ) was the second most cited reason for enjoying “Move It” while School 3 (medium engagement) participants valued ‘feeling healthier’ (29.8%). However, ‘feeling fitter’ was the third highest percent at all schools with 44.1 percent, 15.9 percent and 28.3 percent at School 1, 2 and 3 respectively.

Table 4.51 shows the percentage of participants who endorsed a reason for enjoying “Move It” in rank order by school.

Table 4.51 Reasons for enjoying “Move It” by school in rank order

		Fun	Try New Sports	Feel Fitter	Good at it	Feel Healthier	Challenge	Coach	Liked nothing	Other reasons
1	n	137	107	100	81	80	80	56	18	14
	%	60.4%	47.1%	44.1%	35.7%	35.2%	35.2%	24.7%	7.9%	6.2%
		Fun	Good at it	Feel Fitter	Feel Healthier	Challenge	Coach	Try New Sports	Other reasons	Liked nothing
2	n	62	43	37	36	36	34	32	10	5
	%	26.6%	18.5%	15.9%	15.5%	15.5%	14.6%	13.7%	4.3%	2.1%
		Fun	Feel Healthier	Feel Fitter	Good at it	Challenge	Coach	Try New Sports	Liked nothing	Other reasons
3	n	153	97	92	87	87	79	76	30	23
	%	47.1%	29.8%	28.3%	26.8%	26.8%	24.3%	23.4%	9.2%	7.1%

Figure 4.25 Reasons for enjoying “Move It” by school



**4.4.4. Participants’ reasons for enjoying “Move It” by school and sex**

When the data was split by school and sex, results showed that for girls and boys at each school ‘fun’ was the most important reason for enjoying “Move It”.

For girls, although the chance to ‘try new sports’ (45.6%) was the second most cited reason for enjoying “Move It” for girls at School 1 (low-level engagement), it was

less popular reason (11.1%) among girls at School 2 (high-level engagement), who enjoyed ‘having a positive challenge’ (12.0%). Among girls at School 3 (medium-level engagement) the second most cited reasons was ‘feeling healthier’ (33.1%), and the chance to ‘try new sports’ (28.5%) was the third. ‘Having a positive challenge’ was cited by 27.3 per cent although overall it was only the fifth most cited reason for enjoying “Move It”;

‘Feeling fitter’ was important to the majority of boys (53.2%) at School 1 (low-level engagement), and, after fun, was the main reason for enjoying “Move It”. However, this reason applied to fewer boys at School 2 (high-level engagement; 20.8%) although a higher per cent valued ‘being good at it’ (25.6%). Similarly at School 3 (medium-level engagement) the second most important factor in enjoyment among boys was ‘being good at it’ (34.6%), and ‘feeling fitter’ was only cited as fifth (23.5%).

Table 4.52 shows the percentage of participants who endorsed a reason for enjoying “Move It” in rank order by school and by sex.

Table 4.52 Reasons for enjoying “Move It” by school and sex in rank order

		Fun	Try New Sports	Feel Fitter	Challenge	Feel Healthier	Coach	Good at it	Liked nothing	Other
T1	n	53	47	34	26	22	18	18	14	7
Girls	%	51.5%	45.6%	33.0%	25.2%	21.4%	17.5%	17.5%	13.6%	6.8%
T2	n	20	12	11	13	10	11	11	2	3
Girls	%	18.5%	11.1%	10.2%	12.0%	9.3%	10.2%	10.2%	1.9%	2.8%
T3	n	82	49	56	47	57	40	34	14	15
Girls	%	47.7%	28.5%	32.6%	27.3%	33.1%	23.3%	19.8%	8.1%	8.7%
		Fun	Feel Fitter	Good at it	Try New Sports	Feel Healthier	Challenge	Coach	Other	Liked nothing
T1	n	84	66	63	60	58	54	38	7	4
Boys	%	67.7%	53.2%	50.8%	48.4%	46.8%	43.5%	30.6%	5.6%	3.2%
T2	n	42	26	32	20	26	23	23	7	3
Boys	%	33.6%	20.8%	25.6%	16.0%	20.8%	18.4%	18.4%	5.6%	2.4%
T3	n	71	36	53	27	40	40	39	8	16
Boys	%	46.4%	23.5%	34.6%	17.6%	26.1%	26.1%	25.5%	5.2%	10.5%

#### **4.4.5. Does subjective enjoyment correspond to positive outcomes?**

The evidence presented in the outcomes to health and fitness suggests that the level of engagement by a particular school does not affect outcomes. Next, results were examined according to participants' subjective enjoyment (taken as a proxy representation of individual engagement) to find out whether an individual's subjective enjoyment and experience of the programme can be linked to outcomes. This was an important line of enquiry given Coalter (2002)'s view that a positive experience of participation is more likely to bring about desired results because participants are likely to be more fully engaged in the sport.

##### **4.4.5.1. Having 'fun' and weight status**

Having fun was the first reason while participants enjoy "Move It" (44.8%;  $n = 352$ ). It was consistently cited as the first reason for both sexes (40.5% for girls and 49% for boys) and for all schools (60.4% for School 1 (low-level engagement), 26.6% for School 2 (high-level engagement) and 47.1% for School 3 (medium-level engagement)). Therefore an analysis was conducted to see how that related to change Weight Status, which describes whether a participant is obese, overweight or normal according to the BMI index for children (Cole et al., 2000).

#### **Results**

Examination of the change in their weight status over the three years showed that out of the 352 who chose having 'fun' as a reason for enjoying the programme, there was no change in the weight status of 293 participants. However, 33 participants became heavier, moving from 'normal' to 'overweight' ( $n = 22$ ) or 'overweight' to 'obese' ( $n = 11$ ) whilst 26 participants improved their weight category and moved from 'obese' to 'overweight' ( $n = 8$ ) or 'overweight' to 'normal' ( $n = 18$ ).

At School 1 (low-level engagement), 117 did not change their weight status, eight participants became heavier, moving from 'normal' to 'overweight' ( $n = 4$ ) or 'overweight' to 'obese' ( $n = 4$ ) whilst 12 participants improved their weight category and moved from 'obese' to 'overweight' ( $n = 4$ ) or 'overweight' to 'normal' ( $n = 8$ ).

At School 2 (high-level engagement), 48 participants did not change weight status, seven participants became heavier, moving from 'normal' to 'overweight' ( $n = 6$ ) or 'overweight' to 'obese' ( $n = 1$ ) whilst seven participants improved their weight category and moved from 'obese' to 'overweight' ( $n = 3$ ) or 'overweight' to 'normal' ( $n = 4$ ).

At School 3 (medium-level engagement), 128 participants did not change weight status, 18 participants became heavier, moving from ‘normal’ to ‘overweight’ ( $n = 12$ ) or ‘overweight’ to ‘obese’ ( $n = 6$ ) whilst seven participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 1$ ) or ‘overweight’ to ‘normal’ ( $n = 6$ ).

Table 4.53 shows the change in weight status over the three years by school for participants who chose ‘fun’ for a reason for enjoying “Move It”.

Table 4.53 Change in weight status over the three years by school among participants who were having fun

	No Change	Improve		Heavier	
		obese to overweight	overweight to normal	normal to overweight	overweight to obese
School 1 (Low-level engagement)	117	4	8	4	4
School 2 (High-level engagement)	48	3	4	6	1
School 3 (Medium-level engagement)	128	1	6	12	6
Total	293	8	18	22	11

A chi-square test was used to test the association between subjective engagement, indicated by having fun at “Move It” and improved health, as determined by change in weight status.

At School 1 (low-level engagement), the per cent who improved their weight status was the same for both groups (9%). Also, six percent versus four percent moved into a heavier weight category. This difference was not statistically significant,  $\chi^2 = 1.697$ , ns.

At School 2 (high-level engagement), 11% of those who selected ‘fun’ improved in weight status compared to six percent of participants who did not select ‘fun’. However 11% compared to three per cent moved into a heavier weight category. This difference was statistically significant,  $\chi^2 = 9.945$ ,  $p < .05$ .

At School 3 (medium-level engagement), the per cent who improved their weight status was the same for both groups (5%). Also, 12% versus eight percent got worse. This difference was not statistically significant,  $\chi^2 = 2.546$ , ns.

#### 4.4.5.2. *Having ‘fun’ and Multi Stage Fitness Test*

To explore possible links between subjective engagement and fitness, analysis was conducted to see whether having ‘fun’ related to overall change in fitness, as measured by the Multi Stage Fitness Test (MSFT).

##### **Results**

Examination of the change in Multi Stage Fitness Test (MSFT) over the three years showed that, out of those who chose ‘fun’ as a reason for enjoying “Move It” ( $n = 352$ ), 234 participants improved and 118 participants got a worse result.

By school, results showed that at School 1 (low-level engagement), 116 participants improved their performance in the Multi Stage Fitness Test (MSFT) whilst 21 did worse. At School 2 (high-level engagement), 37 improved their scores and 25 had worse results and at School 3 (medium-level engagement), 81 participants did better and 72 achieved worse results.

Table 4.54 shows the change in Multi Stage Fitness Test (MSFT) over the three years by school for participants who chose ‘fun’ for a reason for enjoying “Move It”.

Table 4.54 Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who were having fun

	Improve	Worse
School 1 (Low-level engagement)	116	21
School 2 (High-level engagement)	37	25
School 3 (Medium-level engagement)	81	72
Total	158	71

A chi-square test was used to test the association between subjective engagement, as determined by having fun, and fitness, as shown by change in Multi Stage Fitness Test (MSFT) results.

At School 1 (low-level engagement), 85% of participants who selected ‘fun’ improved their MSFT result compared to 79% for those who did not select this reason. Also, 15% of those who had ‘fun’ scored worse on the MSFT compared to 21% in the other group. This difference was not statistically significant,  $\chi^2 = 1.251$ , ns.



At School 2 (high-level engagement), 60% of those who selected having 'fun' improved their MSFT result compared to 45% for those who did not select this reason. Forty per cent who had 'fun' scored worse on the MSFT compared to 55% in the other group. This difference was statistically significant,  $\chi^2 = 3.907$ ,  $p < 0.05$ .

At School 3 (medium-level engagement), there was no difference in the change in MSFT scores between those participants who selected having 'fun' and who did not. The per cent who improved their MSFT result was the same for both groups (53%) as was the per cent who scored worse (47%). This difference was not statistically significant,  $\chi^2 = .010$ , ns.

#### **4.4.6. Subjective 'feeling fitter' and health and fitness results**

There is evidence that fitness can improve physiological health (Sharp, 1997) and can arrest the increase of body fat (Stratton, 2009). Two hundred and twenty nine participants said that they enjoyed "Move It" because they felt 'fitter' ( $n = 229$ ). As shown in Table 4.1, 'feeling fitter' (29.2%) was the second most popular reason behind having 'fun' and it was important for both sexes (girls, 26.4%; boys, 31.8%) and at each school (44.1% for School 1, 15.9% for School 2 and 28.3% for School 3). Therefore analysis was conducted to see whether the perception that 'I feel fitter' corresponded to actual improvements in health, as indicated by Weight Status, and fitness, as measured by the MSFT.

##### **4.4.6.1. 'I feel fitter' and weight status.**

Examination of the change in weight status over the three years showed that out of those participants who said they felt fitter ( $n = 229$ ), 185 participants remained in the same weight category, 25 participants became heavier, moving from 'normal' to 'overweight' ( $n = 12$ ) or 'overweight' to 'obese' ( $n = 13$ ) whilst 19 participants improved their weight category and moved from 'obese' to 'overweight' ( $n = 6$ ) or 'overweight' to 'normal' ( $n = 13$ ).

At School 1 (low-level engagement), 86 did not change their weight status, six participants became heavier, moving from 'normal' to 'overweight' ( $n = 2$ ) or 'overweight' to 'obese' ( $n = 4$ ) whilst eight participants improved their weight category and moved from 'obese' to 'overweight' ( $n = 2$ ) or 'overweight' to 'normal' ( $n = 6$ ).

At School 2 (high-level engagement), 28 participants did not change their weight status, four participants became heavier, moving from 'normal' to 'overweight' ( $n = 3$ ) or

‘overweight’ to ‘obese’ ( $n = 1$ ) whilst five participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 3$ ) or ‘overweight’ to ‘normal’ ( $n = 2$ ).

At School 3 (medium-level engagement), 71 participants did not change their weight status, 15 participants became heavier, moving from ‘normal’ to ‘overweight’ ( $n = 7$ ) or ‘overweight’ to ‘obese’ ( $n = 8$ ) whilst six participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 1$ ) or ‘overweight’ to ‘normal’ ( $n = 5$ ).

Table 4.55 shows the change in weights status over the three years by school for participants who chose ‘I feel fitter’ as a reason that they enjoyed “Move It”.

Table 4.55 Change in weight status over the three years by school among participants who felt fitter

	No Change	Improve		Heavier	
		obese to overweight	overweight to normal	normal to overweight	overweight to obese
School 1 (Low-level engagement)	86	2	6	2	4
School 2 (High-level engagement)	28	3	2	3	1
School 3 (Medium-level engagement)	71	1	5	7	8
Total	185	6	13	12	13

A chi-square test was used to test the association between subjective feeling fitter and health, as demonstrated by change in weight status.

At School 1 (low-level engagement), eight percent of those who selected ‘I feel fitter’ improved in weight status compared to nine percent of participants who did not select this reason. However, while six percent of those who felt fitter moved into a heavier weight category it was five per cent in the other group. This difference was not statistically significant,  $\chi^2 = .396$ , ns.

At School 2 (high-level engagement), 14% of those who selected ‘I feel fitter’ improved in weight status compared to six percent for those who did not select this reason. However 11% who felt fitter moved into a heavier weight status as did four percent in the other group. This difference was statistically significant,  $\chi^2 = 9.739$ ,  $p < .05$ .

At School 3 (medium-level engagement), seven percent of those who selected ‘I feel fitter’ improved in weight status compared to four percent for those who did not select this reason. However, 16% moved into a heavier weight category despite feeling fitter as did seven percent in the other group. This difference was statistically significant,  $\chi^2 = 8.197, p < .05$ .

**4.4.6.2. ‘I feel fitter’ and fitness results (MSFT)**

The Multi Stage Fitness Test (MSFT) is a test of fitness. An analysis was conducted to see whether there was an actual change in the fitness of those who perceived that they were feeling fitter by looking at the results of the MSFT.

Examination of the change in MSFT results over the three years showed that out of those participants who enjoyed “Move It” because they felt fitter ( $n = 229$ ), 158 participants improved their performance in the MSFT whilst 71 participants had worse results.

By school, results showed that at School 1 (low-level engagement), 87 participants improved their MSFT result and 13 got worse. At School 2 (high-level engagement), 23 improved their MSFT result and 14 had worse results and at School 3 (medium-level engagement), 48 participants did better and 44 achieved worse results.

Table 4.56 shows the change in Multi Stage Fitness Test (MSFT) over the three years by school for participants who chose ‘I feel fitter’ as a reason that they enjoyed “Move It”.

Table 4.56 Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who felt fitter

	Improve	Worse
School 1 (Low-level engagement)	87	13
School 2 (High-level engagement)	23	14
School 3 (Medium-level engagement)	48	44
Total	158	71

A chi-square test was used to test the association between subjective feeling fitter and an improvement in actual fitness as demonstrated by the change in Multi Stage Fitness Test (MSFT) results.

At School 1 (low-level engagement), 87% of those who selected 'I feel fitter' improved their MSFT result while it was 79% for those who did not select 'I feel fitter'. But while it was 13% who had worse MSFT result among those participants who selected 'I feel fitter', it was 21% in the other group. This difference was not statistically significant,  $\chi^2 = 2.629$ , ns.

At School 2 (high-level engagement) 62% of those who selected 'I feel fitter' improved MSFT result while it was 46% for those who did not select this reason. While it was 38% who had worse MSFT result among those participants who selected having 'I feel fitter', it was 54% in the other group. This difference was statistically not significant,  $\chi^2 = 3.083$ , ns.

At School 3 (medium-level engagement) 52% of those who selected 'I feel fitter' improved MSFT result while it was 54% for those who did not select this reason. While it was 48% who had worse MSFT result among those participants who selected having 'I feel fitter', it was 46% in the other group. This difference was statistically not significant,  $\chi^2 = .058$ , ns.

#### **4.4.7. Subjective 'feeling healthier' and health and fitness results**

There is evidence that fitness can improve physiological health (Sharp, 1997) and can arrest the increase of body fat (Stratton, 2009). Body Mass and its correspondence to an index of overweight and obesity is a leading indicator of health (IASO, 2004). Two hundred and thirteen participants said that they enjoyed "Move It" because they felt 'healthier' ( $n = 213$ ). As shown in Table 4.1, 'feeling healthier' (27.1%) was the fourth most popular reason and it was important for both sexes (girls, 22.5%; boys, 30.8%) and at each school (35.2% for School 1 (low-level engagement), 15.5% for School 2 (high-level engagement) and 29.8% for School 3 (medium-level engagement)). Therefore analysis was conducted to see whether the perception that 'I feel healthier' corresponded to actual improvements in health, as indicated by Weight Status, and fitness, as measured by the MSFT.

##### **4.4.7.1. 'I feel healthier' and weight status.**

Examination of the change in weight status over the three years showed that out of those participants who said they felt healthier ( $n = 213$ ), 172 participants remained in the same weight category, 22 participants became heavier, moving from 'normal' to 'overweight' ( $n = 14$ ) or 'overweight' to 'obese' ( $n = 8$ ) whilst 19 participants improved

their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 7$ ) or ‘overweight’ to ‘normal’ ( $n = 12$ ).

At School 1 (low-level engagement), 70 did not change their weight status, four participants became heavier, moving from ‘normal’ to ‘overweight’ ( $n = 3$ ) or ‘overweight’ to ‘obese’ ( $n = 1$ ) whilst six participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 1$ ) or ‘overweight’ to ‘normal’ ( $n = 5$ ).

At School 2 (high-level engagement), 27 participants did not change their weight status, four participants became heavier, moving from ‘normal’ to ‘overweight’ ( $n = 3$ ) or ‘overweight’ to ‘obese’ ( $n = 1$ ) whilst five participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 4$ ) or ‘overweight’ to ‘normal’ ( $n = 1$ ).

At School 3 (medium-level engagement), 75 participants did not change their weight status, 14 participants became heavier, moving from ‘normal’ to ‘overweight’ ( $n = 8$ ) or ‘overweight’ to ‘obese’ ( $n = 6$ ) whilst eight participants improved their weight category and moved from ‘obese’ to ‘overweight’ ( $n = 2$ ) or ‘overweight’ to ‘normal’ ( $n = 6$ ).

Table 4.57 shows the change in weights status over the three years by school for participants who chose ‘I feel healthier’ as a reason that they enjoyed “Move It”.

Table 4.57 Change in weight status over the three years by school among participants who felt healthier

	No Change	Improve		Heavier	
		obese to overweight	overweight to normal	normal to overweight	overweight to obese
School 1 (Low-level engagement)	70	1	5	3	1
School 2 (High-level engagement)	27	4	1	3	1
School 3 (Medium-level engagement)	75	2	6	8	6
Total	172	7	12	14	8

A chi-square test was used to test the association between subjective feeling healthier and health, as demonstrated by change in weight status.

At School 1 (low-level engagement), eight percent of those who selected 'I feel healthier' improved in weight status compared to ten percent who did not select this reason. However there was the same decline in health among both groups (5%). This difference was not statistically significant,  $\chi^2 = .686$ , ns.

At School 2 (high-level engagement), 14% of those who selected 'I feel healthier' improved in weight status compared to six percent who did not select this reason. However, 11% declined in health despite feeling healthier as did four percent in the other group. This difference was statistically significant,  $\chi^2 = 10.293$ ,  $p < .05$ .

At School 3 (medium-level engagement), eight percent of those who selected 'I feel healthier' improved in weight status compared to four percent for those who did not select this reason. However, 14% who felt healthier declined in health as did eight percent in the other group. This difference was statistically significant,  $\chi^2 = 8.017$ ,  $p < .05$ .

#### **4.4.7.2. 'I feel healthier' and fitness results (MSFT)**

The Multi Stage Fitness Test (MSFT) is a test of fitness. An analysis was conducted to see whether there was an actual change in the fitness of those who perceived that they were feeling healthier by looking at the results of the MSFT.

Examination of the change in MSFT results over the three years showed that out of those participants who enjoyed "Move It" because they felt healthier ( $n = 213$ ), 147 participants improved their performance in the MSFT whilst 66 participants had worse results.

By school, results showed that at School 1 (low-level engagement), 71 participants improved their MSFT result and nine got worse. At School 2 (high-level engagement), 25 improved their MSFT result and 11 had worse results and at School 3 (medium-level engagement), 51 participants did better and 46 achieved worse results.

Table 4.58 shows the change in Multi Stage Fitness Test (MSFT) over the three years by school for participants who chose 'I feel healthier' as a reason that they enjoyed "Move It".

Table 4.58 Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who felt healthier

	Improve	Worse
School 1 (Low-level engagement)	71	9
School 2 (High-level engagement)	25	11
School 3 (Medium-level engagement)	51	46
Total	147	66

A chi-square test was used to test the association between subjective feeling healthier and an improvement in actual fitness as demonstrated by the change in Multi Stage Fitness Test (MSFT) results.

At School 1 (low-level engagement), 89% of those who selected 'I feel healthier' improved their MSFT result compared to 79% who did not select this reason'. However, 11% who felt healthier achieved worse MSFT results compared to 21% in the other group. This difference was not statistically significant,  $\chi^2 = 3.454$ , ns.

At School 2 (high-level engagement), 69% of those who selected 'I feel healthier' improved their MSFT result compared to 45% who did not select this reason. However, 31% who felt healthier achieved worse MSFT results as did 55% in the other group. This difference was statistically not significant,  $\chi^2 = 7.173$ ,  $p < .05$ .

At School 3 (medium-level engagement), there were comparable improvement in MSFT results among those who felt healthier (53%) and those who did not select this reason (54%). However, 47% felt healthier but achieved lower MSFT results as did 46% in the other group. This difference was statistically not significant,  $\chi^2 = .024$ , ns.

#### 4.4.8. Summary

Results show that having fun was the leading reason why participants enjoyed taking part in sport at "Move It". This is consistent with existing research (e.g. ASC, 2004). Overall, 'feeling fitter' was the second most important reason, although analysis showed that this was important to a higher per cent of participants at School 1 (low-level engagement) than at the other schools. In particular, boys at School 1 (low-level engagement) value fitness as a reason for enjoying sport. This corresponded to the physiological test results which showed that boys at School 1 (low-level engagement) were the fittest and that they made the greatest improvements in Vertical Jump and MSFT compared to other schools.

Girls and boys differ in respect of whether 'being good at sport' is a factor in enjoyment. This is more important for boys whilst girls liked the chance to try new sports. However, by school, trying new sports was important to participants at School 1 (low-level engagement) but was a less important reason amongst participants at Schools 2 and 3. Also 'being good at sport' was particularly important to the majority of boys at School 1 (low-level engagement). It was also the most important reason, after fun, why boys at School 2 (high-level engagement) enjoyed the programme. Findings correspond with Biddle and Armstrong (1992) who found that boys are more likely than girls to enjoy sport for its own sake.

Most participants' experienced "Move It" sport as 'fun' (60.4%) and having an enjoyable experience is linked to higher engagement (Coalter, 2002). However, looking at the health (indicated by weight status) and fitness results (measured by MSFT) among participants who had 'fun' there was no evidence that higher personal engagement resulted in improved outcomes. Also, analysis of fitness results among those who said that they enjoyed "Move It" because it made them feel fitter showed that there was no actual improvement in fitness. Overall, a third of those who said they felt fitter performed worse overtime in the MSFT. The biggest improvement in MSFT amongst those who felt fitter came at School 1 (low-level engagement) where participants highly valued fitness. At School 3 (medium-level engagement) half improved and half got worse, despite reporting that they felt fitter. Despite the consensus that being fitter has positive consequences for health in general including BMI (e.g. Sharp, 1997), there was no evidence that those who felt fitter improved their health.

#### **4.5. The story of "Move It" so far**

The three schools can be differentiated by their level of engagement with the programme. School 1 (low-level engagement) engaged the least. It accepted "Move It" as it was designed, namely a sport programme delivered by external coaches, and did not adapt it beyond the original model. School 2 (high-level engagement) engaged highly with the programme. They took an active role in its delivery and encouraged participants to offer ideas for its provision via participant councils. They saw "Move It" as a means to build intra-school communication and to build the skills of Sport Leaders, older pupils who were invited to coach at the programme. School 3 (medium-level engagement) was slower to engage with the programme, but by the end of year 2 they also saw "Move It"



as a means of building intra-school relationships, and Sport Leaders were involved as coaches. At these latter two schools “Move It” came to represent more than a sport programme.

The quantitative results tell us that;

#### **4.5.1. Body Mass Index**

BMI at School 2 (high-level of engagement) was significantly higher than at other schools. Also, over time BMI increased significantly at School 2 (high-level engagement) compared to School 1 (low-level engagement) and School 3 (medium-level engagement). This means that the level of BMI at School 2 (high-level engagement) started higher than at other schools and ended higher. They also had the greatest increase in BMI between Time 1 and 3. In other words, participants at School 2 (high-level engagement) were fatter than at the other schools and this difference was sustained over time.

From a health perspective, BMI has a meaning for health prognosis when compared to an index of overweight and obesity. This translation showed that the highest per cent of obese children at all times was at the high level of engagement school. However, the per cent of participants who were overweight or obese went down at the low-level (School 1) and high-level (School 2) engagement schools but rose at the medium-level engagement School (3).

#### **4.5.2. Flexibility**

This improved at School 2 (high-level engagement) and School 1 (low-level engagement) but slightly decreased at School 3 (medium-level engagement) over the three years. At Time one, School 1 (low-level engagement) was the least flexible. However they made the greatest improvement over time and were the most flexible at Time 2 and 3. They also improved more overall than participants at the other schools.

#### **4.5.3. Vertical jump (explosive power)**

Vertical Jump is a test of leg strength. How high people jump from a standing start tells us about their explosive power which is based on leg strength.

Initially, participants at School 2 (high-level engagement) jumped significantly higher than those at School 1 (low-level engagement). However, participants at School 1 (low-level engagement) improved and jumped higher than at the other schools at subsequent tests. The change in their results over time was also significant compared to the other schools. Participants' at School's 2 and 3 jumped less high over time. In short, at first, School 1 (low-level engagement) was the worst at jumping but they made the greatest improvement and became the best at jumping. This means that their leg strength increased over time, whilst at the other schools leg strength decreased.

#### **4.5.4. Multi Stage Fitness Test (MSFT)**

At all times, participants at School 1 (low-level engagement) were the fittest and at School 2 (high-level engagement) were the least fit. This difference was statistically significant. Participants at School 1 (low-level engagement) were also significantly fitter than those at School 3 (medium-level engagement) at Times 2 and 3 but the difference was not significant at Time 1. Also, their fitness improved overall whereas at School 2 (high-level engagement) fitness declined and at School 3 (medium-level engagement) fitness remained the same. In short, participants at the low-level engagement school got fitter and those at the high-level engagement school lost fitness.

#### **4.5.5. Summary**

At Schools 1 (low-level engagement) and 2 (high-level engagement) the percent of overweight and obesity combined decreased overall. This means that over time fewer participants carried a weight related health risk. At School 3 (medium-level engagement) the percent at risk of ill health increased. However, overall School 2 (high-level engagement) had the highest percent of overweight and obese participants.

Participants attending School 1 (low-level engagement) got fitter, more flexible and increased their jumping height over time. In comparison to the other schools, at Time 1 they had the worst flexibility and jumping but they improved and were the best at all tests at Times 2 and 3.

At School 2 (high-level engagement) participants became less fit and had less strength (explosive power) over time. Their flexibility remained essentially the same. At the outset they were more flexible and could jump higher than participants at the other schools, but they did not sustain this. They had the lowest fitness levels at all times.

At School 3 (medium-level engagement) participants' flexibility and strength (explosive power) decreased overall. Their fitness remained the same.

#### **4.5.6. Self-esteem**

The Self-Perception Profile (Harter, 1985) tested participants' self-rated competence in six areas. The results show how good participants think they are at something. This perception is often thought to be more important than the reality because if people think they are competent they are likely to seek out challenges and try harder (e.g. Duda 2005).

Participants at the school which was least engaged with the programme (School 1, low-level engagement) self-rated themselves higher in all aspects of self-esteem. In contrast at the school that engaged most with the programme, (School 2) participants' saw themselves as less competent over time. At School 3 (medium-level engagement) there was little change in self-perception over time, with the only notable changes being that self-rated physical appearance increased and behavioural conduct decreased.

There was little difference between the sexes in terms of change over time. At School 1 (low-level engagement), girls and boys increased their sense of competence in everything except, for girls, social acceptance, which essentially remained at the same level, and, for boys, athletic competence which remained the same. At School 2 (high-level engagement), girls' perceptions of competence went down overtime in every area and, for boys, only behavioural conduct and overall self-esteem remained the same and the other aspects were worse. At School 3 (medium-level engagement), girls and boys improved in self-ratings of physical appearance. For girls, behavioural conduct decreased and for boys' social acceptance improved. Other self-perceptions remained the same.

#### **4.5.7. Overall summary**

The consistent improvement among School 1 (low-level engagement) participants stands out. They were the only school to get fitter, more flexible and stronger (explosive power) and to feel better about themselves in all six of the self-esteem measures. In contrast, School 2 (high-level engagement) participants lost fitness and strength (explosive power), improved only marginally in flexibility, and their self-ratings in all areas of self-esteem decreased. At School 3 (medium-level

engagement) flexibility and strength decreased and fitness remained the same. Their self-perceptions remained essentially the same with the only notable change being increased physical appearance ratings.

Emphatically, School 1 (low-level engagement) moved in the right direction in terms of health, fitness and self-esteem. School 2 (high-level engagement) moved the other way. Health and fitness declined at School 3 (medium-level engagement) but self-esteem remained stable. Let's contrast the results of the low- and high-level engagement schools; at School 1 despite the school's low level of engagement in the programme participants became fitter, healthier and increased in self-esteem. School 2 (high-level engagement) actively supported the programme and encouraged staff and participants to engage with it, but participants lost fitness and strength and situation specific and self-esteem decreased, suggesting that they felt less competent.

#### **4.5.8. Interpretation of results**

“Move It” involved taking part in two extra hours of sport per week. As Coalter (2002) pointed out, a programme must be designed to achieve outcomes, via adequate duration, frequency and intensity. Stratton (2009) found that doing an extra two hours of sport per week is not a ‘design’ which is sufficient to achieve specific health and fitness. However, the argument that the “Move It” design did not facilitate outcomes may be partly confounded by the improvements at School 1 (low-level engagement). On the other hand this school was already focused on pupil welfare and other initiatives may have contributed towards participants' scores.

Also, self-esteem improved at School 1 (low-level engagement) and decreased at School 2 (high-level engagement). However, sport can improve esteem without accompanying changes in health and fitness (e.g. Fox, 1997). Therefore, in this context, the health and fitness results do not explain the decrease in self-esteem results at School 2 (high-level engagement).

Engagement is a confounding aspect. The engagement levels were different at each school in that School 1 (low-level engagement) engaged with “Move It” solely as a sport programme, whilst School 2 (high-level engagement) and, to a lesser extent, School 3 (medium-level engagement) used “Move It” to build intra-school communication and relationships and to develop associated skills among participants and older pupils.

Although Coalter (2002) argues that higher engagement with a programme is likely to bring about positive outcomes there was no evidence that a school's level of engagement improved health, fitness or self-esteem results. Also, according to Marsh (1999)'s theory sport can make pupils more engaged with their school which in turn improves academic attainment. However academic competence did not increase based on engagement.

Therefore, to get a more detailed understanding of the results, it was necessary to look at a particular example of how a school engaged with "Move It."

Also, Farrington (2003) advised that when evaluating a social intervention programme, the question 'does it work?' can be answered by finding out 'what works?', 'what does not work?' and 'what's promising?' Having looked at what does and doesn't work from a quantitative perspective research attention now turns to 'what's promising?' This is a complex topic therefore it was useful to use an approach in which the research can seek out meanings via an interpretative paradigm.

**CHAPTER 5**  
**CASE STUDY**

## **5. Chapter 5 – Case Study**

This chapter introduces the case study, and explains why it was appropriate and how it fits into the research design. It also justifies the choice of School 2 as the unit of analysis, and outlines the design of the case study, including the methods of data collection. The justification for using case study as a research approach, including its advantages and limitations was included in the Methods Chapter (3).

### **5.1. Introduction**

A case study is the study of a particular instance of phenomena (Gall, Gall & Borg, 2009). As a research strategy, its strength lies in the fact that it can be used to interrogate a subject in its real life context. As Yin (2002) points out, the boundaries between the context and the phenomenon are often unclear; therefore, the rich contextual data provided by case study can be illuminating. Also, in contrast to the absolute nature of quantitative research, a case study can be used to build a deeper understanding of particular phenomena and, in a mixed methods design, it can provide data that is useful in explaining quantitative results (Gall et al., 2009). Pawson and Tilley's (1997) approach advocates that particular contexts can enhance or detract from a programme's effectiveness and argues that context must constitute part of the evaluation (Blamey & Mackenzie, 2007). A case study is appropriate when the research focus is on the phenomenon in a real-life situation because it can draw out both the meaning that events and experiences have for participants and the influence of context on participants. This creates an insight into those features and outcomes that are context specific and the processes, which connect the events to outcomes (Yin, 2002). This underlines the value of a case study for this research.

#### **5.1.1. The role of case study in this study**

As noted above, Pawson and Tilley (1997) believe that context is all in all. They state that results cannot be generalized across different settings because context is likely to be influential in forming those results. The design of this study recognized the potential importance of the differential levels of engagement in the programme shown by each school. In the previous chapters, I assessed whether the programme "worked", as Farrington (2003) recommends, and the level of engagement was taken into account to consider the possible impact of context via engagement on outcomes.

However, “Move It” exemplified Yin’s (2002) point that the boundaries between the subject of enquiry and its context are often blurred. Firstly, the boundary between “Move It” and the schools was indistinct by virtue of its design; the programme took place on school grounds after core school hours but in controlled school time. Although external parties delivered the coaching, the schools were responsible for logistical aspects, such as providing facilities for the sport and organizing and controlling participants. However, the three schools were differentiated in how much they engaged with “Move It”, specifically whether they were advocates, the extent to which they assisted in its delivery and whether they attempted to adapt the core model in order to develop other skills among participants and older pupils. In turn, embedding “Move It” into school life further distorted the margins of the school and programme. Thus, based on Yin’s (2002) comments, this was a very good situation in which to use a case study.

### **5.1.2. Where the case study fits with the larger study design**

This case study sits within the larger mixed-method study and therefore the overall findings integrate quantitative and case study evidence. Following Yin’s (2002) commentary, there are three main reasons for using this design. In this situation, a case study may be required to (i) triangulate evidence from other methods, (ii) provide in depth data about those involved in the quantitative research or (iii) to elucidate underlying processes, which means that the case study is complementary to other evidence, rather than confirmatory. This study is primarily complementary since it seeks to provide insights into the process of “Move It” and to identify any other benefits of the programme apart from those studied using quantitative means.

### **5.1.3. The research context of the case study**

According to prevailing theory, context is key to understanding how programmes lead to outcomes and therefore these outcomes cannot be aggregated to other groups and settings (e.g. Blamey et al., 2002). In addition, a higher level of engagement is more likely to predict positive outcomes because sport is more effective when it engages participants’ enthusiasm and commitment (e.g. Coalter, 2002). Therefore, the quantitative analyses evaluated the impact of engagement. As higher engagement is thought to predict positive outcomes (e.g. Coalter, 2002), the high-engaged school (2) could be expected to improve on health and fitness and self-esteem. However, results confounded current theory as participants at the high engagement school showed a



decrease in health, fitness and self-esteem whilst participants at the least engaged school (1) improved in all areas. Also, results among participants at the medium engaged school (3) remained stable during the study. This highlighted the need to look in greater depth at how the programme operated within a particular context. The rich contextual data provided by a case study was therefore necessary to understand this phenomenon and adds to the strength of the study.

#### **5.1.4. Design**

In this chapter, I use a single case design. A single case design is analogous to a single experiment and Yin (2002) states that this design is suitable if the case represents a critical test of existing theory, a unique or extreme case, a typical case, a revelatory case or a longitudinal case. Adapting Yin's (2002) rationale, the use of a single case design was justified because the unit of analysis was unique and the descriptive information was in itself revealing.

The rationale for using a single case was that it was anticipated that focusing on a single school could illustrate the impact of context on outcomes. Given that current theories stress the role of context on outcomes (e.g. Pawson & Tilley, 1997), and view engagement as a significant factor, the results of the quantitative research suggested a basis for looking at these theories further via the case study. Although the study was not designed to test a significant theory, one should recall that the quantitative results have confounded existing theory and raised more questions than answers.

Yin (2002) points out that an outstanding case can provide information that can create a breakthrough in practice because the details of the case might show what innovations or corrections are required in a wider context. In addition, identifying the features and processes, which underlie the programme within a specific context, offers an insight into the quantitative outcomes reported previously because the results can then be considered within that situation.

Another justification for using a case study is that, as Coalter (2007) states, UK sporting bodies often prefer descriptive research into programmes because it can illustrate the value of certain approaches and reveal the impact on individuals. For Pawson (2001a) the approach is particularly valuable because it can lead to the extraction of enough of the process of a programme so that the outcomes are more comprehensible. However, he warns of limitations because it uses selective evidence

and relies on the inclusion of sufficient descriptive evidence to present the context adequately (Pawson, 2001a).

#### **5.1.5. The unit of analysis**

I selected School 2 because it was concerned with many of the issues that sports intervention programmes are thought to address, including pupils' health, fitness and behaviour. Also, a large cohort of pupils met the criteria for being at risk of social exclusion. Although the quantitative analyses showed that the intervention failed to address health, fitness and self-esteem the failure could not be attributed to any barriers presented by the school since the school was highly engaged in the programme. Thomas et al. 2002 state that case study is useful to find out why something went wrong (Thomas et al., 2002). Therefore, I employed a case study approach to account for the outcomes, and why unexpected results occurred.

School 2 was also suitable for an in depth exploration because it had a prior history of difficulties with pupils and sought innovative ways to address them. Prior to analysing the quantitative results, the research visits to School 2 showed that the school was keen to make the most of the "Move It" programme, not only in terms of addressing pre-existing concerns about pupils' health and fitness, but also to develop their learning, organisational and social skills. It was hoped that a case study might reveal some distinctive aspects of "Move It" at School 2.

In addition, according to prevailing theory, a higher level of engagement is more likely to predict positive outcomes because sport is more effective when participants' see it as relevant and interesting (e.g. Skille, 2005). Although, this suggests that the higher engagement school would make a greater improvement than others this was not the case in practice. Therefore it was necessary to look deeper into their case to find out i) why this might be ii) what their engagement with "Move It" meant in practice iii) where there were other benefits that quantitative measures could not demonstrate.

#### **5.1.6. Research questions**

In constructing the case study, the following questions formed the basis of this enquiry;

What are the characteristics of this case and what do they reveal, if anything, about the impact of engagement on outcomes?

Is there an explanation for unexpected absence of an impact of high engagement on outcomes in the quantitative results attained by School 2?

Having explained the features of “Move It” at School 2, I now consider what they reveal about the impact of engagement on outcomes. Then, these aspects are considered in light of the propositions that high engagement predicts better outcomes and that context is influential in results.

### 5.1.7. Sources of evidence

As explained in the Methods, Chapter 3, this study used multiple sources of evidence to measure the phenomenon, which, according to Yin (2002), rates higher than using single source studies in terms of overall quality of the analysis. Although, as Maxwell (2005) states, contextual factors influence the design of research, multiple sources allow for the corroboration of evidence thus strengthening internal validity. In this study, evidence was collected via documentary data, interviews, direct observations and informal conversations as recommended by Yin (2002). The strength of this approach was described in Chapter 3, Methods.

Data was collected to provide the real life context in which “Move It” took place. For this reason, it was gathered from Senior teaching staff, PE teachers, pupils and the “Move It” Project Manager and from observation and documents. The methods of data are shown in Figure 5.1. Table 5.1 lists the documentary evidence used in this study.

Figure 5.1 Methods of Data collection

<p><b>Teaching Staff</b></p> <p>Informal conversation during</p> <ul style="list-style-type: none"> <li>• “Move It” testing</li> <li>• School breaks in staff room</li> </ul> <p>Formal Interviews:</p> <ul style="list-style-type: none"> <li>• Head of Girls PE</li> <li>• Head of Boys PE</li> <li>• Head Teacher</li> <li>• Assistant Deputy Head Teacher</li> <li>• Project Manager</li> </ul>	<p><b>Project Manager</b></p> <p>Informal conversation (facilitating data triangulation)</p> <ul style="list-style-type: none"> <li>• “Move It” testing</li> </ul> <p><b>Participants</b></p> <ul style="list-style-type: none"> <li>• “Move It” council</li> <li>• Focus groups</li> </ul>
<p><b>Researcher's view</b></p> <ul style="list-style-type: none"> <li>• Personal diaries</li> <li>• Field notes/observation</li> </ul>	<p><b>Documentary Evidence</b></p>

The following documents were accessed from the school website with the school's permission;

Table 5.1 Documentary Evidence from School 2

<b>To reinforce positive behaviour of participants</b>	<p>“Move It” attendance certificate</p> <p>Invitation to take part in “Move It” festival letter</p>
<b>Standard letters to parents regarding</b>	<p>Good behaviour</p> <p>Bad behaviour</p> <p>Absence from “Move It”</p> <p>Information about “Move It”</p>
<b>Involvement of participants</b>	<p>Sport Leader pupil ‘contract’</p> <p>“Move It” council election notice</p> <p>“Move It” councilors list</p> <p>“Move It” council meeting advertisement;</p> <p>Questionnaire created by “Move It” council for fellow participants.</p>
<b>Documents about the running of “Move It”</b>	<p>Guidelines for non PE staff regarding “Move It” sessions</p> <p>Coach Guidelines</p> <p>Attendance statistics</p> <p>Attendance register</p> <p>PE “Move It” evaluation, 2005</p>
<b>School documents;</b>	<p>Behaviour and attitude self-check list</p> <p>PE self-report checklist</p> <p>School website</p> <p>School goals</p>

## 5.2. Background to the case study

In this particular study it was useful to consider whether, the following propositions were true, namely that;

Sport engages pupils with their school and increases their commitment to school, which can in turn improve academic performance (Marsh, 1997).

The nature and quality of the experience of participation matter because a positive experience is likely to predict adherence and future sport involvement (e.g. Coalter, 2002; Skille, 2005; Sharp, 1997).

How a programme is provided is an important determinant of outcomes (Coalter, 2002).

### **5.2.1. Background of the school: School 2 in 2004-2005 and 2007-2008**

School 2 was described as the borough's "dumping ground" by the "Move It" Project Manager. It was the destination for children who could not get into other schools; for children whose parents did not bother to register them; or asylum seekers who had recently arrived in the country (personal diaries, 2005). The Head of PE, later to become the Assistant Deputy Head of School, said that the school faced problems that were typical of an inner city school (personal diaries, 2005). These included playground fights, which had escalated into mini "riots" and disruptive behavior, after school, on public transport and in the high street leaving local residents feeling threatened. Consequently, the end of the school day had been staggered to avoid a large-scale exodus of pupils into the community.

This evidence was underlined by the Ofsted report (2005) which said that the school faced specific challenges due to the following factors;

The number of pupils entitled to free school meals (taken as a marker of low socio economic status) was higher than the national average.

The percent of pupils for whom English is an additional language was higher than the national average.

Levels of academic attainment on entry that were well below the national average.

Given that the main indicators of social exclusion are low income, low social cohesion and poor education (Bryant, 2001), the Ofsted (2005) report demonstrated that many pupils were at risk of social exclusion. Indeed, according to Long (2002), feeling excluded carries implications for pro-social behaviour and can manifest in problems in exercising the ability to act, lack of interpersonal ties, the isolation of specific groups and barriers to benefits and privileges.

However, the picture in 2007, after “Move It” ended, had changed in a number of ways. In contrast to a “dumping ground” School 2 was the first choice of all pupils who joined in Year 7 for the final “Move It” year, 2006-2007. The next year, 2007-2008, the Year 7 places were ‘heavily’ oversubscribed and the Year 7 intake came from ten primary schools, (Head of Year 7, personal diaries, 2007). This contrasted with previous years when School 2 received pupils from many schools because they had been turned down, or excluded, elsewhere. The Project Manager said, “It shows that the school is now a school of choice and that parents are choosing School 2” (personal diaries, 2007). Also, GCSE 5+ A\*-C results improved between 2005 and 2007 from 58 percent in 2005 to 74 percent in 2007 (School 2 Prospectus 2007-2008,2007). In September 2008, School 2 was graded 'outstanding' by Ofsted (2008), who praised their 'unrelenting determination to maximise the life chances of students' (p.2).

So, what, if any, contribution did “Move It” make toward this upturn? Since “Move It” ran during these three years, the questions were asked; ‘was it part of the key to change and if so why were the quantitative results so discouraging?’ The themes that emerged from all the data gathered are now presented under the following themes;

Synchronizing “Move It” with school goals

Support from Senior Teaching Staff

Managing “Move It” for Outcomes (Coalter, 2002)

Involving participants as stakeholders

Involving Older Pupils

To set the scene, I start by looking at why School 2 became involved with “Move It”.

### **5.2.2. Starting point**

Initially “Move It” was brought into School 2 to address concerns over the health and fitness of pupils (Assistant Deputy Head, interview, 2006);

We were interested in it as a result of the whole obesity issue, the health agenda. Obviously the school has the policy that every child matters and part of that is the health and well-being of children across the board. So there was an interest there for us, obviously we had also seen that kids

were becoming heavier and less active, we could see the kids that were coming to us, their fitness levels were getting lower, which was a concern and we wanted to get them active and involved as much as possible.

Also, the Head of PE was aware that the pupils' desire for extra-curricular activities outweighed the available resources (interview, 2004);

We had quite a broad and balanced curriculum as it was, with a good extracurricular offer but what we were finding was that as a small department, whatever we put on was full and we couldn't put on enough, so we thought, well if students are interested, and of course they would attend, then this would be beneficial for them, so this helped us to overcome quite a few things at once.

After getting involved with "Move It" the Head of PE and his staff began to consider how to make the most of the programme.

But obviously once we had got involved with it, we realized it could be a lot bigger and there was a much bigger picture that we could address if you see what I mean, it fitted into a lot of different things that were important to us as a school.

From this point, Senior Teaching staff, including the Head of School, began to examine and articulate how "Move It" could satisfy their wider school goals.

### **5.3. Synchronising "Move It" with overreaching school goals**

According to its website, School 2 aimed to "to harness and support our pupils' potential for development academically, socially and morally" (School 2, 2006). To achieve this, School 2 had particular objectives (www.whtc.co.uk, 2006) which included;

Enabling students to be independent, self-disciplined learners and responsible citizens.

Instilling a sense of responsibility and respect for others as individuals, and towards the cultures represented within the community.

These terms came up regularly in informal conversation and interviews with teaching staff, when discussing the development of "Move It". They reported that "Move

It” was identified as a means to address their aims, and for this reason they welcomed its introduction.

During an interview, the Head Teacher said that the school’s objectives stemmed from the particular needs of many of their pupils. Firstly, the multi-cultural composition of the pupil cohort necessitated an emphasis on respect between individuals and respect for other cultures. Secondly, many pupils lacked basic learning skills, either because many pupils had English as an additional language, or because many pupils had little parental support. As the following comments illustrate, the school faced specific challenges in helping pupils develop.

I say that we are here to give these children a chance, because nobody else is going to give it and that is what this school is about, and if you can... enough for these kids then you’re not in the right place. You may be a very skilled teacher or maybe very successful in other context but this context is about helping those kind of children. And I’ve read stories about children who have seen their parents shot, and they go to their mum’s aunt and he lives just with his sister, real poverty. I’ll read it and I’ll say, the only thing... is making sure he succeeds. Getting his qualifications, So, I’m that kind of Head Teacher. That’s where my heart and my passion is. (Head Teacher, interview, 2006).

Therefore, from the outset, the programme was seen as a means to realise the school’s goals and, at the Head Teacher’s request, the Head of PE identified possible links between “Move It” and wider school objectives (Head Teacher, interview, 2006; Head of PE, personal diaries, 2005; interview, 2006). He saw that taking part in “Move It” could encourage pupils to learn independently. The Assistant Deputy Head explained what this meant in his 2006 interview;

One priority at this school is to create independent learners and lifelong learners of the 21st century. Getting kids making choices on their own, making decisions that were going to have a positive impact on them and preparing them for a life outside of school. And the way we wanted our teachers to approach our lessons was to run experiences which were pupil centered and not just teacher led. So we were looking to offer things so that pupils could make decisions and to enable themselves.



According to the Head Teacher, “the whole emphasis of the school has been to develop learning and make students responsible for their own learning. Learning to learn” (interview, 2006). Resilience in the face of perceived setbacks was also an issue as many pupils needed to learn to keep trying rather than give up if they had not been successful. She talked about the persistence that they strived to develop.

The whole emphasis of the school has been to develop learning and make students responsible for their own learning. Learning to learn. So if you can't do the high jump once, if you tried it ten times maybe you'd be able to do it, or show that you could succeed or develop or progress. So it's about building that, because children will give up after two or three times and get fed up. So it's about making sure students develop the confidence to become what they want. (Head Teacher, interview, 2006)

Resilience was an important facet in a social and sports context too. The Head of PE said that it was very difficult to place their best athletes in local sport clubs. He said that they failed because they lacked resilience and were unable to adapt to the new environment (personal diaries, 2005). In contrast, “Move It” provided a training ground in which participants could develop skills and resilience in a safe and familiar context, but was independent, outside the school curriculum, and involved interaction with external parties (Project Manager, personal diaries, 2007; Assistant Deputy Head, interview, 2006). Also, the “give it a go” ethos put the emphasis on learning and persistence rather than winning.

Although many pupils wanted to participate in extra-curricular sport, the Assistant Deputy Head said that it was difficult for many pupils. He explained:

They [parents] may not have cars, or because of the (sic) change in the job situation this point of time, kids' parents can't take them to these things. We also have families with kids who are looking after younger siblings so this enables them to be able to carry on and do these things, which they wouldn't do outside.

Therefore, he saw that it was important to offer pupils opportunities within the school environment because “our kids don't travel outside of school, so if “Move It” was not in existence, I am certain that they would not do those activities” (Assistant Deputy Head, interview, 2006).

Teaching staff also saw “Move It” as a means of improving pupils’ behaviour during and after school (Assistant Deputy Head, interview, 2006):

That’s a problem we have across the school anyway which stems from the home, the discipline they get through the sports, we could also address that as well, the rules, regulations, and the team work. That has all been helpful, I think, it’s hard to measure.

He envisioned that “Move It” could also help behavior by giving the pupils something to do:

In terms of the kids’ year 7 to year 9, they are here after school when they would otherwise be on the street. We are tiring them out, so there is the mental wellbeing being attached to it as well. The levels of success, doing something they want to do, with the choice there, it’s a positive outlet and also you have the staggered finish at the end of the day so kids aren’t crowding onto buses with the rest of school. Year 7’s going home on their own is a lot safer than year 7’s going home with all mixed years up to year 12.

However, in practice, the support of senior teaching staff was essential in order to link “Move it” successfully with the wider school goals. I now look at evidence of the importance of top down support in moving theory to practice and linking “Move It” with wider school goals in practice including the involvement of Senior Teaching staff in “Move It”.

#### **5.4. Support from senior teaching staff**

Evidences via interviews, observations and recorded personal diaries showed that “Move It” enjoyed the full support of senior staff and that this began at the top with the Head Teacher. She explained her involvement at an interview (2006). Firstly, she was involved in promoting attendance at “Move It”.

##### **5.4.1. Support for attendance**

Initially some parents objected to their children’s participation in extracurricular sport. For example, some parents of Muslim girls questioned whether extra sport was appropriate for girls. In addition, the Assistant Deputy Head said that in many homes, the

needs of the child did not come first and therefore the school had to give strong support for participation:

There tends to be a lack of support generally as opposed to kids prioritising things within their families at other schools, whereas here kids prioritise things very differently. For a lot of kids there is no priority. That [the priority] is their family unit in a way, and again that is down to the fact of how many single parent families we have whose priority is survival as opposed to all the other important things that other parents go on. (interview, 2006).

The Head Teacher re-iterated that “children won’t attend if there is something at home that’s pulling them away”. However, dealing with parental objections allowed her to educate parents about sport, health and the importance of “experiencing different ways of learning”. She backed the programme by insisting to parents that participation in “Move It” was mandatory:

And I was like, “I’m sorry but this is important for your child to do and this is a part of our provision, and this is what we choose”. I said, “I’m flexible in that if they don’t want to do one sport and if they don’t like another, they can do dance or table tennis”. For the success of the programme, they have to be told that this is what the institution does. I tell parents that “Move It” is part of the package; “If you take us, you take “Move It”.” (interview, 2006)

The Assistant Deputy Head (2006) explained how parental disinterest could impact a child’s development and how bringing coaches into the school via “Move It” went some way to resolving the problems that this created;

For example there is a boy in year 8, who is a Borough Footballer who was picked up by QPR, he is also playing table-tennis, being coached by Ray Wilkins (pseudonym) here full time, who has had to drop out of football and table tennis because his parents can’t take him anywhere. His parents aren’t bothered, yet he has the potential to become a very good footballer, maybe semi-professional or professional and maybe even better with table-tennis, but because there is no parental interest he is not getting to anything. We are trying to launch him around, but when

we have people coming in it's a lot easier to do that because they can come to the school and make arrangements and help with that side of it, but it is difficult.

#### **5.4.2. Sport as an educational tool - advocating the health benefits of sport**

The Head Teacher was enthusiastic about the value of “Move It” as an educational tool by which to inform both pupils and parents about the value of sport to health. She had reflected on the causes of the poor health and fitness of pupils and believed that pupils needed to be educated on many levels in order for things to improve. In her view, social aspects such as being more sedentary during leisure time, doing less incidental exercise, and eating more fast food were key to the problem.

In addition, having come to the UK from India as a teenager, she said that she knew from personal experience that children who had recently arrived in the UK faced particular challenges. She said that for many of the pupils at the school, changes in diet and exercise between their country of origin and the UK played a part in obesity because many foods that were a ‘luxury’ in Asia were relatively cheap and available in UK. Therefore, these children rapidly increased their fat or sugar content in their diets. Also, she noticed that pupils did little incidental exercise, such as walking to and from school. Again, this was often a big change for children who came to the UK from other countries. The Head Teacher spoke about her own experience:

Do you know, it is really cultural and you won't believe it but when I was in India, I played hockey. Hockey was my sport. I played in the morning before school, I played every break time every lunchtime every after school, so I was doing three hours at school, and there you walked and I lived two miles away so you walked to the station, and so I was walking three, four miles every day and then I came to this... And then... “We want you to get some GCSE's or O levels, and have you got your Maths?” And I suppose this is a personal thing but I've been through that myself (interview, 2007).

The Head of Boys PE explained that if participants began to miss “Move It” on a regular basis he made phone calls to parents and explained that participation was important to their child's health (personal diaries). It appeared that key providers

understood that the education of parents was often necessary in order to safeguard the welfare of the pupils themselves.

#### **5.4.3. Integration of “Move It”**

To ensure its smooth running thereby creating a positive experience for participants and maximizing the chance to use “Move It” to achieve wider goals, the programme needed to become integrated into school life. Careful management was needed to ensure that facilities were available when needed. Efforts were made to convey information to parents, PE staff and non-PE staff about “Move It”. This included setting out the responsibilities of each party in ensuring attendance, in creating a positive environment for the programme and expectations about appropriate behaviour.

PE staff had clearly set out instructions for their involvement in running “Move It”:

PE staff will be allocated an evening that they will supervise. Supervision commences at 1.05pm (period 4) when they must take pupils to the school canteen for a 20-minute lunch break. They will then return to the changing rooms and pupils will be escorted to their sessions. The PE staff will send out the registers for each sport and collect when completed. Session 1 will finish at 2.50pm and Session 2 is scheduled to begin at 2.50pm. Staff will be required to be present in the changing rooms at this changeover. Session 2 will finish at 4.45pm and teachers will be responsible for monitoring changing areas. Staff needs to be visible during the sessions, continually making sure pupils are in the correct place and that behaviour is to standard. (PE evaluation, 2005)

External coaches also had clear guidelines. Having identified that some coaches arrived late for sessions or had problems controlling the group, coaches were given written guidelines about timing of sessions, registration of participants, how to deal with problems and who to contact should behavior degenerate (PE “Move It” evaluation, 2005; Appendix P).

#### **5.4.4. Using “Move It” to encourage positive behaviours**

Attendance was encouraged rather than absence punished (Deputy Head, interview, 2006). The Deputy Head explained this approach:

It is up to us to support the kids and ensure they go. That's not to say that we banish them from school if they don't attend but if they aren't there then we do ask questions. We have a firm belief that 70 percent of kids we can get there regardless, just a gentle nudge, 10 percent's parents won't want them to go for whatever reason and then 20 percent I believe, who can be swayed. (interview, 2006).

It was important to find out why a participant had not attended "Move It" in order to offer support if she/he was prevented from doing so. Initially, PE staff challenged non-attendance with the pupil in question. If absence continued, they contacted the participants' parents by telephone or letter (School 2, 2004, Appendix Q) in order to engage them in the process of changing their child's behaviour (Deputy Head of PE, personal diaries, 2006).

Another feature involved using "Move It" to reinforce good behaviour. The PE department review of the first year of "Move It" emphasised this point. It stated;

Positive behaviour needs to be rewarded. This year, this has been done by the coaches filling out the rewards postcards during their sessions, which can be kept in the register folder. Pupils have also been awarded certificates for high standards during "Move It". (PE evaluation, 2005; Appendix R)

The importance of good behaviour was reinforced to parents. The Deputy Head of PE wrote to parents in praise of a participants "focus" and "attitude" thereby re-iterating their inherent value to the school (Appendix Q);

I am extremely pleased with behaviour and effort levels of your son in "Move It" over the last term. He has made a real effort to pursue his focus and good behaviour in all the sessions. He has been well equipped, turning up on time with a positive attitude.

The letter also reminded parents of the potential long-term benefits of "Move It" stating that "It is important that pupils work hard in "Move It" to encourage and interest them in pursuing exercise and healthy lifestyles in the future" (Appendix Q).

Poor behavior or bad habits, such as wearing incorrect kit, lateness, lack of effort, disrupting a session, showing a lack of respect toward others and refusing to

follow instructions, resulted in exclusion from a session (Head of Year 7, personal diaries, 2005). This was addressed in the following way (PE report, 2005):

Generally poor behaviour can be dealt with in a number of ways. In the first instance it is probably best to deal with the offending pupil immediately and phone home on the same night to let parents know what has been going on in the sessions. Consistently bad behaviour can be followed up with a letter home and community service within the department.

The Deputy Head said that letters were sent to parents as and when good or bad behaviour took place, in order to include them as a responsible party in their child's behaviour (personal diaries, 2008). The "Move It" Project Manager reported that School 2 used the programme as a means to re-enforce pro-social behavior and as an opportunity to engage with parents (personal diaries, 2007).

### **5.5. Managing for outcomes at "Move It"**

Coalter (2002) states that, to be effective, a programme must be refined on an ongoing basis as, by monitoring particular features, providers can identify the best practices. He refers to this as 'managing for outcomes' (2002, p.10) which in essence means taking account of what does and does not work and adapting the programme accordingly.

School 2 regularly appraised "Move It" and made changes to maximise its impact. Monitoring was undertaken formally and informally. Participants' attendance and behaviour were reviewed on a weekly basis and reported on by the PE department at the middle and end of each school year. Later, the 2008 Ofsted report graded the effectiveness of the school's self-evaluation as outstanding. The report looked at attendance levels, participants' behaviour, things that worked and did not work and suggested improvements (e.g. PE "Move It" evaluation, 2005, Appendix P; School 2 spring term figures, 2006; Appendix S).

Attendance at "Move It" was recorded and analysed (an example is included in Appendix T). Findings were circulated to other teaching departments to keep them informed. Attendance was good overall and during the period from September 2004 until May half term 2005, the 2005 evaluation by the PE department concluded that;

Generally the pupils have been quite good at showing up for “Move It” compared with most other schools. Only a select few individuals are consistent non-attenders. During year one (2004-2005) “Move It” attendance at School 2 was higher than at the other schools, “When you compare this to the figures of 40 – 50 percent attendance across the other participating schools we are doing really well!”

The PE department also monitored behavior at “Move It”:

Behaviour of the pupils is generally acceptable, although there are of course incidents of poor behaviour occurring throughout the year. Some coaches are better equipped to handle this than others and therefore have fewer problems with behaviour. Unfortunately there have been no records kept this year with regards to pupil behaviour and when this is occurring. This may be an idea for next year. (PE department “Move It” evaluation, 2005)

The report by the PE department (2005) also stated that “Move It” had successfully engaged participants’ interest and identified the following benefits:

1. Pupils are obviously getting involved in a wide range of sports and having new experiences within school.
2. Attending the session means that less able pupils are more likely to improve in their PE lessons.
3. There are many pupils attending who would probably not be considered particularly “sporty”, meaning that everyone is getting an equal opportunity to participate.
4. Pupils are finding a way through to participation in sport outside of school. This is evident in table tennis and may soon become evident in the future athletics sessions. (PE “Move It” Evaluation, 2005).

In addition to the provision of the sport sessions, School 2 devised other ways of engaging pupils in “Move It” and these will now be discussed.



## **5.6. Involving participants as stakeholders**

Coalter (2002) says that involving participants in the planning and management of activities can have a significant impact on personal growth and the development of transferable social and organizational skills. For this reason, it is best practice to include the development of these skills as an intended outcome of the programme and to develop a path to achieve them rather than expecting them to occur as an ad hoc by-product of participation (e.g. Coalter, 2007; Danish & Nellen, 1997).

### **5.6.1. The “Move It” council**

The school created a council in order to represent participants’ views and to involve them in running “Move It”. The Project Manager described council as sophisticated and praised it for giving would be members a taste of how to apply for membership of a social body.

Firstly, interested participants had to apply to become a council member. Comparable with a job application, the process of becoming a council member involved prospective members presenting a case for their appointment, which included a discussion of their personal strengths, and their possible contribution to the council. The applicants had to answer the following questions (Application for Council):

1. What personal qualities do you think you have to become a “Move It” council member?”
2. What type of things would you change about “Move It” and why?

The Assistant Deputy Head explained the thinking behind setting up the Council;

They apply for their job; it’s like a real life experience. They have to apply through an application form then go for an interview. They can stay on it for as long as they want and everyone is invited to apply if they want. I don’t think anyone has ever been turned away. That whole process of being interviewed is important as well. It’s part of a bigger picture, with the formality and things, and they have to express why they want to join and express their values, so there is responsibility involved with it as well. It’s trying to mirror society as much as possible really.

The council defined its own responsibilities, which included, “meeting the manager of the project and evaluating what you think is good and what you think could use some improvements” (Application for Council, 2004, p.1). Council controlled its meeting schedule and usually met once a term although this could be increased if necessary.

The council met the “Move It” Project Manager each term to give him feedback about the programme. Although a member of PE staff was always present, she/he did not have any input into the meeting. This allowed the council members to take responsibility for the feedback process (Head of PE, personal diaries, 2007). The Assistant Deputy Head said that council reported on a variety of things including;

The things they like the things they dislike, activities they like, activities they dislike, reasons why, things they would like to see, improvements, some of the sports they have done have come to fruition. Their feelings about kit, and how things can run better really.

The Project Manager said that he was confident that the council represented the views of many participants, not just those on the council itself (personal diaries, 2007). In addition to finding out participants’ views at open meetings, the 2005 council created a questionnaire to find out participants’ views about the programme. Entitled, “what do you think” about “Move It?”, it used a 1-4 Likert scale to indicate ‘strongly agree’ to ‘strongly disagree’. Questions referred to having fun, learning, coaching, challenge, variety, opportunity, behaviour, fitness and sociability at “Move It”. The council presented the results to participants at an open general meeting and, later, to the “Move It” Project Manager. Table 5.1 shows the findings of “What do you think about “Move It”?”

Table 5.2 Results of ““Move It!” What do you think?”

	1 Strongly Agree		2 Sometimes		3 Disagree		4 Strongly Disagree	
	n	%	n	%	n	%	n	%
I have fun in “Move It” sessions	29	58	17	34	3	6	1	2
Our coaches teach us how to warm up and down	26	52	15	30	6	12	3	6
In each session we learn new things	20	40	24	48	5	10	1	2
Our coaches give us feedback on how to improve	18	36	28	56	3	6	1	2
Coaches use praise more often than criticism	11	22	29	58	6	12	4	8
I find the sessions challenging	20	40	21	42	5	10	4	8
During the sessions we do lots of different activities	9	18	18	36	18	36	5	10
During the sessions we have opportunities to perform skills to the group	19	38	17	34	9	18	5	10
During the sessions our coaches have impressed us with their skills	20	40	18	36	11	22	1	2
Members of the group are well behaved	6	12	28	56	15	30	1	2
I think I am becoming fitter	25	49	16	31	8	16	2	4
I have made new friends	16	32	14	28	12	24	8	16
I look forward to “Move It” each week	26	52	12	24	7	14	5	10

Analysis of findings in Table 5.2 highlights that participants were highly engaged with “Move It”. The following aspects stand out;

- Participants had fun at “Move It”. A combined total of 92% agreed strongly (58%) or sometimes (34%) that “Move It” was fun.
- Participants felt that they were learning new things at each session. Overall, 88% agreed strongly (40%) or sometimes (48%).
- Participants felt sufficiently challenged during the sessions. Overall, 82% agreed strongly (40%) or sometimes (42%) that the sessions were challenging.
- Participants were critical of the groups’ standard of behavior. Thirty two per cent disagreed with the idea that the group behaved well.
- Participants felt fitter (49% strongly agreed; 31% sometimes).
- Over half the participants had made new friends during “Move It” (32% strongly agreed; 28% sometimes).
- Most participants looked forward to “Move It” (52% strongly agreed; 24% sometimes).

The participants’ feedback carried a clear message that “Move It” had engaged their enthusiasm and that they experienced learning, fitness and social benefits. The evidence shows that the nature and the quality of the experience of participation were positive. Also, according to the Assistant Deputy Head, being actively engaged in the “Move It” council was an important step for many:

I think they like it because they can make changes. And for some of them it’s the first time they are heard outside of lessons and I think they enjoy the interaction with teachers outside of lessons as well. Its time they don’t usually get with the staff and they are in control of that time as well rather than the teachers

### **5.7. Involving older pupils in the provision of “Move It”**

Older pupils who were qualified sport leaders were invited to assist external coaches in the coaching of “Move It” sessions. By the end of the first year, several had become fully responsible for coaching of a particular sport (e.g. table tennis). This development not only opened up “Move It” to benefit more pupils at the school beyond the ages of participants (age 11 to 14), by allowing them a setting to practice skills that

would be valuable in the future, but it aided the development of pupils attitudes towards one another and towards teaching staff and the school.

### **5.7.1. What is a Sport Leader?**

A Sport Leader is a school pupil who has attained Sport Leader certification via an external accreditation process provided by the National Framework of Awards within non formal Educational Settings. Sport Leader UK (2007) describes the benefits of being a level 1 Sport Leader:

For age 14 or over: This is mainly taught in schools as part of PE. It helps you with planning and organising activities and communicating with and motivating other people (Sport Leader UK, 2007).

### **5.7.2. Sport Leaders and “Move It”**

At the start of the second year of “Move It” (2005-2006), the school involved Sport Leaders in a coaching capacity. They provided coaching and assisted external coaches.

There were two main reasons for this decision. Firstly, problems with coaches during year one convinced the Assistant Deputy Head that Sport Leaders could do as well if not better. Some coaches were not used to teaching in schools and struggled to control groups of participants. As older pupils, Sport Leaders knew how to handle the participants. Also, trust was a big issue for pupils at School 2 and many participants would be more comfortable learning from Sport Leaders than from external coaches (interview, 2006).

The introduction of Sport Leaders meant that more school pupils were involved in “Move It” and it offered personal development opportunities for older pupils. Thus “Move It” began to satisfy social inclusion goals rather than just sport and health outcomes. This was an important concern as many pupils met the criteria for being at risk of social exclusion so the school sought ways to involve them in social processes (Assistant Deputy Head, interview, 2006; Head of School, interview, 2006).

The “Move It” Project Manager devised an application process for becoming a coach for “Move It”. Mimicking an application for employment scenario, Sport Leaders had to submit a written application according to a pre-set deadline. Applications were over-subscribed and the Project Manager selected possible candidates. He then

consulted PE staff by telephone or in person as they liaised with the coaches about the organisation of sessions; however, the Project Manager made the final decision on coach selection. The process was designed, he said, so that pupils could practice job-seeking skills. For most pupils, the application process was a challenge, and therefore it became a test of their commitment to the role (personal diaries, 2006; interview, 2007).

Sport Leaders were paid for coaching and, to be paid, they had to follow the same process as external coaches by submitting time-sheets. The Project Manager reported that Sport Leaders were usually very diligent in keeping accurate records. (personal diaries, 2006). At first, Sport Leaders supported the external coaches in running the session. However, this soon led to some Sport Leaders coaching sessions as well. According to the Assistant Deputy Head, participants benefited because the quality of coaching was often equal or superior to external coaches (interview, 2006).

Ultimately what we have found is that for those kids at level 1 coaches, the experience they are giving the kids compared to the coaches we are bringing in from outside of “Move It”, there isn’t really that much difference.

Moreover participants behaved better under the tuition of Sport Leaders because “the management of behaviour is a lot better” (interview, 2006);

Ironically, providing sport through external coaches was originally a distinctive and attractive feature of “Move It” (Kotulecki, 2005b, Appendix B). Over time, it became clear that many participants preferred to be coached by older pupils whom they could relate to. The Project Manager argued that Sport Leaders came to represent the best option for several reasons. Their coaching style was more adaptable than that of many experienced coaches, also they knew the school’s behaviour code and could control participants’ behaviour accordingly. Their attendance was more reliable than that of external coaches and, as there were many more applicants than positions, sourcing was not a problem. Finally, their communication with participants was more effective because “they speak the same ‘language’ as participants”.

The “Move It” Project Manager described the success of involving Sport Leaders as the biggest surprise of the “Move it” pilot, although he said that, “In hindsight it makes perfect sense; if you want someone to engage with 13 year olds pick someone who was recently 13” (interview, 2007). He also argued that Sport Leaders arrived “without

preconceived ideas, whereas the coaches have a much more defined idea of what a coaching session should be about”. Additionally, Sport Leaders were more amenable to following instructions, like “don’t teach a technical hockey session to kids who are picking up sticks for the first time. Make it fun!” (Project Manager, interview, 2007). Indeed, the Project Manager explained that “the term ‘leader’ does some of the young coaches an injustice as many are qualified coaches [for a particular sport] in their own right” ( personal diaries, 2007).

The Assistant Deputy Head at School 2 agreed (interview, 2006);

The kids who are becoming coaches know where the kids are coming from, know the procedures of the school, they know their cultural backgrounds and how to speak to the kids to get what they want, which is adding to the enjoyment of the sessions. There is a role model element as well, it will hopefully, perpetuate itself and encourage others to get to that point

The Head Teacher said that using Sport Leaders integrated “Move It” further with school life because it included a greater number of pupils, and extended the programme’s influence (interview, 2006). Also, although Sport Leader Certification was already an important initiative at School 2 “Move It” provided the means for further development (Assistant Deputy Head, School 2, interview, 2006)

At key stage 4, at the moment we have 60 sports leaders coming through. I believe that is going to stay the same next year. I think it is around 10-15 doing the Higher Sports Leaders and the same number doing their level 1’s in a variety of different sports. However, we are hoping that this number will grow as more people are being employed by “Move It” which will have a knock on effect lower down in the school as the pupils will be able to see they can do it and that there are opportunities for them.

The “Move It” Project Manager saw that the chance to become a Sport Leader was attractive to current participants and had increased the frequency and adherence of attendance; “A core of participants will turn up because they want to participate and because they see “Move It” as an avenue to become a Sport Leader (interview, 2007). Another bonus was that the positive impression created by seeing Sport Leaders coach

had inspired other pupils to offer to give their time freely. “For example, we are having kids that aren’t on the leadership scheme Key Stage 4 that are coming up to us and saying ‘can I help out on Monday night?!’”(Assistant Deputy Head, interview, 2006).

According to the Assistant Deputy Head many current participants intended to become Sport Leaders. He attributed this to having a good experience at “Move It”, to being able to see what the role entailed and having role models to follow:

It will have a knock on effect lower down in the school as the pupils will be able to see they can do it and that there are opportunities for them. So the intention is, our vision is that “Move It” will sustain itself with our own kids, so hopefully it’s going to benefit us, as the kids who are becoming coaches know where the kids are coming from, know the procedures of the school, they know their cultural backgrounds and how to speak to the kids to get what they want, which is adding to the enjoyment of the sessions. There is a role model element as well, it will hopefully, perpetuate itself and encourage others to get to that point (interview, 2006).

Sport Leaders were proud of being role models for the participants (Project Manager, personal diaries, 2006) and the Head Teacher (interview, 2006) said “I think younger students relate to them, respect them, listen to them, it really helps them and it really helps the school”. She said that Sport Leaders had become involved in upholding the codes of conduct at the school;

On the last day of school there was a little problem with a group of students and as I walked out there, I saw the kids and kind of sorted it all out and sent them off in one direction. I said “What was going on here?”, and he [Sport Leader] said “Oh no we’ve sorted it all out”. They’re actually modelling the behaviours of teachers. It’s worrying in a way, and the kids don’t muck about with them at all. It’s amazing to see them coaching the kids.

Coaching at “Move It” gave some pupils hope and reduced the amount of time where they might be at risk of getting into trouble outside school (Assistant Deputy Head, 2006).



We have success stories, when kids come through and are leading “Move It” as coaches who not so long ago were out there doing the sorts of things we are talking about, that’s not to say that they aren’t still involved in bits and bobs, but they spend a lot more time here off the streets involved with positive interactions with younger students, outside agencies and for some of those I think it has offered them some kind of hope that there is stuff that they can do outside of school and beyond schooling, that they may not be the most academically strong but there are other routes they can take.

The case of Branislav (pseudonym) exemplified the contribution of “Move It”. Branislav was a pupil with a history of delinquent behaviour inside and outside school. Bransilav had a talent for table tennis and after becoming a “Move It” coach, there was a change in his conduct. Teaching staff and the “Move It” Project Manager observed that he had responded to the responsibility of being a coach and to the idea that others saw him as a role model (personal diaries, 2007). The Head Teacher reported (interview, 2006);

And people like Branislav. I mean this was somebody ... who was ready to have fights - that kind of person - now who is now British number thirteen or something [British Table Tennis Ranking]. I was talking to him the other day I said “How are you?” He said “A little bit tired”. I said “What have you been up to?”. He said “I’ve done a three mile run yesterday and a four mile this morning”. And I was like, “O my god!” But it’s that kind of a transformed individual that Branislav would have never set eyes after. Out there he would have got... I know that by now he would have been really damaged. So school does provide a security and our kids like to feel like they can trust people and I think they do feel that they can trust people...

The Project Manager said that Branislav was an exemplary coach who communicated well and who was meticulous in completing his time sheets correctly. In response to being a role model, he had become more disciplined at working on his own table tennis game and had gained a national ranking.

Gaining experience of coaching at “Move It” became a preliminary to coaching at local primary schools on behalf of School 2;

It goes beyond “Move It”, as those sports leaders who are doing their junior sports leaders and their community sports leaders, in order to pass those they need to do a certain amount of hours and we have lined that up to work within our primary schools because our school sports coordinator has links with our primaries, he is able to say, “OK you have to meet a certain amount of hours”, we are going to do that in the primary schools and he is able to help with that side of it as well.

The School Sport Co-ordinator (personal diaries, 2007), said that the good impression created by Sport Leaders had created strengthened links with local primary schools. He said that the Sport Leaders provided a good advertisement for the school with pupils and parents at the primary schools and that this was likely to have contributed toward the increased number of new pupils who had made School 2 their first choice ' entry when joining from primary school.

The Assistant Deputy Head concluded that the integration of the Sport Leader model had extended the influence of “Move It” “so the number of kids that we are impacting a year is huge” (interview, 2006).

### **5.7.3. Improved Perception of PE Department**

An unforeseen outcome of “Move It” was that it had a beneficial effect on how pupils perceived the department. The introduction of “Move it” was key in attempts to galvanise the PE Department (Head of PE, 2004) and subsequently resulted in improving pupils' perception of the PE Department. PE staff communicated more regularly with older pupils acting as Sport Leaders and through their hands-on management of “Move It” they were readily linked with the popular programme. The Head Teacher said, “One thing I do know is it's made PE a really popular department”. The department had become more efficient and their relationship with pupils had improved;

Yeah, our PE department used to be bordering on shambolic , and now I suppose something being there for the kids after school, it's a good example, it's made them feel that the school really values them, that the

school wants to have them, and that is seen across the board, how they can misbehave and... especially the older years.

#### **5.7.4. Key findings**

School 2 was highly engaged with “Move It”. They used the programme consciously to address the pre-existing aims of the school. This was achieved through the support of senior teaching staff which empowered others to adapt “Move It” on an ongoing basis. Outcomes included using the programme to educate parents and pupils about sport and health, to re-enforce positive behaviours and to build transferable skills by involving participants and older pupils in the running of the programme. The high level of engagement demonstrated by teaching staff was echoed by participants, most of whom (76%) looked forward to “Move It” sessions. Also, the general groundswell of enthusiasm improved intra-school relationships, particularly between the pupils and the PE department.

### **5.8. How did the Case Study answer the specific research questions**

The case study was conducted to answer the following questions;

What are the characteristics of this case and what do they reveal, if anything, about the impact of engagement on outcomes?

Can the unexpected results attained by School 2 in quantitative tests be explained?

#### **5.8.1. What are the characteristics of this case?**

The case study revealed important characteristics of “Move It” at School 2. In particular, senior staff at School 2 recognised that “Move It” offered a means to achieve other school goals. Thus, they managed the programme toward specific outcomes that suited the pre-existing needs identified by the school. This approach was supported by senior teachers, who facilitated Move It’s integration into school life, rather than remain as an add-on at the end of the school day. This meant that the school was able to maximise the potential impact of the programme by developing opportunities for pupil’s personal development and skills that could be useful in a wider context.

“Move It” was synchronized with existing school goals. As the Assistant Deputy Head said, the school knew that it needed to address several issues and “one priority is to create independent learners and lifelong learners of the 21<sup>st</sup> century” (interview, 2006). This gave them the impetus to make the most of “Move It”. Ultimately, for School 2, context mattered (e.g. Silk, 2005; Pawson & Tilley, 1997), and it made the most of “Move It” because it had a great need to do so.

Firstly, teaching staff felt that “Move It” could help to address issues of pupils’ health and fitness. Secondly, they saw that the programme suited them because of the particular needs of their pupils (Head Teacher, interview 2007);

The kind of students we have like to feel secure and they like to be in places that they can get support and “Move It” does provide that for them, so I think they feel safe doing things here that have been planned.

Against this backdrop, teaching staff looked at “Move It” as a means of encouraging the personal development of pupils. The programme made pupils more positive about school, because “it’s made them feel that the school really values them, that the school wants to have them” (interview, 2006). This benefited relationships within the school.

However, the Senior Staff saw that “Move It” could also provide a vehicle for the development of other pupils, not just those who were entitled to participate. Finding ways to help pupils develop and build confidence was a particular concern and by involving Sport Leaders as coaches they created personal development opportunities for older pupils. Although it is often assumed that sport can have a positive impact upon participants and communities outcomes must be managed (Coalter, 2002). According to Danish and Nellen (1997), a focused approach is necessary if sport is to provide young people with life-skills and School 2 handled “Move It” in this way.

Skille (2005) argued that adolescents must have a positive experience of participation before conveying positive messages about it to peers and participants in School 2 were very positive about their experience of “Move It” when replying to the “Move It” councils question about the programme. This suggested a strong sense of peer support, which may be the most significant correlate of self-reported physical activity among young people (Prochaska et al., 2002). Sport Leaders were enthusiastic and committed coaches and the evidence that some took their role further and upheld

school rules in other situations suggests that their involvement in sport enhanced an appreciation of the school's other aims (see Marsh, 1997).

### **5.8.2. Is there an explanation for unexpected absence of an impact of high engagement on outcomes in the quantitative results attained by School 2?**

The key features go some way to explaining why the high level engagement did not impact quantitative outcomes. The disappointing quantitative outcomes as School 2 initially appeared to be somewhat surprising given that they were highly engaged with "Move It". However, as a case study allows an in depth look at a phenomena within its real-life setting, it was possible to find out more about the impact of their enthusiastic management of the programme. The data shows that their engagement with "Move It" was characterised by a desire to fulfill developmental outcomes that are usually associated with social inclusion gains. Therefore, the engagement did not influence the "Move It" sessions per se in terms of their intensity, frequency and duration and it is these aspects, as Coalter (2002) notes, that must be sufficient to bring about change, particularly in relation to health and fitness benefits.

However, the focus was on using sport as an educational tool to aid the development of participants' learning skills and resilience to challenges, and to help older pupils develop skills and experience that could be useful in future situations and possibly help them gain employment. This also offered them a way to assume responsibility. Including older pupils in the "Move It" process was beneficial to the development of pupils' attitude toward each other and to the world. Also, educational points such as the importance of sport for health were disguised in informal conversations with pupils and parents. Thus, it appears that School 2 was highly engaged with "Move It" in order to fulfill social inclusion outcomes as the emphasis of their engagement with "Move It" was on achieving social not sporting outcomes. Fulfilling social inclusion aims was characteristic of high engagement shown by school 2.

### **5.8.3. Process and outcomes**

Coalter (2007) reminds us that when outcomes rely on a theory of change it is useful to articulate the process by which they are considered to have occurred. Based on the case study evidence, it seems that the impact of "Move It" is characterised by the following processes.

## 5.9. Summary

In summary, School 2 used “Move It” to serve pupils needs in several ways. Although the programme was introduced to address health and fitness concerns, it became a means to develop independent learning and resilience. It offered Sport Leaders a chance to develop personal and employability skills and in the process facilitated an improvement in intra-school relationships and communication.

Ultimately, in terms of the propositions I highlighted at the outset, sport engaged pupils with the school and increased their commitment to other school goals, (see Marsh, 1997). It showed, given many participants interest in becoming a Sport Leader that, as Coalter suggests (2002), a positive experience of sport might lead to further involvement. It also demonstrated that it is important to manage in order to achieve particular outcomes (see Coalter, 2002; Danish & Nellen, 1997). The nature and quality of the experience of participation matter because a positive experience is likely to predict adherence and future sport involvement (e.g. Coalter, 2002; Skille, 2005; Sharp, 1997).

As many have stressed that engagement will enhance effectiveness (e.g. Coalter, 2002), it seemed likely that School 2’s high engagement with “Move It”, would result in positive outcomes. Hence, the quantitative results appeared to be confounding. However, the qualitative data revealed that the nature of the engagement was key to its outcomes. School 2 concentrated on achieving social inclusion rather than sporting outcomes via “Move It”, and possibly their engagement in the sport itself was not particularly higher than elsewhere.

This chapter sought to understand the features of high engagement with “Move It”. “Move It” was linked to the goals of the school and was adapted through the development of new ideas and through the management of them on an ongoing basis. This was underpinned by a ‘can-do’ attitude among teaching staff from the top down. As the Head Teacher said (interview, 2006) “Move It” was more than a sport programme, “and it contributes to the success at school.”

**CHAPTER 6**  
**DISCUSSION**

## **6. Chapter 6 - Discussion**

### **6.1. Introduction**

The purpose of this chapter is to provide the reader with an in-depth discussion of findings from the quantitative research, and from the Case Study, followed by a general bringing together of themes. Then, the discussion outlines the possible contribution to knowledge of this study and makes recommendations for practice based on its findings. Ideas for further research generated by this study and possible limitations of this research are outlined. Final conclusions are then drawn. Some of the researcher's reflections on the personal lessons of this study are described, followed by an Afterword (Appendix V).

The aim of this study was to determine whether "Move It", a 3-year sports intervention programme, would significantly improve the health, fitness, self-esteem, academic attainment and self-reports of behavioural conduct of children aged 11 to 14 who attended three schools in the same Inner London Borough. The answers to these questions and the subsequent additional questions and conclusions raised by these are discussed here.

Despite the 'vogue' for sports interventions programmes as part of the policy approach to resolving welfare issues (Green, 2006), there have been relatively few published multidisciplinary evaluations. In addition, the literature reflects the debate relating to the efficacy of intervention programmes, which has been provoked by a relative absence of conclusive evidence and by over-zealous political rhetoric in support of sport. Pawson and Tilley (1997) attribute the absence of unequivocal findings regarding the impact of interventions to faulty research methods and claim that what works in one context cannot be generalised to another. Farrington (2003) proposes that results can be generalised and that the impact of a programme can be ascertained from the methodologies employed.

For this study the researcher carried out a series of tests at five different stages of the programme. To supplement the quantitative data, a Case Study which aimed to look at "Move It" within a particular school setting. This was necessary to find out more



about the process of “Move It” and to identify any outcomes that may not lend themselves easily to quantitative research methods.

“Move It” provided participants with two hours of extracurricular sport on school premises outside core school hours. Various sports were available, many of which were outside the current PE curriculum. Given the concerns about children’s declining levels of physical activity, “Move It” was intended to represent an alternative approach, which might be more attractive to young participants and thereby increase the likelihood of engagement and adherence.

Claims have been made, principally by politicians, relating to the supposed transformational power of sport to bring about positive change in a number of social spheres (e.g. Caborn, 2002). As Green (2006) points out, it is the idea that sport is a powerful vehicle, which can improve health and fitness, academic attainment, and can prevent crime and delinquent behaviour that has placed it on the social welfare agenda. However, although the Labour Government (1997-2010) claimed to pursue policies that were supported by evidence of their effectiveness (Solisbury, 2001), providers (Sport England, 2005), politicians (Caborn, 2002) and researchers (Coalter, 2007) expressed concern over the lack of evidence regarding the outcomes of sport. As a result, some critics believe that policy-makers currently lack the evidence required to make informed policy decisions about sport as a social change vehicle (e.g. Bloom, 2005). Despite this, claims that sport is a tool of welfare have been backed up by an investment of £5.5bn in community sport between 1997 and 2010, and a further £2.3bn in school sport since 2003.

In essence, the purpose of this study was to determine if a sports intervention could justify such faith by delivering significant improvements in the areas in which sport has been claimed to impact. “Move It” was launched to address health and welfare concerns in an inner London borough. The “Move It” programme was launched with the promise that extracurricular school sport can benefit health, fitness, self-esteem, academic attainment and delinquent behaviour (Gardiner, 2004). Although the providers did not state explicit goals, they alluded to sports transformational power and promised the development of healthy habits.

In addition, as the programme was provided to pupils of three schools, there was an opportunity to find out whether context had a bearing on outcomes. The schools differed in their level of engagement with the programme (high, medium and low) and thus it was possible to determine whether engagement positively influenced outcomes. For the purposes of this study, engagement refers to the ability of the providers, in this case different schools, to deliver the programme in such a way that it is applicable in real life situations. Recent research indicates that success is often linked to the enthusiasm of the staff engaged in providing the programme and in their ability to transfer or apply the programme to practical situations (Domitrovich, Gest, Jones, Gill, & DeRousie, 2010). The delivery of a programme matters because it may affect quantitative outcomes and how participants experience taking part (Coalter, 2002).

### **6.1.1. What the study Examined and key outcomes**

Specifically, the study examined whether participants would improve their health, by reducing their body composition, improve their fitness measured by cardio respiratory fitness, flexibility, and explosive power, and increase their self-esteem, academic attainment and delinquent behaviour, measured by Harter's (1985) Self-Perception Profile for Children (SPPC). It also looked at the possible impact of engagement on outcomes by examining whether outcomes differed according to the school's level of engagement, specifically to find out if higher engagement resulted in better outcomes. The Case Study looked at "Move It" at one particular school to examine the details of the provision of the programme and also to uncover any outcomes other than those that can be measured quantitatively.

#### **6.1.1.1. Research questions**

The research questions outlined in Chapter Two were:

##### **What is the impact of "Move It"?**

Specifically, the study investigated:

What is the impact of sport in different (secondary school) settings?

Do outcomes vary as a function of the level of a school's engagement with the programme?

As sport was expected to work in various disparate areas, the research looked at specific outcomes to health, fitness, self-esteem, academic attainment and delinquent behaviour and asked:

Is there evidence of improved health?

Is there evidence of improved fitness?

Is there evidence of improved self-esteem?

Is there evidence of improved academic attainment?

Is there evidence of improved behaviour?

A Case Study was utilised to look at the programme in one setting and to find out:

What are the characteristics of this case and what do they reveal, if anything, about the impact of engagement on outcomes?

#### **6.1.1.2. Key findings**

The principal findings from this study were:

- The intervention did not produce clear and distinct beneficial changes in health and fitness. This outcome supports evidence from Stratton (2009) that two hours of extra sport per week is insufficient to enhance health and fitness. While differences between schools were observed parallel influences may have accounted for some of those differences.
- The intervention did not produce significant changes in self-esteem, academic attainment and behaviour over time.
- The quantitative outcomes underline Tacon's (2007) claim that programmes often seek to address too many objectives. The implication for practice is that, as Coalter (2002) argues, an intervention must be designed and managed toward the achievement of desired goals.

In respect of the impact of engagement on outcomes, the principal findings were;

- The level of engagement in "Move It" did not influence quantitative outcomes.
- Outcomes to health, fitness, self-esteem, academic attainment and behaviour differed significantly according to school. Comparisons between the schools

showed that being ‘highly engaged’ in “Move It” did not result in better outcomes. In contrast, health, fitness, self-esteem improved significantly at the low-engagement school when compared to the others.

- This confounds the idea that being more engaged in a programme will positively influence outcomes (e.g. Coalter, 2002). The implication for practice is that the differences between the schools, in particular the improvements at the low-engagement school (School 1) compared to the high engagement school (School 2), exemplify the ‘iceberg effect’ (Ericsson, 1980). It suggests that outcomes stem from a combination of factors, not all of which are visible within the scope of an evaluation of a sports intervention.

The principal findings from the Case Study were;

- Objectives that are often described as social inclusion outcomes, such as personal development, the development of learning skills and employability skills (Long, 2002) were pursued by virtue of engagement with “Move It”.
- The programme also seemed to have a positive impact on the cohesion of the school and communication between pupils and between pupils and staff.
- Older pupils as well as participants benefited from the programme. This was the product of the high engagement school’s (School 2) initiative to use “Move It” to attain specific objectives.

### **6.1.2. Parallel influences**

Coalter (2002) reports that parallel influences outside a programme can be influential determinants of outcomes. However, by their nature, these influences are hard to control for, since they exist outside the programme and are often unknown.

However, some of the possible parallel influences relevant to a longitudinal study on children and youth can be articulated. For example, during the study (i) participants matured physically and psychologically (ii) participants may take part in other sports outside “Move It” (iii) sport habits outside “Move It” might change during the study as participants may join or give up other sports (iv) eating and dietary habits at home can contribute toward health and fitness outcomes (v) some participants may try harder than others during the fitness tests.

The following sections discuss the outcomes of the study and their significance in more detail. As this is a multidisciplinary study, I consider each area separately and then identify any general trends that can be synthesised from the results. The likely associations underlying the changes over time are then considered and discussed in light of existing literature.

## **6.2. Discussion of quantitative results**

The focus in this study was on relative levels of performance which would show comparable levels of change among participants at each school. The duration of the intervention was relatively long compared to other sport interventions (e.g. A-Class, Stratton et al, 2009) and it is likely that with a longer duration intervention, the effects would be greater than those found in a shorter intervention.

### **6.2.1. Fitness**

In this study, three aspects of physiological fitness were examined. These were (i) flexibility as measured by sit and reach (ii) explosive power, which denotes leg strength, as measured by vertical jump, and (iii) cardiovascular fitness as measured by the Multi Stage Fitness Test (MSFT). Therefore, an overall picture of fitness was built up by assessing flexibility, explosive power and cardiovascular fitness. All the fitness variables were found to have a significant interaction with time. This was expected given that participants, aged from 11 to 14 years, were becoming more physically mature. There was also a significant interaction for time by school, for all fitness variables, suggesting that outcomes were moderated by the combined effect of time and school.<sup>1</sup>

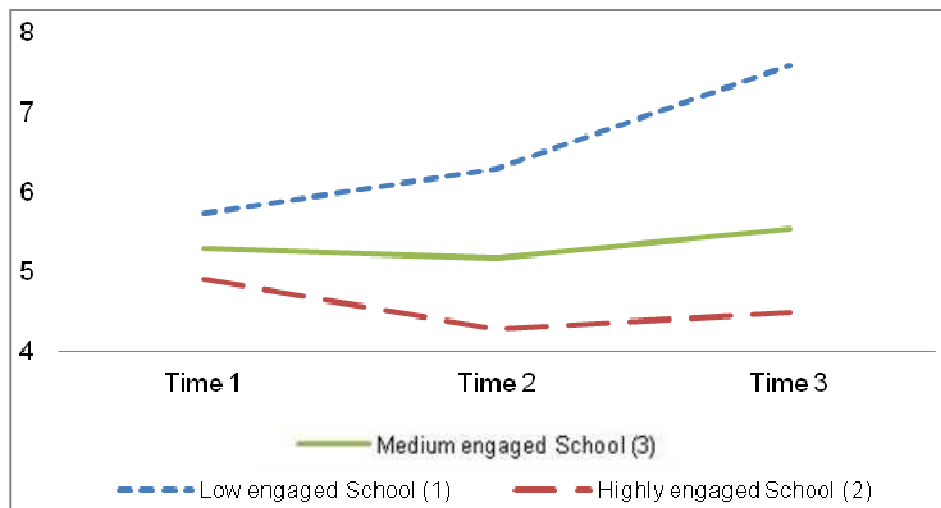
Closer examination suggested that each school and its level of engagement with “Move It” had an impact on outcomes. One-way ANOVA showed significant differences in change in scores between Time 1 and Time 3 at all schools for all variables. However, post hoc tests showed that participants at School 1 (low-level engagement) improved in flexibility, explosive power and fitness when compared to School 2 (high-level engagement) and School 3 (medium-level engagement). Participants at School 3 (medium-level engagement) increased significantly in terms of their flexibility compared to School 2 (high-level engagement) but this was the only significant difference between

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<sup>1</sup> To facilitate the discussion, the mean scores, reported in Chapter 4 are shown in Figures 6.1 – 6.3. However, the reader is reminded that the research is principally concerned with the statistically significant difference in variance not in the raw scores.

the two schools. Overall, fitness improved significantly at School 1 (low-level engagement) when compared to the other schools and, interestingly, it declined at School 2 (high-level engagement), despite their high level of engagement.

Figure 6.1 MSFT results by school over time



Two potential reasons may exist for the significant improvement at School 1 (low-level engagement) compared to the other schools – 1) they did increase their fitness due to their involvement in “Move It” or 2) their improvement was the result of many parallel influences, including “Move It”. These options are discussed in relation to the current literature.

1) *“Move It” positively impacted fitness within a specific context*

The fitness improvement at School 1 (low-level engagement) is consistent with the many studies that have confirmed that sport can benefit fitness (e.g. Armstrong & Welsman, 1990). However, as fitness levels changed differently according to school, it seems that the interaction of context and programme is important.

Coalter (2007) argues that outcomes depend on the context of the sport, the specific population involved, the environment and individual characteristics. For example, depending on their initial level of fitness, one individual may need to do more sport than another to improve their fitness. For this reason, Twisk (2001) argues against setting a definite threshold for the amount of sport required to improve a child’s fitness

because individual characteristics account for differences in the amount required for it to increase.

Tilley's (2000) position is that measures are expected to vary in their impact depending on the conditions in which they are introduced. According to this line of reasoning, it is possible that, a particular intervention may work in certain contexts but not in others, and for some groups but not for others (Coalter, 2007).

2) *“Move It” did not improve fitness*

On the other hand, as an advocate of generalisable research, Farrington (2003) sees the context emphasis as a cop-out. Viewed from this perspective, the impact of a programme is questionable if an outcome cannot be reproduced in similar settings. Thus, as the results were not consistent between schools, the fitness improvement at School 1 (low-level engagement) cannot be attributed solely to “Move It”.

The general decline in children's fitness, which goes hand in hand with increased fatness, is one of the reasons why sports interventions such as “Move It” have become a popular policy approach (Green, 2006). However, in 2003, the 20-year downward trend was predicted to continue by Tomkinson et al. (2003) because, they warned, school PE and sport interventions had not addressed the problem. Seven years later, evidence from this study suggests that this is still the case.

Since the ongoing decline in fitness is well established it may be that even small changes, such as the small decrease in fitness at School 2 (high-level engagement) and the marginal increase at School 3 (medium-level engagement) represent positive impacts. However, at the same time, participants' performance in the Multi Stage Fitness Test (MSFT) is expected to get better due to physical maturity and by this token, the changes look small.

It seems that several reasons explain the outcomes. These relate to the design of “Move It”, the importance other factors that mediate the loss of fitness in children in youth and the parallel factors outside the programme that may influence participants' fitness.

Firstly, it is doubtful whether the design of “Move It” is adequate to improve fitness. Although, in 2008, the incumbent Prime Minister, Gordon Brown, claimed that

“sport can inspire fitness” (Brown, 2008), positive outcomes cannot be assumed unless a programme is suitably designed (Coalter, 2002). Doubts about the duration and intensity of childhood sports interventions were raised by Stratton (2009). Using a similar format to “Move It”, the A-Class sport intervention provided two hours of extra sport per week to 9- to 10-year-old children living in a deprived area of Liverpool. Stratton (2009) found that the intervention did not improve participants’ health or fitness and concluded that the duration was insufficient. Similarly, “Move It”’s duration (two hours), intensity (sport for fun ethos) and frequency (once a week during school term) may be insufficient to improve fitness of many participants. For Coalter (2002) these design aspects are vital determinants of outcomes because participation must occur with sufficient frequency and intensity over a sufficient period of time. Furthermore, it seems that when an intervention is intended to address multiple goals, (e.g. getting fitter in a context that presents sport as fun), the amount of time spent doing sport may be further reduced with a concurrent impact on outcomes.

For example, “Move It” included a range of sports, some of which were more suitable for building anaerobic fitness, such as football, than others such as table tennis. Even then, time for changing into sport kit and receiving coach instructions about the sport reduced the time spent doing sport. In addition, a designated programme aim was to provide a ‘fun’ experience of doing sport. In contrast, the intensity of exercise required to significantly increase cardiovascular fitness is likely to trigger adverse feelings of physical discomfort. Hence, Coalter (2002) pointed out the importance of identifying the goals at the outset and designing the programme accordingly in order to avoid setting potentially exclusive goals.

The results underline Coalter’s (2002) observation that participating in sport cannot guarantee specific outcomes. Instead, it seems that sports interventions using this design have limited utility in terms of improving fitness.

#### **6.2.1.1. *Parallel influences***

Secondly, the loss of fitness among children is linked to the increase in fat children and lower levels of health (Tomkinson et al., 2003). This is caused by many so-called ‘lifestyle’ factors which reflect the way that society has developed and has contributed to a reduction in incidental exercise and an increase in the consumption of



energy dense food (Foresight, 2007). Hence their influence is pervasive and successfully managing their influence relies on a multi-faceted approach.

In addition, other influences outside the programme can impact fitness although in a large-scale intervention it is impossible to control for additional exercise that participants might do outside “Move It” that may contribute towards their fitness.

#### **6.2.1.2. *The level of engagement***

The findings of this study confound the idea that being highly engaged with a programme will positively impact outcomes (Coalter, 2002). Indeed, participants at the least engaged school made the greatest improvement in fitness. This was surprising given that engagement with a programme is thought to be an important determinant of outcomes (Coalter, 2002). Given the emphasis on context as a predictor of outcomes, it was anticipated that participants at the more engaged school would make greater gains in fitness. In short, it may be that the level of engagement cannot make up for shortfalls in the programme design with respect to intended outcomes. In the terms of fitness, if the duration and intensity of sport on offer does not meet the threshold for improving fitness then, by implication, it is difficult to bring about fitness gains.

#### **6.2.2. Health**

Several studies have suggested that sport can benefit health (e.g. Morris et al., 1953; Paffenburger & Hale, 2000). Sharp (1997) cited sport as key to children’s growth and physical maturation and, more recently, interest in the impact of sport on health has centred on its potential to prevent the accumulation of excess body fat which is linked to several non-communicable chronic diseases, including cardiovascular disease, cancer, chronic respiratory disease, and diabetes (IASO, 2004). According to the WHO (2010) physical inactivity is a major risk factor for these non-communicable diseases, which now constitute a leading cause of mortality worldwide. For this reason, sport is seen as a way to reach specific health objectives.

In this study, health was examined by looking at body composition, which indicates whether a person is statistically obese, overweight or normal weight. BMI provides the best indication of childhood health because carrying extra body fat carries a risk to health (IASO, 2004). To find out more about participants’ health (i) BMI was calculated from participants’ height and weight using Quetelet’s Index (Garrow &

Webster, 1985) and (ii) BMI was compared to an age and gender related index of obesity overweight and normal weight (Cole et al., 2002). Therefore, an overall picture of health was built up by measuring BMI.

Although BMI changed over time, this was expected given that BMI is calculated from participants' height and weight, which is expected to increase as they become more physically mature as a product of growth. However, there was no significant interaction effect for time by school.

The most meaningful interpretation of BMI is to compare it with the markers of being obese, overweight or normal weight as, by doing so, it indicates participants' health outlook (ACSM, 2004). A comparison of BMI to the cut-off points for overweight and obesity (Cole et al., 2000) showed that health outcomes differed according to school as the percentage of overweight and obesity combined decreased at School 1 (low-level engagement; 3.1%) and School 2 (high-level engagement; 1.3%) and increased at School 3 (medium-level engagement; 1.1%). This finding contrasts with national figures, which show an upward trend in child obesity and overweight (NCSR, 2006). However, at School 3 (medium-level engagement) the trend was consistent with NCSR (2006) as more participants entered the obese category from overweight.

Nationally, the current trend is upward for both sexes (NCSR, 2006). However there were sex differences at School 2 (high-level engagement) where obesity and overweight increased among girls (5.3%) but decreased among boys, and at School 3 (medium-level engagement) where there was no change for girls (0.1%) but more boys became obese or overweight (4%). Again, suggesting that context matters, at School 1 (low-level engagement) the per cent of obesity and overweight combined decreased among both sexes.

Ethnicity is suggested to a major factor affecting health and a higher proportion of non white children between ages 11-15 are obese or overweight compared to white (NCSR, 2006). Therefore, it was possible that ethnicity might account for inter school differences in the changes to health. However, the proportion of non-white children was comparable between the School 1 (low-level engagement, 92.2%) which made the biggest improvement in the obesity and overweight and School 3 (medium-level engagement, 92.5%), where this increased, and School 2 (high-level engagement, 97%)

where a small improvement occurred, it seems that ethnic composition did not explain the between school differences.

Also, findings confounded the idea that being highly engaged with a programme will positively impact outcomes (e.g. Coalter, 2002). As with fitness, participants at the least engaged school (School 1) made the greatest improvement in health compared to the high and medium engaged schools (School 2 and School 3).

From a public health perspective, findings appear to be promising, because the percent of children who are overweight and obese is lower than the national average, and the downward trend observed at Schools 1 (low-level engagement) and School 2 (high-level engagement) is contrary to the trend, reported by Foresight (2007), that people get fatter as they get older. Two potential reasons exist for the improvement in health – 1) “Move It” had a positive impact on participants’ health in particular contexts (schools) or 2) Participants’ health improved as a result of many parallel influences, including “Move It”. In addition, the differences in improvements in health between the schools suggest that although context may have been influential in outcomes, the level of engagement in the programme was not. These options are discussed in relation to the current literature.

*1) “Move It” had a positive impact on participants’ health*

The health improvement at School 1 (low-level engagement) is consistent with studies that have indicated that sport can benefit health (e.g. Armstrong & Welsman, 1990). However, since the outcomes differed according to school, it seems that context may be an important determinant of outcomes.

The downward trend in obesity and overweight combined, found at School 1 (low-level engagement) and School 2 (high-level engagement), is encouraging in light of the reported a 1% annual increase in obesity and overweight among children in the UK (IASO, 2004). This seems also to correspond with evidence that not participating in sports outside of school promotes obesity (Lobstein et al., 2004). Although it will be recalled that Stratton et al. (2009) argues that two hours of sport is insufficient to improve health, it is difficult to make conclusions about the amount of sport necessary to improve health, because the amount of sport necessary to improve health varies between individuals (Twisk, 2001). However, since this study began, Warburton, Nicol & Bredin (2006) established that even a small increase in physical activity can be sufficient

to elicit health benefits, especially in previously sedentary people. Furthermore, they found a linear relation between physical activity and health status, indicating that further incremental increases in physical activity and fitness lead to additional improvements in health status. This adds weight to the argument that the extra two hours of sport provided by “Move It” can improve health if this is a sufficient increase compared to previous levels of activity.

2) *“Move It” did not improve health*

On the other hand, the ACSM (2001) argues that daily exercise and three sessions of sport per week are necessary for sport to benefit health. From this perspective, as “Move it” only provided an extra two hours of sport per week, it is unlikely that health improvements are attributable to participation in the programme.

Perhaps unsurprisingly given the close link between health and fitness, similar reasons underlie explanations of the outcomes. As with fitness, these relate to the design of “Move It”, the importance other factors that mediate the loss of fitness in children in youth and the outside factors that influence the health and fitness of participants.

Firstly, it is difficult to claim that outcomes resulted from “Move It” alone because participants’ habitual physical activity outside a programme is likely to influence outcomes to health and fitness. According to Twisk (2001), individuals’ physical activity outside an intervention can bias controlled studies because (i) it influences the intensity of physical activity that a participant is able to sustain during “Move It” and (ii) it contributes toward their overall health and fitness prognosis. However, studies of intervention programmes, such as this study, are conducted in the field rather than in a controlled environment, and because the amount and type of activity is outside the programme it is impossible to control for.

**6.2.2.1. Parallel influences**

As reported in the literature review, Chapter 2, factors outside an intervention programme may contribute toward change (Coalter, 2007). In particular, habits and attitudes to food at home are likely to have a pervasive effect on obesity (Hill, 2004). Gately (2010) is unequivocal in blaming the parents of obese children for overfeeding them and parental influence is further underlined by evidence that having an obese

parent is the most significant predictor of childhood obesity (Foresight, 2007). Although the DCMS (2008) wants individuals and the state to share the responsibility for change (Foresight, 2008) the implications of individual responsibility are particularly complicated for children because individuals (parents and children) differ in their willingness or capacity to follow a healthy lifestyle (Jebb et al., 2007) and children can be at risk based on choices made by their parents (Gately, 2010). All in all, children have limited freedom to address obesity and this goes some way to explaining why “Move It’s” impact is likely to be restricted.

Another factor is that obesity is a lifestyle illness, in that causes are related to lifestyle changes including general physical inactivity and unhealthy diets (WHO, 2010). The Foresight Report (2007) established that a complex set of causes including diet, incidental exercise and attitudes toward health and exercise interact to cause the problem. In the context of this study, these unseen influences are likely to play a part in outcomes to health. Given that health improvements were not evident at all three schools, plus the possible influence of outside factors, it is difficult to claim that the small statistical health improvements found at School 1 (low-level engagement) and School 2 (high-level engagement) are due to participation.

The design of an intervention remains vital to outcomes. Programmes that successfully prevent or reduce obesity provide education on diet in conjunction with sport (IASO, 2004). Given the many contributory risk factors for obesity, doing sport alone may be insufficient to bring about change. Gately (2010) takes it further, advocating that the parents of participants must also be educated because family eating habits can be decisive in obesity.

#### **6.2.2.2. *Promising aspects***

However, Farrington (2003) encourages researchers to identify promising results, which offer food for thought but which cannot be confirmed outright. Given the upward trend in UK child obesity, these results seem to fit that definition as the percentage of obese and overweight participants only increased at School 3 (medium-level engagement). As mentioned in the literature review, the IASO (2004) say that sports interventions may have a preventative effect on obesity but are unlikely to reduce it. This is supported by Stratton (2009) who reported that sport limited the accumulation of body fat among nine to ten year old children, without corresponding weight loss amongst

those who were already over fat. In general, the small improvements in health observed at School 1 (low-level engagement) and School 2 (high-level engagement) seem to support the idea that sports interventions can slow down, if not reverse, the upward trend.

### **6.2.2.3. *The level of engagement***

The findings of this study confounded the view that being highly engaged with a programme has a positive impact on outcomes. Indeed, as with fitness, participants at the least engaged school made the greatest health gains.

### **6.2.2.4. *Summary***

Despite agreement that there is a childhood obesity problem of epidemic proportions (IASO, 2004) the GOS (2007) detect some controversy concerning the measurement of obesity among children because of difficulties in predicting growth rates. In turn, this makes it difficult to claim that changes in body composition can be attributed to an intervention rather than maturation. Perhaps for this reason, few sport interventions claim that BMI has been reduced as a result of their intervention. Unfortunately, direct comparison of “Move It” with other studies is also difficult because, as IASO (2004) point out, the duration and the content of the programmes aimed at resolving or preventing childhood obesity varies considerably.

Using statistical modelling techniques, the Government Office for Statistics (GOS, 2007) declared that obesity is getting worse each year. This has consequences for participants in this study, as, by 2050, among children currently aged 11 to 15, 23% of boys and 37% of girls will be obese. However, among younger children, 50% of boys and 20% of girls will be obese. In terms of the implications of this study, the results indicate that claims that sport can manage obesity are over-blown (e.g. Rowe, 2005). The obesity epidemic and the fitness decline go hand in hand (Tomkinson et al., 2003) but the popular idea that obesity can be resolved by sport because people will lose weight as they get fitter overlooks the contribution of changes in diet to the rise in obesity. Gately (2010) says that many people simply eat too much because they do not understand that food is now more energy dense than in the past. At the same time, people have become less active generally and potentially eat more calories than they

use (Sharp, 1997). Therefore, sports interventions such as “Move It” have become popular as a way of helping children to expend more energy.

However, it is a combination of factors that has made people more vulnerable to weight gain and, as with the fitness decline, wider social and economic causes are pervasive and therefore difficult to counter (Foresight, 2007). The problem has proved so difficult to solve that, in 2009, the Labour Government (1997-2010) revised its deadline for reducing childhood obesity to the levels seen at 2000 from 2010 to 2020. With this in mind, it seems unfeasible to expect sport to reverse childhood obesity.

#### **6.2.2.5. *More sport or more incidental exercise?***

Furthermore, the evidence of this study supports Foresight’s (2007) view that incidental exercise, rather than sport, is important in order to be healthy. Failure to distinguish between sport and incidental exercise is central to the confusion over the health benefits that sport can convey and this confusion is exemplified in policy rhetoric. Whilst the DCMS (Foresight, 2008) claim that childhood sports interventions can prevent the ‘conveyor-belt effect’ of fat children becoming fat adults, the Department of Health (DoH, 2008) put the emphasis on becoming healthier by being more physically active as part of one’s general lifestyle.

Taking up the DoH (2008) point, “Move It” makes a contribution to health because it gives participants the chance to be more active. However, to prevent ‘the conveyor belt effect’ referred to by the DCMS (2008) education about eating and lifestyle is also needed (Lobstein et al., 2004). Farrington (2006) and Long (2002) agree that sport can engage participants attention and attendance, but, the content, not the means of engagement, determines whether it will achieve particular targets.

The policy approach values numerical measures of outcomes, because it enables policy makers to identify the best buy in terms of policy (Pawson, 2001a). Although sport is associated with reductions in body fat (e.g. Ross & Jansen, 2001) and improved fitness (e.g. Twisk, 2001) this study did not offer evidence that it can achieve these outcomes in field settings. Even in medicine, it has been suggested that what works in a clinical trial setting may not work outside in a clinical practice setting (e.g. Faulkner et al., 2006).

“Move It” offers a way to be more active by doing more sport, but Foresight (2007) emphasises that it is incidental exercise rather than sport that is likely to reduce obesity. Although this important distinction is often hidden in policy discourse, sport is unlikely to resolve obesity because it is confined to a specific time in contrast to incidental exercise that is done as part of life (e.g. Foresight, 2007). Also, other facets of lifestyle must be addressed to resolve obesity (e.g. Gately, 2009). Furthermore, it is not a sustainable solution because participants tend to return to their baseline sport levels once the intervention ends (Stratton, 2009).

#### **6.2.2.6. *The tip of the iceberg***

When interpreting the health and fitness improvements at the low-engagement school (School 1), compared to the high (School 2) and medium engaged schools (School 3) Ericsson’s (2006) comments on the iceberg illusion seem helpful. This refers to situations when the results are the end product which stems from invisible, or submerged, evidence. Thus, many factors at School 1 (low-level engagement) other than “Move It” may have contributed toward the improvements in health and fitness, although there is not sufficient information to speculate further

The evidence seems to refute claims by the then Secretary of State for DCMS that tackling childhood inactivity via sport will tackle obesity (Foresight, 2008). Obesity is a lifestyle illness and individuals need to change for life not for two hours a week (DoH, 2010). Again, this raises the possibility that the claims for sport are unrealistic and that there are mixed messages about what sport interventions can achieve.

In summary, the following points are key to the interpretation of the evidence and in forming the overall conclusion that “Move It” did not substantially impact participants’ health and fitness:

1. The cause of the obesity rise is two-fold as people are doing less and eating more (Foresight, 2007). “Move It” only addresses one cause by giving children the chance to be more active.
2. There is evidence that eating habits at home are decisive in childhood obesity (e.g. Gately, 2009). This is a hidden factor in the context of this study and its impact on outcomes remains unknown.



3. Results support the IASO's (Lobstein et al., 2004) view that sports interventions need to be used in conjunction with other strategies in order to resolve obesity.
4. Since children have limited freedom to address obesity and are likely to suffer the consequences if their parents are confused by food, it seems that an intervention must include lifestyle education for parents and children; otherwise it is difficult to counter parents' attitudes.
5. Results were not consistent with the general upward trend in childhood obesity (e.g. NCSR, 2006). This may indicate that "Move It" participation had a preventive impact. However the rate of the upward trend seems to be slowing down (Gately, 2009) so claims for the preventative effect of "Move It" are made with caution.
6. Messages from policy makers regarding expectations of sport in turning back obesity and improving fitness are inconsistent. The DCMS (2008) sees sport as key to long-term obesity prevention by intervening in childhood, whilst the DoH (2010) sees obesity as a lifestyle illness that can only be solved by change in many areas of life. This exemplifies the elevated expectations for sport and the confusion over its perceived utility.
7. Thus it is argued that without monitoring nutritional intake the health benefits of "Move It" are questionable at best.

Table 6.1 Summary of key finding and its implications

**KEY FINDING**

A sport intervention alone is not sufficient to impact health and fitness levels of schoolchildren (aged 11-14).

**Implications:**

- a. A programme must be of sufficient duration, frequency and intensity to achieve outcomes.
- b. Sport addresses one cause of poor health and fitness (insufficient exercise) and hence is useful in conjunction with strategies that address the other causes.
- c. Providers should decide on the primary goal of an intervention. Providing a 'fun' experience of sport and improving health and fitness may require different programme designs.

### 6.2.3. Self-esteem

Self-esteem describes how much one values oneself as a person (Harter & Whitesell, 2003). It commands attention because this self-view is thought to predict behaviour. Although the effects of sport on psychological health are well documented (e.g. Mutrie & Faulkner, 2004), this study demonstrated that increases in self-esteem cannot be assumed as the by-product of sport.

I chose to explore the impact of sport on participants' self-perceptions of competence using Harter's (1985) SPPC. Harter (1985) proposes that individuals construct their view of themselves based on their idea of how competent they are in specific areas of their life and also, from the appraisals of others. Among children and youth, significant others are usually parents, other adults, such as teachers and coaches, and friends, whose influence increases during adolescence. Therefore, self-perceptions rely on perceived competence and perceived regard.

According to Harter (1985), self-esteem is multidimensional in that individuals make self-evaluations in different areas and make a distinct judgment about their overall self-esteem. For the participants of this study, children between ages 11 to 14, Harter's SPPC (19985) measures self-reported competence in six areas, Academic Competence; Athletic Competence; Physical Appearance; Social Acceptance; Behavioural Conduct and Global Self-Worth. Dweck (2000) emphasises that competence perceptions have implications for performance and therefore, as the study was longitudinal, participants self-rated competence offered the chance to evaluate how sport might change the way individuals think about themselves. Biddle and Mutrie (2008) observed that specific competence perceptions are more likely to predict behaviour than a one-dimensional approach.

Although participation in sport is associated with perceptions of competence (Biddle et al., 2000), among the self-esteem variables in this study, only athletic competence displayed a significant interaction with time. This was unexpected because participants were aged 11 to 14, which is a critical period in the development of self-esteem, and, consequently, it is expected to change as a product of time (Harter & Whitesell, 2003). The interaction with time for athletic competence suggests that "Move It" influenced participants' perceptions of their sport competence. Possibly, taking part in

extra sport for a sustained period makes a difference to how participants see their sport competence. It is in line with evidence that although competence judgements can generalise, they will be strongest for activities similar to the activity experienced (Biddle & Wang, 2003).

There was a significant interaction for time by school, for all self-esteem variables, suggesting that outcomes were moderated by the combined effect of time and school. Closer examination showed that the type of school and their level of engagement with “Move It” had an impact on outcomes. One-way ANOVA showed significant differences in change in scores between Time 1 and Time 3 at all schools for all variables. However, post hoc tests showed that participants at School 1 (low-level engagement) increased in academic competence, social acceptance, athletic competence, physical appearance, behavioural conduct and global self-worth. This was significant compared to School 2 (high-level engagement) and significant compared to School 3 (medium-level engagement) for behavioural conduct. Participants at School 3 (medium-level engagement) increased their global self-worth compared to School 2 (high-level engagement). There was a small overall decrease in behavioural conduct.

Harter and Whitesell (2003) state that the physical, cognitive, social, and emotional changes that occur during early high school years self-esteem can threaten self-esteem and cause unpredictable variations. Some fluctuations were evident; for example, social acceptance, athletic competence and global self-worth dipped at Time 2 at School 3 (medium-level engagement), whilst at School 1 (low-level engagement) academic competence peaked at Time 2. However, the differences were not significant. On the other hand, at School 2 (high-level engagement) competence perceptions declined in all areas rather than fluctuated. This contrasted with the gradual gains in self-esteem over subsequent high-school years predicted by Harter (1999). The outcomes at School 1 (low-level engagement) and School 2 (high-level engagement) are consistent with Harter and Whitesell’s (2003) findings that although self-reports drop at age 11, they become more positive over the course of adolescence.

The consistent direction of change according to school, across the five different areas of competence (academic, social, athletic, physical, behavioural) and global self-worth is striking. Even more so, because participants make subjectively meaningful distinctions across a range of sources of self-esteem and the multidimensional approach

to self-esteem is designed to explore these distinctions rather than aggregate self-esteem into one overall score (Harter, 1999). Thus, Harter (1999) anticipates domain specific trends. However, in this study, outcomes got better or worse over time in specific areas according to school rather than domain.

### **6.2.3.1. *The level of engagement***

Also, findings confounded the idea that being highly engaged with a programme will positively impact outcomes (e.g. Coalter, 2002). As with health and fitness, participants at the least engaged school (School 1) made the greatest improvement in self-esteem, at School 2 (high-level engagement) self-esteem declined, and at School 3 (medium-level engagement) it remained the same.

Fox and Corbin (1989) established a relationship between physical self-appearance and self-esteem. They argue that sport can improve self-esteem via changes in physical self-perceptions. Higher sport competence, perceived strength and physical condition and attractiveness increase physical self-worth and lead to higher overall self-esteem. Notably, participants at School 1 (low-level engagement) and School 3 (medium-level engagement) rated their physical appearance higher over time, and this was significant compared to participants at School 2 (high-level engagement) and this was consistent with the results for global self-worth. Participants at School 1 (low-level engagement) also increased their fitness (measured by MSFT) and strength, (measured by Vertical Jump). This lends support to Fox and Corbin's (1989) model.

Other researchers have warned that the potential reasons for improvements in self-esteem after sport are varied and often specific to individuals (Mutrie & Faulkner, 2004). Closer examination shows that among children and adolescents, improved self-esteem does not stem just from participation. Instead, for this age group, coaches and parents are important mediators because they can help participants to interpret their experience. They also play a role in bolstering self-esteem, via sport, by creating a supportive environment that encourages skill development and includes positive social relationships (Brusted et al., 2001). On the other hand, there is a potential, and usually overlooked, downside to the sport self-esteem equation, since children's self-esteem can plummet when they feel inadequate, unfit or unpopular.

Biddle et al., (2003) found that sport can enhance self-esteem when participants believe that the purpose of sport is for mastering skills and achieving fitness. However, according to Brusted et al. (2001) the attitude of parents and coaches can impact a child's self-esteem. Whilst parents own self-esteem can impact their child's self-esteem, a coach can assist help the positive development of self-esteem by creating a positive environment in which good sportsmanship and fair play are valued (Brusted et al., 2001). This has implications for "Move It". Given the scale of the intervention, a large number of external coaches were involved in the programme. Although the coach had a role to play in enhancing the experience, "Move It" was not designed to develop close relationships between participants and coaches. Nonetheless, the programme's 'have a go' ethos provided a task-oriented environment. However, despite evidence of associations between improved self-esteem and task-oriented environments, there was no evidence that taking part in "Move It" improved self-esteem. The contrasting changes in self-esteem according to school, underline that the interaction is complex and exemplify the core issue about many of the assumptions underlying the impact of sport, namely that specific factors mediate the association.

Table 6.2 Summary of key finding and its implications

**KEY FINDING**

There is no conclusive evidence that sport increases the self-esteem of schoolchildren (aged 11-14).

**Implications:**

- a) The link between sport and self-esteem is indirect and highly individualised so general improvements to self-esteem cannot be anticipated.

**6.2.4. Academic competence**

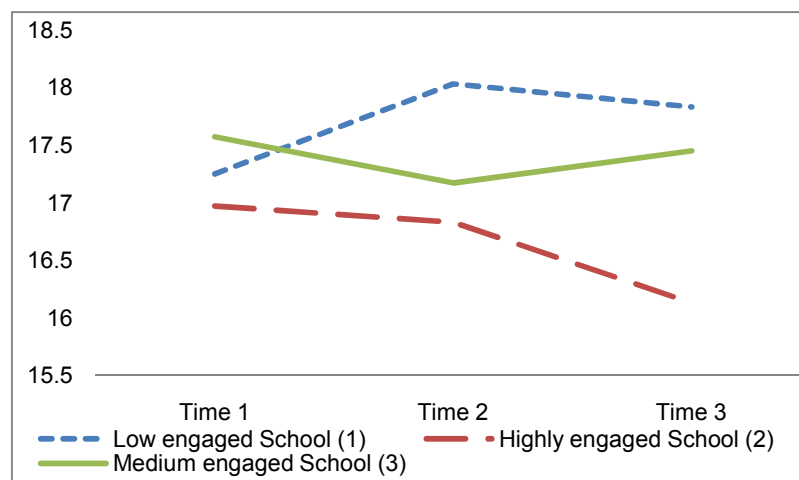
This study asked whether "Move It" could improve academic attainment. This question was explored by using self-rated academic competence as a proxy for an independent measure of competence. The rationale for this approach was that self-perceptions play a leading role in motivation and predict effort and persistence, whilst low competence perceptions are corrosive to performance (Dweck, 2006).

Although other studies have reported a positive correlation between school sports participation and educational outcomes (e.g. Miller & Downey, 2006; Marsh & Kleitman, 2003; Marsh, 1997) the complexities of the relationship need to be unpacked.

For example, Miller and Downey (2006) concluded that the strength and direction of the relationship between school sport and positive academic outcomes depends on many factors including the type of athletic involvement and existing studies found have concentrated on the relationship between sport and academic attainment among adolescents who were involved school teams or clubs or sport outside school. In contrast, “Move It” was provided to all pupils in the participating year groups at the schools involved in the programme. It seems that this study can help to plug a gap in the literature because it looks at the impact of sport on academic attainment among participants who were not necessarily predisposed to do sport.

Academic competence changed over time, but how it changed differed according to school (see Figure 6.2). Initially, at Time 1, the mean score at School 1 (low-level engagement) and School 3 (medium-level engagement) was significantly higher than at School 2 (high-level engagement). This seems to reflect reports that School 2 (high-level engagement) accepted pupils who were not able to get into other schools and that it was not a sought after school (Project Manager, 2004). Over time, perceptions of academic competence increased at School 1 (low-level engagement) and declined at School 2 (high-level engagement). Initially, participants at School 3 (medium-level engagement), a school with a good academic reputation, showed the highest academic competence but at the end of “Move It”, ratings among participants at School 1 (low-level engagement) were higher. Clearly, the results are mixed and hence inconclusive.

Figure 6.2 Academic competence change over time



However, the improvement in academic competence at School 1 (low-level engagement) during “Move It” raises the possibility that “Move It”, impacted academic attainment. Nonetheless, as the literature shows, evidencing the idea that sport improves academic attainment is fraught with theoretical, conceptual and methodological issues (Coalter, 2007). As the sport – academic attainment link is indirect, supporting arguments propose factors that mediate the relationship between the two. However proving causality is pregnant with methodological difficulty, not least because of individual differences and parallel influences that are hard to control (Coalter, 2002). I now consider the results within the framework of some existing theoretical arguments to see if we can justifiably claim that the changes were down to “Move It”.

Perhaps the most direct explanation is that the established physiological benefits of sport (e.g. Morris, 1983) lead to increased academic attainment (Sharp, 1997). Sibley and Etnier. (2003) evidenced the relationship between better health and fitness academic performance. Their interpretation was that sport leads to better cognitive functioning, which in turn improves the ability to concentrate in class. On the face of it, this study found some supporting evidence, since participants at School 1 (low-level engagement) became fitter and healthier and increased academic competence, whilst both fitness and academic competence declined at School 2 (high-level engagement), and fitness and academic competence remained stable at School 3 (medium-level engagement). However, the debate about how much sport improves cognitive functioning is ongoing (Etnier, Nowell, Landers & Sibley, 2006) and I make no claims for causality.

Another interpretation is that sports presumed positive impact on confidence and self-esteem will also mediate its impact on academic attainment. In 2007, Cornelissen and Pfeifer found that sport participation had significant positive effects on educational attainment among German adolescents. In their view, “sport can help to form the character of young people because it teaches behavioural habits like motivation, discipline, tenacity, competitive spirit, responsibility, perseverance, confidence, and self-esteem, which cannot always be acquired in classroom” (p.4). However, as children who are more confident and able academically are more likely to be involved in sport in the first place (Skille, 2005; Lindner, 1997), investigation of the impact of sport on academic attainment among participants who were not necessarily predisposed to do sport is required.

The results are mixed, showing that self-reports of academic competence changed in different ways over time according to school. The significant time by group interaction implies that School 1 (low-level engagement) improved significantly in academic competence compared to School 2 (high-level engagement). The predicted upturn in academic competence and global self-worth was present at School 1 (low-level engagement). However, in order to claim that the improvement at School 1 (low-level engagement) was due to “Move It” participation, it is also necessary to explain the decline in academic competence at School 2 (high-level engagement). Pawson & Tilley (1997) hold the interaction of context school and programme to be responsible for outcomes. Taking this approach, it might be feasible to claim that “Move It” impacted participants’ confidence and self-esteem at School 1 (low-level engagement) which caused them to be more confident about their competence in other areas, particularly, as Marsh (1997) says, in relation to other school goals. However, even accounting for the individual specific differences thought to contribute toward improved self-esteem (Mutrie et al., 2004), Farrington’s (2003) view that results should be reproducible in different settings points to the likelihood that “Move It” had no impact on academic competence .

The results also demonstrate that the association becomes weaker when participants’ sport involvement is not voluntarily but instead is part of a programme at which attendance is enforced as part of the school day. For example, School 3 (medium-level engagement) enjoys a good reputation for academic performance and participants’ perceptions of their academic competence were stable over the three years. “Move It” participants were involved because “Move It” was an extracurricular controlled activity. As the findings are not generalisable between schools, it seems that sport did not impact academic attainment.

Hence, although this study did not produce sufficient evidence to support the view that sport increases attainment per se, for the participants of “Move It”, it confirms that the influence of sport on academic attainment is contingent on other factors, which are often overlooked. Other studies have found that more confident children and youth choose to do extracurricular sport and that sport can build confidence, which translates into the classroom. This is apparent among team athletes, as those that are high-achievers in the sport domain can become more invested in performing better in other areas (Marsh, 2003). Moreover, the absence of evidence among participants who were not particularly sporting suggests, that as Miller et al., (2005) say, that selection into



sport by ability or family background is a problem when identifying the causal effect of sport on academic attainment.

This is of current relevance as the idea that sport is linked to academic outcomes continues to form part of the policy discourse. Recent cuts to government spending on school sport have caused accusations that the impact will be far reaching. In defending the cuts, the Minister for Sport cited the budget deficit as the reason rather than the absence of evidence that ‘spending here saves later’ (Robertson, 2010). However, other studies have also reported mixed findings. Miller et al. (2005) reason that this is because the end result relies on gender and ethnicity, and its relationship to self-reported academic outcomes and school misconduct (Miller et al., 2005).

#### **6.2.4.1. *The level of engagement***

A focus in this study was on the impact of the engagement level, demonstrated by each school, on outcomes. This term has been used widely in explanations of how sport works on academic attainment.

Marsh’s (1993) AP model features engagement as the key mediator between sport and academic attainment. Marsh (1993) argues that sport participation improves the connection between the school and pupils. For Marsh (1993), this involves better intra-school relationships and communication, and increased peer approval leading to increased social stature. All this leads to higher investment in other school goals. In short, sport acts indirectly on academic attainment because it engages pupils with their school.

This outlook matches well with the themes expressed at School 2 (high-level engagement) via case study, where “Move It” was reported to improve intra-school communication, make pupils feel more connected with school and see that their school valued them (Head Teacher, 2007). However, despite this, academic competence declined at School 2 (high-level engagement).

Marsh (1993; Marsh et al., 2003) evidenced the sport academic attainment link via a six-year nationally representative sample of 10,000, which demonstrated that participation in sport at school had positive effects on grades and educational aspirations and that extracurricular school sport had more positive impacts than school P.E. His work (1993; Marsh et al. 2003) implies that sport engages pupils and thereby benefits

academic attainment. The approach used in this study was slightly different because it considered whether a school's level of engagement with "Move It" would impact. As we have seen, academic competence at School 1 (low-level engagement) was significantly higher than at School 2 (high-level engagement) and at School 3 (medium-level engagement). It was also higher at School 3 (medium-level engagement) than at School 2 (high-level engagement). One-way ANOVA showed significant differences in change in scores between the schools between Time 1 and Time 3 and post hoc tests showed that participants at School 1 (low-level engagement) improved the most in academic competence. This was significant compared to School 2 (high-level engagement) where academic competence declined. At School 3 (medium-level engagement) academic competence remained the same over time.

This indicates that the level at which a school engaged with "Move It" did not influence the programme's impact on attainment. The results show that although the relationship between sport and academic attainment is subject to mediating factors, the level of a school's engagement is not a key determinant.

#### **6.2.4.2. Summary**

There is insufficient evidence to claim that "Move It" impacted academic attainment. I suggest that the impact of sport on academic attainment relates better to specific groups, such as committed athletes, rather than to school pupils in general. Although case study evidence shows that sport has a role to play in terms of enhancing pupils' performance in school generally, this does not correspond to specific outcomes. In understanding the association better, it seems that sport is one of several activities that impact behaviour at school, including attainment.

Table 6.3 Summary of key finding and its implications

**KEY FINDING**

There was no conclusive evidence to support the idea that an increased connection with school via sport leads to trying harder at schoolwork leading to higher academic attainment.

**Implications:**

- a) The influence of sport on academic attainment is contingent on many parallel factors.

### **6.2.5. Crime and delinquent behaviour**

The Labour Government (1997-2010) saw sport as a key way both to prevent and intervene early in social problems including crime and juvenile delinquency (DCMS, 1999; Balls, 2009). The supporting reasoning is two-fold. A central part of the argument is that sport develops individuals' self-esteem and sense of responsibility and that this leads to better conduct. Also, by virtue of inclusion in an activity the risk of feeling outside society, which is a risk factor for crime and juvenile delinquency (DCMS, 1999), is reduced. Another interpretation is that sport intervention programmes, such as "Move It", offer a situational prevention because they prevent crime and delinquency by reducing opportunities to offend and increasing the difficulty of offending (Clarke, 1995). The United Nations (2003) take this further, by suggesting that sport "provides healthy alternatives to harmful actions" such as involvement in crime.

Despite the pressure to demonstrate success, other studies have found that evidence is limited due to difficulties in gathering information on behaviour or offending patterns (Long, 2002). Methods that rely on assessing crime statistics before and during the time of the intervention programme have been under fire. Critics argue, for example, that lower crime and delinquency statistics do not constitute proof because this approach does not control for the possibility that the problem has been diverted to another time or location (Hartmann, 2001). Also, it does not establish whether a participant's behaviour has changed (Smith & Waddington, 2004). In addition, Long (2002) points out that diversionary programmes rarely keep records of participants which makes it hard to claim that participants have changed their behaviour when it is unknown whether participants were among those at risk of offending in the first place.

Taking account of these comments, this study asked the participants to self-rate their behaviour. Instead of concentrating on local crime and delinquency statistics which in terms of evidence are prey to the concerns raised by Hartmann (2001), this line of approach aimed to establish whether behaviour was getting better or worse. This is important because if an individual is only prevented from delinquency or crime by the situation, i.e. attending "Move It", then it may resume once the programme ends. By using this approach, the aim was to deliver evidence about perceived changes in behaviour, which may manifest in outcomes to crime and delinquent behaviour. By

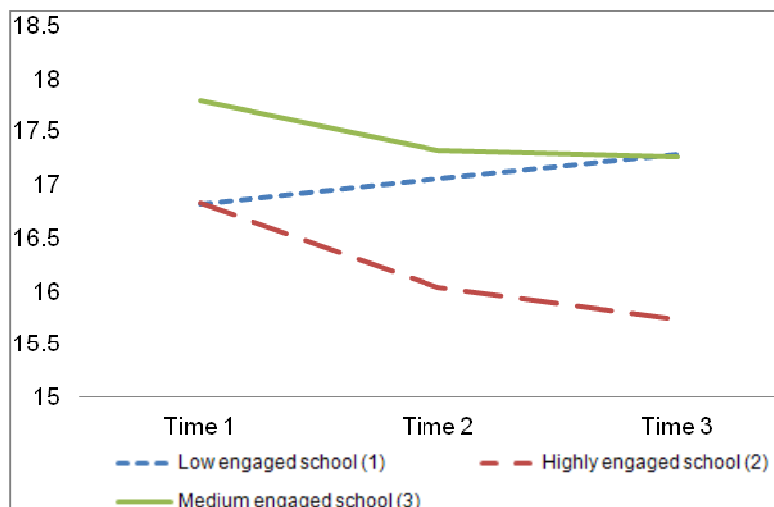
intention, it avoids claiming success for “Move It” based on crime and delinquency statistics which may, as Hartmann (2001) notes, in actuality be transferred elsewhere.

Therefore, instead, this study explored the impact of sport on self-reports of behavioural conduct by looking at participants’ self-perceptions of behavioural conduct using Harter’s (1985) SPPC. As Harter (1985) explains, behavioural conduct, a subscale of the SPPC, describes “the degree to which one likes the way one behaves, does the right thing, acts the way one is supposed to act and avoids getting into trouble” (p.3). Also, Long (2002) reported that asking specific questions about behaviour is problematic because the wording of question can imply that participants are typically in trouble. This was another reason to take a different approach and to ask participants about their behaviour within the context of questions about other areas of self-esteem.

Behavioural conduct showed no significant interaction with time. This was surprising because, during adolescence there is a seminal shift in the importance of the influence of perceived regard of others, specifically in the relative influence of significant adults and peers. According to Harter (1985), the increased influence of peer approval has implications for behaviour as young people seek to act in a way that gains credit with other young people. Therefore, she warns that behavioural conduct can decline during adolescence as children and youth develop their sense of self and begin to rely less on the values and the opinion of significant adults, such as parents and teachers.

Behavioural conduct showed a significant interaction for time by school, which indicates that the outcomes were moderated by the combined effect of time and school (see Figure 6.3). Closer examination showed that the type of school and their level of engagement with “Move It” had an impact on outcomes. One-way ANOVAs showed significant differences in change in scores between Time 1 and Time 3 at all schools for all variables. However, post hoc tests showed that participants at School 1 (low-level engagement) increased in behavioural conduct. This was significant compared to the other schools. The improvement in behavioural conduct at School 1 (low-level engagement) corresponds to the improvement in academic competence during “Move It”. Harter (1985) observes that these areas often correlate, and Farrington (2006) refers to evidence of links between low academic attainment and criminal behaviour.

Figure 6.3 Behavioural conduct results by school over time



School 3 (medium-level engagement), a school with a good academic reputation, showed the highest behavioural conduct and despite a slight decline, normatively, it remained higher than the other schools. This appears to reflect Ofsted's (2006) view that "pupils are polite and articulate. They are keen to do well and behaviour is good" (p.2). Also, the school had a lower than the national average number of pupils entitled to free school meals, a proxy for socio economic status, (Ofsted, 2006) and poverty is linked to social exclusion.

The consistent direction of change according to school remains striking. All the more so, because, as explained in the discussion of the self-esteem results, Harter (1999) anticipates that self-reports will fluctuate during late childhood and adolescence. However, in this study, behavioural conduct got better or worse over time according to school.

#### **6.2.5.1. The level of engagement**

Also, as reported in the discussion of the outcomes to self-esteem, the findings confounded the suggestion that being highly engaged with a programme will positively impact outcomes (e.g. Coalter, 2002). As with health and fitness and self-esteem, participants at the least engaged school made the greatest improvement in behavioural conduct self-esteem, at School 2 (high-level engagement) it declined, and at School 3 (medium-level engagement) it declined slightly.

### **6.2.5.2. Summary**

The results are now discussed in relation to the current literature. Given the mixed results, there is insufficient support for the idea that “Move It” changed behavioural conduct. Within the sport evaluation literature, the existing evidence is also oblique. Mutrie and Parfitt (1998) reviewed eight papers which looked at sport involvement for young people and its possible impact on delinquency and concluded that “there is equivocal evidence about the relationship between involvement in sport and anti-social behaviour” (p. 61).

However, Coalter (2005) says that “because of a widespread lack of robust, cumulative, and comparative research data it is very difficult to be precise about the relationship between sports participation and reduced anti-social behaviour and crime” (p. 205). This comment alludes to the hitherto unspecified link between sport and the prevention of crime and delinquency. In addition, the view that sports programmes constitute a social policy strategy to reduce crime and delinquent behaviour continue despite criticism from those who argue that it is based on assumptions (Smith & Waddington, 2004). Politicians continue to argue that sport is a viable way of creating positive moral and social behaviour (Biddle 2005), and most people involved in sport believe that positive behavioural outcomes are possible and should be sought (Chang et al., 2004). Therefore, in view of the persistent faith in sport’s impact on crime and delinquency I consider the findings in the context of the criminology literature, relating to developmental prevention, risk factors and approaches to prevention (Farrington, 2006).

The crime and delinquency literature contains a body of evidence that provides a sophisticated picture of the different types of intervention programmes and their relative suitability in addressing different risk factors. In contrast, when looking at sport as an intervention on crime and delinquency, providers have often adopted a one size fits all approach and ignored the specifics of risk and prevention.

Firstly, the childhood risk factors and means of risk focused prevention are established (Farrington, 2006). Farrington (2010) speaks about the importance of developmental prevention because, since the risk factors for delinquency and crime are recognised and reproducible, this also informs on intervention points and required action. Anti-social behaviour can predict the development of delinquent and criminal

behaviour across the lifespan. It is marked out by repetitive collisions with typical moral and ethical standards of society. Characteristic symptoms include aggression, impulsiveness, irresponsibility, hostility, a low frustration level, marked emotional immaturity and poor judgment (Farrington, 2010). Therefore, although situational factors can influence the development of delinquent behaviour, ultimately individual and family factors are likely to be most influential (Farrington, 2006). Hence, it seems that when a child is at risk from a particular set of factors, the impact of a situational intervention, such as “Move It” may be limited because pervasive parallel influences are likely to hold sway over time and place.

According to Farrington (2006), low intelligence quotient is a leading predictor of offending and there are often implications for school performance. There is evidence that deficit in areas of the brain that control and sustained concentration and attention are associated with delinquent behaviour (Morgan & Lilienfeld, 2000). In turn, such a deficit can cause failure at school. However, the link between poor school performance and poor behaviour is not necessarily one way. In some cases, low intelligence leads to failure at school, in other cases, school failure stems from anti-social behaviour, such as absenteeism (Farrington, 2006). In turn, being at school less increases the opportunity to get into trouble. These are two different aspects of risk of offending. Hence, “Move It” which is intended to prevent or displace participants from the opportunity to get into trouble, may be more suited to the latter profile. However, a different approach may be required for those for whom the problem lies in cognitive functioning or for whom the family influences are likely to reinforce bad behaviour.

There is a consensus that sports interventions intended to mediate crime and delinquency often a lack of clarity about the type and role of the programme (Ramulla, 2001). However, looking at the literature it seems apparent that this is an important step in ascertaining what an intervention programme might be able to achieve. Farrington (2006) explains that programmes designed to prevent the development of criminal potential in individuals, usually target specific risk and protective factors, whilst community prevention programmes intervene to change the social conditions and social norms that influence offending. A situational prevention aims to prevent crime and delinquency taking place by reducing opportunities and increasing the risk and difficulty of offending (Clarke, 1995). It becomes apparent therefore that one of the main problems when arguing the case for sports interventions impact on delinquency and

crime is that these differences, articulated in the criminology literature, are not recognized. Due to the 'one size fits all' approach, as Smith and Waddington (2004) argue, sports programmes usually lack a clearly articulated theoretical rationale. Such a rationale would inform the design of the programme, and allow participants needs to be matched to its content. More clarity about the programme design and outcomes is required.

“Move It” is a situational intervention in that it is designed to divert participant and prevent boredom and provide an incentive to attend school among those who might otherwise truant. However, Farrington (2006) warns that it is difficult to distinguish between symptoms and possible causes of offending. For example, truancy may be symptomatic of an antisocial personality or it may cause an individual to become more antisocial. By this token, a situational intervention may be able to impact delinquent behaviour by preventing the underlying trigger but at the same time, if the antisocial behaviour is the cause of offending then the programme’s influence may be limited. Also there is evidence that behaviour can become more not less aggressive as pre-existing tensions are played out during sport (Krouwel et al., 2006).

Farrington (2006) maintains that a situational programme can be valuable if it successfully mediates the risks of a certain time and place. For example, the Midnight basketball programme, intends to engage at risk urban youths in sport as an alternative to drugs and crime. However, this is a practical response to dealing with a known problem rather than an attempt to target and change specific behaviour (Hartmann, 2001). The importance of offering a safe and motivating environment also features in discussions about how sport can affect delinquency (e.g. Midnight Basketball UK, 2010) and was indicated at School 2 (high-level engagement) as the assistant deputy head said that “Move It” offered participants a place to try things out where they felt safe.

There was also evidence that outcomes of “Move It” on behaviour were characteristic of a community prevention programme in which informal social control was at play. At School 2 (high-level engagement), known for the hostility of its playground fights (Project Manager, 2004) older pupils took responsibility for putting a stop to bad behaviour (Head Teacher, 2004). This is interesting in light of some recent research by Welsh and Farrington (2008) on the effects of improved street lighting on crime. Although crime decreased, night-time crime did not decrease more than daytime crime.



The authors concluded that the outcomes were less to do with the lighting and more to do with community spirit and pride. In essence, when individuals feel good about their environment, the levels of informal social control improve so that “as the norms become more positive, so anti-social or criminal behaviour becomes less sociably acceptable” (p.1).

In the discussion of the outcomes in relation to behavioural conduct, some themes recur from that were evident in the discussion of the health and fitness outcomes. These relate to the design of “Move It”, the importance other factors that mediate crime and delinquent behaviour and the parallel factors outside the programme that may influence behaviour.

From a developmental prevention perspective, it is evident that preventing the development of delinquency and criminal behaviour requires strategies that improve an individual’s cognitive skills, rather than simply taking them out of risky situations. The inability to manipulate abstract concepts is a key factor underlying the link between intelligence and delinquency. This can lead to crime or delinquent behaviour because individuals do not foresee the consequences of their actions or think about the effect on other people. In these cases, sport can act a means of engagement but not as the solution. However, sport may have a diversionary role to play by mediating boredom and limiting opportunities to offend and, for some, providing a situational prevention may be sufficient.

Coalter’s view (2007) view is that “taking the balance of probabilities, the most effective use of sport to address systematically anti-social behaviour and criminal behaviour is in combination with programmes that seek to address wider personal and social development” (p.35). According to the criminal prevention literature some programmes will match the needs of particular risk types. For this reason, sports programmes need to be more specific about who they intend to help and then design the programme accordingly to do it. It seems that a situational prevention can help some participants but since the risk factors that predict the onset or prevalence of offending are established, for an intervention to go further and change behaviour requires the incorporation of an educational component which suits participants needs (Farrington, 2006).

Table 6.4 Summary of key finding and its implications

<b>KEY FINDING</b>
There was no evidence to support the proposed link between sport, feeling better about oneself as a product of doing sport and positive outcomes to behaviour.
<b>Implications for practice:</b>
a) Situational interventions should include a cognitive skills component to train and develop specifically desired attitudes and behaviours.

### 6.2.6. Summary of key findings and implications

As discussed, sports interventions are often assumed to be capable of delivering simultaneous positive change in different areas, such as health, fitness, self-esteem, academic attainment and delinquent behaviour (Caborn, 2003). This study set out to establish whether these claims can be substantiated. For clarity, the key findings and their implications are set out in Table 6.5.

Table 6.5 Summary of key findings and implications

<p><b>First Key finding</b></p> <p><b>There was no conclusive evidence to support the idea that the “Move It” sport intervention improved participants’ health and fitness, and self-reported self-esteem, academic attainment and behaviour.</b></p> <p><b>Implications:</b></p> <ol style="list-style-type: none"><li>This finding will contribute to knowledge, as it is the first study that has examined the impact of sport on the multidimensional aspects of welfare that sport is claimed to impact.</li><li>The study will create awareness of the importance of designing a programme to achieve specific outcomes.</li><li>Attempting to achieve positive outcomes over a range of areas can be mutually exclusive e.g. having fun and getting fitter.</li><li>Providers should focus on targeting key outcomes.</li><li>Programmes should include an educational component. For example, changes in health are more likely to be achieved by sport if participants also understand the importance of healthy eating and being physically active.</li><li>The decline in health and fitness among children has many causes, and sport can only address insufficient exercise, which is just one aspect of the problem.</li></ol> <p><b>Second Key finding</b></p> <p><b>The level of engagement did not impact quantitative outcomes.</b></p> <p><b>Implications:</b></p> <ol style="list-style-type: none"><li>This finding will contribute to knowledge, as it is the first study that has looked at the impact of engagement on sport.</li><li>The study will create awareness that the level of engagement does not confer positive outcomes if the programme design is not appropriate to deliver desired outcomes.</li></ol>
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**6.2.6.1. Recommendations for practice**

- Providers need to design an intervention specifically to deliver intended outcomes.
- An educational component should be integrated as part of the core model

To summarise, this study contributes to the literature on sports intervention programmes and shows that a two hour sport programme may not be enough to impact health, fitness, self-esteem, academic attainment and behaviour. It establishes that outcomes differ according to the context or setting of the core programme. However, the different outcomes according to school are explained by parallel influence at play in each

setting. The findings from this study can be used to inform sports interventions and ensure that they are designed according to specific intended outcomes.

### **6.3. Discussion of the Case Study**

#### **6.3.1. Introduction**

The purpose of the Case Study was to find out more about “Move It”, by looking at its impact within a particular school. Participants had taken part in a series of quantitative tests at different stages of the programme, so a Case Study was conducted to supplement the quantitative data, in order to find out about the process of “Move It” and perhaps to discover outcomes beyond those addressed by the quantitative design.

Blamey and Mutrie (2004) contend that research methods that concentrate on the efficacy and effectiveness of outcomes do not inform on how outcomes can be generalised to other settings. As explained in Chapter 3, Creswell (2009) sees mixed methods as a pragmatic approach to problem-centred research questions, because it combines qualitative and quantitative approaches. Accordingly, this study used quantitative methods to obtain statistical data about outcomes and qualitative methods of Case Study to find out more about the provision of the intervention and perhaps to go some way to explaining results. It was also used in the hope of gaining insights that may not be accessible via quantitative methods.

A Case Study was selected from the possible qualitative methods because, as Yin (2002) says, it can explicate the processes that underlie a phenomenon. Also, the study of a particular case can inform practice by revealing adjustments or innovations to a programme that could be applied elsewhere. So, as “Move It” was situated at three schools, it was hoped that a Case Study may highlight features that would enhance the core model. This was an important advantage of using this method since learning lessons for practice is an associated aim of this study.

Specifically, the Case Study was conducted by i) interview and informal discussions with teaching staff ii) group interview with participants iii) observation iv) personal diaries and v) documentary evidence. Finally, data was triangulated via interview and informal discussion with the “Move It” Project Manager.

As noted in Chapter 5, there were several reasons why a Case Study was suitable in the context of this study. For example, it enables a subject to be examined

within its context (Yin, 2002). Yin's (2002) observation that the boundaries between context and phenomena are often unclear applies well to intervention programmes in real life settings and it was helpful to draw out the details of the processes involved in "Move It", particularly any aspects that enhanced the programme in this case. As Case Study can provide data that is useful in explaining quantitative results (Gall et al., 2009), in this study it was complimentary to the quantitative data that describes some of "Move It's" outcomes.

Two questions were posed at the outset of the Case Study; namely, what are the unique characteristics of this case and what do they reveal, if anything, about the impact of engagement on outcomes? The unique characteristics of a case are important because they point to the interaction of context and setting and how the two work together to produce outcomes. Secondly, the relatively surprising quantitative outcomes at School 2 (high-level engagement) provided another reason to delve deeper into "Move It" at this school because the school was highly engaged in "Move It" and yet quantitative results showed that despite a small improvement in health, fitness and self-esteem declined as did participants perceptions of their academic attainment and behaviour. As engagement is seen as beneficial to outcomes (Coalter, 2002) this deserved further investigation. Coalter (2007) maintains that qualitative methods can describe enough of the process of delivery to permit an understanding of the outcomes and how they were achieved.

The principal findings from the Case Study were:

The high engagement of School 2 was oriented toward pupils' personal development, learning skills and skills that would equip them for "real-life" (Head of PE, 2004), for example skills that might be useful in future employment. According to Long (2002), these kind of aims are about social inclusion because they are intended to help participants to be more able to engage in society, and ultimately to give them skills that allow them to take advantage of opportunities. They did not seek to adjust the programme to 'add value' to areas, such as fitness, health and self-esteem, in which "Move It" was expected to deliver favourable outcomes. Instead, they managed their involvement in "Move It" for the purposes of pupils' inclusion and development.

The key features fall into two categories, namely (i) the input of the providers (the school, teaching staff) who managed the programme toward specific outcomes, and (ii) participant and pupil involvement and its impact on social inclusion.

The special features were:

- The synchronisation of “Move It” with school goals
- Support from Senior Teaching Staff
- Managing “Move It” for Outcomes (Coalter, 2002)
- Involving participants as stakeholders
- Involving Older Pupils

Improvements were demonstrated in outcomes to social inclusion, upon which the high engagement of School 2 was based, providing evidence that by managing a programme towards certain outcomes, strategies that boost personal development, a sense of responsibility and communication are effective for schools that seek to help pupils develop skills that will increase their ability to access social opportunities.

Thus, in summary, the Case Study supports the idea that high engagement can impact outcomes. It also clarifies that the intended outcomes must be specified and then managed, and indicates the value of adapting a programme to suit local needs, whilst maintaining its core. These aspects, their implications and other outcomes of the Case Study are discussed in more detail in the following sections.

### **6.3.2. Synchronising “Move It” with overarching goals**

Fullan (1999) maintains that a good idea is relative to the conditions in which it was conceived and School 2 developed the core “Move It” programme in order to address goals that were particular to their school. The value of this approach has recently been indicated by Durlak and Dupre’s (2008) research. They found that successfully implemented intervention programmes not only remained faithful to the core programme (at a level of not less than 60%) but were also adapted to suit local needs. However, many programmes lack defined goals and outcomes by which to satisfy an overlying rationale (Smith & Waddington, 2004) and therefore adaptation can be a difficult task. However this was not found to be the case at School 2 where the school’s overarching school goals of developing independent learners, developing resilience and developing a sense of responsibility and respect for others, were applied as possible outcomes of “Move It”.

Although sports intervention programmes should be assessed on an ongoing basis in order to identify and then implement any adjustments that become evident over

time, in practice, this is rarely the case (Coalter, 2007). Coalter (2002) explains that this is one of the main reasons why a programme fails to deliver. However there was evidence that “Move It” was managed toward school goals. The investment of the necessary time and strategies to do this seems to have been made possible, in part at least, by the support of Senior Teaching Staff who were interested in ways to develop pupils.

### **6.3.3. Support from senior teaching staff**

Coalter (2007) believes that “it’s not what you do, but the way that you do it” (p.41) meaning that how a programme is managed is as important as its content and for this reason, the delivery of a programme should be examined. Durlak et al. (2008) concur, saying that the provider’s attitude is an influential determinant of a programme’s success. In turn this attitude is determined by:

- The perceived need for the programme - do providers think the programme is needed?
- The perceived benefits of the programme - do providers think the programme will benefit the organisation (school) or population (pupils)?
- Self-Efficacy - do providers think they can carry out the programme?
- Skill Proficiency – are they sufficiently skilled to carry out the programme?

As their 2008 research was published during this study it did not shape its design, however it is pertinent in relation to this Case Study because it helps to refine our understanding of the particular characteristics that were observed and to assess more effectively how they might impact outcomes.

Firstly, teaching staff recognised that “Move It” was needed to address fundamental health and fitness problems, although they were realistic about the likely extent of its impact:

Although it (“Move It”) wouldn’t necessarily improve their levels of fitness in the long term, the opportunities and kids perceptions and feelings about exercise will be challenged which is important (Head of PE, 2004).

Secondly, they saw specific benefits for their school. For example, according to the Head Teacher (2006) the PE department had been ‘shambolic’ so “Move It” offered a way to improve its performance and also its reputation and popularity with pupils (Head

Teacher, 2004). Then, by developing the core programme, “Move It” could also be used to address other school goals. Moreover, its potential was understood by Senior Teachers and by PE staff, who planned and facilitated the integration of the programme into school life (documentary evidence).

Efficacy to use “Move It” in innovative ways stemmed, in large part, from the support of the Senior Teaching staff, particularly the Head Teacher. Proficiency stemmed from thinking things through and managing towards particular outcomes. For example, demonstrating the top down support for attendance at “Move It” led the Head Teacher to use “Move It” as an opening to educate dissenting parents about the value of sport for health. Long (2002) reports on the utility of sport in providing a setting in which to convey disguised educational messages and documentary evidence showed that “Move it” was utilised as a tool to communicate about standards of behaviour, punctuality and conduct. Also, the PE staff sought to maintain standards of behaviour and levels of attendance by regular monitoring attendance and behaviour. Taking advantage of the popularity of “Move It”, messages about behaviour, attendance and learning were conveyed to parents and pupils (personal diaries). Essentially, they were proficient in thinking about new strategies suitable for their environment and managing the programme towards desired outcomes.

#### **6.3.4. Avenues for personal development and social cohesion**

##### **6.3.4.1. *Involving participants in the running of “Move It”***

This discussion continues to focus on what the Case Study characteristics mean in terms of how School 2 (high-level engagement) made the best of “Move It”. The involvement of participants and older pupils in the programme was a strategy that provided avenues for personal development which also contributed towards a greater social cohesion at School 2 (high-level engagement). This is important because greater social cohesion enhances social inclusion (e.g. Hayes et al. 2008; SEU, 2006; Silver, 1994).

As discussed in the literature review, expenditure on sport has been supported by a discourse that claims that sport participation will increase social participation because those who participate in sports are more likely to become active in the community in other ways (Scottish Office, 1999). Sport helps to build and bind communities because of its role in the development of associational links between participants. This can help a community to become more cohesive (PAT10, 1999).



However, studies have shown that ‘active’ participants are typically from a high social class and education level and Coalter (2007) warns that key aspects of social inclusion come before and not as a result of participation (in sport).

Although some programmes are designed specifically to attract the excluded, for example, by setting them at high risk times such as midnight, there is no evidence participants feel more included in society (Hartman, 2001) and scrutiny of providers comments shows that they refer to an increased sense of inclusion within the particular milieu (e.g. CAFT, 2010; Midnight Basketball, 2010). However, a school setting seems ideal for intervening because the environment is familiar to participants and the programme may attract pupils who are otherwise ill at ease with school toward attending. However, although recent studies of school based interventions such as Sportslinx and A-Class (Stratton, 2009) have looked at the impact of sport on outcomes no studies were found that considered the development of life-skills in a school sport intervention. As Hayes et al. (2008) explain, feeling socially excluded can be due to the inability to take up opportunities rather than having unequal access to opportunity and social skills are a protective factor in exclusion so the opportunity to develop these skills is likely to improve social inclusion. Therefore, an intervention that can enhance personal development and social cohesion has far reaching consequences.

The Case Study indicated that participants were managed towards being ‘active’ contributors to “Move It”. The “Move It” Council, for example, was set up specifically to mimic social processes and to capture participants opinion and hence their interest. A sample of comments from the Assistant Deputy Head (2006) illustrates the type of experiences that it offered:

It’s part of a bigger picture, with the formality and things, and they (prospective councillors) have to express why they want to join and express their values, so there is responsibility involved with it as well. It’s trying to mirror society as much as possible really.

They apply for their job; it’s like a real life experience. They have to apply through an application form then go for an interview. That whole process of being interviewed is important as well.

These skills are central to the possibility of being included in society as Hayes et al. (2008) explain, “skills in relating, communicating and collaborating are fundamental to

accessing opportunities. They are the social foundation of behaviours that relate to resilience, adaptability and the ability to benefit from the supports available” (p.31).

The Council sought out and represented the views of participants. All in all this created an enhanced *sense of responsibility* among participants; “I think they like it because they can make changes. And for some of them it’s the first time they are heard outside of lessons and I think they enjoy the interaction with teachers outside of lessons as well” (Head of PE, 2004). This is notable as the Social Exclusion Unit (SEU, 2006) instructed interventions to focus on creating a sense of responsibility on the basis that it is essential to feeling included (Hayes et al. 2008).

#### **6.3.4.2. *Involving older pupils as coaches***

The background to the involvement of older pupils as coaches exemplifies some of the anomalies at the root of the social inclusion debate. Initially, using external coaching was designed to attract participants who may have experienced problems at school and who might be rebellious toward authority figures. Other programmes regard this strategy as beneficial (e.g. Sportslinx, 2010; CAFT, 2010). Likewise, using expert coaches opens up opportunities for those participants would not otherwise have access to expert sport coaching.

On the other hand, problems communicating or dealing with those outside one’s normal social milieu can be symptomatic of exclusion. There is evidence that negative social encounters can occur when pre-existing tensions are transferred into sport (Krouwel et al., 2006). In this case, problems in communication between coaches and participants and associated problems in controlling groups of participants affected the quality of the sessions. In contrast to the external coaches, Sport Leaders<sup>2</sup> communicated well with participants. The quality of the technical coaching was maintained but the overall quality of sessions was better because “the management of behaviour is a lot better”. This was explained because “they know their cultural backgrounds and how to speak to the kids to get what they want.” (Assistant Deputy Head, 2006). These observations bear out Skille (2005), who questions whether the needs of disaffected youth can be met by providing new sport activities or whether the

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<sup>2</sup> It may be recalled from Chapter 5 that Sport Leaders are older pupils who have taken the Sport Leader qualification, which is designed to teach young people coaching and leadership skills in a sport context.

real issue is that young people “want something different from sports that are controlled and organized by adults” (p.316).

*Aspiration* is another important factor in preventing exclusion (SEU, 2006). Sport Leaders also provided role models for participants. The Assistant Deputy Head (2006) attributed the yearly increase in the number of pupils taking the Sport Leader qualification during School Year 9 (60 by end of year 3) to the fact that participants saw older pupils in action as Sport Leaders and aspired to the role. Based on the experience of leading younger pupils, which also positioned them as role models, some Sport Leaders enforced school standards of behaviour outside “Move It”. The Head Teacher (2006) thought that they relished the *sense of responsibility*. This is consistent with Marsh’s Athletic Participation theory (AP, 1993) which argues that extracurricular school sport can increase a sense of ‘belonging’ to the school and identification with its non-sport goals.

Better *communication* emerged not just a part of the process of change, but as an outcome of School 2’s approach to “Move It” as the Sport Leaders built a good rapport with participants and teaching staff (Project Manager, 2007). In Eitle’s (2005) view, this happens because individuals become more integrated and socialised within the school as a result of interactions with peers, teachers and coaches that take place during sport. Indeed, the hopes pinned on sport as a way of improving social cohesion, rely largely on opening up or improving formal and informal channels of communication between different groups. The evidence is consistent with Long (2002), who concluded that better *communication* with peers was the common outcome of 13 intervention programmes.

### **6.3.5. Managing “Move It” for outcomes**

It was evident from the Case Study that outcomes to social inclusion were largely managed rather than occurring as an ad hoc by product of “Move It”. Coalter (2002) views proficiency in managing toward outcomes as a vital element of a successful programme and argues that managing the process on an ongoing basis is necessary to monitor its impact and make changes where necessary. This is consistent with Durlak et al.’s, (2008) comments about the importance of a provider’s buy-in and ability to manage the programme. Also, this aspect is often overlooked in discourses about the utility of sports programmes, as outcomes are expected as the product of participation (Coalter, 2002).

Ashdown (2004) views regular monitoring of a programme as vital to its effectiveness, and yet the literature indicates that this approach is the exception to the rule. Indeed, this aspect is fraught with oversights. For example, Long (2002) found that out of 13 intervention programmes, only three used any sort of monitoring and even that was only about attendance levels. Indeed, the programme providers regarded high attendance figures, rather than the outcomes of that attendance, as indicative of success. Nonetheless, high attendance figures can be misleading indicators of a programme's effectiveness, as Skille (2005) found that a thirteen year programme, widely perceived to be successful due to reports of its popularity and high attendance levels, was actually attended by only 5% of participants from its target group.

However, according to the 2005 OFSTED report, self-evaluation was an area of strength for School 2 (high-level engagement) and this was reflected in their monitoring of "Move It". Observation, interview and documentary evidence confirmed that PE staff monitored "Move It", on a semi formal and formal basis, including monitoring attendance and behaviour on a weekly basis and an end of term report on the programme. For example, by following what did and didn't work, the Head of PE saw that communication problems between some coaches and participants sometimes affected participants' behaviour and the quality of sessions. From this, he saw an opportunity to involve older pupils, who were qualified Sport Leaders, in the delivery of coaching.

This step not only went some way to advancing coaching at "Move It", but it delivered other benefits to older pupils, that Long (2002) defines as social inclusion outcomes, such as job-seeking skills, (when applying to coach at "Move It"), practicing skills that could be useful in later employment, (such as coaching), and learning to lead and take responsibility. In short, "Move It" was managed to develop skills and attributes that could be helpful in a range of settings outside school (Project Manager, 2007).

Encouraging participants to be active in their views about "Move It" and being responsive, where feasible, to their opinions offered a way to improve communication, and give participants a sense of being a stake holder in the programme. The "Move It" Council was set up to emulate real world situations, as the application process mimicked job seeking and the process of soliciting and reporting participants views created positive interactions with peers and adults, seen by Silburn (2003) as key pathways to resilience.

Another managed strategy was that of using “Move It” as a tool to educate parents and pupils about the value of sport for health. Gately (2009) and Hill (2004) concur that parental attitudes and habits have a significant influence on child health and fitness.

These strategies contributed to the evolution of “Move It” during the three years, as the programme increasingly came to offer a means of satisfying goals beyond outcomes often attributed to sport, such as better health and fitness. The programme appeared to make a positive contribution to the school by cultivating a sense of community, improving communication at all levels, from staff to pupils, older pupils to participants.

The outcomes discussed here are largely concerned with changes in behaviour and attitude. Certainly, some question the assumption that sport changes behaviour in a positive way (Smith & Waddington, 2004), whilst others remind us that evidence is so hard to establish because, instead of changing participants’ behaviour, the behaviour, such as delinquency or crime, may simply be reproduced at a different time and place (Ramulla, 2002). However, despite the difficulties in establishing outcomes to social inclusion based on an intervention programme, Long (2002) states that positive outcomes to personal *development* and *social cohesion* indicate progress. Thus, the findings give cause for optimism.

### **6.3.6. Summary**

Although many of the risk factors for poor development, health and wellbeing outcomes are persistent and reproducible (d’Aggio, 2007), Hayes et al. (2008) refer to “windows of opportunity for positive change” (p.28). At school, these factors include a positive environment, a pro-social peer group, responsibility and helpfulness, sense of belonging and bonding, opportunities for some success at school and recognition of achievement, school norms regarding behaviour and avoiding delinquent peer involvement (Hayes et al, 2008). “Move It” in itself galvanized participants and created a positive environment, but by adapting “Move It” the school created opportunities for responsibility and helpfulness, via the council, or for older pupils to assume responsibility as Sport Leaders. By rewarding attendance and good behaviour at “Move It” gave some participants their first experience of positive recognition and reports that Sport Leaders took the lead in upholding standards of behaviour suggests that what older pupils saw as norms of behaviour acceptable to pupils increased. Given Hayes et al.’s (2008)

comment about windows for change, it is encouraging to note the Assistant Deputy Head's comment that older pupils gained hope; "I think it has offered them some kind of hope that there is stuff that they can do outside of school and beyond schooling".

### **6.3.7. Can the outcomes in the quantitative results attained by School 2 be explained?**

Although the Case Study did not directly explain why the outcomes to health, fitness and self-perceptions of self-esteem, academic attainment and behaviour were poor, it provided an insight into why high engagement may not have had the expected impact on outcomes. Specifically, the high engagement was invested in achieving existing overreaching school goals, which were in themselves concerned with pupils' personal development. This included helping pupils learn and practice transferable skills that could be useful in future settings. The leading characteristics of "Move It" at School 2 (high-level engagement) constitute attempts to advance *social inclusion*, and they also had an impact on the *social cohesion* of the school by improving *communication* at all levels. This underlines Coalter's (2002) advice; providers should identify the desired outcomes of a programme and then manage the programme toward them. It also underlines Durlak and DuPre.'s (2008) research that showed successful programmes are adapted to suit local needs whilst remaining faithful to the core model.

Furthermore, health, fitness and behaviour are attributable to many factors so although increased sport is a step in the right direction in itself it may not be sufficient to deliver significant change. A key concern at School 2 (high-level engagement) was that many pupils met the criteria for being at risk of social exclusion, (which is in turn a risk factor for poor health and fitness and learning and behavioural problems in childhood, Hayes et al., 2008). Therefore, School 2 (high-level engagement) used "Move It" to work on inclusion. However, it should be noted that individual and family characteristics are leading predictors of exclusion, so, although specific strategies are a step in the right direction, there are pervasive parallel influences to be countered (Farrington, 2006; d'Addio, 2007). The implication is that intervention programmes can offer a window of opportunity for positive change rather than a cure-all in itself (see Silburn, 2003; see Appendix C).

The case demonstrates that sport can be managed to 'develop the community'. Although Green (2006) warns that the policy shift from 'developing sport in the community to 'developing the community through sport' stems from blurred objectives

and is hence unlikely to meet social welfare or participation outcomes, this case suggests that within controlled environments some success can be achieved. However, his point remains relevant, given that specific improvement in health, fitness, self-esteem, behaviour and academic attainment were not significantly achieved.

### **6.3.8. Implications of the Case Study for practice**

Sport has been offered as a way of ‘fixing’ social inclusion for a while, but there is an ongoing debate about its ability to resolve inclusion (Tacon, 2007). Long (2002) accepted that it is difficult to conclude whether social inclusion outcomes have been achieved because the nature of the evidence is often oblique. On the other hand, although the pathways to being at risk of social exclusion are well established, so are the factors that promote resilience (Silburn, 2003), therefore interventions that are designed to target these factors can advance social inclusion.

A summary of the implications of this finding are outlined in Table 6.6.

Table 6.6 Key findings of this Case

<p><b>KEY FINDINGS</b> High engagement did have a positive impact (a). A programme can be managed toward specific outcomes (b). Participants seemed to be comfortable with pupil led coaching than adult led coaching. Social inclusion can be advanced via sport.</p> <p><b>Implications:</b></p> <ol style="list-style-type: none"><li>This finding will contribute to research, as it is the first study that has examined the impact of high engagement on outcomes.</li><li>This finding support Coalter’s (2002) argument that a programme should be managed towards outcomes.</li><li>It adds more support to Durlak and DuPre (2008) who recommend adapting programme to suit local needs.</li><li>Interventions have potential to influence social inclusion by developing a sense of responsibility, aspirations, and by developing transferable skills.</li><li>Sport can increase social cohesion at school by virtue of increased communication at all levels, and by building stronger ties between pupils and the school.</li><li>The support of Senior Teaching staff has a strong potential to influence the efficacy and proficiency of the provision.</li></ol>
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#### **6.3.8.1. Recommendations for practice**

- Providers need to engage more fully in implementing an intervention and in thinking about how to maximise its potential to suit their needs.

- The Project Managers of “Move It” and similar programs should include strategies that offer personal development opportunities as part of the core model.
- Sport leaders should be integrated as part of the core model.

To summarise, the Case Study augments the literature on sports intervention programmes and demonstrates how social inclusion can be advanced via sport. It establishes that high engagement impacts outcomes but the influence of high engagement is specific to the intended aims. High engagement did not have an impact on outcomes which the school did not target, which underlines Coalter’s (2002) point that outcomes must be managed. The findings from this study can be used to inform sports interventions and ensure their relevance to school age population.

## **6.4. General Discussion**

This section is intended to bring together the discussion of quantitative results and of the case study and also to discuss some aspects that have emerged from the process of reviewing the results. The following section looks at the influence of context and engagement in the context of the debate about the ability of sport to cause positive change and the issues surrounding the importance of context when conducting generalisable research, raised by Farrington (2003).

### **6.4.1. Context and approaches to evaluation**

In the opening Literature Review, (see Chapter 2), the idea that change via sport comes about through the appropriate intensity, duration and frequency of participation was made evident (e.g. Coalter, 2002; Twisk, 2001). “Move It” is not complex in this sense. It is a simple sport programme that offers the chance to do different sports, some of which are more disposed to develop skills and anaerobic fitness (e.g. table tennis) and some of which involve more running and are disposed to develop skills and aerobic fitness (e.g. football). That does not mean that effort is irrelevant, and practice and individual differences are at least in part determinants of changes in fitness, health and behaviour. The question for this part of the discussion is: Are the differences in outcomes between the schools also context determined?



The prototypical argument for differences in the impact of “Move It” between the schools can be found in Pawson and Tilley’s (1997) Realistic Evaluation Theory. Their central thesis is that it is not the intervention, but rather the interaction of the intervention and the context that delivers outcomes. Indeed, they regard control groups as unnecessary because findings cannot, in any event, be generalised. Tilley (2000)’s position is that measures are expected to vary in their impact depending on the conditions in which they are introduced.

So, let us assume – for the purposes of developing this discussion - that this pattern of results have their causes in settings. Can we conclude that “Move It” did have an impact but that low engagement is better than high engagement? Well, no. All that can be concluded is that engagement does not seem to be a determinant of outcomes.

The logical fallacy of this argument may not seem obvious because reliance on the context – mechanism approach is now common (Mackenzie, 2002). Finding differences between populations is common; the problem is the yearning to find evidence to justify the idea that sport resolves social welfare problems. Coalter (2005) points out that researchers tend to report evidence that supports the impact of sport and disregard confounding evidence. Farrington (2003) maintains that if the evidence does not support an intervention then take it at face value. He says that the tendency to look, instead, at context as an explanation for the absence of confirmatory evidence is a cop out. His condemnation of context – mechanism – outcomes research advocated by Pawson and Tilley (1997) is that context has become a mechanism by which to excuse the absence of supporting evidence.

In designing this research, a major element was to look at whether the engagement level of the school had an impact on outcomes. Since then, Durlak and DuPre (2008) have published evidence that implementation is the most important feature in determining whether outcomes are successful or not. They examined over 500 research studies of evidence-based programmes and found that the level of implementation affects the program outcomes. Positive outcomes were more likely to be achieved if the implementation was between 60-80% ‘faithful’ to the core programme. So, when implementing a programme in different settings, an approach that combines faithfulness to the core programme and scope for internal adaptation is ideal.

It is interesting to look at the findings from this perspective. At School 1 (low-level engagement), the core programme was accepted by the teaching staff and there was no attempt to adapt it to meet other school needs. Hence, they provided the setting and managed the participants but otherwise their engagement with “Move It” can be described as ‘low-level’. As seen in the Case Study, at School 2, high engagement was made manifest by the vision of the teaching staff, who translated their enthusiasm into for “Move It” into action by developing additional features, notably the introduction of Sport Leaders, to suit specific goals of the school. School 3 was categorised as medium engagement since their approach was somewhere in the middle and during the latter stages of “Move It” they began to adapt it toward developing Sport Leaders.

The points reported by Durlak and DuPre (2008) raise the possibility that School 2 (high-level engagement), in tailoring “Move It” in order to address other concerns, adapted the core programme to the detriment of outcomes. In contrast, the low engagement school ran “Move It” over three years in the format that was initially implemented. However, as Durlak and DuPre (2008) also state, there are influential factors in every aspect of the implementation process and, unsurprisingly, implementers who acknowledge the need for a particular program and believe it will work are more likely to do the job well. This was in evidence at School 2 (high-level engagement). Tilley (2000) argues that evaluations should seek to understand outcomes in terms of underlying causal mechanisms and the conditions under which they are activated to produce specific outcomes. This study was designed to find out not only whether outcomes were produced by the programme, but also, whether the level of engagement was influential in outcomes. In essence, the evidence demonstrates that the level of engagement of school is not a causal mechanism in terms of outcomes.

From this study, it can be seen that context made a difference but that it was not the interaction of context and “Move It” that accounts for the different outcomes at the schools. A possible interpretation is that 2 hours of “Move It” sport did not impact health, fitness, self-esteem, behavioural conduct and academic attainment significantly and that the differences between the schools are attributable to factors at the schools. The results of the quantitative research do not demonstrate sufficient evidence to say that “Move It” achieved significant changes to health, fitness, self-esteem, academic attainment and delinquent behaviour.

#### **6.4.2. What's promising? How "Move It" may impact participants**

As Farrington (2003) suggests, in the absence of conclusive quantitative findings all is not lost, since it is also useful to interpret them in the context of "what works, what doesn't, what's promising and what's unknown" (p.59).

The literature review presented the literature that informed the thinking behind the design of this study. However, since then I have also become familiar with other research, some of which was published during the span of this study. In particular, the ideas of Rousell (2007), Walton and Cohen (2003) and Ericsson (e.g. 2006) and Dweck (e.g. 2000; 2006), have helped to crystallize my thinking about the evidence delivered by this research and hence have contributed toward my interpretation of results.

##### **6.4.2.1. Effort and practice**

Syed (2010) stresses that in sport the amount of effort invested and the quality of practice make a difference to a range of outcomes, from mastering a skill to running faster. However this point, although evidenced by a body of research (e.g. the work of Ericsson 1991- 2006), is usually overlooked when politicians make claims about the power of sport to bring about positive change. Ericsson (2006) showed that change comes with hours of practice, the effort invested in practice must be concentrated and motivation must be predominantly internal rather than situational. Furthermore, individual differences are likely to determine whether an individual is prepared to invest the effort and to take part in it purposefully, as opposed to going through the motions. Although sport can intervene in health, fitness and behaviour by offering a context for change, individual attitude and motivation play a part in achieving change.

##### **6.4.2.2. Spontaneous influences**

Rousell (2007) refers to spontaneous influence events, which are events or situations that trigger a change of attitude in an individual. In effect, the situation is the same but 'I am different'. The resulting change in attitude is part of a new internal motivation to change or pursue a new behaviour (Syed, 2010). In some part, at least, this seems to be what politicians allude to when they speak of sport's transformational power and claim that it will provide the impetus for participants to aspire to live healthier lives (e.g. Gardiner in Martin, 2004) or "inspire" fitness (Brown, 2008). However, since a spontaneous influence is an individual phenomenon, it is unrealistic to expect indiscriminate changes across large groups.

Also, as Syed (2010) argues, this new found internal motivation is vital in order to achieve change because those who care about an outcome are more likely to invest the necessary and sustained effort. Therefore, taking account of Rousell's (2007) point, in the context of becoming fitter and healthier for example, "Move It" may provide an experience that spontaneously creates a spark that will influence behaviour from thereon. This links with Coalter's (2002) warning that the nature and quality of the experience of taking part in sport underlines future behaviour as sustaining a new behaviour relies on participants personal motivation, not just on opportunity. However, although "Move It" can provide a motivational ignition for some individuals, this is a subjective phenomenon, which cannot be used to make claims about whole-sale change through sport.

#### **6.4.2.3. *Motivation by association***

Walton and Cohen's (2003) theory of motivation by association provides another possible explanation of the process by which "Move It" can make an impact. They found evidence that shared experiences count because individuals who perceive that they have something in common are subsequently likely to be more engaged in a task, and to try harder. So, feelings of association increase motivation. For example, School 2 (high-level engagement) used "Move It" to tap into pupils' need to belong. As the association between the group and the school grew through the programme, the desire to maintain this association became self-sustaining. The association between younger pupils, who were "Move It" participants and older pupils, acting as Sport Leader, developed between each group and with the school, as younger pupils saw older pupils as role models, and older pupils took up some of the behaviours of staff in controlling discipline.

It is also intriguing to consider the possible impact of motivation by association in the context of School 1 (low-level engagement). It may explain the consistent improvements in health and fitness scores at School 1 (low-level engagement) since the motivation of some members to perform well in the physical tests can spread across the group as others associate with the attitude of their peers. Hence, through association, effort becomes the norm.

#### **6.4.2.4. Attitude matters**

According to the Project Manager (2007), “Move It” was provided with a ‘have a go’ ethos, which valued effort. Dweck’s work on attitudes demonstrates the importance of encouraging effort. Children’s performance at school is guided by their beliefs about talent and effort and it also defines how they react to challenges (Dweck, 2006; 2000). Some individuals believe that doing well stems from talent whilst others believe that effort determines how well one can do. The problem is that placing a high value on talent often creates a ‘fixed’ mindset because talent is seen as finite (i.e. you either do or do not have talent). This results in being less likely to try harder at difficult tasks, or to persist in the face of setbacks because these individuals are likely to be discouraged if their talent does not appear to be sufficient to perform a task (Dweck, 2000). Also individuals may choose to attempt less challenging tasks in order to protect their view of themselves as talented (Dweck, 2006).

The implication for “Move It” from Dweck’s (2006) work is that the policy of praise for effort rather than talent is likely to help participants developing a growth mindset, which will equip them to persist to try harder and to choose more challenging tasks. However, further research by Dweck (2006) shows that these consequences are potentially short lived. Left to their own devices, children will eventually revert to the mind-set that pre-dated the context in which effort was praised. Therefore, the only way to establish a growth mind-set is for effort oriented praise to be repeated.

Repeating the process is a long term task, which is likely to be beyond the scope of an intervention. Interventions are often envisaged as a one-stop fix, yet change relies on sustained repetition of the desired new habits and attitudes. The evidence from this study, backed up by Dweck’s conclusions, suggests that, in order for “Move It” to achieve significant impacts, the change must be re-enforced continually and over the long-term. Looking at it this way, it is the impact of context on “Move It” rather than “Move It” on context that makes the difference.

#### **6.4.2.5. Summary**

Providing a way to ignite personal motivation, which might cause participants to try harder and sustain their effort and building bonds between participants that encourage them to try harder as a result of their shared experience are all possible

outcomes of “Move It” which can, in turn, impact the overall picture of progress. However, as the results of this study show, these incremental changes did not seem to be evidenced by quantitative outcomes to health, fitness, self-esteem, academic attainment and delinquent behaviour. This underlines the danger of promising successful outcomes for the many, when key experiences that change behaviour are often individual and personal (Rousell, 2007). Also, within a child population, a further caveat is that parental influence must be constantly negotiated. Although a sport intervention can provide the opportunity for change, this does not make such resounding rhetoric compared to the ‘transformational power of sport’ (Bradshaw, 2009) but it is more realistic.

#### **6.4.3. Did it work?**

Syed (2010) admirably encapsulated the scientific approach, saying that “doubt is the scientist’s stock in trade. Progress is made by focusing on the evidence that refutes a theory and by improving the theory accordingly” (p.157). In this study, the idea of the positive impact of sport was considered by looking at the impact of a specific sport intervention on participants in a range of areas. Firstly, to recap, the findings refute the impact of “Move It” on participants’ well being, in the areas of fitness, health and self-esteem. Despite some positive outcomes, particularly among participants at School 1 (low-level engagement), the results cannot be attributed to “Move It”. It seems more likely that the evident upturn at School 1 (low-level engagement) was the product of parallel influences at play within that environment, and that “Move It” had a role to play as one of many agents of change. It cannot be concluded with any certainty that “Move It” had an impact that can be identified as a quantifiable short-term outcome.

The evidence from participants (reported in the activity questionnaire) and teachers (from the Case Study) suggests that “Move It” had an impact. According to teaching staff at School 2 (high-level engagement), the programme was important in the achievement of what can be categorized as social inclusion aims because it created a pathway for personal development. On an individual level, this meant the development of learning skills and resilience, independent thinking, whilst on a general level the increased association improved intra-school communication and the relationship between staff and pupils and also between pupils of different year groups. Pupils assumed the goals and values of the school by virtue of their sport leader role at “Move

It". Taking responsibility for teaching sport skills to younger pupils led to the older pupils taking responsibility outside "Move It" for upholding school rules. This enhanced and consolidated the sense of the school as a community, which is an important achievement at a school where many pupils meet the criteria for being at risk of social exclusion.

Participants liked "Move It", rating it as 'fun' and a good learning experience. The programme was designed to celebrate effort and this fits well with Dweck's (2006) view that praising effort will help young recipients form a growth mindset, which is essential to adaptive behaviour. This ability to adapt to challenge and be resilient to setback corresponds with, for example, School 2's (high-level engagement) goals and ethos and fits well with the social inclusion agenda. Taking this evidence into account it suggests that the idea that "Move It" positively impacted participants' welfare cannot be fully refuted. Therefore, there is sufficient doubt to prevent claims that "Move It" had a wholesale impact. Instead, we are left with a more refined claim, which is that "Move It" positively impacted inclusion outcomes and positively impacted participant's view of sport.

#### **6.4.3.1. *The importance of the level of engagement***

Regarding the mixed results at the differentially engaged schools, the issue is, are the results the results of "Move It" in a particular concept or the results of context made visible by "Move It" testing? Taking Ericsson's (2006) theory into account, they may be seen as the latter.

The intra-school comparisons may indicate that a programme has different outcomes in different settings. Although pupils at School 1 (low-level engagement) and School 2 (high-level engagement) shared a similar socio economic and ethnic profile, the participants at School 1 tended to improve whilst at School 2 results were generally the same or worse over time. So, looking at the programme in only one context (school) could produce misleading impression and suggest that "Move It" 'works' (e.g. School 1 (low-level engagement)). However, looking at "Move It" in three settings produced varying results and the lack of progress at School 2 in particular and the absence of real change at School 3 (medium-level engagement) seems to suggest that "Move It" did not deliver positive outcomes in those settings hence casting doubts over whether it had any impact at School 1 (low-level engagement). Instead, as Ericsson (2006) argues, results often

show the end product of a complex process and here instead I interpret the positive outcomes at School 1 (low-level engagement) not as the product of low-level engagement but as the tip of the iceberg regarding the processes within School 1 (low-level engagement), of which “Move It” is one.

Although the results of this study are in contrast to popular rhetoric about the benefits of sport and confounding to some thinking about engagement, recent reading convinced me that sport can work but that the process is highly individualised and that this is reflected by the absence of generalisable outcomes. Change comes from sustained application and that adherence stems from internal motivation, which can be jolted into action by a positive experience of sport, or by associating with others through sport. Therefore, it seems that “Move It” and similar interventions can create the setting for change but that resulting quantitative outcomes cannot be guaranteed.

This echoes Ericsson’s ideas about the importance of sustained effort in performance. As Ericsson (1998) found, only experience and deliberate practice create expert performance, and likewise although “Move It” does not seek to create experts it does seek to create change essentially by addressing positive outcomes to welfare. Yet change comes with a purposeful approach, which in turn is only sustainable if an individual is motivated to buy-in to the process. Motivation can change by a variety of ways, such as through increased feelings of association with others, or through small or indirect events that create a response. Indeed, the impact of higher association with others is a possible explanation for outcomes at School 1 (low-level engagement). Sport can impact outcomes based on increased association, which stems from individuals need to belong and to associate. This is the mechanism that in part underlined the process at School 2 (high-level engagement) as they used “Move It” to address social inclusion outcomes.

#### **6.4.3.2. Context**

Context and “Move It” did interact. The values and ideals conveyed by “Move It” are sustainable outside the programme in a context that has a consistent culture. There are challenges in expecting a programme to be influential outside the term of its existence; however it can spark or trigger personal change. The claims for sports intervention suggest transformation. Transformation represents longer term change. Money is invested in the promise of wholesale transformation but this change involves



individual internalised motivation, individual will to change, and support from the context to sustain changes outside “Move It”. This is a more complex picture than is suitable for political ends; caveats do not make good rhetoric.

#### **6.4.4. An associated Issue - sport as a political prize**

Whilst conducting this study, some of the contradictory aspects of the dialogue surrounding sport became evident. Although this is an associated issue rather than an outcome of the study, it became increasingly apparent that different agendas exist in the political approach to sport. This may have implications for the impact of sport interventions and for this reason the political approach to sport warrants further consideration.

During the course of the study, the question ‘what does the term sport represent when discussed within the policy agenda?’ emerged. The researcher became aware that complexities and contradictions in the policy approach to sport, in particular, may underlie or even generate some of the confusion about sports’ potential impact on welfare. Even now, recent events, considered here, show that the debate about cuts, funding and political involvement in sport rages on. It was noted in the literature review that politicians recognise that making references to sport commands public attention (Rowe, 2005). It also seems that politicians see associating themselves with sport as beneficial. For example, in recent years the then Prime Minister, Tony Blair, intervened in the Singapore bid to win the 2012 Olympics for London, the President of the United States, Barrack Obama, lobbied for Chicago in 2009 for their Olympics 2016 bid, and Prime Minister David Cameron was at the forefront of the bid team seeking to bring the FIFA World Cup to England in 2018. Evidently power brokers of world sport recognise the potential significance of this involvement, leading FIFA’S President, Sepp Blatter, to claim that “football has become a political matter. Heads of State court me” (Gibson, 2010).

According to the head of UK Sport, Liz Nicholls, the willingness of politicians to be seen as ‘players’ in the course of major sporting events has positive ramifications for elite sport because “the political prize of a successful 2012 Games” has protected funding for 2012 and beyond (Gibson, 2010). Gibson (2010) concurs, saying that the recognition that “performance of British Athletes will decide whether the Games are remembered as great or good” is behind the decision not to reduce funding for the 27

Olympic sports, whilst the Government has also given assurances that the 2010 investment of £111m, will be replicated in the run-up to the 2016 Games.

Yet, in the same month, the Department of Education axed £162m previously ring-fenced for Youth Sport Trust's (YST) national network of school sport co-ordinators. The close proximity of the announcements of sustained investment in sports that can deliver Olympic medals and cuts to school sport funding exemplifies some of the incongruities in political approaches to sport. Furthermore, as the YST was credited with creating a wider understanding of the impact of sport on young people, concerns were raised that the cuts would ultimately have a negative impact on the envisaged Olympic legacy, part of which is to increase, and then maintain, participation among children and youth (Nicholls, 2010). Subsequently, in an apparent response to criticisms, the government allocated £112 million for school sports over one year although future intentions remain unclear.

The word 'legacy' now features routinely in bids for global sports events, as bidders are required to demonstrate that staging a global sporting event will provide the disadvantaged and inactive with enduring sporting and economic opportunities. From this perspective, a global sports event is portrayed as, essentially, a large-scale sport intervention for the benefit of the general population, not just elite athletes. It is lauded as the solution to a range of social welfare issues, such as raising sport participation in general, regenerating deprived areas and even improving the national travel infrastructure. However few, if any, tenders would declare that their political leaders support the hosting of a major sporting event because it increases the likelihood of winning medals for the home country which in turn creates a feel-good factor, perhaps thereby increasing satisfaction with the incumbent government.

Despite the laudable philosophical basis of the quest for a sports 'legacy' many question whether the driver is more commercial than philosophical with the aim being to tap into new commercial markets rather than leave a legacy for the local populace (e.g. Scudamore, 2010). The recent award of the FIFA World Cup for 2018 and 2022 to Russia and Qatar respectively has led to questions about the basis for awarding sports events, with a surrounding dialogue about taking sport to new locations, which some interpret as a desire to ensure the commercial expansion of sport as a 'product'. Advocates of this view point out that there is little evidence that the 2010 FIFA World Cup, held in South Africa, delivered economic or health benefits to the local populace

(Gibson, 2010). Indeed the South African Government foresaw an “opportunity to promote foreign investment, tourism and trade”, with the prime beneficiaries being “bigger businesses, especially those in South Africa's sophisticated financial services sector”.

Nonetheless increasing participation in sport constitutes a key aspect of the Olympic legacy. Although there is little evidence that participation in the UK is on the increase, it is questionable where the responsibility for this lies (Gibson, 2010). Despite exchequer cuts elsewhere, the Government protected the 2009 award of £480 million to sport via governing bodies over four years, by diverting lottery funds. Although the funds are intended to drive take-up, according to participation figures, reported in December 2010, the same month as the news about funding for school and elite sport participation, only four out of nineteen leading sports had increased participation, defined as the number of people who play that sport at least once a week, since 2007 (Sport England, 2010; Appendix U). In addition, the four sports that showed a statistically significant increase in participation, (cycling, netball, boxing and mountaineering), appear to be sufficiently diverse to confound popular reasons for non participation, such as lack of time, inaccessible facilities and cost (e.g. Allison, 1999). Thus, in the view of the Chief Executive of Sport England, Jennie Pryce, sport governing bodies need to show that they can grow their sport at the grass-roots level, whilst the Minister of Sport, Hugh Robertson, has reminded sport that it is vital to see a return on the investment from the public purse (Robertson, 2010).

So, even now, the debate that surrounds the ongoing fluctuations in cuts and funding, demonstrates the complexities within the policy approach to sport.

## **6.5. Contribution to Knowledge**

### **6.5.1. Farrington (2003) versus Pawson and Tilley (1997)**

This study contributes to knowledge because it informs on the outcomes of sport and does not concentrate on presenting evidence that supports the idea of sport's impact on health, fitness, self-esteem, academic attainment and delinquency. Previously, Coalter (2005) has warned that evaluators are often afraid to report evidence that does not support the perceived value of sport in addressing welfare issues, and instead suppress it.

Furthermore, scientific methods advocated by Farrington (2003) are in place to protect against making random connections between a particular kind of behaviour, such as attending “Move It”, and a desired outcome, e.g. better fitness, health and self-esteem. This is exemplified by complex association between sport and outcomes. For example, by digging deeper into the evidence, Carter (2004) exposed misplaced thinking in relation to sport participation and health. He showed that Australia, widely perceived in the UK as a healthy sport-mad nation, had a higher rate of obesity than the UK. Their high rate of participation in sport had no association with lower obesity, yet because sport is a celebrated aspect of their culture, Australia was, and to some extent still is, regarded as a model in terms of the utility of sport.

Likewise, the assumption that sport per se reduces over fatness among children is indicated by the evidence of this study. Although fatness went down at School 1 (low-level engagement) and School 2 (high-level engagement), attributing this difference to the impact of “Move It” is to witness a random connection between the programme and the outcomes and wrongly infer a causal relationship. Instead, “Move It” appears to be part of a jigsaw of parallel influences that contributed toward the outcome.

This point about the dangers of assumptions, which might lead to erroneous connections, brings up the discussion to the discourse between Farrington (2003), Pawson, and Tilley, regarding Realistic Evaluation (Pawson & Tilley 1997). Taking context as a primary concern and ignoring comparison with other data sets strips the research of its comparative value. Although this appeals to Pawson and Tilley (1997) it does not allow the researcher to determine whether the programme has worked. Although it is important to isolate the mechanisms that count within each context, it is the very act of comparison, which allows the researcher to establish the relative merits and importance of these mechanisms.

## **6.5.2. Implications for other programmes**

### **6.5.2.1. *Mentors and education***

Intervention programmes that have been successful in changing behaviour tend to include an educational component or mentoring that supports and facilitates the desired outcome. After a long career in research into delinquency and criminology, Farrington (2006) supports an educational component to develop cognitive skills in

interventions designed to change delinquent behaviour or to reduce the likelihood of re-offending. Indeed, ideally parents should attend this education as well as participants. In addition, the International Association for the Study of Obesity (IASO, 2004) concluded that the mixed findings about the impact of sport programmes on health came down to the programme design, and that to be successful, nutrition and diet education was required. This also lies at the core of Gateley's (2010) approach, and like Farrington (2006) he recommends that parents are included in the education process .

The Midnight Madness basketball programme, running in South London during the night and before school, features basketball mentors in addition to playing basketball. Although quantitative research has not been conducted, the providers report that it has positively impacted behaviour and education, and, in some cases, has overridden territorial divisions associated with gang crime (Dickens, 2010). Likewise, in Australia, the same programme model includes dinner and life skills workshops. Thus, we see that sport is part of the overall approach to changing behaviour. This supports Farrington's (2006) conclusion that an educational or workshop approach is necessary if an intervention is to be successful in the prevention or reduction of offending.

#### **6.5.2.2. *Recurring themes***

This study was designed to consider the impact of sport on difference areas of welfare concern. As the study unfolded, common ground between the different areas of health, fitness, self-esteem, academic attainment and delinquent behaviour became apparent. Some of the same themes recur across the different dimensions of the relationship between sport and welfare. Low intelligence is a correlate of criminal behaviour. This claim is justified by evidence from neuroscience methods and refers to poor functioning in certain areas of the brain (Farrington, 2006). Low academic attainment and criminal behaviour are also correlated, though in both cases, not always. One argument in support of the impact of sport on academic attainment point relies on the physiological benefits of sport to cognitive functioning. In turn, this improves attention and concentration which can benefit classroom performance.

### **6.6. Implications of the Study**

As this study is one of the first to make a multidimensional evaluation of the impact of a sport intervention programme on the welfare of participants within the

context of different school settings, the results provide an important contribution to literature. This study augments the existing body of literature demonstrating that there is no evidence that sport interventions are effective for increasing health, fitness, self-esteem, academic attainment and behaviour of school children in Key Stage 3.

The Case Study evidence that a sport intervention can be managed toward social inclusion outcomes is particularly meaningful as it indicates that school can play a meaningful role in developing the protective factors for inclusion. For those participants who mistrust authority, involving older pupils in the delivery of the programme provides an alternative and achievable approach to sport. This should be taken into consideration when developing and designing future programmes.

Another significant strength of this study is that it is the only study the author is aware of that has investigated the impact of the level of engagement on outcomes. This study may raise awareness of the potential of programme providers to target and positively influence specific outcomes. However, it confirms that specific outcomes must be managed and that the content of the core programme must be sufficient to achieve outcomes to health fitness, self-esteem, academic attainment and behaviour.

The results also imply that focusing on context and considering results only within a context can be misleading. It is perhaps more important to first find out whether a programme has ‘worked’ and then look at different results according to setting than to attribute results to context.

#### **6.6.1. Recommended future research**

This study has raised several questions and the following research is suggested in respect of these.

A quantitative study is required to track the participants of “Move It” through key stage 4. This study should seek to determine whether the health, fitness, self-esteem, academic attainment, and behaviour are different to a statistically significant level than a control group. Given that many argue that the real benefits of sport play out across the life span it would be interesting to test whether “Move It” has a tangible impact on welfare after the programme has ended.

There is evidence that inactivity rather than activity tracks in young people (Raitakari et al., 1994). Therefore, it would be interesting to find out whether participants

remain active in sport once their involvement with “Move It” has ended. Using a mixed methods design, to measure participation quantitatively in conjunction with qualitative methods to determine reasons why participants do or do not remain active. Although the idea that having a good experience of sport will lead to sport involvement later in life is popular, there is a need to examine its validity. Using self-report measures, the quality of participants’ experience of “Move It” could be matched against the frequency and duration of their post “Move It” participation to find out more about the possible influence of the quality of the experience of sport. In addition, intervention programmes such as “Move It” rarely provide exit pathways, however inaccessibility of facilities and lack of local provision are the main obstacles to the frequency of participation (Allison, 1999). There is also evidence that, both boys and girls see ‘lack of time’ as the main obstacle to taking part in sport (Coalter, 2002a). This is an opportunity to examine participants’ behaviour post-intervention and perhaps to find out whether obstacles to participation reassert themselves once a programme has ended.

### **6.7. Limitations**

There are some possible limitations to this study which should be noted.

For example, because the study design was longitudinal and followed participants through the transition from late childhood to adolescence, participants were expected to become more physically mature as they aged from 11 to 14. This physical maturation was likely to enhance their performance in physical tests of the Multi Stage Fitness Test (MSFT), which measures cardiovascular fitness, and Vertical Jump, which measures explosive power derived from leg strength. On the other hand, growing physically was not expected to affect flexibility, which often decreases with age. For this reason, it is difficult to differentiate between changes in fitness and leg strength associated with “Move It” and changes that stem from maturation. In addition, due to the test and retest approach used for quantitative tests three years, participants may have become familiar with the tests. This familiarity, in itself, can jeopardise effort. Moreover, as the study followed participants from late childhood to adolescence it tracked them at a key stage of physical and emotional change. During early adolescence, the influence of peer opinion increases and there is a risk that some participants may withdraw effort rather than risk failure or look ‘uncool’ in front of peers. Harter and Whitesell (2003) comment that those who are more preoccupied with the opinions of peers about themselves are more likely to be distracted and to concentrate less in tasks at school.

Also, adolescent girls in particular may avoid investing effort in sport (Crocker & Sabiston, 2005).

Health and fitness data was collected via physiological and physical tests which provided objectively measured and verified data, but it is acknowledged that self-reported self-esteem data may be overestimated and therefore less accurate than objectively measured and verified data (Matt, Garcia, Primicias, Frericks & DeFaria, 1999). In addition, as adolescence is a time of transition and change, the upheaval of this period may cause fluctuations in overall self-esteem and competence perceptions (Maiano, Ninot & Bilard, 2004). In addition, when administering the SPPC (Harter, 1985), Eapen et al. (2000) found that boys and girls differ in their attentiveness and ability to follow instructions, and this may influence the accuracy of boys' responses.

In addition, as the study was designed to test and re-test participants using the same measures over time, participants may become over-familiar with the tests. This can influence how much effort they invest when taking part in tests, or may influence the originality of answers to questionnaires (Thomas et al., 2000).

## **6.8. Personal reflections**

In this section, reflections on personal learning during the course of this PhD are shared. For a final word, see Appendix V.

### **6.8.1. Sport – are we all talking about the same thing?**

In the introduction to his autobiography, Ferenc Puskas, the legendary Hungarian footballer (1926-2006) wrote; "I will write of my life as a footballer as if it were a love story. For who shall say that it is not?" (1955, p.11). I share this view and the emotion of these words, for my life in squash is indeed a love story.

Sport is my life. I am either playing it (squash), preparing for it, resting from it, thinking about it, working in it and researching it. This study lead me to examine what I take sport to mean and increasingly to ask whether this tallies with the phenomena 'sport' that is featured in the research?

My experience of sport is hard to put into words, because words do not do it justice. For me, it involves the sensation of hitting a ball, the feeling of movement, running, turning, jumping. Sport also involves the mental challenge of matches, and the



daily mantra of always trying to improve, regardless. Moreover, there is the matter of winning or losing and learning to deal with the impact of those imposters.

I also watch sport having a season ticket at a Premiership team. Since I was six years old, following this team has given me so much. Sometimes this brings great joy and at other times unavoidable pain. There is a sense of ‘belonging’ and feelings of association with those who sit around me who are essentially strangers with whom I share the best and worst moments. At the end of the day, I believe that sport has delivered many positive impacts on my life. It continues to be a vehicle for training the mind and the body and I love the discipline and commitment that it asks for, and the lack of finality, because you can always improve. It highlights that life is change, and that there is never a time to say that you have ‘arrived’.

Hence, based on personal experience, I was favourable to ideas that sport can change lives by instilling good habits and discipline and also to the idea that it can create and build associations among individuals and others. On the other hand, as the research evolved, I wondered, progressively more, about the extent of the link between the kind of feelings and positive impacts that I have experienced and the phenomena that is discussed by the press, policy-makers, stake-holders and “Move It” teachers and participants. Do these aspects really translate on a large scale and are we all talking about the same thing? This, I increasingly sense lies at the heart of the matter.

In addition, the idea that sport improves health lies at the root of so much conjecture about its possibilities. Yet, it has seemed to me increasingly likely, during the course of this research, that television programmes such as “Strictly Come Dancing” (where ‘celebrities’ learn how to improve their general fitness and range of movement in order to dance) has more relevance and lessons for the general population about health and fitness than sport per se.

### **6.8.2. Is this study about sport?**

This PhD started its life as a study of the impact of sport, within the phenomena called “Move It”. Yet, over time, I have come to see that instead it should be seen predominantly as a study in the behaviour of people and outcomes within certain circumstances.

### **6.8.3. Parallel influences**

Although, from the outset I recognised that parents, peers and situational factors might play their part in outcomes, I was unprepared for the implications of parallel influences on empirical research in terms of drawing conclusions with certainty. At times, it felt as if research might be undermined by a series of caveats because so many aspects are outside the remit of the study. For example, when making claims about the impact of “Move It” on health and fitness one must also be aware that what participants’ eat, and whether they are inclined to be more or less sedentary might count towards outcomes. However on reflection, going through this process intellectually convinced me of the wisdom of Farrington’s (2003) impassioned argument that research must be able to generalise and that controlled studies on a nation-wide basis are necessary if research is intended to inform policy. This does not undermine the relevance of small studies, and context specific research, which help to target various influences and situational factors and which can offer a basis from which to build large scale evaluations.

### **6.8.4. ‘Nobody thinks they are going to die’**

Conducting this research has also brought home to me that many people fundamentally misunderstand the meaning of mental and physical health. Despite the attempts of social institutions to warn people about the possible consequences of behaviour, particularly in terms of health, many do not recognise that the message applies to them. This failure to link the warnings about the consequences of their actions to the outcomes seems to lie at the root of many social problems. The Indian master, Sivananda, (1887-1963) said that the main lesson life had taught him was that ‘nobody thinks they are going to die’. By this he meant that people often understand the relationship between actions and outcomes intellectually, yet do not use this knowledge as a basis for action. This observation gives us some insight into matters such as the increase in obesity, which, we might say, can be partly accounted for by a general reluctance to accept responsibility for one’s own health.

### **6.8.5. Individual differences matter**

Taking up the above points, it was evident during “Move It” test days and observation of “Move It” sessions, that individual responses to sport cover a vast spectrum. Some participants, quite literally in some cases, threw themselves into the

sport, whilst for others physical movement looked to be an onerous and energy intense experience. From this perspective, the ‘one size fits all’ assumption about sport looked unrealistic and it remains to be seen whether hopes are so high for a general cure-all when intervening in social issues via art or music.

Indeed, “Move It” was intended to provide a wholesale solution to the needs of many participants, and yet the participants are individuals with different characteristics and different attitudes towards life. At the final fitness test of the three-year test effort, there was a salutary reminder of the value of mental toughness (personal diaries).

I was asked if I would help a visually impaired pupil, called Aisha (pseudonym), who also had a disability in leg causing a limp, to run the Multi Stage Fitness Test (MSFT). Although she was exempt from the test, her ‘carer’ explained that she very much wanted to do the same tests as her peers. Holding her hand, we ran together, turning at speed at each interval bleep. Aisha was very determined and remained in the MSFT until level 6, thereby performing better than many of her class-mates. Thinking that she would be pleased with her performance, I asked her how she thought she had done. After a pause, she said with real disappointment, ‘I’m gutted. I think I could have done better but my leg just let me down...’ It can be surmised that Aisha’s character and determination will drive her on and that regardless of the interventions provided others will not take up the opportunities that could be on offer.

### **6.9. Conclusion: the aggregate of marginal gains**

“Move It” was a sport intervention. That is, it provided sport as a means to intervene on problems that feature in the welfare dialogue. The programme was provided to children and adolescents, so it sought to address the particular areas of concern for this age group, namely health, fitness, self-esteem, attainment and crime and delinquent behaviour.

As reported, the findings of this study are that the quantitative results are inconclusive in respect of “Move It’s” impact on health, fitness, self-esteem, academic attainment and juvenile crime and delinquency. However, the participants feedback gathered by questionnaire resoundingly endorsed the programme as fun, challenging and a good opportunity to try new sports. The case study evidence demonstrated that social inclusion goals could be attained and, as Durlak and DuPre (2008) state, that,

implementers who identified the need for “Move It” and believed in its potential worked were influential in its success.

In the Literature Review, it was clear that the faith in sport is not restricted to one area. The view of the providers of Midnight Basketball, for example, is that it gives a purpose and a sense of inclusion to young people who feel marginalised from society. Likewise, Long (2002) reports that sports interventions can help with personal development and confidence. This was echoed by teachers at School 2 (high-level engagement) when speaking of the sense of purpose and belonging cultivated via “Move It”. The health and fitness literature shows that the links between physical activity and health are undeniable, and hence sport is one way to address concerns when people’s activity levels drop. So, can all this really be wrong?

It seems likely that sports interventions do offer the promise of progress by the aggregation of marginal gains. Quite simply, small improvements that are marginal in themselves may play out over the long term to bring about an improvement in the overall picture of health and welfare. In essence it is the combination of small changes that when brought together create the success of the whole. However, in research terms, those who fund interventions tend to seek out significant results which convincingly justify the investment, instead of those marginal gains that are hard to capture but which in conjunction with one another may improve participants’ welfare.

### **6.9.1. The research dilemma - evidence based policy (EBP) or evidence to support policy?**

It seems important to discuss whether the commitment to evidence based policy (EBP) made by the Labour Government (1997-2010) has assisted or hindered research into the impact of sport. Convincing governments and sponsors to spend money on programmes that may deliver over time based on aggregate or marginal gains, or based on quantitative accounts of personal development is implicitly problematic since governments like to spend money on the proviso that it will save future spending elsewhere (Gardiner, 2005). The problem is likely to be exacerbated when a government is ideologically committed to delivering policy based on evidence. However as Farrington (2003) argues, generalisable methods of research can establish if an intervention ‘works’, and it is on this basis that research has supported crime and prevention policy formation for more than forty years. Why then should sport research be different? By

emphasising context and individual differences in an effort to highlight potential deliver its benefits there is a real danger that, as Young et al. warned in 2002, research into the impact of sport looks for ways to support policy rather than providing evidence from which to form policy. Continuing in this way, lessons for practice are likely to be overlooked.

However, as Farrington (2006) states, the absence of large-scale demonstration of the beneficial impact of a programme can be taken as informative in respect of what 'does and does work' and furthermore it remains useful to highlight the small gains that offer promise for progress.

### **6.9.2. Nothing ventured, nothing gained**

From this perspective, the principle "nothing ventured, nothing gained" applies. Despite the absence of specific improvements, "Move It" can deliver 'marginal gains':

- Even if a two-hour programme is of insufficient duration to improve fitness (Stratton, 2009) it still represents an additional two hours outside what most participants would otherwise have done.
- This extra physical activity can make a small improvement to health and possibly cognitive functioning, which again, although marginal, favours better classroom attention and concentration.
- As Marsh (1997) predicts, the programme can increase the connection between participants and the school (Head Teacher, School 2, 2004). This can increase their association with the school and its other goals, including behaviour and academic work.

For those participants who feel on the periphery of society, which is termed at risk of social exclusion, "Move It" offered a new and shared activity purpose in a safe and protected environment.

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**APPENDICES**

## Appendices

### Appendix A The X Youth Sports Pilot Project (Kotulecki, 2005a)



#### Summary

“Move It” is the pilot project set up to demonstrate the effectiveness of sport in positively changing young people’s lives.

“Move It” is based on the policy paper *Delivering Health for the Next Generation* by MP for Borough X. This paper advocates changes to the school day to ensure that all young people have access to two hours of sport or physical activity each day throughout their school lives.

The X Youth Sports Pilot Project is a registered charity.

#### The Case for School Sport

British children play less sport than in most other European countries. Worse, British children play sports of a lower quality than in most other European countries.

An increase in school sport can yield real benefits in health, social cohesion, youth crime, childcare and academic achievement.

“Move It” is providing young people with an additional two hours of sport and physical activity each week on top of existing curriculum and extra-curricular provision. This activity is provided by qualified, professional coaches linked to some of the highest achieving clubs in the country.

“Move It” is an extension to the school day. All young people and parents in the pilot schools have signed an agreement to attend one “Move It” session per week. Young people choose the activity they wish to take part in each half-term. Current options are football, rugby, hockey, dance, boxercise, basketball, volleyball, cricket, tennis, athletics, netball and table-tennis. We hope to add ethnic dance, fencing, squash and self-defence as further options.

The effectiveness of “Move It” in positively affecting young people’s lives is being independently evaluated by Brunel University.

For more information about “Move It”, please contact the Project Manager.

Appendix B The Brent North Youth Sports Pilot Project (Kotulecki, 2005b)



The X<sup>3</sup> Youth Sports Pilot Project is transforming the provision of sports and physical activity for young people in X. The project is raising sport high on the agenda and creating new opportunities for young people and their community.

### **Introduction**

#### **About X**

X is a constituency in North London marked out by its ethnic diversity. According to the 2001 Census, 55% of X's population are from a non-white ethnic group with 47% born outside UK.

The area is also characterised by a severe lack of sporting infrastructure. Currently there is very limited opportunity for young people to embrace a physically active lifestyle in the community. They do not have the chance to develop the healthy habits at an early age that will benefit them in later life.

#### **The need for more sport – all round benefits**

The Government's sports strategy document, Game Plan, makes clear that the benefits of sport participation are not only improved health, but benefits to education. The document also states that as part of a broader package of measures, increased sport provision will have positive effects on youth crime reduction and social inclusion.

#### **Systematic implementation - learning lessons and developing policy**

However, a single coherent study of the benefits of school sport on the local community has never been undertaken. "Move It" will show what many, including the government, already believe, that a significant increase in the amount of sport played by young people can benefit them in all aspects of their lives and in the life of their community. "Move It" builds on the ideas already set out in the Government's Game Plan document. By making two additional hours of sport a week a reality, we can build the evidence base that will inform government policy regarding increased priority and funding for participation in sport.

#### **Government Support**

Through direct contact with the "Move It" Chairman, Member of Parliament for X, we have received support and advice from policy advisers at No. 10, ministers in the Department for Health and the Department for Education and Skills.

#### **What we are doing Sporting Opportunity**

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<sup>3</sup> For the purposes of confidentiality references to the name of the Borough have been substituted with X.

“Move It” is facilitating an extra two hours of sport per week for pupils in X. The pilot will run for three years. In the first year it includes every year 7 pupil in each of four secondary schools in X. Our participants come from School 3, School 1 and School 2. In the second year we will continue to provide sports coaching for the existing participants as well as the new incoming year 7 group. In the third year the next incoming year 7 will also join the pilot. Consequently in the first year “Move It” is directly benefiting approximately 1000 young people in X, in the second year that will rise to approximately 2000, and in the third year to approximately 3000.

One of the principles of “Move It” is to give participants a choice and an opportunity to try a variety of sports and other forms of exercise. At present we are offering football, rugby, hockey, dance, boxercise, basketball, volleyball, cricket, tennis, athletics, netball and table-tennis. We hope to add ethnic dance, fencing, squash and self-defence as further options. Additionally, outside of school, we also offer free swimming during school holidays.

### **Evaluation**

As well as providing sporting activity “Move It” is undertaking an independent academic study which evaluates the effects of the increased sport on the participants. Data already collected by schools on the fitness of their pupils will be developed, enhanced and standardised to create a set of data which can be independently assessed, compared and evaluated. Pupils in the year group prior to the first participating year are being tested as a base line against which the benefits can be measured. A group of experts from X Primary Care Trust and Brunel University are developing the evaluation criteria and the monitoring methods. The Brunel University School of Sport and Education is carrying out the evaluation.

### **Uniting and inspiring the community**

“Move It” involves the whole community with participants and parents taking an active part in deciding precisely what sports their children will take up and giving feedback on the effects of the increased activity. We hope that the groundswell created by such a dramatic increase in sport participation will have a knock on effect, resulting in non-participating pupils and older family members also increasing sport participation.

### **New resources**

Although the provision is administered through four schools, this is not a school project. The sports coaching is not being provided by the schools and is not replacing any curricular or extra-curricular sports that are already happening at the schools. Every element of “Move It” is additional to what would have otherwise been in place.

“Move It” is employing coaches from across the region to work with the young people. They have been found through the London Active Partnership database as well as through direct co-ordination with sports governing bodies and clubs. This provides new work for the coaches and new opportunities for sports development officers to build contacts and infrastructure with the local community. The enthusiasm and commitment of sports coaches in the area will feed into the young people of X through this pilot.

### **Co-ordinating providers**

The “Move It” chairman, and MP for Borough X, has focused a great deal of energy in uniting various partners around the goal of transforming sports provision for young people in X. This project is allowing the partners to combine their skills, knowledge and energy to produce something which is more than the sum of their parts. The end product is a focused pilot project with clear inputs and outcomes which has enormous potential to create long-term change. We are working with development officers for individual sports and local sports clubs to ensure that strong and clear pathways exist for participants to follow in their sporting endeavors.

### **The “Move It” Partnership**

Steering group

**Chairman** - Member of Parliament for X

**Secretary** - School 3, Schools Sports Co-ordinator Partnership Development Manager

**Treasurer** - Deputy Headteacher, School 1

**Members** - Headteachers and Head of PE of the four participating schools, respectively

**Project Manager**

Members on the coaching side

**Youth Sport Trust**

**London Active Partnership**

**Sport England**

**X Council**

Members on the evaluation side

**Brunel University**

**X Primary Care Trust**

Other partners

Cadbury Schweppes plc

Sportsmatch

Trutex

McDonald’s Restaurants

Quintain Estates

Thames Water

Department for Education and Skills

X Police

### **Releasing private investment**

**Cadbury Schweppes** is providing cash funding for the project. A successful **Sportsmatch** application has doubled the initial cash funding provided by Cadbury. School sports kit provider, **Trutex** is sponsoring the project by providing free branded kit to every participant for every year of the scheme. **McDonald’s** is providing cash funding for the project. **Quintain Estates** is providing cash funding for the project. **Thames Water** is providing cash funding for the holiday swimming programme. The **DfES** is funding the evaluation of the project. We have other commercial sponsors in negotiation at present to provide additional cash funding.

### **Delivering “Move It” Professional Coaches**

“Move It” is bringing professional coaches into schools to facilitate the extra hours of sport. High quality coaches are enhancing the experience for the participants and ensuring that the two hours are fully utilised for their benefit.

Coaches have been identified through sports governing bodies, clubs and the London Active Partnership Active Sports Programme. Some of the top clubs in the country are providing their coaches to work on “Move It” - Queens Park Rangers FC, London Capitals Basketball Club, London Progress Table Tennis Club, The RFU and London Wasps RUFC, London Lynx Volleyball Club, London Broncos RLFC, Hampstead & Westminster Hockey Club, Southgate Hockey Club and others.

In order to provide the full range of sports we want to offer, a fund from which we can pay additional coaches to run activities is being sourced.

### **Benefits to Sponsors Evaluation**

In return for sponsorship of “Move It” activities we will make all the evaluation conclusions available to commercial partners. This will include the final evaluation as well as all interim reports throughout the duration of the three year pilot.

### **Promotion**

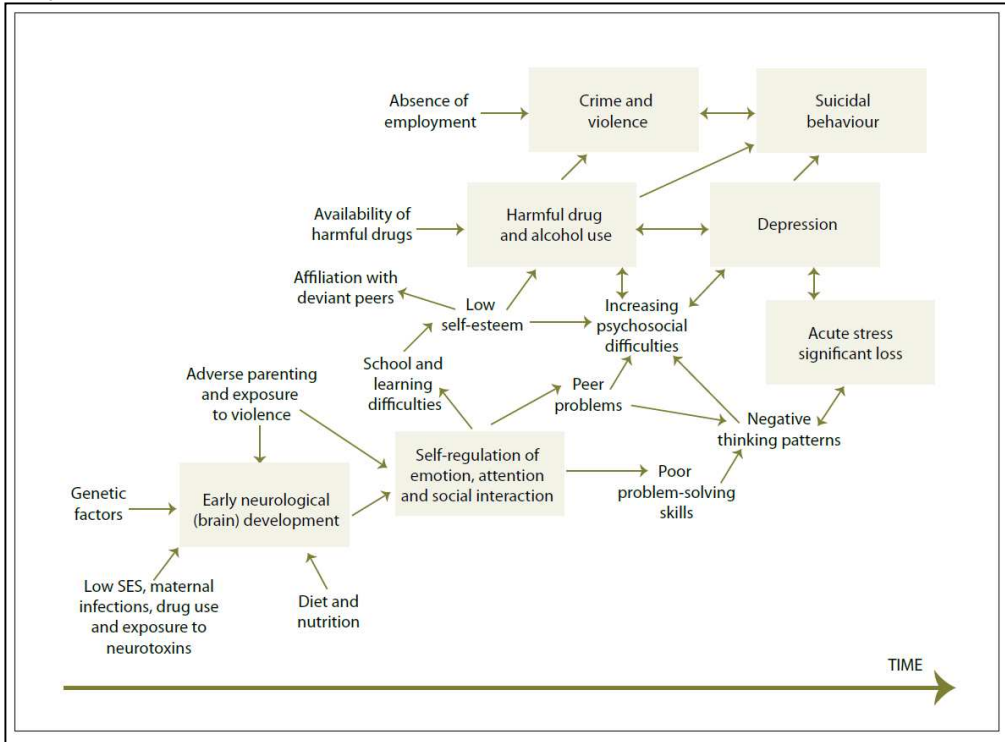
The project has already received significant national media coverage. We will continue to promote our partnerships with our commercial sponsors where this is desired by these partners. In addition to local press coverage, “Move It” has featured on *BBC TV London News*, as well as in the following national titles: *The Guardian*, *The Observer*, *The Daily Telegraph*, *The Daily Express* and *Times Education Supplement*.

### **Additional Marketing**

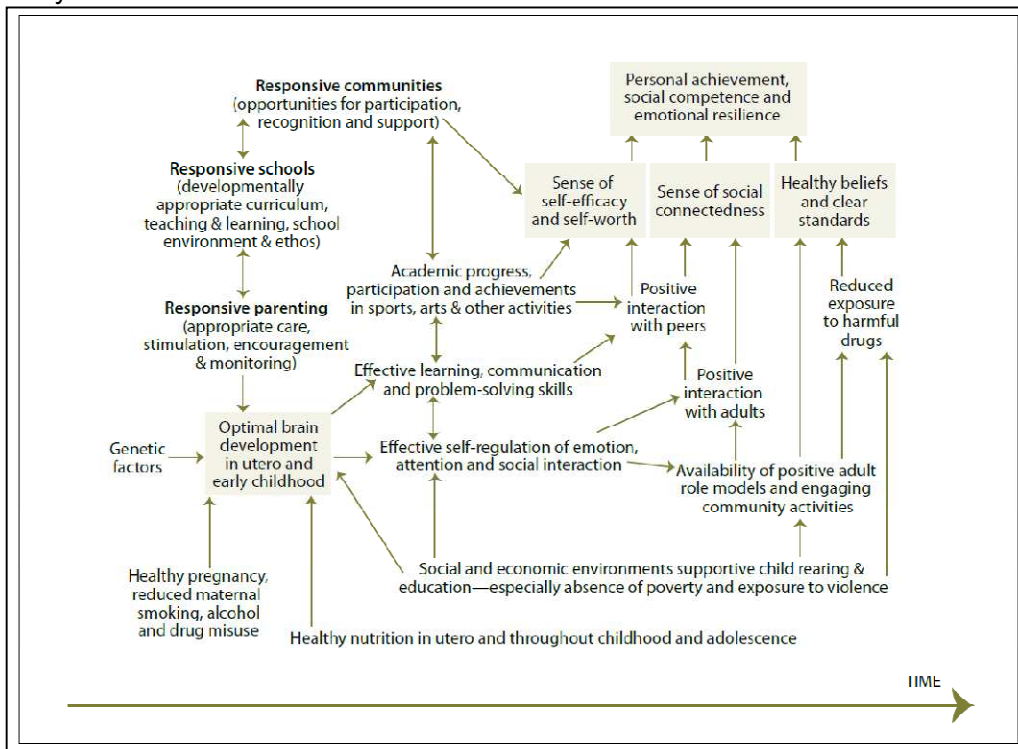
We will be happy to discuss further any additional marketing initiatives that our partners would like to undertake as part of their involvement with the project.

Appendix C Pathways to risk and resilience (Silburn, 2003)

Pathways to risk



Pathways to resilience



Appendix D The Body Mass Index cut-off points for for children and youth devised by Cole, Bellizi, Flegal and Dietz, 2000

International cut-off points for body mass index for overweight and obesity by sex between 2 and 18 years, defined to pass through body mass index of 25 and 30 kg/m<sup>2</sup> at age 18, obtained by averaging data from Brazil, Great Britain, Hong Kong, Netherlands, Singapore, and United States (Cole et al., 2000).

Age (years)	Body mass Index 25 kg/m <sup>2</sup>		Body mass Index 30 kg/m <sup>2</sup>	
	Males	Females	Males	Females
2	18.41	18.02	20.09	19.81
2.5	18.13	17.76	19.80	19.55
3	17.89	17.56	19.57	19.36
3.5	17.69	17.40	19.39	19.23
4	17.55	17.28	19.29	19.15
4.5	17.47	17.19	19.26	19.12
5	17.42	17.15	19.30	19.17
5.5	17.45	17.20	19.47	19.34
6	17.55	17.34	19.78	19.65
6.5	17.71	17.53	20.23	20.08
7	17.92	17.75	20.63	20.51
7.5	18.16	18.03	21.09	21.01
8	18.44	18.35	21.60	21.57
8.5	18.76	18.69	22.17	22.18
9	19.10	19.07	22.77	22.81
9.5	19.46	19.45	23.39	23.46
10	19.84	19.86	24.00	24.11
10.5	20.20	20.29	24.57	24.77
11	20.55	20.74	25.10	25.42
11.5	20.89	21.20	25.58	26.05
12	21.22	21.68	26.02	26.67
12.5	21.56	22.14	26.43	27.24
13	21.91	22.58	26.84	27.76
13.5	22.27	22.98	27.25	28.20
14	22.62	23.34	27.63	28.57
14.5	22.96	23.66	27.98	28.87
15	23.29	23.94	28.30	29.11
15.5	23.60	24.17	28.60	29.29
16	23.90	24.37	28.88	29.43
16.5	24.19	24.54	29.14	29.56
17	24.46	24.70	29.41	29.69
17.5	24.73	24.85	29.70	29.84
18	25	25	30	30



Appendix E The Body Mass Index cut-off points for children and youth devised by Chinn and Rona, 2002

Age (years)	BMI equivalence at 19.5 years			
	25		30	
	Boys	Girls	Boys	Girls
2.0	17.8	18.1	19.6	19.9
2.5	17.4	17.7	19.2	19.6
3.0	17.1	17.5	18.9	19.5
3.5	17.0	17.4	18.8	19.4
4.0	16.9	17.3	18.7	19.4
4.5	16.9	17.3	18.8	19.5
5.0	16.9	17.3	18.9	19.6
5.5	17.0	17.3	19.1	19.8
6.0	17.0	17.5	19.3	20.1
6.5	17.2	17.7	19.6	20.5
7.0	17.3	17.9	20.0	21.0
7.5	17.5	18.2	20.4	21.5
8.0	17.7	18.4	20.8	22.0
8.5	17.9	18.8	21.3	22.5
9.0	18.2	19.1	21.8	23.0
9.5	18.5	19.4	22.3	23.5
10.0	18.8	19.8	22.8	24.0
10.5	19.1	20.1	23.2	24.5
11.0	19.4	20.5	23.7	25.0
11.5	19.7	20.9	24.2	25.5
12.0	20.1	21.3	24.6	26.0
12.5	20.4	21.7	25.1	26.4
13.0	20.8	22.1	25.5	26.9
13.5	21.1	22.4	25.9	27.3
14.0	21.5	22.8	26.4	27.7
14.5	21.9	23.1	26.8	28.0
15.0	22.3	23.4	27.2	28.3
15.5	22.6	23.6	27.6	28.6
16.0	23.0	23.9	27.9	28.8
16.5	23.3	24.1	28.3	29.1
17.0	23.6	24.3	28.6	29.3
17.5	23.9	24.5	28.9	29.4
18.0	24.2	24.6	29.2	29.6
18.5	24.5	24.8	29.5	29.7
19.0	24.8	24.9	29.7	29.9
19.5	25.0	25.0	30.0	30.0

Appendix F

Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Stratton (2009) A Plus Programme	Health		9-10 year olds in inner city Liverpool	2 hours extra of sport per week	<ul style="list-style-type: none"> <li>• Improvements in heart function, heart size and blood pressure whilst the rate of increased body fat had slowed down.</li> <li>• Improved fundamental movement skill proficiency, (e.g. throwing a ball, hopping and jumping)</li> </ul>	<ul style="list-style-type: none"> <li>• Duration (60m) of sport per week insufficient to maintain healthy BMI levels.</li> <li>• Duration sufficient to improve motor skills from sub standard pre intervention</li> </ul>
Stratton( 2009) A Plus Programme	Fitness			2 hours extra of sport per week	<ul style="list-style-type: none"> <li>• Increase in BMI was abated.</li> <li>• No reduction in BMI.</li> <li>• Cardiovascular fitness declined.</li> <li>• Motor skills improved significantly.</li> </ul>	<ul style="list-style-type: none"> <li>• Intensity of sport sufficient to intense increase fitness.</li> </ul>
Raitakari, Porka, Taimelo, Telema, Rasenen & Vitakari, (1994)	Health and Fitness		Finnish Youth Aged 12, 15 or 18	6 year period	<ul style="list-style-type: none"> <li>• 57 percent initially classified as ' inactive' remained inactive after the six year follow-up.</li> </ul>	<ul style="list-style-type: none"> <li>• Inactivity may track better than activity</li> <li>• Tracking was better in boys than girls and better for the younger age group than the older</li> </ul>
Kempner, (1995)	Health and Fitness		Amsterdam	15 year period	<ul style="list-style-type: none"> <li>• Being active in sport as a youth tracked into adulthood</li> </ul>	<ul style="list-style-type: none"> <li>• Activity in sport as a youth does not necessarily track.</li> </ul>

## Appendices

Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Snell & van Mechelen, (1995).	Psychological	Amsterdam	Amsterdam	15 year period	<ul style="list-style-type: none"> <li>Those who had been physically active were distinguished by coping style, handling stress and health.</li> </ul>	<ul style="list-style-type: none"> <li>An individual's 'coping style' tracks longitudinally between youth and adulthood</li> </ul>
Whitehead, J., & Corbin, C. (1997)	Self-esteem	USA			<ul style="list-style-type: none"> <li>Presenting the sport in a mastery and self development context was important and recommended that when seeking to improve self-esteem via sporting interventions, organisers should establish positive effort-benefit ratio perceptions; set attainable goals and avoid the use of exercise as a punishment.</li> </ul>	<ul style="list-style-type: none"> <li>Recommendations for practice;</li> <li>Focus on personal not comparative standards.</li> <li>Offer alternative sports</li> <li>Provide sport in a way that challenges gender based stereotypical views of sport</li> </ul>
Tuxworth (1996)	Health and Fitness	UK	UK School children between ages 9 to 15	UK School Fitness Survey	<ul style="list-style-type: none"> <li>70 percent participate in sport 'for enjoyment.'</li> <li>Only 18 percent cited fitness motives</li> </ul>	<ul style="list-style-type: none"> <li>The main reason children do sport is to have 'fun'</li> </ul>
Biddle et al., (1992)	Health and Fitness	USA			<ul style="list-style-type: none"> <li>Whilst boys appear to enjoy sport for its own sake girls depend more on supportive adult opinion as a determinant of their enjoyment.</li> </ul>	<ul style="list-style-type: none"> <li>the context in which a sport is conducted seems to be important for girls especially.</li> </ul>

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Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Australian Sport Commission (2004)	Participatory motivation	Australia	4,500 children aged between 9–15 years South Australia	Survey	<ul style="list-style-type: none"> <li>• 55% played sport every day.</li> <li>• 2-5% of day devoted to sport.</li> <li>• 3-4% of day devoted to 'play time'.</li> <li>• 'Lack of time' is the main reason for not doing sport.</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-pubertal children have a natural drive to exercise.</li> </ul>
Sibley and Etnier (2003)	Academic attainment	USA			<ul style="list-style-type: none"> <li>• Sport improves cognitive functioning with the greatest impact being on the cognition of children between the ages of 6-13.</li> <li>• Being fitter generally has positive consequences for concentration.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a positive relationship between physical activity and cognition (the mental abilities and processes through which knowledge is acquired).</li> </ul>
Marsh et al., (2003)	Academic attainment &	USA	10,000 youth from school years 8 to 12 USA		<ul style="list-style-type: none"> <li>• Total sport participation was positively correlated with Grade 12 and postsecondary outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>• School sport participation complements traditional and curricular goals to enhance academic and non academic outcomes.</li> </ul>
Loxley, Curtin and Brown, 2002 Summersplash	Juvenile crime and delinquency	England and Wales high risk housing estates	13–17 year olds in high-crime housing estates in England and Wales	Sport and art activities over the summer of 2000 and 2001  Youth Justice Board (YJB) initiative	<ul style="list-style-type: none"> <li>• There was an aggregate reduction in 'youth crime' compared to same period in previous year.</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence was not decisive because causality could not be established.</li> <li>• Possibility that behaviour was transferred to another time and place could not be eliminated.</li> </ul>

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Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Positive Futures Ranulla (2002)	Juvenile crime and delinquency	UK	24 projects. Targeted at 10–16 year olds in wards identified as the 20 percent most deprived (the most socially excluded)	Sport designed to; increase regular sport participation among 'at risk' youth Reduce youth offending in the locality of a project Reduce drug use among participants.	<ul style="list-style-type: none"> <li>Reduced crime in locality compared to the same period in the previous year</li> </ul>	<ul style="list-style-type: none"> <li>Evidence was not decisive because causality could not be established.</li> <li>Possibility that behaviour was transferred to another time and place could not be eliminated.</li> </ul>
Sport City Programme (SCP) Norway Skille (2004)	Social and sport inclusion	Norway inner city	Inactive urban youth from low social economic groups	Provide alternative sports to engage inactive youth.	<ul style="list-style-type: none"> <li>Only 4% of attendees were from target group.</li> </ul>	<ul style="list-style-type: none"> <li>Future social class is strong predictor of adolescent sport participation.</li> <li>Scheme only limited success in reaching target group.</li> </ul>
Midnight Basketball' programmes Hartmann, 2001 Smith & Waddington 2004	Juvenile crime and delinquency	USA inner city	Males age 16 to 25, inner city urban areas	USA in 1990s, youth were engaged in supervised basketball matches during 'high crime' hours between 10.00 p.m. and 2.00 a.m.	<ul style="list-style-type: none"> <li>The scheme was perceived to be successful due to its rapid growth and attendance levels.</li> <li>Little evidence that it was effective in crime reduction or prevention</li> </ul>	<ul style="list-style-type: none"> <li>The scheme lacked a coherent theoretical rationale. It should be seen as a practical response to a perceived problem.</li> </ul>

## Appendices

Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Multiple component programmes (MCP) Farrington, (2006)	Juvenile crime and delinquency	UK	Crime prevention and rehabilitation of young offenders	Train pupils, teachers and parents to recognise and reward pro-social behaviour	<ul style="list-style-type: none"> <li>Increased bonding of the pupils to the school and to their parents.</li> </ul>	<ul style="list-style-type: none"> <li>The content of the scheme, (e.g. including cognitive skills training), rather than the means of engagement (e.g. sport) is vital to its success.</li> </ul>
Krouwel, Boonstra Duyvendak and Veldboer, (2006)	Social inclusion, community bonding. Rotterdam	Rotterdam, inner city	Minority ethnic groups at risk of social exclusion	Integrate minority groups via sport.	<ul style="list-style-type: none"> <li>Groups differ in attitudes toward social intergratipon;</li> <li>Dutch participants and those with a background in Surinam, Aruba and the Dutch Antilles value social interaction via sport.</li> <li>Turkish and Moroccan participants view social interaction negatively and prefer to stay within own ethnic group.</li> <li>Interaction between different groups did not occur spontaneously.</li> <li>Aggressive behaviour during sport occurred between ethnic groups.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-existing tensions between groups can be exacerbated by sport encounters. Problems from other social spheres are imported into the sporting arena.</li> <li>Marginalized migrant-groups primarily want to confirm their ethnic identity through homogeneous sport activities ns are reinforced by sport, not bridge.</li> </ul>
Youth charter for sport, culture and the arts (YCSCA). Manchester Long (2002)	Social inclusion	Manchester, inner city		Offer personal development training, using sport as means of engagement	<ul style="list-style-type: none"> <li>Qualitative evidence based on opinions of participants and providers.</li> </ul>	<ul style="list-style-type: none"> <li>Better communication between participants and their peers and social workers.</li> <li>No evidence that the target group had been reached.</li> <li>Evidence largely anecdotal.</li> </ul>

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Author/ Key Studies	Topic	Location	Target group	Intervention	Evidence	Conclusions
Sports Coach qualifications Charlton Athletic Race Equality (CARE) London Long (2002)	Social inclusion	Borough of Greenwich, South-East London	Socially excluded groups, particularly black and ethnic disadvantaged and residents of large Greenwich estates minority groups	Increase self- esteem and confidence. Foster individuals commitment to anti-racism	<ul style="list-style-type: none"> <li>• Qualitative evidence based on opinions of participants and providers.</li> </ul>	<ul style="list-style-type: none"> <li>• Better communication between participants and their peers and social workers.</li> <li>• No evidence that the target group had been reached.</li> <li>• Evidence largely anecdotal.</li> </ul>
Leeds Football community link (LFCL). Leeds Long (2002)	Social inclusion	Leeds, inner city	Provide sport to 5- 16 year olds. Build confidence and skills of adult volunteer coaches. divert those at risk from anti-social or delinquent behaviour	Football coaching provided by Leeds United coaches and volunteer adults.	<ul style="list-style-type: none"> <li>• Qualitative evidence based on opinions of participants and providers.</li> </ul>	<ul style="list-style-type: none"> <li>• Better communication between participants and their peers and social workers.</li> <li>• No evidence that the target group had been reached.</li> <li>• Evidence largely anecdotal.</li> </ul>
Household survey of young people and sport. Scotland. Allison (1999)		Scotland, general survey	Age 8-18. Scotland.	Scottish Survey of young people	<ul style="list-style-type: none"> <li>• 'Lack of time' and inaccessible location are the main reasons for not doing sport.</li> </ul>	

Appendix G Multistage Fitness Test Table

The following is a table of predicted maximum oxygen uptake values (VO2 Max) for the [Multistage Fitness Test](#). It was developed by the Department of Physical Education and Sports Science, Loughborough University, (1987).

Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
4	2	26.8	5	2	30.2
4	4	27.6	5	4	31.0
4	6	28.3	5	6	31.8
4	9	29.5	5	9	32.9
Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
6	2	33.6	7	2	37.1
6	4	34.3	7	4	37.8
6	6	35.0	7	6	38.5
6	8	35.7	7	8	39.2
6	10	36.4	7	10	39.9
Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
8	2	40.5	9	2	43.9
8	4	41.1	9	4	44.5
8	6	41.8	9	6	45.2
8	8	42.4	9	8	45.8
8	11	43.3	9	11	46.8
Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
10	2	47.4	11	2	50.8
10	4	48.0	11	4	51.4
10	6	48.7	11	6	51.9
10	8	49.3	11	8	52.5
10	11	50.2	11	10	53.1
			11	12	53.7
Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
12	2	54.3	13	2	57.6
12	4	54.8	13	4	58.2
12	6	55.4	13	6	58.7
12	8	56.0	13	8	59.3
12	10	56.5	13	10	59.8
12	12	57.1	13	13	60.6



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Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
14	2	61.1	15	2	64.6
14	4	61.7	15	4	65.1
14	6	62.2	15	6	65.6
14	8	62.7	15	8	66.2
14	10	63.2	15	10	66.7
14	13	64.0	15	13	67.5

Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
16	2	68.0	17	2	71.4
16	4	68.5	17	4	71.9
16	6	69.0	17	6	72.4
16	8	69.5	17	8	72.9
16	10	69.9	17	10	73.4
16	12	70.5	17	12	73.9
16	14	70.9	17	14	74.4

Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
18	2	74.8	19	2	78.3
18	4	75.3	19	4	78.8
18	6	75.8	19	6	79.2
18	8	76.2	19	8	79.7
18	10	76.7	19	10	80.2
18	12	77.2	19	12	80.6
18	15	77.9	19	15	81.3

Level	Shuttle	VO2 Max	Level	Shuttle	VO2 Max
20	2	81.8	21	2	85.2
20	4	82.2	21	4	85.6
20	6	82.6	21	6	86.1
20	8	83.0	21	8	86.5
20	10	83.5	21	10	86.9
20	12	83.9	21	12	87.4
20	14	84.3	21	14	87.8
20	16	84.8	21	16	88.2

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Appendix H Self-perception Profile for Children (SPPC; Harter, 1985)

'What I Am Like'

Name  
Boy / Girl

SAMPLE SENTENCE

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
			Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T.V.		
1.			Some kids feel that they are <i>very good</i> at their school work	BUT	Other kids <i>worry</i> about whether they can do the schoolwork assigned to them.		
2.			Some kids find it <i>hard</i> to make friends	BUT	Other kids find it's pretty <i>easy</i> to make friends.		
3.			Some kids do <i>very well</i> at all kinds of sports	BUT	Other kids <i>don't</i> feel that they are very good when it comes to sports.		
4.			Some kids are <i>happy</i> with the way they look	BUT	Other kids are <i>not</i> happy with they way they look.		
5.			Some kids often do not like they way they <i>behave</i>	BUT	Other kids usually <i>like</i> the way they behave.		
6.			Some kids are often unhappy with themselves	BUT	Other kids are pretty <i>pleased</i> with themselves.		
7.			Some kids feel like they are <i>just as smart</i> as other kids their age	BUT	Other kids aren't so sure and <i>wonder</i> if they are smart.		
8.			Some kids have <i>a lot of</i> friends	BUT	Other kids <i>don't</i> have very many friends.		
9.			Some kids wish they could be a lot better at sports	BUT	Other kids feel they are good enough at sports.		
10.			Some kids are <i>happy</i> with their height and weight	BUT	Other kids wish their height or weight were <i>different</i> .		
11.			Some kids usually do the <i>right</i> thing	BUT	Other kids often <i>don't</i> do the right thing.		
			Some kids <i>don't</i> like the		Other kids <i>do</i> like the way		

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12.			way they are leading their life	BUT	they are leading their life.		
13.			Some kids think they are pretty <i>slow</i> in finishing their schoolwork	BUT	Other kids can do their schoolwork <i>quickly</i> .		
14.			Some kids would like to have a lot more friends	BUT	Other kids have as many friends as they want.		

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
15.			Some kids think they could do well at just about any new sports activities they haven't tried before	BUT	Other kids are afraid they might <i>not</i> do well at sports they haven't ever tried.		
16.			Some kids wish their body was <i>different</i>	BUT	Other kids <i>like</i> their body the way it is.		
17.			Some kids usually act the way they know they are <i>supposed to</i>	BUT	Other kids often <i>don't</i> act the way they are supposed to.		
18.			Some kids are <i>happy</i> with themselves as a person	BUT	Other kids are often <i>not</i> happy with themselves.		
19.			Some kids often <i>forget</i> what they learn	BUT	Other kids can remember things <i>easily</i> .		
20.			Some kids are always doing things with a <i>lot</i> of kids	BUT	Other kids usually do things by <i>themselves</i> .		
21.			Some kids feel that they are <i>better</i> than others their age at sports	BUT	Other kids <i>don't</i> feel they can play as well.		
22.			Some kids wish their physical appearance (how they look) was <i>different</i>	BUT	Other kids <i>like</i> their physical appearance the way it is.		
23.			Some kids usually get in <i>trouble</i> because of things they do	BUT	Other kids usually <i>don't</i> do things that get them in trouble.		
24.			Some kids <i>like</i> the kind of person they are	BUT	Other kids often wish they were someone else.		
25.			Some kids do <i>very well</i> at their classwork	BUT	Other kids <i>don't</i> do very well at their classwork.		
26.			Some kids wish that more people their age liked them	BUT	Other kids feel that most people there are <i>do</i> like them.		
27.			In games and sports some kids usually <i>watch</i> instead	BUT	Other kids usually <i>play</i> rather than watch.		

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			of play				
28.			Some kids wish something about their face or hair looked <i>different</i>	BUT	Other kids <i>like</i> their face and hair the way they are.		
29.			Some kids do things they know they <i>shouldn't</i> do	BUT	Other kids <i>hardly ever</i> do things they know they shouldn't do.		
30.			Some kids are very <i>happy</i> being the way they are	BUT	Other kids wish they were <i>different</i> .		
31.			Some kids have <i>trouble</i> figuring out the answers in school	BUT	Other kids almost <i>always</i> can figure out the answers.		
	Really True for me	Sort of True for me				Sort of True for me	Really True for me
32.			Some kids are popular with others their age	BUT	Other kids are not very popular.		
33.			Some kids don't do well at new outdoor games	BUT	Other kids are good at new games right away.		
34.			Some kids think that they are good looking	BUT	Other kids think they are not very good looking.		
35.			Some kids behave themselves very well	BUT	Other kids often find it hard to behave themselves.		
36.			Some kids are not very happy with they way they do a lot of things	BUT	Other kids think the way they do things is fine.		

Appendix I Activity Questionnaire

Name: \_\_\_\_\_

Class: \_\_\_\_\_ Today's Date: \_\_\_\_\_

School: \_\_\_\_\_

1. How many times did you attend "Move it " each term?  
(Please enter the number below)

	Term 1 September	Term 2 Easter	Term 3 Summer
Not at all			
1-3 times			
4-8 times			
More than 8 times			
Every time			

2. What activities did you do each term?

Term one.....

Term two.....

Term three.....

3. Do you participate in any other school activity? (Please tick)

Breakfast Club.....

School team.....

None.....

4. If you did not attend "Move it " what were the reasons?

Homework.....

Extra lessons.....

Other activities.....

Duties at home.....

Religious lessons/activities.....

Other reasons

5. Do you do any sport or exercise activity OUTSIDE school or "Move it "? (Please tick)

Yes

No

6. If so, is this activity at an organised club?                      Yes                      No

7. Did you start to attend this activity before or after you started "Move it "? (Please tick)

Before.....

After.....

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8. What do you like about "Move it "? (Please tick anything you agree with or write in other reasons)

- Good at it.....
- It was fun.....
- The coach made it interesting.....
- I tried new activities.....
- Makes me feel healthy.....
- Makes me feel fitter.....
- It was a good challenge.....
- Other reasons.....
- Nothing I liked.....

9. Is there anything you don't like about "Move it "? (Please tick)

- Nothing I did not like.....
- Did not like the activity.....
- Did not like the weather.....
- Did not like the facilities.....
- My friends didn't like it.....

10. How do you get home from "Move it "? (Please tick any types of transport that you use)

- Car.....
- Bus.....
- Walk.....
- Cycle.....
- Train.....

(Please tick your answer)

11. Do your parents' do any sport or (physical) activity?      Yes                  No

If YES, what activity do they do?.....

If YES, do they do this on a regular basis?                  Yes                  No

12. Would you recommend "Move it " to a friend?                  Yes                  No

13. Is "Move it" cool?    Yes                  No

14. If you could, is there anything you would change about "Move it"?  
.....

Appendix J Activity Questionnaire 2

1.If you could choose what time to have “Move it” what would you choose, pls tick only 1 of the following;

before school  lunchtime  after school  weekend

2.How many times would you like to do “Move it” per week?

once  twice  more

3.Did you miss “Move it” when it was not running in the spring term?

yes  no

4.When “Move it” was not running what did you do instead?

go home  do sport out of school  hang out with friends

Appendix K Group Interviews with Participants  
(End of year one)

*Questions*

**Attendance at “Move It”**

- How many times did you attend “Move It”?

**Attitudes to “Move It”**

- Do you enjoy “Move It”? Yes/No
- What do you like about “Move It”?
- Is there anything you don’t like about “Move It”?
- What are your favourite activities and why?
- Which were your least favourite activities, and why?
- Which other activities would you like to try during “Move It”?
- What do you think are the most important reasons for doing exercise?
- Does “Move It” feel the same or different to PE lessons?
- Given a choice would you attend “Move It”?
- If you could, is there anything you would change about “Move It”?

**Other sports**

- Do you do any sport or exercise activity OUTSIDE school or “Move It”?
- If so, did you start this activity before or after you started “Move It”?
- Has “Move It” made you want to do more exercise activities?

**Non attendance at “Move It”**

- If you did not attend “Move It” what were the reasons?
- Would you like to have come to “Move It”?
- What changes, if any, would make it possible for you to attend “Move It”?

**Other matters**

- How do you get home from “Move It”?
- Do you have enough time to do your homework after attending “Move It”?
- Do your parents encourage you to do “Move It”?
- Do your parents’ and/or family members do sport?
  - If YES, what sports do they do?
  - If YES, do they do this on a regular basis?



Appendix L Interview Record

Method	Participant	School	Date
One to One Interview	Head of PE	2	29.02.2005
Group interview	"Move It" attenders	3	16.06 2005
Group interview	"Move It" council	2	16.06 2005
Group interview	* "Move It" non-attenders	2	20.06.2005
Group interview	Participants - "Move It" attenders	1	04.07 2005
Group interview	Participants	1	04.07.2006
Group interview	Participants	3	04.07.2006
Group interview	Participants	2	05.07.2006
In depth Interview	Assistant Deputy Head	2	05.07.2006
Group interview	Participants	3	17.07.2006
In depth Interview	Head of School	2	14.09.2007

\* Participants who were expected to attend "Move It" but who did not.

## Appendix M X Youth Sports Pilot Project Summary Progress Report

January 2006

### 1. Overview

“Move It” is now in its second year of activities. The first year (September 2004 – August 2005) provided coaching for approximately 1000 young people in the four schools in the project. The first independent evaluation report from Brunel University was completed in October 2005.

This year coaching is being provided for some 2000 youngsters.

“Move It” Councils have been established at all school to provide feedback on activities.

Year 12 and 13 students are being employed as assistant coaches in a variety of sports.

The evaluation is progressing, with testing having been carried out on the current Year 7 and Year 8 participants and the Year 9 control group in July and September 2005.

### 2. Costs and Funding

The cost of running activities for the project for the first year was a total of £119,408 of which £73,933 was for coaching. In addition to the funding received from Cadbury Schweppes for the Project Manager’s post, funds have been secured from Sportsmatch, McDonalds Restaurants, Quintain Estates and Thames Water for coaching. A grant of £150,000 over two years has been secured from the Big Lottery Fund Young People’s Fund, also for coaching.

The £150,000 cost of the independent evaluation of the project has been secured from the Department for Education and Skills (DfES).

The projected cost of running activities for the second year (September 2005 – August 2006) of the project is £200,000 of which £160,000 is for coaching.

Of the total estimated £850,000 cost for the project, £610,000 has now been secured. We are continuing to explore additional possible sources of funding and sponsorship.

Full Accounts for 2005-06 are currently being produced and audited, as will be made available on request.

### 3. Activities and Coaching Provided

Approximately 1,000 young people received coaching in Athletics, Basketball, Boxercise, Cricket, Dance, Football, Hockey, Netball, Rugby, Table Tennis, Tennis and Volleyball during the first year of activities. Approximately 65 percent of children registered attended after-school sessions regularly. Most popular activities were basketball, cricket, dance, football and table tennis.

We also provided free swimming during the February and Easter 2005 holidays for children in the “Move It” project. The “Move It” Kids Swim Free programme proved highly successful with some 5,000 visits being made to the local pool. Free swimming is now being provided during school holidays by X Council.

For the second year of activities, activities are being provided for 2,000 youngsters. In addition to those sports provided in the first year we are also providing coaches for aerobics and swimming. For the third term of this year we will also be providing coaching in a range of alternative sports, namely roller blading, skateboarding and roller hockey.

#### 4. "Move It" Councils

"Move It" Councils, consisting of representatives of Year 7 and Year 8 children in each school have been set up. The councils meet regularly with the Project Manager to suggest ideas for new activities and to provide feedback on sessions. Feedback to date has been extremely positive. The main points of interest raised at the Council meetings are:

"Move It" appeals mostly to those children keen on sport, but not with sufficient sporting ability to play for the various school teams

The coaching received has helped youngsters improve their sports skills

The Year 12 and 13 students employed as assistant coaches are very popular amongst the participants

The main reason for non-attendance at "Move It" is a clash with other extra-curricular activities (music, drama etc)

"Move It" is making a positive difference to how children perceive their own athletic ability

#### 5. Older Students employed as Assistants

Year 12 and 13 students who take Leadership and Coaching qualifications are being offered the chance to interview for Assistant Coaching posts on the project. Currently older students are employed as assistants in basketball, netball, cricket and table tennis. This initiative is providing these students with an opportunity to put into practice skills they have learned on their courses. The students are proving to be highly professional and capable young coaches and are highly popular with the Year 7 and 8 participants.

#### 6. Timetabling of the School Day

Of the 3 schools taking part, all are continuing to provide "Move It" activities as an after-school activity in the second year.

#### Evaluation

The first report from Brunel University was completed in October 2005 and submitted previously. Evaluation continues apace, with further testing scheduled for July and September 2006. The second report, covering the period up to August 2006, is due in October 2006.

Further information on any aspect of the project is available from:

Richard Kotulecki

T: 01908 508 501

M: 07941 336 875

E: rak@rakmanagement.com

Appendix N “Move It” documents provided by School 2

**1. Documents to reward good behaviour at “Move It”;**

“Move It” attendance certificate;

“Move It” festival letter.

**2. Letters to parents regarding;**

Good behaviour at “Move It”;

Poor behaviour at “Move It”;

Non attendance at “Move It”;

Details about “Move It” – what it is and why its important.

**3.Documents concerning the running of “Move It”;**

Sport leader pupil ‘contract’;

Guidelines for non PE staff regarding the provision of “Move It” ;

Coach guidelines.

**4. Attendance:**

Attendance records.

**5.Evaluation report on attendance levels**

The “Move It” council;

“Move It” council election notice;

“Move It” councillors list;

“Move It” council meeting advertisement.

**6.Questionnaire created by “Move It” council for fellow participants.**

Documents about School 2;

The aims and ethos of School 2;

A behaviour and attitude self check list;

PE standard report.

Appendix O Summary of statistical tests used in Quantitative Research

Stat Test type	Test Name	Results	School	School & sex	Sex
Descriptive statistics	BMI with Statistics Test Scores	Physio	Y	Y	
	Sit & Reach with Statistics Test Scores	Physio	Y	Y	
	Vertical Jump with Statistics Test Scores	Physio	Y	Y	
	MSFT with Statistics Test Scores	Physio	Y	Y	
Two-way ANOVA	body mass index (BMI)	Physio	Y	Y	
	sit and reach	Physio	Y	Y	
	vertical jump	Physio	Y	Y	
	multi stage fitness test (MSFT)	Physio	Y	Y	
One-way ANOVA	body mass index (BMI)	Physio	Y	Y	
	sit and reach	Physio	Y	Y	
	vertical jump	Physio	Y	Y	
	multi stage fitness test (MSFT)	Physio	Y	Y	
Post Hoc Tukey HSD	body mass index (BMI)	Physio	Y	Y	
	sit and reach	Physio	Y	Y	
	vertical jump	Physio	Y	Y	
	multi stage fitness test (MSFT)	Physio	Y	Y	
Pairwise Comparison	body mass index (BMI)	Physio	Y	Y	
	sit and reach	Physio	Y	Y	
	vertical jump	Physio	Y	Y	
	multi stage fitness test (MSFT)	Physio	Y	Y	

Appendices

Stat Test type	Test Name	Results	School	School & sex	Sex
Chi-square test	Having 'fun' and Weight Status	Act Q	Y		
	Having 'fun' and Multi Stage Fitness Test	Act Q	Y		
	'I feel fitter' and Weight Status.	Act Q	Y		
	'I feel fitter' and MSFT	Act Q	Y		
	'I feel healthier' and MSFT	Act Q	Y		
Frequency	Reasons for enjoying "Move It" in rank order	Act Q	Y	Y	Y
	Change in weight status over the three years by school among participants who were having fun	Act Q	Y		
	Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who were having fun	Act Q	Y		
	Change in weight status over the three years by school among participants who felt fitter	Act Q	Y		
	Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who felt fitter	Act Q	Y		
	Change in weight status over the three years by school among participants who felt healthier	Act Q	Y		
	Change in Multi Stage Fitness Test (MSFT) over the three years by school among participants who felt healthier	Act Q	Y		
	Number of Students participating in Study by Year and School	Physio	Y	Y	
	Percentage of obese, overweight participants by school	Physio	Y		

## Appendix P School 2 "Move It" Evaluation Report

Report by PE staff at School 2

### 1. Pupils

Generally the pupils have been quite good at showing up for "Move It" compared with most other schools. Only a select few individuals are consistent non-attenders.

Behaviour of the pupils is generally acceptable, although there are of course incidents of poor behaviour occurring throughout the year. Some coaches are better equipped to handle this than others and therefore have fewer problems with behaviour. Unfortunately there have been no records kept this year with regards to pupil behaviour and when this is occurring. This may be an idea for next year.

Generally poor behaviour can be dealt with in a number of ways. In the first instance it is probably best to deal with the offending pupil immediately and phone home on the same night to let parents know what has been going on in the sessions. Consistently bad behaviour can be followed up with a letter home and community service within the department.

Positive behaviour needs to be rewarded. This year this has been done by the coaches filling out the rewards postcards during their sessions, which can be kept in the register folder. Pupils have also been awarded certificates for high standards during "Move It".

### 2. Participation Figures

All figures are based on the period from September 2004 until May half term 2005.

Tuesday

- 7.1 - 29% unauthorised absences
- 7.2 - 43% unauthorised absences
- 7.3 - 43% unauthorised absences
- 7.4 - 29% unauthorised absences

Tuesday session as a whole – 36% unauthorised absences  
- 64% attendance

Wednesday

- 7.5 – 18% unauthorised absences
- 7.6 – 53% unauthorised absences
- 7.7 – 30% unauthorised absences
- 7.8 – 31% unauthorised absences

Wednesday session as a whole – 32% unauthorised absences  
- 68% attendance

When you compare this to the figures of 40 – 50% attendance across the other participating schools we are doing really well!

### 3. Coaches

To minimise any problems all coaches should be given a 'coaches guideline' sheet (saved on the system). This gives them details of times of all the session,

expectations regarding registers, pupils' behaviour, role of the coach, dealing with any problems.

Over the year there have been some problems with regards to coach attendance and their reliability. If coaches do not turn up then it is best to contact Richard K. immediately. He will then find out why they are not there. If the coach is not going to be there and no suitable replacement has been found, then pupils need to be dispersed into other groups for that session.

At present there is no recording or monitoring system in place within the PE department to focus on coach lateness and non-attendance (Richard probably has records of this). Next year it may be a good idea to put something into place to deal with this, e.g. a coach register.

If any coaches pose any problems then the member of PE staff should deal with them in the first instance to try and resolve things. If this does not work then contact Richard who will be happy to take responsibility for the problem.

This year's reliable coaches have been:  
Dance, netball, table tennis, football, athletics.

Unreliable coaches have been:  
Boxercise (first one), basketball, cricket, hockey.

There are sometimes problems with persistent lateness of the coaches. They need to be made aware that this lateness has a detrimental effect on all the pupils and the smooth running of "Move It", as pupils tend to wander round and get restless. In this situation it is best to disperse pupils amongst other groups after waiting until about 3.20pm. Again let Richard know straight away.

To save time and hassle it would be a good idea to get a number of spare keys cut to each of the main PE areas. This minimises the time that PE staff need to spend running around after the coaches.

#### **4. Good Things**

Pupils are obviously getting involved in a wide range of sports and having new experiences within school.

Attending the session means that less able pupils are more likely to improve in their PE lessons.

There are a lot of pupils attending who would probably not be considered to be particularly "sporty", meaning that everyone is getting an equal opportunity to participate.

Generally the coaches are very good at what they do and are usually a positive influence on the pupils.

Pupils are finding a way through to participation in sport outside of school. This is evident in table tennis and may soon become evident in the future athletics sessions.

#### **5. Bad Things**

It can sometimes be very difficult to monitor attendance. To make this 100 percent effective a member of staff would have to go through all the registers and check if



any pupils were absent from school on a particular day rather than just being absent from "Move It". This is far too time consuming.

### **6. Issue with facilities/Exams**

In winter if the weather is ok then there is more than enough space for the indoor activities.

The boys' gym is completely out of action from May for exams.

GCSE drama performance work did have an impact on our use of the drama studio for the dance session this year. This was actually limited to 1 week in May.

The above issue did cause a problem this year. The only space left to do the dance session was on the stage but this did not really work as it was too distracting having the table tennis group in the same room.

During the exam period the dance session has had to be held in the drama studio due to the girls' gym being needed for boxercise. The size of the drama studio does limit the size of the dance group and the room itself is not very well ventilated and can get very uncomfortable.

Staff meetings can also present a problem. It would be a good idea at the start of the year to check on the dates for all staff meetings and where they are supposed to be held. These usually occur on a Tuesday evening and if held in the hall will present a huge problem for the table tennis group, which is probably the most popular session.

### **7. PE Department Staffing**

Need to have at least 2 members of staff on site for each session, preferably one male and one female. Must supervise the changing rooms at the start and finish of each session to get the pupils off to their groups quickly and to ensure no problems arise. There has been a problem this year of the cleaners leaving the changing rooms unlocked, which has led to pupils' belongings going missing. This needs to be carefully monitored to prevent major problems.

During the sessions it is a good idea to have one staff member based in the office. This gives coaches the option of sending problematic pupils there to be dealt with. The other member of staff should patrol around the groups making sure that everything is running smoothly.

It is the member of staffs' responsibility to hand out the registers to the coaches at the start of each session. When the coach get used to the system they can collect them on their own, although they are not always reliable enough. There is a folder on the system where all registers should be transferred into an overall attendance checklist. This makes it easier to see who is attending and helps when sending out termly letters for non-attendance or when issuing reward certificates.

In order to ensure that staff timetabled to do "Move It" are being used correctly it would be a good idea to draw up an outline of expectations for them. This could detail exactly what they needed to do during the actual session. This wasn't officially carried out this year but most staff time was spent quite well and the staff knew what was expected of them.

### **8. Non-PE staff**

This year there have been a lot of problems with year 7 tutors not reading out the group list to their forms. This causes chaos when pupils come to the first session of each half term and do not know what they should be doing. To try and eliminate this, get the lists to tutors as early as possible and give copies to the Head of Year to follow up.

A lot of period 5 teachers often keep pupils for detention making them late for their "Move It" session. The teachers have been told that they shouldn't be doing this. Make it clear that "Move It" is compulsory, like another lesson. This shows that "Move It" hasn't been fully embraced by the whole school and you may benefit from really pushing it to the staff at the beginning of the new school year and outline its purpose and high expectations.

As mentioned previously there have been problems with the cleaners leaving the changing room unlocked during the sessions.

### **9. Weather**

Bad weather means we only have 4 areas in winter (boys' gym, girls' gym, drama studio, hall) and 3 in summer (girls' gym, hall, drama studio).

We always have at least 6 different sports going on at one time. Luckily the weather has been pretty kind to us this year and we have rarely had to double up 2 groups in 1 space or abandon groups completely.

When the weather is really poor the only real option we have is to double groups up. This year this has been done by putting coaches together in one indoor area with their groups and having them leading half a session each (of their sport) with the other coach there for support and behaviour management. You will need to try and double up groups with similar sports where possible.

The coming of winter also presents the problem of light. During the darkest months the outdoor sessions did have to finish a bit earlier than usual, at around 4.15 – 4.30pm. This didn't create any major problems and pupils and coaches were very adaptable to this.

### **10. Other**

Admin can be a huge burden in "Move It". When you get used to the options system and the names are in place on the computer it does save time. The year 7 pastoral workers have been a great help. The pastoral worker in the winter term (can't remember her name) helped a lot with sorting out registers and letting us know who was continuously missing sessions. Matt is great and will do anything to help. This term he has been given the job of sending out all the letters for non-attendance to parents. He would probably be more than happy to get more involved in this side of things.

Richard K has been very supportive. He is always happy to receive phone calls about anything problematic and will do his best to sort it out straight away. He also really appreciates knowing about all the good stuff that is going on.

The "Move It" council has recently been set up and it is good to see the pupils keen to be involved. Hopefully it will have an impact on all areas of "Move It" as the pupils will feel they are getting a say in things and will think about "Move It" in a more positive way in the future.

Appendix Q School 2 Good Behaviour at “Move It” Letter



Date:.....  
Student Name: .....  
Form: .....

Dear Parent/Carer,

I am extremely pleased with behaviour and effort levels of your son in “Move It” over the last term. He has made a real effort to pursue his focus and good behaviour in all the sessions. He has been well equipped, turning up on time with a positive attitude.

It is important that pupils work hard in “Move It” to encourage and interest them in pursuing exercise and healthy lifestyles in the future. It is clear that your son is becoming an example to others in the year group and he should ensure that he maintains this excellent approach in all future session.

I hope that this will continue and he will carry on achieving high standards. Please celebrate this achievement with your son and reinforce how well he has done in “Move It” over the past term.

Yours sincerely,

Deputy Head of PE Department

Appendix R School 2 "Move It" Attendance Certification



**This is to certify that**

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**has shown dedication to staying fit and  
has participated in the  
Move It Sports Festival 2006**

A handwritten signature in black ink, which appears to read "Barry Gardner". The signature is written in a cursive style with a long, sweeping underline.

MP – Move It Chairman  
28 November 2006

Appendix S SPRING TERM EVALUATION STATISTICS! 2005

Tuesday

Total year 7 students on registers (7.1,7.2,7.3,7.4)

= 124

42 have never been (34%)

23 been to all (19%)

12 been to half (10%)

Wednesday

Total year 7 students on registers (7.5,7.6,7.7,7.8)

= 138

32 have never been (23%)

41 been to all (30%)

21 been to half (15%)

Thursday

Total year 8 students on registers (8.1,8.2,8.3,8.4)

= 102 **(NB)**

34 have never been (34%)

14 been to all (14%)

13 been to half (13%)

Friday

Total year 8 students on registers (8.5,8.6,8.7,8.8)

= 138

37 have never been (27%)

23 been to all (17%)

18 been to half (13%)

**\*\*NB-** Thursday statistics do not include those for table tennis as the registers are inconsistent (numbers for table tennis include: 24 students only)

Appendix T School 2 Attendance Report 2005

Tuesday

Total year 7 students on registers (7.1,7.2,7.3,7.4) = 124

42 have never been (34%)

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**\*\*NB-** Thursday statistics do not include those for table tennis as the registers are inconsistent (numbers for table tennis include: 24 students only)

Appendix U Weekly active participation figures Sport England 2010

Sport England NGB 09-13 Funded sports	APS2 (Oct 2007-Oct 2008)		APS3 (Oct 2008-Oct 2009)		APS4 (Oct 2009-Oct 2010)		
	%	n	%	n	%	n	Statistically significant change from APS 2
Swimming	7.83%	3,244,300	7.57%	3,162,400	7.50%	3,156,300	Decrease
Football	5.18%	2,144,700	5.08%	2,122,700	4.96%	2,090,000	Decrease
Athletics	3.89%	1,612,100	4.16%	1,739,700	4.45%	1,875,500	Increase
Cycling	4.26%	1,767,100	4.50%	1,880,000	4.43%	1,866,300	Increase
Golf	2.29%	948,300	2.15%	897,600	2.04%	860,900	Decrease
Badminton	1.29%	535,700	1.29%	539,400	1.24%	520,900	No Change
Tennis <sup>1</sup>	1.18%	487,500	1.27%	530,900	1.04%	437,500	Decrease
Equestrian	0.82%	341,700	0.82%	341,500	0.80%	337,800	No Change
Squash	0.71%	293,900	0.72%	299,500	0.69%	290,100	No Change
Bowls <sup>2</sup>	3.40%	277,800	3.07%	254,400	2.92%	246,600	Decrease
Rugby Union <sup>3</sup>	0.56%	230,300	0.50%	207,500	0.46%	194,200	Decrease
Cricknet	0.49%	204,800	0.49%	206,600	0.41%	171,900	Decrease
Basketball	0.45%	186,000	0.46%	193,100	0.36%	151,800	Decrease
Netball	0.29%	118,800	0.32%	133,500	0.34%	145,200	Increase
Boxing	0.26%	106,800	0.29%	121,400	0.28%	117,200	No Change
Mountaineering <sup>4</sup>	0.21%	86,100	0.20%	83,700	0.26%	111,300	Increase
Snowsport	0.29%	120,600	0.26%	106,800	0.25%	104,500	Decrease
Hockey	0.24%	99,800	0.23%	95,700	0.21%	86,800	Decrease
Table Tennis <sup>5</sup>	0.18%	75,600	0.20%	85,600	0.20%	86,200	No Change
Weightlifting	0.29%	118,400	0.28%	116,000	0.18%	77,600	Decrease
Sailing	0.22%	89,900	0.20%	83,000	0.15%	65,100	Decrease
Rugby League <sup>3,6</sup>	0.20%	82,000	0.15%	63,000	0.12%	52,300	Decrease
Canoeing	0.10%	43,500	0.15%	62,900	0.12%	51,100	No Change

[http://www.sportengland.org/research/active\\_people\\_survey/active\\_people\\_survey\\_4.aspx](http://www.sportengland.org/research/active_people_survey/active_people_survey_4.aspx)

Pivotal to Sport England's 2008-11 strategy is the funding and delivery of national governing bodies of sport (NGBs). NGBs contribute to Sport England's strategic goals by setting targets to increase the 'once a week' adult participation rates in their sport.

For individual sports, participation is defined as the number of adults (age 16 plus) who have taken part in the sport at moderate intensity for 30 minutes or more at least once in the last week (at least four days out of the previous 28 days).

In the period between 2007/8 (Active People Survey 2) and 2009/10 (Active People Survey 4), four sports (athletics, cycling, netball, and mountaineering) show a statistically significant increase in participation rates:

Participation in athletics (including running and jogging) has grown from 1.612 million adults (3.9%) in 2007/8 to 1.876 million adults (4.5%) in 2009/10, an increase of 263,400 participants.

Cycling has grown from 1.767 million adults (4.3%) in 2007/8 to 1.866 million adults (4.4%) in 2009/10, an increase of 99,200 participants.

Participation in netball has grown from 118,800 adults (0.29%) in 2007/8 to 145,200 adults (0.34%) in 2009/10, an increase of 26,400 participants.

Mountaineering has grown from 86,100 adults (0.21%) in 2007/8 to 111,300 adults (0.26%) in 2009/10, an increase of 25,200 participants.

19 sports have seen a statistically significant decrease in weekly participation rates between 2007/8 and 2009/10 –swimming, football, golf, tennis, bowls, rugby union, cricket, basketball, snowsport, movement & dance, hockey, weightlifting\*\*, sailing, rugby league, gymnastics, rowing, volleyball, rounders, and fencing (the figure for bowls refers to participants aged 65 and over participating for at least 30 minutes at any intensity).



Appendix V The final word

Reading a 1934 mystery novel (Kitchen, 1934), I came across a passage that, uncannily, describes the processes of an investigative study such as this. It pleases me to share this in conclusion of my personal reflections.<sup>4</sup>

Q: One question, Inspector. I can't keep it back. Have you really solved the mystery?

A: In a sense, yes. That is to say, I am sure I understand its broad outlines. I realise all the principal motives, the *participants* on which those motives acted, and the main opportunities presented to those *participants* for *sport*. I am still in the dark as to some of the mechanism – perhaps, indeed, some of these details will never be fully known – and I still have some tests to make in the hope of strengthening the weaker links in my chain of evidence. But, taken as whole, the case is over.

Q: Will the result, when I come to learn it, be a great shock to me?

A: That depends on what you are really thinking – and how shockable you are!

(Kitchin, 1934, p.236)

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<sup>4</sup> Passage from Kitchin, (1934, p.236). Words in italics are inserted by the researcher.