THE EDUCATIONAL BENEFITS CLAIMED FOR PHYSICAL EDUCATION AND SCHOOL SPORT: AN ACADEMIC REVIEW

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PREFACE

These are interesting times to be working in Physical Education and School Sport (PESS). 2004 was designated the European Year of Education through Sport, and 2005 was named the United Nations' International Year of Physical Education and Sport. In the United Kingdom, 2002 saw the emergence of the well-funded Physical Education, School Sport and Club Links (PESSCL) strategy that involved a number of initiatives aimed at raising levels of participation. The separate nations have gone on to promote the subject within their own contexts, such as England's Public Service Agreement aimed at increasing the percentage of children spending a minimum of two hours each week on 'high quality' PESS, and Scotland's decision to train specialist teachers for Primary Schools.

Implicit within these policies and initiatives is a view that, in some way, PESS has significant and distinctive contributions to make to children, to schools, and to wider society. What are these contributions? Advocates have listed numerous positive outcomes associated with participation in PESS. For example, the International Council for Physical Education and Sport Science claims that PESS helps children to develop respect for the body – their own and others', contributes towards the integrated development of mind and body, develops an understanding of the role of aerobic and anaerobic physical activity in health, positively enhances self-confidence and self-esteem, and enhances social and cognitive development and academic achievement (ICSSPE, 2001). In a similar vein, a Council of Europe report suggests that PESS provides opportunities to meet and communicate with other people, to take different social roles, to learn particular social skills (such as tolerance and respect for others), and to adjust to team / collective objectives (such as co-operation and cohesion), and that it provides experience of emotions that are not available in the rest of life (Svoboda, 1994).

The aim of this Academic Review is to examine such claims by reviewing critically their empirical and theoretical bases. So many claims have been made over the years for the benefits of PESS, and in such confident tones, that an innocent observer might assume that the case has been made conclusively, and that there is little more to be said on the matter. A valuable service that academics can provide, in this regard, is to ask some searching questions about the nature and validity of these statements. In other words, we can seek to distinguish between advocacy rhetoric and scientific evidence. This, we suggest, is a vital and timely task.

We have adopted a framework for this review made up of four broad domains: physical, social, affective and cognitive. Analysis of these domains is preceded by an historical overview where

it becomes clear that these are the benefits claimed for PESS. domains which have tended to dominate discussions about outcomes and justifications for PESS. They also encapsulate the main aims for the subject as stated within national and regional curricula around the world, and reflect the stated aspirations of recent UK policies such as PESSCL and Every Child Matters. In each case, we have sought to gather and analyse the available evidence, primarily from peer-refereed scholarly literature. Whilst we feel confident that a rigorous and fair Academic Review will be of value of our peers working in PESS in the United Kingdom and elsewhere, we have been particularly keen to make it accessible and useful to students and academics without a specialist knowledge of the field. To this end, we have tried to avoid the use of unnecessary technical language.

We ought to acknowledge from the start that our decision to use the phrase 'Physical Education and School Sport' (abbreviated as 'PESS' throughout this review) was not taken lightly. The language of our subject is a conceptual minefield, and articles continue to be published arguing about the relationships that might or might not exist between 'Physical Education', 'sport', 'physical activity', and so on. This problem is heightened by the fact that considerable differences exist between the uses of terminology in different educational systems (and sometimes within systems). So, our solution in this case has been to use PESS as an inclusive, generic descriptor for those structured, supervised physical activities that take place at school, and during the (extended) school day. Where we draw on data that does not relate to this specific usage of the term PESS, we indicate accordingly in the text.

We are fortunate to be members of a large and diverse Special Interest Group - Physical Education and Sport Pedagogy – and we were eager to draw on the vast range of expertise and interests within it. This is reflected in the way we have undertaken this task and, we hope, in the final product. While certain individuals have led the authoring of specific sections, all drafts have been read and critiqued by other members of the group. This is a process that has taken place throughout the writing period (2005/6), and that culminated in an intense final review during the SIG's 2006 'Invisible College', which preceded the main BERA conference. Importantly, no claim is made that this Academic Review is 'the last word' on the claimed educational benefits of PESS, nor that all claims have been identified or analysed. We acknowledge many limitations and omissions, but the word limit necessitated some selection of material. However, our hope is that this Review inspires further discussion and debate within the PESS community and beyond. To that end, the Review ends by identifying a series of challenges for the PESS research community.

1 - HISTORICAL PERSPECTIVES

The purpose of this opening section of the Academic Review is to track the emergence of claims made for the benefits of PESS over the past 90 years, and to highlight their different manifestations during this period. The 1909 *Syllabus of Physical Exercises* was one of the earliest official syllabi produced by the Board of Education. It mapped out, with great clarity, the contribution PESS was expected to make to the educational development of children, and the benefits identified have endured for just short of a century. Moreover, the Syllabus marked the beginning of the production of a series of syllabi, culminating in the influential 1933 Syllabus (known universally as 'The Green Book') (Board of Education, 1933), and so it is a useful point of reference within the official discourse of PESS to begin to discuss the educational value of PESS from an historical perspective.

The 1909 Syllabus outlined two main effects of physical training: the physical and the educational. The physical effect was three-fold, according to the Syllabus writers. It was manifest in benefits to general health through efficient functioning of the body, remedial benefits such as correcting poor posture, and developmental benefits in terms of assisting the natural pattern of growth of the child. The educational effect was, in the writers' view, primarily moral and mental. This involved the inculcation of habits of self-discipline and order, and the allied qualities of concentration, manual dexterity and determination. The Syllabus writers claimed that, properly taught, physical exercises should be a means of fostering a joyous spirit, a healthy outlet for emotions and a source of aesthetic sensibility. However, as will become clear through this review, claims made for the benefits of PESS have changed over time, as new circumstances have shaped the priorities of educationalists and the perceived needs of society and of children.

Claimed health benefits provide a good example of changing perceptions about the needs of children and society. Health, as a claimed physical benefit of PESS, had been noted prior to the publication of the 1909 Syllabus and has been prominent in claims ever since, though the nature of these claims shifts significantly over time. From the 1850s, the health benefits of PESS were couched in general and mainly functional terms (Kirk, 1992). In this period, exercise was viewed as one of four elements contributing to health, the other three being nutrition, sanitary conditions and clean air (Thomson, 1979). Indeed, there was much debate around the turn of the century about the detrimental effects of exercise on children who were malnourished and 'over-pressured' by their internment in school for up to eight hours per day. Sound physique and the absence of physical 'defects' were viewed, in particular, as evidence of a health benefit of PESS.

Indeed, a robust physique and a general physical capacity to move efficiently became the pinnacle of the expression of the physical effect of PESS by the time of the publication of the 1933 Syllabus. These effects were expressed explicitly in the notion of good posture, and the 'posture recorder' was to remain a key tool of the physical educator until well into the 1950s. However, the general notion of the physical effect of PESS expressed in the 1933 Syllabus, and in particular the relationship between exercise and health, was soon to be overtaken by advances in scientific study stimulated in part by the Second World War (McIntosh, 1968) and the need to produce soldiers from conscripted civilians. This need imparted urgency to the already emerging work of scientists such as De Lorme in the US on the uses of progressive overload to assist in the rehabilitation of patients with muscular disabilities (Kirk, 1992).

In the postwar period until the early 1970s, physique and posture as the focus for the health benefits of PESS were replaced by a concern for physical fitness. A number of initiatives popularised the notion of physical fitness, including the already existing mass 'Keep Fit' movement for women and circuit training developed by Morgan and Adamson (1961) in Leeds during the 1950s. This notion of the health benefits of PESS remained influential well beyond the postwar period, though it was supplemented from the early 1960s in the US, and increasingly elsewhere by the 1970s, with the notion that physical activity could play a part, not in curing disease, but at least in ameliorating the effects of what were perceived to be increasingly sedentary lifestyles among citizens of western countries.

This concept of the health benefits of PESS is exemplified in the Hindmarsh Experiment, a study of daily PESS in an Adelaide primary school in the late 1970s (Tinning and Kirk, 1991). One of the interesting outcomes of this study was the claim that children in the experimental group who spent more time on PESS than those in the control group nevertheless scored as well as the control group on academic tests. The Hindmarsh scientists drew on several studies to support this claim, including a 1950s study in the French town of Vanves that reported, over a twenty-year period, enhanced academic scores for pupils on increased regimes of physical activity and nutritious food.

The notion that PESS can assist in the prevention of the undesirable outcomes of sedentariness has, currently, become firmly established as health benefit. It is important to note, at the same time, that the earlier concern for physique has not completely subsided. However, the contemporary focus of concern around children's body shapes and, in particular, on overweight and obesity is in sharp contrast to the concern at the turn of the twentieth century for the malnourished and defective body of the child (Gard and Wright, 2001).

From the 1950s, as sport began to emerge as a medium for mass participation in physical activity, the physical benefits of PESS became associated increasingly with the development of physical skills (Munrow, 1955), or perceptual-motor skills (Knapp, 1963). Throughout the period from the 1950s until the present, the development of skill in PESS has been directly associated with the fundamental movement competencies required to play sport and engage in other physical pursuits such as swimming. Despite attempts to balance a concern for the development of sports technique with tactical and decision-making aspects of sport through curriculum models such as Teaching Games for Understanding (Bunker and Thorpe, 1982), this focus on physical skills development has generated a research literature of its own, often conceptualised in the notion of fundamental movement skills.

The 1909 Syllabus has little to say about the social benefits of PESS beyond the educational effect of instilling discipline and order among groups of children, and qualities of obedience and perseverance in individuals. While the social benefits of PESS were seldom stated bluntly in syllabi, they were nevertheless extremely influential in persuading policy makers and politicians that there should be PESS in schools. It should be recalled that in 1909, compulsory attendance at school had barely been in force for thirty years and the need for social order was paramount if schools were to function. The potential for systems of physical exercises such as Swedish gymnastics to have a regulative effect was not missed by policy makers, who understood very clearly that working on children's bodies in very precise ways could reinforce discipline and obedience (Kirk, 1998). The fact that such exercises were also in use in the armed forces, and that PESS at this time had a strong militaristic flavour, confirms that social regulation was an explicit, if unstated, anticipated benefit. Beyond the need for social order in the classroom, a further anticipated social benefit was that physical exercises helped to produce good workers among the males and good mothers among the females.

Running parallel with this social order use of physical exercises in government schools was the emerging games ethic of the private schools (Mangan, 1986). The claimed social benefit of games was that they developed leadership qualities, team spirit, deferred gratification and character. The games ethic was confined to the middle and aspiring upper classes from the mid-1800s until the 1950s, when with some subtle modifications it was transplanted into the growing number of government secondary schools produced by the raising of the school leaving age to fifteen after the Second World War. Relocated from the privileged classes to the masses, the games ethic was

viewed as a means of preventing delinquent behaviour by channelling errant energy into play-like activities.

The notion that games might prove to be an antidote to anti-social behaviour among working-class boys had been evident in government policy-making circles in Britain from at least the 1920s (Kirk, 1992). The creation of the National Playing Fields Association in the mid-1920s and the Central Council for Physical Recreation in the late 1930s is evidence of the growing conviction among philanthropists and social policy makers that the social benefits that games appeared to bestow on private school boys (and to a lesser extent) girls could also be experienced by working-class youth. The Wolfenden Report of 1960 on Sport and the Community was a clear expression of the anticipated social benefits of games for working-class children. It also displays the Committee's puzzlement that when given the opportunity to play games, working-class youth did not appear to want to take it.

The Wolfenden Report did much to influence government policy of the time, with both the Labour and Conservative parties producing manifestos that gave a prominent role to games and sport more generally as a social good for all. These reports did much to confirm the notion that sport can be a common denominator for people who otherwise are from different social classes, or even from different nations. The same faith in the power of sport (and by implication PESS) to be a force for social good is expressed in quite explicit form in a number of more recent government reports dating from the mid-1990s to the present.

Although early forms of PESS (for example the regimented system of Swedish gymnastics) developed a reputation for being oppressive and far from fun, the 1909 Syllabus is quite clear that even this kind of PESS had important affective benefits as part of the educational effect. Not only should physical exercise develop a 'cheerful and joyous spirit', it should also provide an outlet for the expression of emotion. Exercises done with precision and immaculate timing could, the writers claimed, be a source of aesthetic experience both for the participant and the spectator. Within the private school tradition, games were supposed to be a source of enjoyment for participants. Enjoyment has remained as a ubiquitous though rarely theorised benefit of sports-based PESS up to the present time.

Criticism of the prevailing system of Swedish gymnastics that underpinned much of the early PESS resulted in a shift to a less precise, more 'natural' form of movement experience in the form of educational gymnastics and dance. The work of Rudolf Laban was developed from the 1930s by female gymnasts, who at this time made up the majority of professional physical educators in Brit-

ain. By the early 1950s and the publication of *Moving and Growing* (Ministry of Education, 1952) PESS in primary schools and for girls in particular was being transformed. Emotional growth and expression were among the main benefits claimed for educational gymnastics, and the aesthetic experience was central to 'movement education' as it was now being called. In making these claims, the women physical educators called into question many of the former priorities of PESS, particularly the physical and social benefits. In so doing, they met considerable resistance from their male colleagues who were growing in numbers following the Second World War and the rapid increase in government secondary schools (Kirk, 1992).

As a consequence of these developments through the 1950s and 1960s, and notwithstanding the ubiquitous claims for enjoyment and sports participation, the affective benefits of PESS were very much associated with educational gymnastics and dance and the education of girls and small children. More recently, the influence of educational and sports psychology has given some physical educators licence to claim that there are affective benefits of other forms of PESS in addition to educational gymnastics and dance. In sport and other contexts such as adventure education, the affective benefits claimed tend to be expressed by concepts such as motivation, anxiety and confidence.

In education systems that have given pride of place to intellectual qualities developed through academic study, PESS has often been viewed, for example in the words of the 1977 Munn Committee Report in Scotland, as a 'non-cognitive' subject (Scottish Education Department, 1977). In this context, it has been very difficult for physical educators to be taken seriously if they wish to claim that there are cognitive benefits from participating in physical activities. Indeed, some have argued that the push towards examinations and associated academic study in secondary school PESS merely confirms the point that engagement with physical activity, by itself, has little or no educational benefit in terms of developing cognition. Nevertheless, physical educators have at various times been clear and firm in their claims that there are cognitive benefits to be gained from PESS. The 1909 Syllabus writers stated that the educational effect of physical training was both moral and *mental*. What they meant by use of the term 'mental' was that in the process of learning physical skills, memory is developed. Learning to perform physical activities demands concentration and requires the learner to be disciplined in a similar way to scholars of other subjects.

The daily PESS studies in Vanves, Trois Riviers and Hindmarsh are among the few that have sought to address explicitly the cognitive benefits of PESS. In each case, daily PESS displaced the study of academic subjects (Tinning and Kirk, 1991). In the Hindmarsh study, the claim was made

that even when up to 90 minutes per day was spent on PESS, pupils performed at least as well in their academic subjects as those who had not received the enhanced PESS. It is important to note that the claim made here for cognitive benefits is not that more PESS enhances cognition, but rather more defensively that it does not harm cognition. This important nuance has often been missed by physical educators and others who, since the late 1970s, have been keen to explore the more positive cognitive benefits that may derive from PESS.

2 - PHYSICAL BENEFITS

Without doubt, there is a broad understanding that the distinctive contribution PESS makes to a child's education is within the physical domain. It has been noted above that the nature of the physical focus of PESS has shifted over time, moving from an initial health-related rationale in the first half of the twentieth century to more performance-related considerations following the Second World War, to concerns about the health impact of sedentary behaviours more recently. In the UK, the move towards performance-related PESS came about primarily as a result of a heated debate between those holding a scientific motor learning understanding of PESS and those following the more cognitive and expressive movement education approach (Kirk, 1992). Interestingly, the limited research being undertaken at this time focused on how teachers could facilitate children's motor skill learning, that is, how they could help children perform better. Most of this research was positivist, reductionist and largely removed from the specific PESS context and made little impact upon teaching practice in schools (Nixon and Locke, 1973). Since those early research days, the awareness that the teaching and learning process is more complex and situation-specific has resulted in more studies investigating broader educational objectives employing constructivist and situated learning paradigms (Rovegno, 2006) and often considering the ecological setting in which learning is taking place (Hastie, 2006).

During the 1980s discourse related to PESS returned to physical health, although health was now considered from an holistic perspective and linked to psychological constructs such as motivation and personal perceptions (Fox and Biddle, 1988). The initial impact of somewhat confusing health-related exercise/ health-related activity/ health-related fitness approaches (Cale and Harris, 2005) was limited, although a number of health-related daily PESS programmes did emerge in Australia and Scotland, although they proved to be unsustainable (Kirk, 1991; Pollatschek and O'Hagan, 1989). It was not until the mid-1990s that a number of key events moved matters forward. The main catalyst was a series of robust, longitudinal studies that identified the importance of regular physical activity across the lifespan (United States Department of Health and Human Services, 1996). Physical activity emerged as an important public health issue and has remained in the political spotlight ever since (HEA, 1998; Scottish Executive, 2003). Moreover, with adult physical inactivity continuing to be a concern and attempts to rectify this situation being at best equivocal (King *et al.*, 1998; Sevick *et al.*, 2000), the role of PESS in promoting engagement in lifelong physical activity has become widely accepted (Green, 2002; Penney and Jess, 2004). At one level, this is surprising because the evidence of significant physical benefits for young people from physi-

cal activity is limited (Biddle *et al.*, 2004; Cale and Harris, 2005). For example, there is evidence of a clear link between childhood physical activity and bone strength, with its potential impact on osteoporosis later in life (Bass, 2000; MacKelvie *et al.*, 2002). However, the relationship with cardiovascular disease risk factors is less apparent, with physical activity seemingly having little impact on children's blood pressure (Tolfrey *et al.*, 2000) or blood lipid levels (Despres *et al.*, 1990). It has been suggested that this may, in part, be due to the fact that many young people are already healthy and that most disease end points appear later in life (Biddle *et al.*, 2004). In addition, the role PESS can play in combating the well-documented increase in childhood obesity (Baur, 2001; Reilly and Dorotsky, 1999) is unclear. There is some cross-sectional evidence that physical inactivity is linked to the development of obesity (Steinbeck, 2001) but, as yet, studies investigating the role of physical activity in childhood obesity have been 'uninspiring' (Biddle *et al.*, 2004).

Nevertheless, if children are less active than they ought to be, for example it is claimed they are expending less energy than their counterparts 50 years ago (Boreham and Riddoch, 2001), then this explains why the case for lifelong physical activity behaviours beginning early in life is now widely accepted (Trost, 2006). Much, however, still needs to be done. It is argued that not only are children less active than before but their physical activity levels decrease, often markedly, as they move into and through adolescence (Armstrong *et al*., 1990), with boys usually more active than girls (Cale, 1996) and some degree of polarisation being seen between those who are active and those who are inactive (Cavill, 2001). Interestingly, high levels of adolescent physical fitness (aerobic capacity, strength, flexibility and body composition) appear to relate to positive adult cardiovascular health profiles (Boreham *et al.*, 2002; Janz *et al.*, 2002; Twisk *et al.*, 2002). However, evidence that PESS experiences set the foundation for lifelong physical activity is scarce (Trudeau *et al.*, 1999), with recent studies revealing limited tracking of physical activity patterns from childhood through the adolescent years (Trost, 2006). Data of this sort have important implications for PESS. Yet, whereas it would appear that focusing on physical fitness may be a productive focus for PESS, from a behavioural perspective, it has also been suggested that young people need to gain the appropriate knowledge, understanding and behavioural skills to ensure physical activity becomes a regular part of their daily life (Fairclough and Stratton, 2005).

An important outcome of increased attention on physical activity/inactivity has been the development of age-appropriate national physical activity guidelines for children, youth and, more recently, pre-school children (HEA, 1998; NASPE, 1995, 2002). From a PESS perspective it has become important to realise that children are sporadic and transitory in their physical activity be-

haviour and, therefore, 'do activity in different ways than adults' (Corbin, 2002, p. 132). As such, the key recommendation is the accumulation of at least one hour of physical activity per day (less for inactive children) and, as a secondary recommendation, twice-weekly strength and flexibility activities. Critically, the guidelines recommend that the physical activity performed can be of a general nature as opposed to a planned exercise regime, can be accumulated in different ways and can vary in type, setting, intensity, duration and amount. For many young people it is important to highlight that this physical activity does not need to be strenuous, but of at least moderate intensity, such as brisk walking.

The impact of this guidance on school PESS programmes appears to be, as yet, limited (Cale and Harris, 2005). This may be, in part, because contemporary PESS continues to be organised around short taught 'blocks' of a limited range of physical activities, particularly team games, which are not necessarily lifelong activities (Fairclough *et al.*, 2002; Sport England, 2001; Trost 2006). Indeed, from the viewpoint of establishing a secure foundation for engagement in physical activity, it is likely that educational and psychological approaches will have a greater long-term impact than focussing on the amounts of physical activity accumulated in PESS classes or from specific fitness programmes.

Another emerging feature of the lifelong activity discourse is the contention that PESS should help all children acquire the basic movement foundation needed to access a wide range of physical activities across their lifespan (Jess and Collins, 2003; Welk, 1999). It has been proposed that without this foundation, children will find it difficult to pass through the 'proficiency barrier' from the simple activities of the early years to the more complex activities of later childhood and beyond (NASPE, 1995; Scottish Executive, 2003; Seefeldt, 1979). Simply put, children unable to catch a ball efficiently will find it difficult to participate successfully in physical activities that require catching. Over the years, however, there has been a prevailing belief that children's basic movement foundations develop naturally through maturation, and this has resulted in few new developments in early years PESS (Gallahue and Ozmun, 1998). Subsequently, studies, mostly in the US and Australia, reported low levels of basic movement skills in children, with differences between boys and girls being low to moderate, only changing after puberty when boys tend to outperform girls (e.g., Booth *et al.*, 1998; Cooley *et al.*, 1997; Okley and Booth, 2004; Reuchslein and Vogel, 1985; Ross *et al.*, 1985; Thomas and French, 1985; Walkley *et al.*, 1993).

Within the PESS profession there is now a much better understanding that immature movement patterns emerge in early childhood, progress through a transitional phase before reaching an

efficient, mature pattern in late childhood that helps children to pass through the *'proficiency barrier'* (Gallahue, 1982; Roberton and Halverson, 1984; Seefeldt and Haubenstricker, 1982; Wickstrom, 1977). Moreover, in ecological approaches to motor learning research contemporary studies have revealed consistently that mature movement patterns are influenced not only by maturation but also by environmental factors including equipment, cue information and feedback, thus refuting the 'it happens naturally' misconception (Goodway *et al.*, 2002; Langerdorfer and Roberton, 2002; Southard, 2002; Whitall, 2003). In addition, studies investigating the relationship between basic movements and physical activity participation have found that the total time young children are involved in moderate to vigorous physical activity appears to influence positively movement skill development (Fisher *et al.,* 2005). Furthermore, the level of basic movement skills in adolescents significantly predicts the time they are involved in organised physical activity (Okely *et al.*, 2001).

Evidence of this sort is beginning to have an influence on PESS programmes in many parts of the world (Alberta Learning, 2002; Gallahue and Ozmun, 1999; Graham *et al.*, 2001; NASPE, 1995; State of Victoria, 1996). However, whilst the PESS profession in the UK has long advocated the need to focus on basic movement competence (Bailey and Macfadyen, 2000; Laws, 1996; Scottish Executive, 2004), changes to the traditional games, gymnastics and dance activities of school curricula have been slow, despite some localised exceptions (Jess *et al*., 2004).

In conclusion, claims made for the physical benefits of PESS have been important throughout history, but their nature has changed. Recent research findings on the importance of establishing secure movement foundations for participation and performance, together with the health imperative to engage young people in lifelong learning for lifelong engagement in physical activity, are resulting in gradual changes to PESS programmes. What seems clear is that further research is required to establish the precise nature of physical benefits accruing from involvement in different forms of PESS provision.

3 - SOCIAL BENEFITS

It is claimed that purposeful engagement in PESS has the potential to engender in young people positive social behaviours (such as co-operation, personal responsibility and empathy) and to address a number of contemporary social issues relating to problematic youth behaviour, such as depression, crime, truancy and alcohol or drug abuse (Burt, 1998; DCMS, 1999; Hellison *et al.*, 2000; Lawson, 1997; QCA, 2001). Indeed, researchers have suggested that it is the social and educational processes inherent in PESS participation, and not the activity type *per se*, that are the vital elements in effecting behavioural change (Danish, 2002; Long and Sanderson, 2001; Sandford *et al.*, 2006). Thus, it is argued, the value of PESS lies in the acquisition and accumulation of various personal, social and socio-moral skills which, in turn, can act as social capital to enable young people to function successfully (and acceptably) in a broad range of social situations (Bailey, 2005). In essence, the claims made for the social benefits of PESS centre on developing young people's abilities to interact positively with others which can, as a consequence, result in wider gains for themselves, their schools and communities.

Discussion on the claimed social benefits of engagement in PESS is founded largely on the belief that the nature of physical activity renders it a suitable vehicle for the promotion of personal and social responsibility and the development of pro-social skills (Martinek and Hellison, 1997; Miller *et al.*, 1997; Parker and Stiehl, 2005). The social element of participation and, more specifically, the need for individuals to work collaboratively, cohesively and constructively, is believed to encourage (and necessitate) the development of a number of skills such as trust (Priest, 1998), a sense of community (Ennis, 1999), empathy (Moore, 2002), personal and corporate responsibility (Priest and Gass, 1997) and cooperation (Miller *et al.*, 1997). Moreover, there is a belief that such skills can function as a form of social capital for individuals, and help them to develop resiliency against difficult life circumstances (Bailey, 2005; Goodman, 1999; Hellison, 1995). Recently, the potential of PESS in this respect has gained increasing support within government policy discussions, as it is recognised that there is a capacity for the subject to contribute to both the relational (concerning an individual's need for belonging and acceptance) and functional (concerning the enhancement of knowledge and skills) dimensions of a social inclusion agenda (Bailey, 2005; Collins *et al.*, 1999; Donnelly and Coakley, 2002). It is important to note, however, that the role of the PESS teacher is recognised as central to the social learning process. It has been suggested, for example, that teachers and leaders who are respectful, fair and honest are particularly well placed to

act as positive role models (and models of positive behaviour) for the young people with whom they work (Martinek and Hellison, 1997; Nichols, 1997; Parker and Stiehl, 2005).

The notion that PESS provides appropriate settings for the promotion of young people's social development (Lawson, 1999) has led to the formation of a number of programmes aimed at using various forms of physical activity to re-engage disengaged pupils, improve behaviour within schools, and encourage the development of positive skills and attributes. These include (within the UK) elements of the Positive Futures programme, the Connexions service and New Opportunities Fund, as well as a plethora of corporate-sponsored initiatives. Curriculum-based initiatives have also been designed to teach young people in the broad sphere of socio-moral education, such as Sport Education (Siedentop, 1994), the Teaching Personal and Social Responsibility model (Hellison, 1995), Sport for Peace (Ennis, 1999) and the Cultural Studies curriculum (Kinchin and O'Sullivan, 2003). Moreover, with roots in the experiential approach of John Dewey and the early work of the Outward Bound movement, PESS curricula based around adventure education and outdoor education are increasingly seen as a means of promoting pupils' personal and social development (Dyson and Brown, 2005; Hattie *et al.*, 1997; Stiehl and Parker, 2005). The key value of programmes such as these is that they incorporate alternative methods of instruction, include an emphasis on both personal challenge and cooperative group work and, significantly, attempt to increase connectivity within the curriculum by highlighting relevance to life beyond school (Penney and Chandler, 2000).

The high level of interest in the developmental potential of physical activity/ PESS programmes, and accompanying claims made about the social benefits for young people, have led to questions about the nature of the evidence supporting such claims. This has resulted in the commissioning and publication of a number of key reports and literature reviews in the area (Coalter *et al.*, 2000; DCMS, 1999; Long *et al.*, 2002; Steer, 2000). Certainly the research has provided some support for the social benefits that can accrue from PESS, particularly in relation to the development of skills such as cooperation, teamwork, empathy and a sense of personal responsibility (Ennis, 1999; Wright *et al.*, 2004). In addition, there is some evidence to suggest that physical activity/PESS programmes can help to improve pupils' attendance, behaviour and attitude within school (QCA, 2001; Sandford *et al.*, 2004) as well as reduce their engagement in anti-social or criminal behaviour (Andrews and Andrews, 2003; Cameron and MacDougall, 2000). For example, the latest report from the evaluation of the Positive Futures programme initiative reports that 50 per cent of project partners identified lower levels of drug use among participants as a result of the programmes, with 76

per cent reporting a fall in anti-social behaviour, and 68 per cent reporting a fall in crime (Home Office, 2006). However, while these findings are positive, researchers have generally found that inconclusive evidence usually prevents firm conclusions from being drawn about the precise impact of youth development programmes (e.g. Morris *et al.*, 2003; Nichols, 1997). Perhaps, therefore, it is not surprising to find that most assertions about impact come heavily qualified in relation to individual and contextual factors (Sandford *et al.*, 2006).

The uncertainty over impact can be seen to stem, in part, from a lack of credible monitoring and evaluation, identified as being a fundamental failing within many physical activity initiatives conducted to date (Morris *et al.*, 2003; Steer, 2000). In particular, authors have pointed to a lack of large-scale, long-term evaluations of programmes (Collins *et al.*, 1999) and have noted that this has contributed to the lack of data regarding the sustainability and transferability of impact (Sandford *et al.*, 2006). Moreover, it can be seen to reflect a lack of agreement over what constitutes 'evidence', and whether anecdotal accounts of an individual's progress can represent credible data (Long *et al.*, 2002). For example, it has been noted that evaluations of physical activity programmes often adopt a qualitative, case-study approach, based on small sample sizes and relying on the accounts of those responsible for delivering the initiative to determine the perceived influence on participants (Bailey, 2005; Long *et al.*, 2002). Researchers have also commented on the difficulties of determining causal relationships between participation in a programme and positive impact, noting that it is not always possible to know what other intermediate processes have been at work (Coalter, 2002a; Granger, 1998; Maxwell, 2004).

Despite a lack of consensus over the precise nature of impact, there remains a strong belief that enough evidence exists to point to the potential for PESS to result in positive social benefits (Long and Sanderson, 2001). Indeed, the research conducted to date has provided a wealth of information on environmental and contextual factors that facilitate positive experiences for young people in physical activity programmes (within and outside school). These include: having credible leadership for programmes (Martinek and Hellison, 1997), involving young people in decision making (Andrews and Andrews, 2003), emphasising the significance of social relationships (Shields and Bredemeier, 1995), and ensuring that there is an explicit focus on learning processes (Sandford *et al.*, 2006). As Coalter (2002b) points out, sharing examples of good practice such as these is a useful way of informing the development of future initiatives

Yet although we know much about good practice, there are still many things that remain unclear. In particular, there is a need for a greater understanding of the precise mechanisms that result

in PESS/physical activity programmes leading to improved social behaviour, a reduction in crime and social inclusion (Bailey, 2005; Coalter, 2002). In other words, there is a need to determine not only the *product* of participation but also the *process* of change. In addition, we need to know more about how the benefits observed can be attributed to a particular initiative, or how other factors influence impact. As Long *et al.* have noted, 'few people doubt that such projects can produce social benefits … the question is to what extent they occur and whether it rises above pure happenstance' (2002, p. 3). However, gathering such evidence would require adjustments to the design of future PESS programmes (Coalter, 2002) and the incorporation of credible evaluation research strategies (Armour *et al.*, 2006).

4 - AFFECTIVE BENEFITS

The affective domain is difficult to define, owing to its subjective, imprecise and personal nature (Pope, 2005). 'Affective' is generally seen as synonymous with psychological and emotional well-being and encompassing a range of assets that include mental health, positive self-regard, coping skills, conflict resolution skills, mastery motivation, a sense of autonomy, moral character and confidence (National Research Council and Institute of Medicine, 2002). Such aspects of the affective domain overlap with the social domain, especially when a focus is placed on socio-moral development, an area where sport has historically been held in high regard for its character-building potential (Holt, 1989; Mangan, 2000). Components of the affective domain also include dimensions such as emotion, preference, choice and feeling, beliefs, aspirations, attitudes and appreciations (Beane, 1990), providing wide scope for philosophical and psychological research to investigate associations between physical activity and psychological well-being (Biddle and Mutrie, 2001).

It has been claimed that 'physical activity improves psychological health in young people' (Sallis and Owen, 1999, p. 51) and a range of international policy documents have alluded to the perceived association between physical activity and psychological well-being. The World Health Organisation (1998) asserted that sports participation improves self-esteem, self-perception and psychological well-being, whilst a Council of Europe report (Svoboda, 1994) stressed the important contribution sport makes to processes of personality development. Following a review of literature, Mutrie and Parfitt (1998) concluded that physical activity *is* positively associated with good mental health, and the psychological benefits of regular physical activity include reduced stress, anxiety and depression (Csikszentmihayli, 1975; Hassmen *et al.,* 2000; Long, 1985; Page and Tucker, 1994). Claims such as these have, however, been criticised for ignoring the range of life experiences beyond sport and physical activity that can influence affective development (Layman, 1974) and for lacking empirical foundations (Bailey, 2005).

There is strong evidence for the enhancement of children's self-esteem through participation in sport and physical activity (Fox, 1988, 2000). Structured play and specific PESS programmes also appear to contribute to the development of self-esteem in children (Gruber, 1985), although physical self constructs, rather than a 'global' self-esteem are thought to be the most likely benefits (Anshel *et al.,* 1986; Blackman *et al.,* 1988). It has been suggested that self-esteem is influenced by an individual's perception of competence or adequacy to achieve (Harter, 1987). Enjoyment experienced during physical activity and sport can reinforce self-esteem, which, in turn, can lead to enhanced motivation to participate further (Brustad, 1993; Sonstroem, 1997; Williams and Gill, 1995).

Kimiecik and Harris (1996) suggested that enjoyment allows for the development of intrinsic motivation, a notion supported by Deci and Ryan (1985) who argued that a high level of intrinsic motivation follows from feelings of enjoyment and low levels of anxiety. Enjoyment is both a positive affective response and a motivating factor in determining participation (Boyd and Yin, 1996; MacPhail *et al.,* 2003; Scanlan *et al.,* 1993; Wankel, 1985; Wankel and Kriesel, 1985; Wankel and Sefton, 1989). Enjoyment is also identified by teachers as an important outcome of planned activities (O'Reilly *et al.,* 2001) and young people themselves consistently cite 'fun' as a primary reason for involvement in sports (Gill *et al.,* 1983; Scanlan and Lewthwaite, 1986). Some, however, feel that fun is counterproductive to the cause of PESS (Whitehead, 1988) and that it trivialises physical activity. It should also be said that children who do not choose to take part in physical activity outside school are not necessarily those for whom PESS is not fun; reasons such as peer and family influences or lack of opportunities to participate may be the overriding factors at work (Brennan and Bleakley, 1997).

Emotion is seen as a contributory factor in sports participation (Hanin, 2000), although there is debate surrounding the precise nature of this concept (Watson *et al*., 1999), in particular its relationship with mood and affect. Whether or not emotion is viewed as a specific reaction to an event (Lazarus, 1991), a collective cluster of common categories (Watson *et al.,* 1988), or a concept best viewed in relation to what it does (Locke, 2003), there is support from a variety of studies that physical activity is associated with enhanced mood and affect (Gordon and Grant, 1997; Parfitt *et al.,* 1994; Sports Council and Health Education Authority, 1992; Steptoe and Butler, 1996).

Gilman (2001) claimed that those involved in sport experienced significantly more happiness or subjective well-being when compared with those not involved in such activities. A small number of studies have also made claims regarding the relationship between sport and pupils' broader attitudes towards school (Marsh and Kleitman, 2003; Pieron *et al.,* 1994; Sabo *et al.,*1989), although it is clear that firmer evidence is required before these claims can be substantiated (Berger, 1996). Some studies report generally positive outcomes in terms of pupil attendance following the introduction of PESS programmes, and there is evidence from studies of pupils at risk of exclusion from school that an increase in the availability of such programmes would make the school experience more attractive (Fejgin, 1994).

It is clear, however, that not all pupils enjoy PESS activities, at least when presented in particular ways (Ennis, 1999; Evans and Penney, 1996; Flavier *et al.,* 2002; Jirasek, 2003; Williams and Bedward, 2001). Learned helplessness, development of a negative self-concept and ensuing

avoidance of an activity are perceived by some to be negative outcomes of poor experiences in PESS (Biddle, 1999; Fox, 1992; Hellison, 1973). Strean and Garcia Bengoechea (2001) concluded that it is the individual's experience of sport that determines whether participation is viewed as positive or negative, whilst Mahoney and Stattin (2000) contended that the structure and context of the activity is important in determining whether participation leads to positive or negative outcomes.

Wankel and Kreisel (1985) found that intrinsic factors, such as 'excitement of sport', 'personal accomplishment' and 'doing the skills', were more important for young people than extrinsic factors such as winning, rewards and pleasing others. Experiences of personal success, and participation within a motivational climate oriented towards task mastery rather than competition appear to be key elements in determining positive perceptions (Escarti and Gutierrez, 2001; Feltz and Petlichkoff, 1983 impacting, as they do, on levels of enjoyment, self-esteem and the development of positive attitudes towards active lifestyles (Bungum *et al.,* 2000; Derner, 1994; Greenwood *et al.,* 2000). Where participants experience excessive pressure to win, have low perceived ability and feel unattached to teams, low self-esteem may follow (Martens, 1993; Wankel and Kreisel, 1985) which in turn could lead to an increase in disaffection and truancy (Kirk *et al.,* 2000).

It has been suggested that young women acquire a progressive disillusionment with PESS and disengage from participation as they move through secondary schooling (Fuchs *et al.,* 1988). This has led to girls and young women being cast as a 'problem', often in direct comparison to boys, within a sports-based curriculum that is thought by some to be based on middle-class, elitist, male values (Coakley, 1994; Scraton, 1993). It has also been argued that young women do engage in physical activities outside school *despite* negative perceptions of PESS (Flintoff and Scraton, 2001). For young women, a sense of identity and empowerment can be gained through the development and achievement of physical skills (Gilroy, 1997) and the realisation of physical potential (Wheaton and Tomlinson, 1998). It is clear, however, that PESS curricula need to link learning more closely to the social, cultural and gender structure of society in which pupils live (Garrett, 2004). Research indicates that when activities are presented in attractive, meaningful and relevant ways to pupils, boys and girls of all levels of ability and dispositions towards movement can enjoy participation (Sabo *et al.,* 2004).

Although physical activity can be associated with numerous dimensions of affective development, the mechanisms by which this development occurs are less clear (Dishman, 1995). Attempts have been made to clarify the process of affective development through biochemical, physiological and psychological models (Biddle and Mutrie, 2001; Boutcher, 1993; Gauvin and Rejeski, 1993;

Morgan, 1997). Suggested explanations include links to raised core body temperature as a consequence of activity (Koltyn, 1997), increased endorphin production (Hoffman, 1997), changes in the production of serotonin (Chaouloff, 1997), influence on neurotransmitters (Dishman, 1995) and a 'feel good factor' generated through mastery of new tasks (Fox, 1997). It remains difficult, however, to conclude whether the relationship between physical activity and affective development is causal or casual and further investigations exploring *why* and *how* affective development occurs within activity specific contexts for particular groups of children and young people are required.

Furthermore, it is not known whether different forms of physical activity are more beneficial to the affective domain than others, and some argue that not all groups experience psychological benefit from being active (Thirlaway and Benton, 1996). There are very few specific studies relating to the relative merits of all six activity areas currently contained within National Curriculum Physical Education (Department for Education and Employment, 1999). Outdoor adventurous activities appear to be an exception in this regard, although research in this area is largely focused on extra-curricular intervention programmes aimed at disaffected youth and those with specific learning needs (see for example, Farnham and Mutrie, 1997; McRoberts, 1994; Pommier and Witt, 1995). The affective, aesthetic and expressive learning opportunities provided within dance activities have been highlighted (Best, 1992; Bond and Stinson, 2000), whilst this mode of physical activity has also been seen as a vehicle for development of empathy and self-esteem (Kalliopuska, 1989). Within games, the Teaching Games for Understanding approach has recently been linked with the development of emotion amongst participants (Light, 2003), leading Pope (2005) to encourage practitioners to embrace and confirm the 'humanness' of PESS.

It is clear that further understanding is needed amongst those who wish to claim affective learning outcomes from PESS programmes. In particular, questions about pedagogy within curriculum activities merit further exploration, particularly in a subject where pupils' bodies and physical abilities are uniquely visible and pupils are made vulnerable as they demonstrate their abilities and skills (or lack of them) to classmates (Clarke, 2002; Goodwin, 1999).

5 - COGNITIVE BENEFITS

Studies of cognitive benefits focus on the development of learning skills and academic performance associated with participation in PESS. As such, they could be said to test the frequently made claims that a 'healthy body leads to a healthy mind', and that PESS can support intellectual development in children (Snyder and Sprietzer, 1977). Classical writers on education, such as Plato and Aristotle, and Rousseau, writing in the eighteenth century, have all asserted a view to the effect that the development of the mind needs to be balanced by the development of the body (Hills, 1998). More recently, numerous authors have argued for transfer effects of PESS to other areas of the school curriculum (Pirie, 1995); whilst others have suggested that physical activity stimulates the development of generic cognitive or learning skills (Barr and Lewin, 1994).

Such claims ought to be understood within the context of an increasing concern by some parents that, whilst PESS has its place, it should not interfere with the real business of schooling, which many believe to be academic achievement and examination results (Lau *et al*., 2004; Lindner, 2002). Thus, it is not surprising that some of the most strenuous advocates of a link between PESS and cognitive outcomes are professional associations and advocacy groups, who claim that quality PESS helps improve a child's mental alertness, academic performance, readiness to learn, and enthusiasm for learning.

Empirical research into the cognitive outcomes of involvement in PESS, or more generally, physical activity, tend to fall into three categories:

1) studies of associations between PESS / physical activity and academic performance, such as in assessments;
2) studies of associations between physical activity and cognitive functioning;
3) studies of associations between PESS / physical activity and the improvement of other areas of the curriculum and basic skills, such as literacy, numeracy and thinking skills.

As reported earlier in this review, a classic study of the relationship between PESS and general school performance was carried out in France between 1951 and 1961 (Hervet, 1952). Researchers reduced 'academic' curriculum time by 26 per cent, replacing it with PESS, yet academic results did not worsen and there were fewer discipline problems, greater attentiveness and less absenteeism. Similarly, the Hindmarsh Project in Australia assessed the effects of a 14-week daily physical activity programme on a range of measures, including academic performance (Dwyer *et al*., 1983). Despite the loss of 45 to 60 minutes of classroom teaching time each day, there were no signs of an adverse effect on numeracy and literacy.

More recent studies have found small improvements for some children in academic performance when time for PESS is increased in their school day (Sallis *et al.*, 1999; Shephard, 1996). A review of three large-scale studies found that academic performance is maintained and occasionally enhanced by an increase in a student's levels of PESS, despite a reduction in the time for the study of academic material (Shephard, 1997). It has also been found that PESS and physical activity levels are higher in relatively high-performing than low-performing schools (Lindner, 2002). These findings should, however, be taken with some caution, as other studies found no relationship, or a trivial one, between participation in PESS and educational achievement (Melnick *et al*., 1988, 1992; Tremblay *et al*., 2000).

It might be the case that any improvement in academic performance following physical activity reflects changes in cognitive functioning, such as increases to blood flow in the brain, increased levels of arousal and stimulated brain development (Shephard, 1997). Cognitive function may also benefit indirectly from increased energy generation, as well as a break from sedentary, classroom-based work (Lindner, 1999). Whilst such changes have been associated with physical activity (Etnier *et al*., 1997), the subsequent link with school performance is equivocal, and further studies are required.

Some well-designed studies have found a positive relationship between increased physical activity and concentration (Caterino and Polak, 1999; Raviv and Low, 1990), and whilst most studies have tested the effects of short-term interventions, it has been suggested that effects are more likely to be sustained if physical activity is introduced over a long period of time (Etnier *et al*., 1997).

With regard to the third area of research, PESS / physical activity's contributions to other areas of the curriculum, few robust studies have been undertaken to date. Much of the literature is taken with non-empirical papers that either extrapolate from parallels between movement and intellectual development in early childhood or promote movement-based practices as appealing alternatives to passive learning of concepts (Gildenhuys and Orsmond, 1996). Whilst it is plausible that physical activity helps generate empowering and relaxing contexts for learning (Daley, 1988), there is no satisfactory evidence to support the claim. For example, Keinänen *et al*. (2000) reviewed the small number of empirical studies of strategies using dance instruction to improve reading and non-verbal reasoning, but were unable to draw strong conclusions, because, despite generally positive findings, none ruled out alternative explanations for the effects. Likewise, Dismore and Bailey's

(2005) study of outdoor learning among Primary-aged students found improvements in a range of other curriculum areas, but the research was unable to discount confounding variables.

Some of the most enthusiastic support for the claim that there is a relationship between PESS / physical activity and cognitive benefits comes from small-scale studies, based on self-administered and self-evaluated designs (BBC News, 2001). Such studies ought not to be disregarded, but neither should they be used as the basis of bold assertions that increasing certain activities *improves* school performance. Of course, a causal relationship will always be difficult to establish, since to do so would require either withholding treatment from a group of children or somehow accounting for the wide range of confounding variables (Hills, 1998). Nevertheless, some studies have utilised large-scale, controlled experimental designs (Caterino and Polak, 1999; Raviv, 1990; Sallis *et al*., 1999; Shephard, 1996), and these might act as examples of workable approaches for future research.

One concerning omission from the existing literature is that which offers a coherent analytical framework for explaining possible effects associated with PESS / physical activity. As has been noted in other sections of this Review, few studies seek to explore the precise mechanisms that might cause cognitive benefits, or the ways in which different types of activity and different ways they are presented might initiate those mechanisms. Some of the studies also fail to distinguish sufficiently between correlation and causation. In light of the evidence of the influence of socio-economic factors, parental investment, the social context of playing and other variables on participation in many activities (Kirk *et al.*, 1997; Taras, 2005), it is not warranted to move from a finding that two types of measures are *related* – such as physical activity and school performance – to the claim that one *caused* the other.

There is an urgent need for further research into the relationships between PESS / physical activity and cognitive outcomes. There is also a need for research that differentiates between specific activities, teaching strategies and sub-groups. Based on the available research evidence, however, we might conclude that increased levels of PESS do not interfere with pupils' achievement in other subjects (although the time available for these subjects is consequently reduced), and in some sub-groups outcomes may be associated with improved academic performance. More positive evidence relates to relationships between physical activity and cognitive functioning, especially when sustained over a long period of time.

6 - FOR WHICH EDUCATIONAL BENEFITS COULD – OR SHOULD – PHYSICAL EDUCATION BE HELD ACCOUNTABLE?

The preceding sections of this Academic Review could be summarised as follows:

- A number of claims are made about the broad educational impact of PESS upon young people; there is a prevailing belief that engagement in PESS is, somehow, a 'good thing';
- Robust evidence is needed to support some of the claims made for the benefits of PESS, but the accumulation of evidence suggests that PESS can have some/many benefits for some/many pupils, given the right social, contextual and pedagogical circumstances;
- Different – or better – research is needed to focus on the contexts and processes that are most likely to exploit the potential of the PESS learning environment for young people's educational benefit.

The purpose of this section of the Review is to consider questions the PESS profession might ask itself about accountability. In particular, questions are raised about those educational benefits for which PESS might be held accountable, and how a focus on accountability might influence future research agendas.

This Academic Review is timely because the PESS landscape in England has changed in recent years. The national PE, School Sport and Club Links strategy (PESSCL) was launched in October 2002 and, running up to 2008, the government is investing over £1.5 billion to deliver the strategy and provide additional facilities for PESS. Clearly, the government believes that some 'good' will come of all this public expenditure. Indeed, a trawl through PESSCL policy documents reflects the prevailing belief that young people can gain a wide range of physical, social, affective and cognitive benefits from participation in PESS. The current preoccupation with physical health, in particular a perceived need to 'do something' about young people who are classified as obese or overweight, adds a powerful moral imperative to provide more PESS for more young people. The question remains: how can PESS deliver all that is claimed in its name?

Almost uniquely in the history of PESS, relatively generous funds have been allocated to enable independent researchers to evaluate the impact of some strands of the PESSCL strategy. Yet the sheer scale and scope of some of the strand aims would test even the most robust evaluation methods, and this highlights a recurring problem for PESS. Throughout history there has been a tendency to make extravagant claims for the benefits and outcomes of PESS. A recent UN resolution (2003, 58/5) for example, proclaimed 2005 the International Year for Sport and Physical Education

'as a means to promote education, health, development and peace'. Yet if peace does, or does not, break out across the world as a result of the 2005 efforts, it seems unlikely that PESS will be deemed responsible or held accountable. This may help to explain why so many different outcomes can be claimed as educational benefits of PESS.

The case being made here is that avoiding the issue of accountability also enables the PESS profession to avoid making the dramatic changes to curriculum and pedagogy that some claims would warrant. Claims made about health outcomes provide an interesting example. If physical educators want to have an impact on enhancing young people's physical activity levels in order to improve their health, then it could be argued that some current practices should be discontinued because they don't appear to 'work' for many young people. Instead, if physical educators were serious about promoting physical activity for health then nutrition and physical literacy would surely be central to their strategies. They would also need to work closely with families and the wider school, education and health communities. It seems likely that radical changes to pedagogy would be required too; particularly if PESS is to meet the daunting challenges embedded in the rhetoric of meeting the individual needs of each child. No wonder Tinning (2005, p. 12), among others, has warned that 'we should be rather more modest in the claims we make for the contributions of sport and physical education to active lifestyles'.

Meanwhile, in the wider world of educational research, debate about the best/most scientific/most credible ways of conducting research continues to rage. Recent issues of BERA's *Research Intelligence* illustrate the current questions, none of which is particularly surprising or new. However, for PESS, posing questions about whether or not 'the future is random' (Styles, 2006, p. 9) may be premature. Instead, it could be argued that the profession has two prior questions to address:

- Could – or should – PESS be held accountable for any or all of the educational outcomes or benefits it claims, or that are claimed on its behalf?
- Would a focus on accountability change what is done in PESS, or claimed, or both?

Only then would the profession be in a position to address the methodological question:

- What kind of research strategy would test, most effectively, the claims the profession wishes to uphold?

It is not being suggested here that accountability is always a good thing. Indeed, Linn (2003, p. 3) warns that 'among other things, accountability must entail broadly shared responsibility if it is going to have the positive effects that it is expected to have without having unintended negative ef-

fects'. Moreover, Linn argues that shared responsibility must be 'broadly conceived to include students, teachers, school administrators, parents and policy makers'. These are important points. Taking the path of accountability with shared responsibility suggests that the PESS profession must be clear about what it needs in order to bear the responsibility for delivering specific outcomes, or claiming educational benefits. In the case of 'health' outcomes, sufficient curriculum time and appropriate teacher expertise would be two good examples (see also Locke, 2003).

Perhaps one way to begin to address accountability issues would be to adopt a theory of change approach to PESS. This approach is borrowed from evaluation theory where one of the key tasks for researchers is to work with programme developers and sponsors to analyse the outcomes for which they are hoping. More importantly, the analysis reveals assumptions (and micro-assumptions) that have been made about the ways in which programme activities will lead to intended outcomes. A theory of change approach to evaluation argues that this clarification process is valuable for all parties, particularly in making explicit powerful assumptions that may or may not be widely shared, understood or agreed. In evaluation research, fuzziness in programme aims and outcomes makes robust evaluation almost impossible (Auspos and Kubisch, 2004). So what can be learnt from this?

Here again, health claims provide a topical example. If PESS programmes make any claims to be encouraging young people to engage in physical activity for health (and they do) then what are the *theories of change* upon which such claims might be founded? Here are some suggestions:

i. If young people have compulsory PESS lessons at school, they will come to enjoy/love physical activity;
ii. School is an appropriate context in which to introduce young people to physical activity;
iii. If young people are taught about the importance of physical activity for health at school, they will wish to remain physically active for life;
iv. If young people are exposed to a range of different activities, they will find something they like or are good at and will choose to continue being active after school hours and beyond school life;
v. If young people take examinations in PESS (theory and practical) they will be better informed and more likely to continue with physical activity.

Yet these assumptions and the implied causal links between them could (and should) be questioned. Slavin (2004, p. 27) reminds us that 'research in education has an obligation to answer the "what works" questions that educators, parents and policymakers ask'. In the example cited above,

it would be interesting to explore, both within and beyond the PESS profession, *how* it is that PESS is structured and designed to 'work' to engage young people in lifelong physical activity for health. If it doesn't work in the ways intended for a few, some or many young people, and if the PESS profession is to be held even partially accountable, then fundamental changes to PESS policy and practice are required. In an accountability framework, it is self-evident that any changes made should be based on robust research evidence.

Robust research is undoubtedly the answer to questions about claims, educational outcomes and accountability and the following two comments, taken together, seem to offer a rationale for an exacting research agenda in PESS. Hostetler (2005, p. 17) argues that,

> *if their research is to be deemed good in the fullest sense, education researchers must be able to make sound and articulatable, if not fully articulated, connections to a robust and justifiable conception of human well-being […].*

While Kirk (2002) suggests that,

> *if quality physical education is our aim, then we must scrutinise what currently goes on in the name of physical education practices … We must then formulate and advocate vigorously for* forms of physical education that are specific to human interests and needs of young people within specific, local contexts *[emphasis added]*.

The challenge for the PESS research community, therefore, is to work with practitioners and policy makers to agree which claims for educational benefits can – and should – be supported and then tested through research. It is proposed that a focus on accountability could lead the profession towards making defensible claims about the benefits of PESS for human well-being. However, Kirk's comment also reminds us that if in PESS we are concerned with human interests, and with meeting the needs of specific young people in specific contexts, it may be folly to attempt to make any sweeping claims about 'young people' at all. Either way, it is argued at the end of this Academic Review that an accountability focus has the potential to generate searching questions for the PESS research community.

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