Physical education and physical literacy

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Following the publication of Whitehead's article (2006) on physical literacy in the inaugural edition of PE Matters, staff at the University of Bedfordshire [formerly De Montfort University Bedford] have been reviewing the relationship between the physical education areas of activity and physical literacy in the context of secondary education. It is felt that all areas of activity have the potential to develop physical literacy and that physical literacy addressed in the context of physical education activities is likely to be a richer and more real learning experience for secondary aged pupils.

In line with Whitehead's article, physical literacy is considered in terms of physical competencies, the ability to read and respond efficiently and effectively to the environment and to others in interaction, the ability to use the body as an instrument of expression/ communication and the ability to articulate/ demonstrate knowledge, skills and understanding of health. The following takes four areas of activity: athletics, dance, games and outdoor and adventurous activities and identifies the extent to which each contributes to the development of physical literacy. Similar arguments could be made of gymnastic and swimming areas of activity. In each case it is considered that the area of activity makes a distinctive contribution to the experience and understanding of physical literacy for all learners in secondary education.

Physical Competencies

Athletics

As the fundamental or 'natural' sport (UK Athletics, 2005) athletic activities seek to develop the physical competencies of walking, running, jumping and throwing. Whilst these competencies are crucial not only for performance in athletics, but are skills that underpin many other sports, only athletics develops pupils' ability to run, jump and throw faster, higher and further for their own sake. Pupils will most effectively develop these skills through an introduction to the ABC's of athleticism (agility, balance, co-ordination and speed) through activities such as sportshall athletics and multi-challenge lessons that focus on the central requirements of for example 'jumping for height' or 'pushing for distance'. Having established these fundamental competencies more advanced athletics techniques, such as triple jump or hammer throw, can be developed in later school years. These advanced techniques require more complex combinations of control, co-ordination, flexibility etc with the same unique intent ie to run, jump and throw faster, higher and further.

Dance

Concerned with the articulate presentation of dances, dance performance [one of the three strands of the dance as art approach to dance in education] requires physical competence ie technical skills such as control, balance, co- ordination and alignment combined with more/less complex combinations of action, space, dynamics and relationships. Hence in a comic duet involving an action/reaction relationship, pupils would be expected to maintain core stability, control and alignment in relation to boldly established action content that uses exaggerated amounts of space and dynamics. Simultaneously, in performance, pupils would be required to time their action/reaction movements safely without losing comic affect and whilst responding to musical cues/dynamics/ features/style of the ragtime accompaniment ie physical competence of a very unique kind.

Games

Games activities provide great opportunities to develop a range of physical competencies. Together with the more obvious competencies of endurance (both cardiovascular and muscular), strength and speed, promoted across the games categories, there are many examples where physical competencies, specific to certain games can be developed. These include speed of reactions in table-tennis when responding to defend a smash or in cricket when fielding at slip. Hand eye co-ordination is required in abundance by batters in striking/fielding activities, yet the experience is distinctive to the individual games. In rounders, for example, batters need to make contact with a smaller ball than in softball, whilst in cricket the bounce of the ball also needs to be taken into consideration. Football is unique in that it demands the development of foot eye co-ordination, a physical competency which does not come naturally for many children. Invasion games, in general, are particularly good at promoting agility, with a specific example clearly evident in hockey when required to perform an Indian dribble and target games such as golf can aid in the development of balance and timing.

Outdoor and Adventurous Activities

OAA consists of a diverse range of activities drawn together by a common approach which often focuses on the process facilitated through the activity as well as the outcome. As such it provides unique and varying outlets for physical engagement. Orienteering and walking are sustained activities which have the potential to combine athletic prowess with specific gross and fine motor skills. Rock climbing involves physical challenges which require strength, balance, agility and co-ordination in a novel and exhilarating environment. Where physical education departments have included water sports, in activities such as canoeing and kayaking, the opportunity to develop a wide range of physical competencies increases. Problem solving can underpin any adventurous event, but as a specific activity it provides the opportunity to apply a number of important physical skills through lifting, balance/counter-balance, body tension etc. While the learning process supersedes the end product, OAA introduces and develops a wide range of specific skills which are distinctive, transferable and offer lifelong relevance.

Reading the Environment

Athletics

Reading the environment is crucial for a successful athletic performance. When considering racing tactics, a pupil who is able to read the environment will think strategically to consider their own and opponents strengths/weaknesses. This may result, for example, in a faster start to a race in order to overcome their opponent's superior (or their own weak) sprint finish. A physically literate child who is able to read the environment is also able to modify their approach to a take-off board or hurdle, without the loss of speed, when changes in circumstances demand it. It is the experienced pupil in athletics that reads and responds to the changing environment most effectively. Because the fundamental skills (physical competencies) have been so well learnt, they require far less attention to perform the activity, allowing a greater focus to be applied to the current (often changing) demands of the environment.

Dance

In learning to compose dances pupils develop knowledge, skills and understanding in relation to reading starting points such as recognising the movement potential arising from visual, auditory, kinaesthetic stimuli. For example, in viewing pictorial representations of the urban and industrial landscapes of LS Lowry, pupils are encouraged to discuss content (working activities, aspects of daily life), context (northern urban and industrial scenes from 1930s/1940s), structure (perspective, direction, shape, placement) and style (broad brush strokes that nonetheless capture group/individual character, place, feeling). Having been guided to articulate the significant features of Lowry's work pupils are expected to improvise/explore, for example, working actions, rhythmic travelling patterns, action reaction in response to their reading of the visual images. The process of creating appropriate dance motifs in relation to such a starting point involves not only repeated readings of the initial visual images but continued readings (kinaesthetic/visual) of the developing movements in terms of their relevance to the starting point and their interest as foundational dance material. This again is a very unique kind of reading of an environment that is accessible via dance only.

Games

Games, by their very nature, present participants with a continually changing environment that gives rise to problem solving opportunities. During invasion games such as rugby, for example, players are faced with a series of problems for which they often have to make split second decisions, such as do I run with the ball, pass or kick to create space for a scoring opportunity. These decisions, due to the open nature of the game, also have to take into consideration where both team-mates and opponents are on the pitch. In games, we often refer to players who have highly developed skills of anticipation as being able to 'read the game' well. It is this spatial awareness and the ability to both interpret and use the space intelligently that often sets quality games performers apart from their peers. Specific practical examples to illustrate this include the basketball team who use a fast break strategy effectively in a game situation or the tennis player who plays a lob when their opponent is at the front of the court.

Outdoor and Adventurous Activities

OAA uses a wide range of environments to engage pupils in adventurous challenges. It encourages the physical exploration of urban and rural; natural and constructed; in-school, local and remote settings. OAA is conducive to fostering understanding of the environment as pupils are encouraged to interact with these environments in a meaningful way. While constructed environments (gym, climbing walls, swimming pools etc) provide controlled adventure settings, developing these skills in natural settings requires greater skill,

understanding and respect of outdoor environments. Participating in adventurous activities in diverse and changing environments also requires decision making and risk management skills which should be an integral part of the learning experience. This is demonstrated when planning a route during orienteering whereby students will need to consider distance, time, terrain and hazards as part of the decision making processes.

Interaction

Athletics

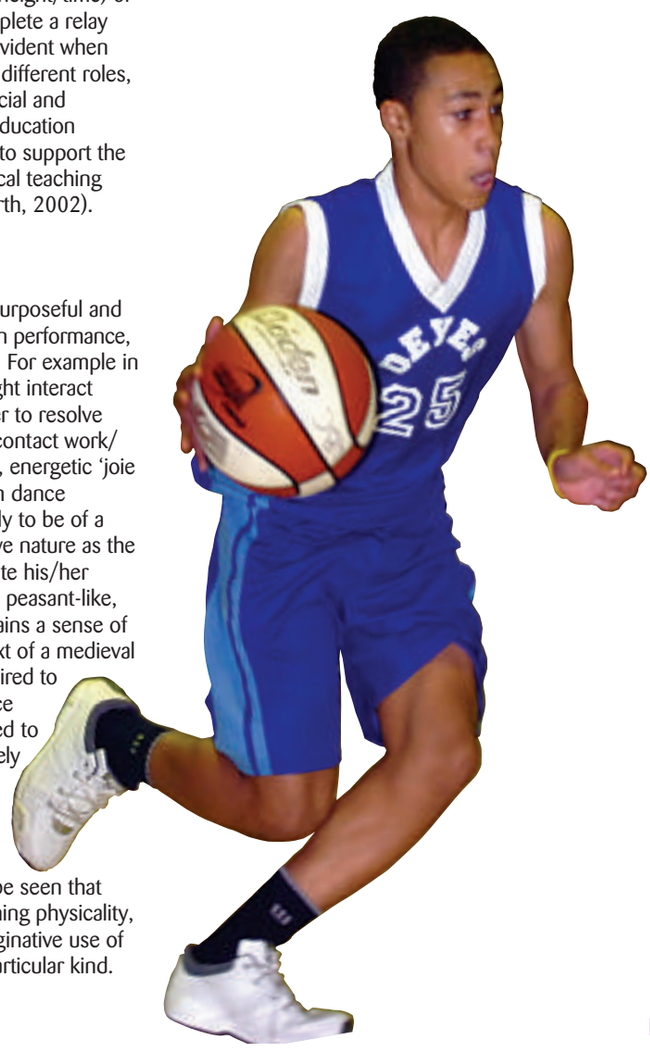
Although traditionally viewed as an individual activity, children show greatest motivation when they are requested to set and meet *both* individual *and* group 'self-referenced' targets (Morgan and Carpenter, 2002) in a range of athletic challenges. Athletics therefore acts as an activity, through which pupils' ability to interact can be challenged and developed. Interaction is most frequently seen in athletics lessons where pupils are required to work together to achieve a common goal. This could include the cumulative total of their performances (distance/height/time) or the most effective way to complete a relay challenge. Interaction is also evident when pupils are required to take on different roles, such as that of performer, official and teacher/coach (as in a sport education approach), or, when required to support the learning of a peer in a reciprocal teaching episode (Mosston and Ashworth, 2002).

Dance

Dance in education involves purposeful and varied interaction with others in performance, composition and appreciation. For example in dance performance pupils might interact verbally and physically in order to resolve safety issues connected with contact work/ lifting whilst retaining the fluid, energetic 'joie de vivre' of children at play. In dance composition interaction is likely to be of a more sustained and imaginative nature as the choreographer tries to articulate his/her artistic intention (earthy, rude, peasant-like, gross physical activity that retains a sense of hardship and fun in the context of a medieval midsummer fair) to those required to realise the dance idea. In dance appreciation pupils are required to search for language to adequately express/communicate their response to a physical presentation designed to be a non verbal form of communication! Again it can be seen that interaction in dance in combining physicality, creativity, expression and imaginative use of language is of a unique and particular kind.

Games

There is much potential for social learning to be fostered in games activities, with team games in particular promoting social skills and the ability to interact with peers. It is well documented that the team who interact well and promote the philosophy of the whole being greater than the sum of the parts often perform better than the collection of individuals posing as a team. Children of all ages can be encouraged to build self-confidence and improve interpersonal relationships, as well as learning to value teamwork. A practical example often occurs in invasion games, when we place conditions on the scoring area/number of passes before shooting so that the ball has to be worked up the court/pitch using teamwork. In striking and fielding games, there should be constant interaction between the fielders in terms of positioning in an attempt to get the batter out. There are also numerous opportunities to interact on a number of non-playing levels during games activities, such as when required to umpire/referee a game or in a coaching capacity when analysing performance and giving feedback to players.



Outdoor and Adventurous Activities

Using a process approach to delivery, which inculcates an experiential educational philosophy, OAA is a natural way of ensuring that interaction can assume a prominent position in terms of learning outcomes within the physical education curriculum. It is recognised that social development can be a significant consequence of all activity areas (Laker, A. 2003); and within OAA it is celebrated and promoted with great vigour. However, learning about (not just through) interaction and the transferring of this development into other contexts (in PE and beyond) is considered to be an integral aspect of OAA. While some aspects are competitive, co-operation is frequently a dominant theme in adventurous activities. For example, Problem solving activities involve learning themes which include: trust, co-operation, team work and reflection, whilst planning as a group is key to any journey or when selecting a route to climb.

Expression/Communication

Athletics

In athletics, pupils can be requested to work as a team to complete a multi-event competition. This would involve different pupils taking on a specific role within different events or discussing which pupil is best suited to perform each challenge. Each of these roles will require a different kind of communication and may require the individual to express the information sensitively or with energy and enthusiasm (such as in a teacher/ coach/official role). The skill of constructively and sensitively providing feedback on a peer's performance so that they want and are able to improve is a difficult one for a young person. Similarly, the pupil in the role of team leader or official will learn to communicate confidently and effectively to both small groups and whole classes.

Dance

Dance composition is concerned with the shaping of dance material into clear, repeatable, coherent form/structure, which communicates an idea or intent beyond the sheer presentation of the material itself. The use of the body as an instrument of expression/a medium for communication is the raison d'etre of dance. Dance education therefore, in performance, composition and appreciation is centrally concerned with expression and communication and as such it makes a particular contribution to physical literacy that would not be accessible via other activities.

Games

Being part of a team may help to develop communication skills, improve listening skills and encourage pupils to appreciate individual differences. There are numerous examples from invasion team games where communication is vital, such as line out calls in rugby or playing the off-side trap as a defensive unit in football. Verbal communication is also needed by batters in cricket when calling runs, volleyball players when returning service and doubles partners in both tennis and badminton. In addition, games provide ample opportunities for communication though non verbal means such as signalling for the ball in netball. We, as physical educationalists, can also promote opportunities for pupils to develop communication skills in roles, other than just performer, such as challenging the referees to use hand signals when communicating with the scorer in basketball.

Outdoor and Adventurous Activities

Within OAA communication is a prominent aspect within most activities and often a discrete learning outcome of a problem solving approach to adventure. Reflection and reviewing are key tools used within the facilitation of experiential learning at the heart of many outdoor education programmes. Planning and group work has the potential to give pupils the opportunity to confidently explore ideas both verbally and physically. The unique, challenging and sometimes risky activities induce emotional responses which can inspire pupils to communicate and convey their feelings. This often becomes a central component of reviewing and reflection used as part of the OA learning process. Kayakers and rock climbers both choreograph movement in creative and aesthetic ways to overcome physical challenges. With the launch of the "Learning outside the classroom manifesto" (2006) we are reminded of the importance of using the outdoor environment in a range of learning contexts. Aesthetic appreciation is developed through interpreting outdoor and adventurous environments. "Outdoor education creates opportunities for individuals to explore natural environments, to live and move in ways which are in harmony with that of the landscape and get close to and feel a part of a natural world which is complex, uncertain and demanding". (McWilliams, A. 2004 Pg. 21)

Health

Athletics

Health is one concept of physical literacy that fits typically with sustained and cross-country running activities. However, all athletic activities, whether on the track, field or natural environment, require the demonstration of the health-related components of fitness (cardiovascular, strength, strength endurance, flexibility and body composition) in order to overcome the demands of specific events.

Teachers must therefore reinforce how running-based activities can improve physical, social and mental health *whilst* developing a positive attitude to running. An effective way to do this is to use team-based running challenges that can act as variations of interval, fartlek and parleuff activities. In order to develop mental health, sustained running activities are best delivered through 'themes' such as decision making, pace judgement and tactics – themes that encourage pupils to engage their mind and body. Activities that challenge perseverance and mental toughness will also serve the pupils well in later life.

The diverse nature of athletic activities provides a great opportunity for pupils with different fitness attributes to be successful. The pupil with cardiovascular prowess will succeed in endurance-based activities whilst the stronger pupil will normally gain greatest success in jumping and throwing events. The promotion of a multi-event (or multi-skill) approach will encourage young people to improve a greater number of health-related components of fitness.

Dance

Fundamental biomechanical principles underpin dance practice; dance teaching is concerned with alignment, core stability, the use of momentum, gravity, counter balance/ tension etc in order that the body is used safely and efficiently as well as expressively. Indeed because expressive demands are of a very specific nature [for example loose limbed, accelerating/decelerating swinging/circling gestures that initiate falls, turns, leaps and rolls] attention to safe practice is very precise addressing the requisite biomechanical principles [core stability, co-ordination, the use of momentum, gravity, counter tension, successive use of the joints/body parts, movement size] in order that the performer remains safe/healthy whilst the dance idea is communicated. Such an approach clearly makes a particular contribution to the maintenance of health. Moreover it should not be overlooked that dance uniquely stresses physical activity which is holistic, artistic and aesthetic; in so doing it has the power to enhance, in a very particular manner, mental and emotional well being. Due to its accessibility, currency, inclusivity, sustainability and cross cultural dimensions it

should be noted that dance in education has the potential to ignite lifelong involvement and thereby contribute to lifelong physical, psychological and social health.

Games

High quality Physical Education which involves active involvement in stimulating and enjoyable games activities should aid in the development of physical, mental and social well being. Small sided games, for example, can be an excellent tool in promoting cardiovascular fitness, as can ensuring that pupils rotate positions in order to increase activity levels. Perceived success and enjoyment in games should lead to improved self esteem and confidence, whilst opportunities to think critically and devise solutions to problems will facilitate mental agility. It is this provision of mentally challenging tasks for our pupils to explore in contextual game situations that could be a suggested focus to further develop physical literacy through games activities.

Outdoor and Adventurous Activities

Active physical engagement through adventurous activities provides an additional outlet for fostering healthy lifestyles. The activities are different, inspirational and have life-long potential (walking, canoeing, orienteering, cycling etc). OAA includes both a competitive and non-competitive dimension with a wide appeal. Many of the sporting and recreational organisations outside of the school have infrastructures and an ethos which are truly inclusive and provide outlets

for lifelong engagement which transcends age, race and gender barriers. By adopting a holistic view of health, it is evident that OAA makes a significant contribution towards mental well-being through the development of self-esteem, self-worth and confidence. It provides "unique opportunities for pupils to experience physical, emotional and intellectual challenges positively. Such experiences at their most potent, can foster self-esteem and empower pupils to understand and value individual needs and capabilities whilst also taking responsibility for their own actions" (Humberstone, B 1993 pg. 237).

In this paper, we are arguing for an approach to the teaching of physical education that has at its heart physical literacy delivered through the teaching of activities. It is felt that activities provide unique learning environments/ contexts that facilitate the development of a depth and breadth of knowledge, skills and understanding of physical literacy inaccessible otherwise. Moreover it is felt that a broad range of activities is likely to foster high quality and more inclusive physical education. One would hope that the revised National Curriculum for Physical Education might reflect this approach. The writers of this paper would welcome readers' views.

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Physical Literacy in the context of Physical Literacy in the Secondary School

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I welcome the article from colleagues at the University of Bedfordshire as it develops aspects of 'Physical Literacy and Physical Education: Conceptual Mapping.' This earlier paper was designed to present a case for physical literacy as the rationale behind all physical education in school. The authors of the article above ably demonstrate how aspects of physical literacy are integral to certain activities in the secondary curriculum and suggest that a similar case could be made with respect to other activities they do not cover. The 'unpacking' of the concept of physical literacy is very helpful as it grounds thinking in the realities of work in school. I would like to make four observations on the article.

The relationship between work to foster physical literacy in the primary school and the secondary school.

Work is already underway to create an outline curricular framework for the development of physical literacy at Foundation, KS1 and KS2. This draft framework is concerned to establish the fundamentals of physical literacy and is based on modules entitled Body management, Manipulating Objects, Confidence in the Outdoors, Moving with Others, My Movement, Exploring Movement across the Curriculum and Planning my own module. Modules explore aspects of movement in the context of a variety of activities. Overall the framework is designed to enable all pupils at this age to develop a sound movement basis on which to build in the secondary school and beyond. The article above shows quite clearly that the proposed grounding at a young age is essential for effective participation at secondary level.

The nature of activities and their resonance with physical literacy.

The analysis carried out in the article shows both that each activity can make a contribution to a number of aspects of physical literacy and that certain activities can make a particular contribution to this development. For example Athletics to body management, OAA with regard to relating to the environment, Dance in respect of embodied expression and communication and Games in relation to working with others. It is also very valuable for teachers to consider the underlying attributes that each activity can contribute to developing physical literacy.

The importance of including a wide range of activities in the secondary school.

I would like to endorse the views expressed in the final paragraph of the article concerning breadth in the secondary curriculum. While it is proposed that pre-secondary school experience of movement is characterised by being broad and covering the range of aspects of physical literacy, is important that breadth is maintained at least through KS3 to ensure that, in this critical stage of development towards adulthood, young people experience and master movement in a wide variety of activities. This should 'keep the door' open for future participation and should be relevant to opportunities for physical activity throughout life.

The critical nature of the ambience of lessons for the development of pupil motivation and self esteem in the context of physical activity.

As I have stressed many times the development of physical literacy depends as much, if not more, on the nature of the interaction between the teacher and the pupil, as on the content of the lesson. Above all physical education must provide a positive and rewarding experience for all young people – whatever their ability. At the heart of Physical Literacy is the motivation to take part in physical activity. This is acquired as young people make progress in movement mastery and develop self confidence and self esteem in this significant aspect of their human potential.

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Physical Literacy Website: www.physical-literacy.org.uk