

Sport and early learning experiences

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Introduction

This paper reviews evidence that suggests early learning experiences are crucial to continuing involvement in sport, but that currently only particular sections of the population are in a position to access quality experiences in schools and sports clubs. In particular, young people from lower social groups, girls and young disabled people in greater numbers miss out on quality early experiences compared to children from higher social groups, boys and the able-bodied. Evidence is reviewed that suggests primary schools are by themselves unable to deliver quality early experiences, while specialist experiences in secondary schools come too late to impact a majority of children in relation to their competencies, perceptions and motivation. It is also suggested that specialist secondary school programmes in their traditional form have had limited impact in terms of transferring knowledge learned in school to adult life. A framework for thinking about youth sport experiences developed by Canadian Jean Côté and his colleagues is applied to the evidence presented here. It is proposed that Côté's developmental model of sport socialisation supports interventions that involve quality early experiences for all children in the 5-14 age range through the integration of community and school resources, the establishment of multi-sports clubs in school sites, and the deployment of specialist teachers of physical education to work with the KS2 and KS3 age groups.

The importance of early learning experience to lifelong participation

Studies of expertise in a range of activities, including the arts, sciences and sport, conclude that individuals who reach the top of their respective fields typically move through the same three phases, characterised by Bloom (1985) as the early years, the middle years and the later years. This work formed the basis of the claim by Ericsson and colleagues (1993), now taken up widely within the sport literature (eg. Balyi, 2001), that the achievement of expertise takes at least ten years of specialised training. Within this process, Kalinowski (1985) has argued that what is done in the early years has the greatest impact on the achievement of expertise since without this foundational phase there will be no middle or later period.

The work of Bloom et al (1985) has been further developed and applied specifically to sport by Côté and his colleagues. Côté & Hay (2002) undertook an extensive review of the research literature and, from a developmental perspective, suggested that young people's socialisation into sport follows a general pattern. Early experiences in organised sport they call the sampling years, usually for children in the 7-12 age group, though precise ages can vary according to sport. The key features of the sampling phase are that young people participate in a range of sports, that their main motivation is fun and enjoyment, and that the emphasis is on playing rather than training. A characteristic of this phase is what they call 'deliberate play', which involves young people in structured activities that require the development of particular techniques and tactical understanding. Young people may continue in this sampling phase for as long as opportunities are available to them, or else they may either drop out of sport or move into a second phase, which Côté & Hay call the specialising phase.

In this second specialising phase beginning at around ages of 13-15 in most sports, the range of sports reduces, perhaps to three or two, and motivation begins to shift from fun and enjoyment in itself to competitive success and enjoyment of winning. Typically in the specialising phase there is a shift in emphasis from deliberate play to deliberate practice. Deliberate practice is focussed on improving current levels of performance and is evident in an increase in the frequency and intensity of training.

From the specialising phase Côté & Hay suggest young people have three options. The first is to drop out of sport, the second is to enter what they call the recreational phase where sport is played relatively informally and for fun, and the third is to move to the investment phase. Entry into the investment phase usually signals a focus on one activity and a commitment to intensive training and competitive success. In this phase, deliberate practice dominates and there remains very little deliberate play.

Côté, Baker & Abernethy (in press) place particular emphasis on the importance of deliberate play as a key characteristic of the early or sampling years. They contrast deliberate play with the free and spontaneous play of infants and the deliberate practice of adult sport. They suggest "deliberate play

activities are designed to maximise inherent enjoyment. (They) are regulated by rules adapted from standardized sport rules and are set up and monitored by the children or by an adult involved in the activity.” (p.4) Côté et al argue on the basis of empirical studies of expert team sports players in Canada and Australia that all of these athletes had experienced prolonged and high quality periods of deliberate play during their early years. Moreover, as their term ‘the sampling years’ suggests, it appears to be important in terms of maintaining motivation and interest among children that the deliberate play experience is across a range of activities. Their studies provide strong evidence against the practice of early specialisation in one sport.

We can conclude that the early years are critical years for the development of the kinds of physical competences that place individuals in a position to access and engage actively in the physical culture of society. Indeed, it might be argued that the beginning of KS3 is too late to be introducing children to deliberate play through specialist teaching and coaching and an appropriately comprehensive and balanced programme of activities. Research, to be reviewed next, suggests that motivation, self-concept and perceptions of competence are already well established by ages 11-14.

The impact of competency and skill development on young people’s later involvement in sport

The research on expertise provides strong evidence to suggest that the nature of children’s early experiences of sport is crucial to the development of high levels of expertise. We do not know if the same factors apply to individuals who do not reach elite levels of performance since researchers have not conducted studies of this population within the same theoretical framework as the studies of expertise. However, it seems reasonable to suppose that the quality of early experiences will have some impact on the sport careers of all young people, regardless of ability. In this respect, the acquisition of physical competencies may not be the only important factor.

Psychologists have suggested that other important factors are young people’s perceptions of their competence in relation to their peers and the effects of these perceptions on their motivation to participate in physical activities. Lee et al (1995) argue that a key dimension of perceptions of competence is children’s understanding of the relationship between effort and ability. Prior to age 10, young children tend to equate effort with ability. In other words, they believe that they can accomplish most physical tasks if they try hard, and tend to overestimate what they can do. Between the ages of 8 to 12 (depending on the individual), children begin to recognise that their abilities to accomplish tasks may be limited regardless of the effort they put in. Lee and her colleagues (1995) argue that this maturational cognitive change coincides with young people’s entry into organised sport, where normative judgements are made about ability through the comparison of one individual with another. Young people very quickly learn where they fit in the hierarchies of ability of classmates and friendship groups in relation to specific activities such as a sport.

A study by the IYS (1999) identified various motivational and activity groupings within a cohort of 2510 11-14 year old boys and girls from 50 secondary schools across England using a variety of validated psychometric questionnaires and a self-report activity questionnaire. Within this study, Biddle and colleagues identified five groups of young people with the following characteristics:

Group A: 13% of sample

These young people scored high on all motivational variables. They are probably the ‘serious’ sports players. Other features were:

- They are the most physically active;
- They have the highest physical self-worth
- The group has more boys (66.8%) than girls (33.2%) but is spread evenly across the age group.

Group B: 31% of sample

Young people in this group recorded positive motivational responses, such as defining success through self-improvement, having incremental beliefs in sport ability (i.e., they believe that sport ability can improve), having high perceived competence, and being intrinsically motivated. Other features were:

- They are quite physically active;
- They have high physical self-worth (i.e. feel good about themselves physically);
- The group has equal numbers of boys and girls across the age group.

Group C: 26% of sample

This group is motivated mainly through external motivation. They scored high on ego orientation in terms of defining success through winning rather than self-improvement, and held strong beliefs that sport ability is fixed rather than changeable. This profile is likely to be fragile in the long term. Other features were:

- They are moderately active
- They have about average physical self-worth
- The group has equal numbers of boys and girls spread across the age group.

Group D: 16% of sample

These pupils are not particularly motivated for physical education and sport and have low scores on most variables. Other features were:

- They scored fairly low in physical activity
- They scored fairly low in physical self-worth
- The group has more girls (67.5%) than boys (32.5%) but is spread evenly across the age group.

Group E: 14% of sample

These pupils scored low in both task and ego orientation, believe sport ability is fixed, have low perceived competence, and take part in physical education and sport for external reasons, because they 'have to' rather than they 'want to'. They are high in amotivation, which involves feelings of helplessness. Other features were:

- They are not physically active
- They have low physical self-worth
- The group has more girls (67%) than boys (33%) and they are predominantly from the older end of the age group.

Biddle and his colleagues (IYS, 1999) propose that the motivational profiles in Groups A and B are the most robust in terms of predicting continuing participation in physical activity. These groups account for 44% of the sample and contain slightly more boys than girls. The profiles of Groups C, D and E, although different, predict low or no continuing participation. These groups contain 56% of the sample, more girls than boys, and more, older children.

These data suggest that between the ages of 11 to 14, that is, between the beginning and end of KS3, young people's motivational profiles, including self-perceptions of competence and physical self-concept, and their dispositions towards active participation in sport, are well on their way to being formed. Longitudinal research with a similar cohort and methods would confirm whether profiles constructed at this stage (ages 11-14) can predict continuing participation and levels of participation. Additional research investigating the nature of the young people's prior experiences of sport would also confirm the place and importance of deliberate play for all young people as a possible explanation for these motivational profiles.

The influence of social background and gender on early learning experiences

There can be no question that social background, gender and disability each have a strong influence on the nature of children's early experiences of sport.

Recent studies of physical education and sport, both within the formal curriculum (Penney, 2002; Wright, 1996) and during less formal playground activity (Renold, 1997), provide compelling evidence to suggest that many girls are underserved by existing provision. Meanwhile, traditional sport-based programmes have been accused of promoting a form of masculinity that reproduces the dominant gender order (Hargreaves, 1994). Flintoff and Scraton (2001) propose that while recent studies confirm the findings of earlier feminist research conducted in the 1980s, there appears to have been little progress towards resolving these issues. Supporting this argument, Williams and Bedward noted that in Britain:

The disadvantaged position of girls would seem to have little to do with the recent implementation of policy and more to do with the remarkable resilience to change that physical education has demonstrated, particularly over the last 15 years. The failure to abandon a traditional gender differentiated approach has resulted in physical education being unique among subjects within British secondary education. (Williams and Bedward, 1999, p.7)

This apparent resistance to change has not been due to a lack of initiatives to provide more attractive forms of physical education for girls (eg. Sport England, 2002; Youth Sport Trust/Nike, 2001; Australian Sports Commission/Heart Foundation, 1993). Nor is it due to a shortage of explanations for girls' unsatisfactory experiences, ranging from inappropriate clothing and facilities (Flintoff and Scratton, 2001), individual girls' alleged lack of motivation and self-esteem (Graydon, 1997; Lee et al, 1999), lack of equity and opportunity (Evans, 1989), and the effects of patriarchal oppression (Nilges, 1998). Hargreaves (1994) has shown that gender differentiation in the provision of physical education and sport has deep historical roots. Williams and Bedward (2001) suggest there is a cultural and generational gap between teachers and their pupils, resulting in teachers' lack awareness of girls' interests. Looking beyond school programmes, Deem and Gilroy (1998) and Kay (1995) point to traditional family structures that disqualify physical activities such as sport as legitimate pursuits for women. It is unlikely that a publicity campaign targeting girls as proposed by the authors of Game Plan (Strategy Unit, 2002, part 4.44) will resolve the obdurate and deeply sedimented underlying issues relating to sport as a site for the production and reproduction of masculinities and femininities.

There is also strong evidence to show that the scope and quality of early experiences of sport is determined by children's social backgrounds, particularly in terms of social class and ethnicity. Much of the social background data relates to adult participation. However, recent studies by Kirk et al (1997) in Australia and Kay (2000) in England show that children's participation in community-based sport is determined to a significant degree by the family's socio-economic status and composition. Children from white middle class populations are over represented in club sport. This is in part due to cultural traditions and associations, and in part to the fact that participation requires adequate disposable income to pay for fees, kit and equipment, and transport to training and competition venues. The division of labour within families to support participation, particularly where more than one child is involved, is also significant, and tends to favour families where parents have a degree of flexibility in their work hours. Few children in the Kirk et al and Kay studies made it to representative sport levels without considerable assistance from their families.

Both studies also insert a cautionary note about homogenising sport in relation to social background. They show clearly that some sports are more accessible to children from some ethnic populations and lower social groups because of tradition and culture, and because they are available locally, thus reducing transport costs and logistics, and they are relatively affordable in terms of fees and equipment. Other sports are accessible to only a small proportion of children, mostly from the AB social groups, again because of tradition and culture, and also because they are relatively expensive.

Both studies show that the family is a primary unit of support for children's early experiences in sport, particularly in the community context. Kay's (2000) research has also provided some sign-posts for likely future trends in relation to the family. She argues that the family is a dynamic and changing social institution and a primary institution of children's socialisation. She notes a number of key socio-demographic changes to this institution in Britain. First, there has been an increase in the proportion of dual-earner families over the past twenty years. But there has also been a divergence in the financial situations of families. In 1998, 17% of households with dependent children were no-earner households. These trends suggest an increasing divide between rich and poor. Second, there has been a divergence in family formation. Women from social groups DE marry younger, are more likely to have children born outside of marriage, and divorce earlier than their wealthier counter-parts. Third, single-parent households are the fastest growing family type, with Britain recording the highest numbers in Europe in 1995. Moreover, just under half of these households are workless. Taken together with what we know about the primary role families play in supporting children during the early years of their sport experiences, we can predict considerable challenges to increasing participation amongst social groups that are already under-represented in sport.

Studies by Fitzgerald et al (in press), Sport England (2001) and Barton (1993) among others suggest that young disabled people have been seriously disadvantaged in terms of their experiences of sport due to the persistent influence of 'ableist' and normative assumptions about sport and disability. Fitzgerald et al (in press) argue that these assumptions have persisted in the face of a growing number of policy mandates that seek to promote inclusion and equity. She and her colleagues suggest that the limited impact of these mandates is due to the relative paucity of research that has sought to investigate the actual experiences of physical activity from the point of view of young disabled people and their families.

The ineffectiveness of school physical education in promoting early skill development and positive attitudes towards sport

Most children's first experience of specialist teaching and a wide range of physical activities is when they move to secondary school around the ages of 11 to 13. Most of the research on physical education has, as a result, tended to concentrate on secondary school physical education programmes. Numerous studies (eg. Green, 2002; Curtner-Smith, 1999; Penney & Evans, 1999) show consistently that despite a decade of the NCPE, schools continue to practice physical education in a multi-activity, sport-based form that first appeared in government schools in the 1950s (Kirk, 1992). This form of physical education is characterised by relatively short units of activity, sometimes as short as four or six lessons, an overwhelming focus on technique development, a lack of accountability for learning and little progression of learning, and the almost exclusive use of a directive teaching style. Evidence from these studies and from studies of girls in particular suggests that this traditional form of physical education is not meeting the needs of many young people entering KS3.

The adult participation data since the 1970s tells a consistent story, which is that only tiny numbers of adults participate in activities they experienced as part of secondary school physical education. Even if we include exercise activities such as jogging, cycling, swimming, aerobics, weight training and so on, the introduction of HRE since the early 1980s seems to have had only a small impact on adult activity. There appears to be a *prima facie* case to argue that there has been very little transfer of learning from school physical education to adult life (Fairclough et al, 2002; Kirk, 2002). Data summarised in Game Plan (Strategy Unit, 2002, part 4.23) supports this point. If an individual's perception of their physical competence is a key determinant of their willingness to participate in physical activity, then we might conclude that secondary school physical education has until now been relatively ineffective in promoting skill development and positive attitudes.

As I have already argued, there is strong evidence to suggest that by the beginning of KS3 it is already too late to begin to provide young people with the kinds of deliberate play experience across a range of activities advocated by Côté and his colleagues, among others. Indeed, this point is hardly new. As long ago as the 1930s, L.P. Jacks described the 5 to 12 age range as the 'skill hungry years', and the point is re-iterated by the authors of Game Plan (Strategy Unit, 2002, part 4.18). Since at least the 1930s and on a regular basis, some physical educators have argued for the importance of specialist teachers in primary schools. This advocacy has led to the trial of schemes such as a project in Scotland to use secondary specialist teachers in feeder primary schools in the 1980s (Pollatschek, 1982). More recently in England, specialist curriculum materials such as the TOPS programme have been developed for primary schools. Evaluation projects suggest that this programme is popular with teachers. But we continue to lack valid and reliable research data on the impact of this programme on children's learning in primary schools. It is also too early to say whether the School Sports Coordinators and Primary Link Teachers will be able to redress this problem of lack of quality teaching in KS1 and KS2.

The general quality of primary school physical education is unknown to us due to a relative paucity of research studies in this area. The research that has been undertaken suggests that there is huge variation in the quality of children's experiences, both across schools and within schools (Bailey and MacFadyen, 2000). It has long been recognised that primary school teachers are generally poorly prepared by their teacher education programmes to teach physical education. Further to this, the intensification of work for primary school teachers over the past decade and a half has exacerbated this situation. Despite the presence of the NCPE, there is evidence to suggest that most schools struggle to meet statutory requirements for physical education.

It is also significant to note that the most recent support materials for schools such as the TOPS programme do not appear to have been informed by new research-based developments in physical education teaching, assessment and curriculum, such as model-based teaching and learning (eg. Metzler, 2000; Launder, 2001; Wein, 2001). The possibility that such programmes might bring about reform in primary school physical education is made even more problematic by adherence to a traditional form of out-of-school, short course, inservice training. Armour and Yelling (2003) have shown that this approach has serious limitations in terms of improving teachers' practice, and they present a strong case for the development of forms of professional development that are school-based and continuous.

Ironically, anecdotal evidence suggests that the largest area of growth in sport participation over the past decade has been in the 6-11 age range as governing bodies of sport have developed modified forms of their sports for younger children. The implications of this development are far-reaching.

Firstly, children who are able to participate in a number of community based club sports are likely to have a more enriched experience of sport compared with their age peers whose main experience is in school physical education, thus making the primary school teacher's task even more difficult since the range of ability and experience levels may be widening. Secondly, volunteer coaches in clubs are increasingly being faced with larger, mixed ability groups of children who have varying degrees of interest in and motivation towards a particular sport. This development suggests that there will be increasingly serious challenges for volunteer coaches to develop skills that allow them to facilitate quality deliberate play experiences for children. Third, in light of what we know about the importance of social background for community-based participation, the downward diffusion of organised sport experiences for younger and younger children is likely to mean that children from social groups DE, girls, disabled children, and children from particular ethnic groups are going to be further disadvantaged.

Interventions in the early years to reduce later drop out and disaffection

Despite the gaps in our knowledge highlighted here, there appears to be sufficient evidence to suggest that renewed attention is required to the nature of children's experiences between the ages of 5-14 if participation in sport is to be improved among specific population groups. A number of points can be highlighted in relation to strategic interventions to address the issues raised in this paper.

A key issue to consider in relation to interventions to improve sustained participation in physical activity is the role of schools and school physical education. It seems clear from the available evidence that the beginning of KS3 is too late to begin to provide young people with the kinds of quality, deliberate play experiences they require in their early years of sport participation. The socio-demographic data shows that for under-represented population groups in particular, school remains the most likely place that they will gain access to a quality physical education experience. The key problem, however, is that with the increasing pressures on the primary school curriculum and on generalist teachers, it seems highly unlikely that primary schools can offer the kind of quality experience young people need in the 5-11 age range that can significantly influence their continuing participation.

These tensions inherent in the role schools can play in the early physical education of children suggests that we need some fresh thinking on how resources might best be marshalled. I propose that the framework developed by Côté and his colleagues' provides a fresh way of thinking about children's early experiences of physical activity.

Côté's work suggests it is important that young people experience a sampling phase during their sport careers. This means that during the early years it is desirable for young people to be encountering a range of physical activities and literally sampling what is available to them. The major motivation for these 'Samplers', according to Côté & Hay, is fun and enjoyment rather than competitive success by itself. The emphasis Côté & Hay place on what they call deliberate play should also inform our thinking about the early years. Deliberate play suggests that Samplers should 'play the game' more than they practice drills and skills, since this links with their principle interests in fun. Lee et al. (1995) support this point, suggesting that the focus in the early years should be predominately on what psychologists call a 'task' climate (where success depends on doing the best you can) rather than an 'ego' climate (where success depends on being better than others). They claim teachers, coaches and parents can play a key role in creating a task climate in sport. Indeed some of the modified sports such as the Australian Kanga Cricket have embedded a task climate in the structure of the game, so that all players regardless of ability get to bowl, bat, wicket keep and field the same amount of time.

The importance of a task climate for deliberate play experiences is supported by research and development carried out by a host of researchers and teachers on Teaching Games for Understanding (TGfU) developed by Bunker & Thorpe (1982) from the early 1980s. TGfU stresses that young people in the 8-14 age range should learn to play through modified games rather than the more traditional approach of learning skills prior to playing the game. The most recent developments of this work have retained this emphasis, for instance in Metzler's (2000) notion of model-based instruction, Wien's (2001) 'Developing Youth Soccer Players', Launder's (2001) 'Play Practice' approach, and Siedentop's (1994) 'Sport Education' model. The point to note is that young people's improvement as players or performers requires them to have as many opportunities as possible to participate in their chosen sport or sports in ways that are authentic and interesting.

Furthermore, there is strong evidence to show why competitive success as a primary aim should not be emphasised during the sampling phase. During adolescence, young people grow at different rates.

When cut off dates for age groupings are considered, it is possible for one child with a birthdate at the beginning of the competitive season to be up to a year older chronologically than a child with a birth date at the end of the season (Wilson, 1999). Different maturational rates of children with the same chronological age potentially compounds this problem, so that an early maturer with a birthdate at the beginning of the season could be considerably more mature physically than a late maturer with a birth date later in the season. Clearly, the early maturing individual has a distinct competitive advantage in many sports in terms of being physically larger, stronger, and having a more mature neuro-physiology, which is an advantage in learning sport skills.

The birth-date effect and maturational age have a profound influence on the possibility of continuing participation in sport for many children during the critical 11-16 age range when it is alleged drop out rates rise steeply. It is during this early to mid adolescence period that the most dramatic maturational differences appear between age peers. It is also during this period that it becomes increasingly difficult for young people to gain a regular place in a sports team if they lack competence, experience and physical maturity. Siedentop (2002) cites research from the USA that shows young people would rather participate in a losing team than sit on the substitute's bench of a winning team. Anecdotal evidence suggests that as young people progress through early to mid adolescence, there are fewer and fewer opportunities to play sport for all but the most able and mature. This is because at around 13 or 14, as young people enter Côté's specialising phase, competitive success because a more important motivator for participation, both for players and possibly for parents and coaches. Young people may well indeed be walking away from sport during this period of adolescence, but when we consider they may be playing against age peers who are a year or two more mature, and that they may have limited opportunities to play or even be selected to play, it is easier to understand why the drop rate increases.

The notion that young people should be encouraged to sample among a range of appropriately modified physical activities suggests that the current organisation of club sport may present a barrier to sampling. Perhaps the multi-sports club already common in Germany, Belgium and other continental European countries, presents itself as a means of facilitating young people's sampling behaviour. Local multi-sports clubs may be more cost-effective, thereby reducing expense to participants and their families. They may also be able to make more effective use of resources and facilities by sharing these within the same administrative structure. And they may reduce the problem of sports competing with each other for the same pool of young people. The literature cited here on the importance of a quality experience of physical activity in the early years would appear to provide strong support for the notion of the local junior multi-sports club. Arguments presented in Game Plan concerning the promotion of talent identification and development would appear to lend support to such a proposal also (Strategy Unit, 2002, part 5.34).

How might schools contribute within a local multi-sports club context? There are at least two key challenges here that in my view must be addressed if progress is to be made in the early years. The first challenge is the possibility that schools, primary or secondary, may provide a site for the location of local multi-sports clubs. Facility sharing with community groups is not a new idea (see Strategy Unit, 2002, parts 4.33 & 4.34), and there already exists experience within schools concerning how these arrangements can work best. The second challenge is the redeployment of some specialist teachers of physical education to work with children from the beginning of KS2, around the age of 7 or 8 years of age, an option that appears not to have been considered by the authors of Game Plan (eg. Strategy Unit, 2002, part 4.3). This proposal is made on the basis of the points, already established, that KS3 is too late for children to begin to experience specialist teaching and coaching, generalist teachers are ill-prepared to provide the quality of instruction required, and volunteer coaches in community clubs are similarly challenged when faced with coaching large, mixed ability groups of children. It may be that generalist teachers and volunteer coaches could be assisted with the development of their teaching and coaching skills if they were members of local teams assisted by specialist teachers. The integration of community and schools based resources appears to me to be the best chance for a fresh approach to providing quality physical activity experiences in the early years. I conclude with the observation that these proposals are generally consistent with the arguments outlined in Game Plan concerning young people and sport (eg. Strategy Unit, 2002, parts 4.18-4.28), though the proposals in Game Plan perhaps require further specificity and detail.

Summary

The key points of this paper are as follows:

- Quality early learning experiences are of crucial importance to continuing participation in physical activities for elite performers and, we might infer, for the majority of young people also;
- According to Côté and his colleagues, the early years should involve a sampling phase during which young people are exposed to a range of activities in which they participate through deliberate play;
- Quality early learning experiences not only develop physical competencies but, crucially, develop perceptions of competence that underlie the motivation that is vital to continuing participation, and that between the ages of 11-14 (KS3) these perceptions are well established;
- Social class, gender and disability are key barriers to the development of the physical competences, perceptions and motivation that permit young people to participate in physical activities, and children from lower social groups, girls and young disabled people are markedly under-represented in community-based sports clubs;
- Access to a range of activities and specialist teaching at the beginning of KS3 for most children comes too late to impact their competencies, perceptions and motivation, and in any case there is evidence to suggest that the content and forms of delivery of current primary and secondary school programmes is ineffective in transferring knowledge useful in adult life;
- It is concluded that resources need to be concentrated in the KS2 age range if we hope realistically to improve participation levels. The notion of a sampling phase involving deliberate practice supports the notion of interventions centred on the multi-sports club and modified physical activities that foster a task climate, based in school sites, and involving specialist teachers of physical education working with primary school generalist teachers and volunteer coaches.

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