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A new pedagogical model for adventure in the curriculum: part two – outlining the model

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Background: This paper is part two of a discussion about a new pedagogical model for adventure in the curriculum. It builds upon part one, the advocacy paper, which considered important theoretical foundations, historical influences and research outcomes of outdoor adventure education (OAE) in the UK.
Purpose: This paper outlines how a model for OAE might be implemented in practice in schools in the UK. Four non-negotiable features of a pedagogical model for OAE are identified as essential for pupils to gain maximum benefit from their outdoor adventure experiences. Consideration is also given to other essential features of models-based approaches to physical education that teachers need to consider to underpin the model's authenticity, including pupils' readiness for learning, teacher expertise and knowledge, and assessment and future model validation.
Conclusions: Four non-negotiable features of a model for OAE are identified as being mainly outdoors, experiential learning, challenge by choice and managed risk. Key concerns arising from the implementation of these non-negotiable features are considered. These include encouraging pupils to take more responsibility for their own learning, developing closer links between school OAE and local opportunities, supporting teachers in making judgements about pupils managing their own risk, developing teachers' expertise in reviewing and developing assessment tools that measure pupils' affective learning.

Keywords: pedagogical model; outdoor adventure education; experiential learning; managed risk; challenge by choice

Introduction

Making use of Metzler's (2011) design specification guidelines for pedagogical models and drawing upon the work of Jewett, Bain, and Ennis (1995), Lund and Tannehill (2005), Kirk (2010) and Haerens et al. (2011), part one, the advocacy paper, considered important theoretical foundations, historical influences and research outcomes of outdoor adventure education (OAE) in the UK. This paper will build upon these foundations to outline how a model for OAE might be implemented in practice in schools in the UK. Implementation needs in relation to four non-negotiable aspects of a model for OAE, key assumptions about teaching and learning behaviours and important assessment and validation concerns are considered (Figure 1).

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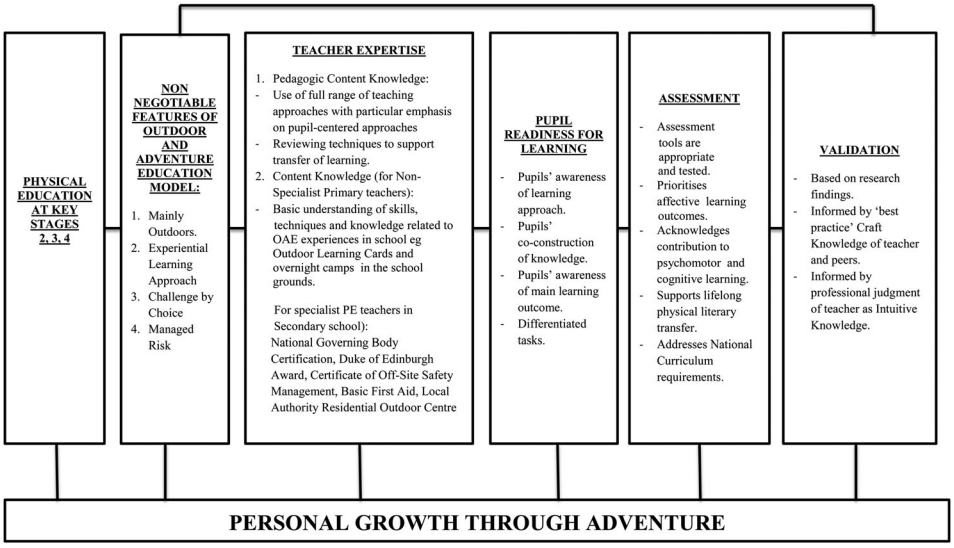

Figure 1. Outdoor adventure education model for Key Stages 2, 3 and 4.

Non-negotiable features of a pedagogical model for outdoor adventure education

Four key or non-negotiable features can be identified from the underpinning theories of learning and historical influences that we suggest must be evident for OAE to make a meaningful contribution to pupils' physical education experience. They are being mainly outdoors, experiential learning, challenge by choice and managed risk. A clear understanding of these non-negotiable features is important as they identify the distinct contribution a model for OAE has to make to pupils' learning in physical education and link the underpinning theory with the day-to-day practice of teachers.

In the first paper, we reviewed a breadth OAE studies and concluded that the research evidence supports the contribution of outdoor adventure activities to pupils' learning in a meaningful and positive way. Taking this as our lead, we concur with Hopkins and Putnam (1993) in identifying the outdoors as the location in which learning can and does happen and suggest that *being mainly outdoors* is a key non-negotiable feature of the model denoting where OAE learning experiences predominantly take place. Whilst we emphatically believe in the value of learning activities being located outdoors, we would suggest that a neo-Hahnian view of character building through outdoor adventure (Brookes 2003a, 2003b) that only takes place outdoors is not only outdated but also inappropriate and unjustified from the research. Neither, we would suggest, does such a view best support pupils' independent decision-making and personal growth for future outdoor adventure lifestyles. Likewise, an absolute focus on only using outdoor locations ignores the rapidly changing and technology-enhanced western culture within which the school subject of physical education resides. As such we acknowledge that pupils' experiences of OAE will also need to acknowledge the broader cultural influences of a materialist, technology-focused society (Cloutier 1998; Hudson 2003). Therefore, in our thinking around being mainly outdoors, we also include the use of indoor venues such as climbing and traversing walls and swimming pools for kayaking that are often located in or adjacent to a school as well as immediately accessible outdoor spaces such as school yards and playing fields (Hopkins and Putnam 1993; Barnes and Sharp 2004; Brown 2006). These

facilities add to the breadth of outdoor adventure locations available for pupils and can be used by the teacher according to the level of challenge required by pupils. Indeed for some pupils, making use of modern outdoor technologies and indoor facilities may be the motivational hook that engages them in the first place and upon which future participation can be built. Indoor experiences should not, however, constitute the main or most challenging locations for school-focused OAE. Indoor locations simply cannot sustain the same progressive levels of challenge that are required to build skills, knowledge and confidence as can be achieved by being outdoors. Whilst it is acknowledged that adverse weather conditions as can be experienced in the UK are not conducive to positive learning for most young people, neither should more benign weather conditions (rain, cloud, wind and cold) be used as an excuse not to be active and physically engaged outdoors. On the contrary, developing pupils' knowledge and skills in relation to the challenge presented by the weather is one of the unique concerns for the model, and it would be far better that schools provide undercover outdoor spaces and wet weather clothing to support school-based, multisensory, outdoor learning experiences than for pupils to stay indoors.

Central to our understanding of being outdoors, consideration also needs to be given to the form of OAE learning experiences. OAE has existed for many years on the margins of the educational experience for young people, mainly in the form of a one-week residential at a local authority outdoor education centre. However, such provision has been criticised for being isolated, unconnected and lacking clear curriculum links (Williams 1995; Christie, Higgins, and McLaughlin 2014). More recently, official recognition of OAE in the physical education curriculum in England (where it is optional) and in Wales (where it is compulsory), and the growing interest in Forest Schools and bushcraft (Cree and McCree 2012, 2013; Guy 2013; Watson 2013) mark a real shift in recognition of the learning potential of the outdoors. Encouragingly initial research done by Wainwright and Williams (2012) into the impact of another new initiative available to all teachers in the UK, the Outdoor Learning Resource Cards, suggests that out of a total of 90 schools, 'These opportunities for regular, on-site, teacher facilitated adventurous activities appear to have been introduced to compliment rather than replace the outdoor residential' (2012, 52).

What all these recent developments reflect is an emerging recognition that learning in the outdoors needs to start with the school grounds and buildings, as well as the outdoor spaces available in the immediate locality, and should no longer be the sole concern of the local authority outdoor education residential centre which is often located many hundreds of miles away from pupils' home environments. Nor can the residential experience continue to be offered as an optional, one-off, get away from school week, where pupils try OAE for the only time in their school life. The issue here is not that residential outdoor centres have no significant role to play in developing a model for OAE, they do (Rickinson et al. 2004; Williams 2013). Rather, the issue is that residential outdoor centres should not be the dominant or only focus of OAE provision in physical education. In contrast, we favour the 'four zones of outdoor learning' approach identified by Beames, Higgins, and Nicol (2012) in which the outdoors is represented as a series of concentric circles located in, around and beyond the school: the school grounds, the local neighbourhood, day excursions or field trips and moving further afield, residential outdoor education centres. Collectively these four zones provide a much greater variety of outdoor spaces for OAE learning than is often made use of. We recommend that teachers locate initial experiences in the immediately accessible and known environment before working outwards to more distant locations that can provide increasingly demanding experiences. Identifying four zones in and around the school environment has many benefits, including opportunities for younger pupils to become accustomed to learning outdoors; increasing the potential for

cross-curricular outdoor learning at all ages throughout a child's education; maximising the learning potential of local environments; underpinning the meaningfulness of learning experiences within the pupil's known frame of reference and, not least, hugely increasing the opportunities for OAE to be introduced into the physical education curriculum on a more regular basis. What matters here is that outdoor settings are supportive of pupils' learning needs and abilities and connection is made to local and accessible outdoor spaces where pupils spend much of their time so that learning can be grounded in their immediate locality (Wattchow and Brown 2011; Beames, Higgins, and Nicol 2012). Self-evidently this will mean that different schools located in different urban/rural environments will do things differently. An inner-city secondary school may take advantage of a canal towpath, an indoor climbing wall or an urban skateboard park to connect with the pupils in its OAE curriculum. Alternatively, a rural school may use a local woodland, series of public footpaths or traverse wall attached to the outside of a building to take best advantage of its local environment and learning opportunities. No one form of provision should be expected across all schools and whilst many schools will make use of the same activities (such as overnight camping in the school grounds), it is essential that decisions over what, where, when and why to do OAE align with the learning needs of the pupils and are located within the school and community context.

A second non-negotiable feature underpinning OAE involves the use of *experiential learning* as a method. Most commonly understood in practice as Plan–Do–Review, this is a familiar and trusted approach used by outdoor pedagogues throughout the world and fits well with the idea of a pedagogical model for OAE in emphasising pupils' direct involvement in all stages of the learning process, as well as the supportive and progressive nature of OAE that connects earlier and new learning. More critically, it allows for important issues and questions to be raised that link practical experiences of OAE to broader issues of social justice, democracy and environment (Martin 1999; Loynes 2002; Roberts 2012).

On a day-to-day level experiential learning requires pupils to develop the basic physical skills, techniques and knowledge in a range of OAE activities that take advantage of local opportunities that are immediately accessible and part of local popular culture. These could include traditional activities such as climbing, sailing and canoeing as well as new and emerging activities such as slack-lining, paddle boarding and parkour. What matters in all these activities is that pupils are physically engaged and have the opportunity to develop basic knowledge and skills in moving, living and being safe outdoors in land and water environments. Becoming technically competent in physical activity builds self-esteem and personal growth and lays the foundation for future lifelong activity (Bailey et al. 2009). At the same time active participation allows pupils to appreciate different movement forms not accessible in other areas of physical education. In so doing, it makes meaningful connections between what is learnt in physical education and what can be done as a recreational activity in the local community as part of a physical literacy journey throughout life (Whitehead 2013).

Equally important to the method of experiential learning in OAE is the role of *reviewing* to support pupils' learning. We prefer the term *reviewing* to reflection or debriefing as it better denotes the role played by the teacher to scaffold and support pupils' curriculum learning that is at the heart of high-quality physical education (Vygotsky 1978). Teachers will quite correctly point to the lack of time available for reviewing pupils' learning experiences and the need to prioritise pupils' engagement and physical participation. Both are justifiable reasons for it not taking place, as identified by Casey, Dyson, and Campbell (2009) in their study of the use of group processing/reviewing when implementing a Cooperative Learning model for physical education. Likewise, even in OAE it seems equally unrealistic

to expect all learning experiences to be reviewed with the support of the teacher, and Greenaway (2008, 350) suggests, 'the fact that reviewing of experiences can bring out valuable learning is not an argument for reviewing *all* experiences'. In considering this issue further, Higgins and Loynes (1997) highlight the importance of participants having 'ownership' of their own learning, whilst Brown (2004) comments on the implicit power relations of the facilitator–pupil relationship in drawing attention to how facilitators structure 'the interaction that serves to regulate participants' opportunities to contribute, and how (s)he acts as a gatekeeper for the admissibility of knowledge' (101). Further to this Williams (2006) has noted how different facilitator approaches impact on pupils' learning in different ways, whilst Gass and Stevens (2007) identified eight generations of facilitation that have been popular over the last eight decades**.** In a similar way, Rea (2006) draws a distinction between the 'experientialist model' which allows the participants to construct their own learning from the experience if, how and when they want, and the 'interventionist model' which priorities the active processing of the experience by a teacher/facilitator. In the best instances this could include reviewing before, during and/or after an experience as well as making links with other subjects to encourage longer term reflections. On the other hand, research has repeatedly noted how reviewing is most often driven by the perceptions of the facilitator rather than being pupil-centred and guided (Chapman 1995; Brown 2004; Estes 2004). Recent research in the USA by Sutherland, Ressler, and Stuhr (2009) into adventure-based facilitation suggests that pre-service physical education teachers in particular struggle with how to facilitate an effective pupil-focused review. In response she has developed a Sunday Afternoon Drive debrief/review model for novice teachers to teach adventure-based learning working within the normal time constraints of a school lesson (Sutherland 2012). Balancing the need to support pupil learning through positive reviewing with opportunities for pupils to think independently and construct their own meaning from experience, a pedagogical model for OAE advocates the need for regular reviewing of OAE experiences and that teacher professionalism should determine precisely when, where and how that should happen.

A third non-negotiable feature of a pedagogical model for OAE is *challenge by choice*. Challenge by choice recognises the importance of pupils taking increasing responsibility for their own learning through their choice of the level of their engagement (Russell and Bisson 2003). Hodgson and Bailie (2011, 61) emphasise the importance of pupils being active agents in their own learning in which 'many benefits that clients gain result from their perception of their own competence and autonomy .... We undermine this aspect if we deny them the opportunity to make their own decisions'. In expanding upon this idea, we believe the most challenging experiences are ones that engage learners in all three domains of learning, and 'challenge by choice' empowers pupils to choose the level of their engagement with OAE. Russell and Bisson (2003) comment that challenge by choice is not a get-out clause for non-participation, but is more about allowing pupils to choose the level of challenge they engage with. As such it encourages pupils to be active and engaged at a level of their choosing and with the support of a teacher and peers to challenge themselves to push through their perceived boundaries and achieve new learning. Encouraging pupils to take increasing responsibility for their own learning is a fundamental principle of all subjects (DfEE/QCA 1999; WAG 2007; DfES/DCMA 2008a) and has a particularly strong tradition within OAE (Hopkins and Putnam 1993; DfES/DCMA 2008b; Beames, Higgins, and Nicol 2012; Ogilvie 2013). We are, however, aware that supporting pupils to constantly challenge themselves will also make significant demands on teachers. In particular, it means teachers will increasingly need to see themselves as facilitators of pupils' learning through which they encourage pupils to set their own challenges (Mosston and Ashworth 1986). It will

also mean that teachers are able to create learning opportunities to support pupil choices by establishing strong contacts with local organisations and professionals where the pupils' choice exceeds the teachers' personal skill set.

A fourth non-negotiable feature of a pedagogical model for OAE is that it makes use of *managed risk* as an educational tool in which pupils have an element of uncertainty as to whether they can meet the challenge before them. We propose a broad understanding of managed risk to include social, emotional and psychological risk as equally relevant to the OAE model as physical risk (Priest 1999). Applying this idea to a model for OAE, we are very aware that teachers' primary concern will be for pupils' physical well-being. This is both appropriate and understandable given the professional responsibilities that teachers carry; however, it is important that other forms of well-being linked to social, emotional and psychological risk are also addressed. For many teachers this is a normal and accepted part of their pastoral responsibility; however, in the process of becoming more involved with OAE in and around the school grounds, it is possible they may observe different pupil behaviour and attitudes. This need not necessarily be a cause for concern; indeed, many commentators have noted improvements in pupil–teacher relationships that can be fostered through OAE (Hattie et al. 1997; Rickinson et al. 2004; Ofsted 2004). However, teachers also need to be alert for contraindications in pupils' behaviour and attitude that may hint at more negative responses linked to different types of risk.

Addressing the concern over physical risk, teachers need to be aware that novice participants often overestimate the level of risk due to their minimal experience and introductory level skills. This subjective overestimation of physical risk provides the opportunity to build in success at the introductory level that should result in increased pupil confidence, self-esteem and personal growth (Wainwright and Williams 2012), which in turn will foster pupils' motivation to continue to make personal choices to challenge themselves in more demanding OAE experiences in subsequent years. What matters at the introductory level is that the challenge is set at such a level that all participants can and should succeed. Initial success supports raised self-confidence to undertake higher level challenges in the future that will in turn demand higher levels of experience and ability. Over time, these may not bring the same level of immediate success and will demand higher levels of commitment and ability on the part of the participants if they wish to achieve further success. Future success cannot be achieved when participants are exposed to a level of risk that is beyond their ability to manage, and teachers need to ensure that initial challenges are set at a level that builds in individual success (Hopkins and Putnam 1993).

The OAE model is the only model of physical education to actively engage with risk-taking behaviours as an educational objective. This has two clear benefits. On the one hand, it raises teachers' awareness of risk as a multifaceted concept inclusive of social, emotional, psychological and physical dimensions and more accurately reflects the potential for personal growth that is at the heart of the OAE model. On the other hand and over time, older pupils should develop higher skill levels, greater experience and continued motivation (premised on previous successes) to continue to engage with progressively more challenging activities, and they should do so as experienced, skilled, confident young people able to make decisions that are increasingly independent of teacher support.

Advocating managed risk as a non-negotiable feature of a model of OAE brings with it genuine tensions that will need to be resolved. From the teacher's perspective, it will require them to be able to make informed risk–benefit decisions about the learning experiences they introduce as well as broadening their understanding to encompass social and emotional

as well as physical risk (Priest 1999). It will also require negotiation with parents who may be uncomfortable with the idea of their child getting dirty, cold, scratched, bruised or upset as part of the physical education experiences, up to but not beyond a level of misadventure (Martin and Priest 1986). Both tensions will need to be addressed if pupils are to learn and grow as a result of their experiences.

All four non-negotiable features carry with them significant pedagogical implications for teacher knowledge, competence and training as well as for learner engagement. We recognise the size of the challenge this will present and are under no illusions about what it will mean for teachers and pupils. However, we feel confident that the distinctive contribution a pedagogical model for OAE has to make to pupil learning can only be fully realised through the inclusion of these four non-negotiable features as key components of pupils' OAE learning experiences. The final section of this paper briefly addresses other implementation needs for the model, and consideration is given to pupil readiness for learning, teacher expertise and knowledge, and assessment and model validation concerns.

Pupil readiness to learn

The success of any pedagogical model requires not only that it is grounded on an underpinning theoretical framework and research evidence of what learning is most likely to occur, but also that the teacher and pupils are aware of what learning outcomes are being pursued. From the teachers' perspective, this means that they need to be clear about not only what they wish pupils to learn, measured against National Curriculum expectations, but also how their teaching knowledge and decisions will support pupil achievement of the outcomes. Likewise, and perhaps more than any other model for physical education, a model for OAE that is firmly grounded in experiential and constructivism learning theories requires pupils to be aware of the active role they play in their own learning success. It is the teacher's responsibility to determine when to use the model within the Key Stages of learning identified within the National Curriculum and how it fits alongside other models of physical education. The ultimate arbiter influencing teacher decision-making must be that pupils are developmentally ready for the learning. This does not mean that the whole class will necessarily undertake the same learning activities within any given lesson. As with any lesson, teachers are expected to use their detailed professional knowledge of pupils' learning needs to differentiate learning tasks and promote inclusion, whilst at the same time building in success and allowing increasing levels of challenge by choice as appropriate for different pupils.

As with all pedagogical models of physical education, OAE will engage pupils in trans-domain learning during the experience. However, for the model to be most effective, pupils' readiness to learn will be determined by their willingness to embrace the idea of OAE as a valued and meaningful form of learning. Given the distinctiveness of the non-negotiable features of the model, teachers must expect that it will appeal to some pupils more than others. This is only to be expected given the variety of ways of learning that Gardner (1993) has outlined, and it may be expected that in the short term older pupils at Key Stages 3 and 4 may find it more difficult to adjust due its co-constructed approach to pupil learning. On the other hand, where this approach is introduced to pupils at the start of Key Stage 2 and builds upon Foundation Stage/Phase experiences in which outdoor pedagogy has been prominent, it is to be expected that these pupils will come to recognise OAE as one aspect of physical education where they are expected to take increasing ownership of their own learning as a preparation for life.

Teacher expertise and knowledge

Teacher expertise to facilitate subject-specific learning takes two forms: content knowledge and pedagogical content knowledge (Kirk 2010; Metzler 2011). Content knowledge for OAE requires teachers to have a basic understanding of skills, techniques and knowledge related to specific activities for younger age pupils and increased levels of understanding for secondary school pupils. Drawing upon the idea of more learning experiences being located in and around the school site and the absence of physical education specialists in most primary schools, it is unreasonable to expect, and indeed not necessary for teachers to have, high levels of personal ability in the broad range of traditional outdoor activities such as rock climbing, canoeing, sailing or mountain biking. The recent introduction of the Outdoor Learning Cards resource appears to meet the needs of non-specialist primary school teachers to teach OAE in and around the school within the normal lesson constraints of the school day and without needing specialist skills or equipment (Wainwright and Williams 2012). Teachers with the skills and knowledge to deliver new and traditional forms of OAE are more likely to be specialist secondary school physical education teachers who have a personal as well as a professional interest in outdoor pedagogy. Many of these teachers will have taken additional external qualifications such as rock climbing or mountain biking and have demonstrated their personal skills and leadership competency in a particular outdoor sport. Increasingly, it is anticipated that more aspirant teachers will be drawn from the growing number of outdoor education type undergraduate courses that have flourished in the UK in the last 10 years. Likewise, the well-established Duke of Edinburgh Award scheme already has credibility, an established infrastructure, widespread existing teacher expertise and popular uptake in many secondary schools and provides an ideal vehicle for teachers to expand OAE opportunities for pupils. Similarly, the local authority residential outdoor education centre has an important role to play in providing more challenging activities. Two points are important here; firstly, we do not feel that residential outdoor experiences should be limited to a single week-long experience as part of Key Stage 3. In line with others (Williams 2013; Christie, Higgins, and McLaughlin 2014), we believe that residential experiences have huge potential benefits at all stages of learning when introduced appropriately. These could include overnight camps in the primary school grounds as well as longer stays for secondary school pupils at a residential centre located further away. Secondly, the impact of more school-focused experiences will undoubtedly mean that pupils will have more experience and higher expectations of specialist outdoor education centres when they visit them. These centres will need to ensure they provide opportunities to extend and further challenge pupils if the experience is to be valuable. This can only be achieved by clear communication between the residential centre and school staff prior to a visit to ensure that the residential experience becomes a genuinely integrated part of pupils' learning (Williams 1995; Christie, Higgins, and McLaughlin 2014).

Other relevant content knowledge for teachers would include a higher level of knowledge around risk management and risk–benefit analysis (Ball and Ball-King 2011). The Certificate of Off Site Safety Management provides a valuable starting point for staff to improve their knowledge of risk awareness and risk reduction when engaged in educational activities. Also important are the roles played by The Educational Visits Co-ordinator and local authority Outdoor Education/Physical Education Advisor in supporting and advising teachers. Though many of these roles have been cut or amalgamated in recent years, local authorities still have a statutory requirement to provide advice to teachers wishing to undertake OAE activities. An up-to-date first-aid qualification is an additional professional competency expected of all physical education teachers and provides further reassurance to staff

new to the model. One particular concern for teachers will be their ability to balance the need to let pupils make informed judgements about risk without actually putting themselves at risk. Exploring the efficacy of different teaching approaches to balance teacher decision-making around risk with the need for pupils to take more responsibility for their own learning about risk is a high research priority that will, in time, inform the rigorous development of a fully tested model for OAE.

Pedagogical content knowledge compliments and circumscribes a teacher's content knowledge. A key component of pedagogical content knowledge is the teacher's ability to use the most appropriate teaching strategy to support pupils' learning of a particular content. Acknowledging the underpinning theoretical focus of pupils co-constructing their own learning, it is important that teachers will still use the full spectrum of teaching approaches available to them, ranging from command style didactic teaching to pupil-focused guided discovery and self-teaching, according to the specific task and learning needs of the pupil (Mosston and Ashworth 1986). Consideration will need to be given, as it does in all models-based approaches, to the interplay of learners, content, teaching approach and lesson outcomes (Metzler 2011). In some situations, such as when pupils are being introduced to particular physical skills and techniques such as traversing a climbing wall, tying a knot or spotting a climbing partner, safety concerns will most often dictate the use of a direct instructional approach. At other times, such as when pupils are learning to erect a tent or paddling a kayak on a canal or nearby watercourse, the teacher may elect to use a discovery approach. Over time and with more experience pupils will increasingly be able to take personal safety decisions for themselves within the broader context of the teacher having ultimate responsibility to ensure overall health and safety within lesson experiences.

One important aspect of pedagogical content knowledge that may require additional professional development beyond normal teacher training experiences is the specific knowledge of a range of pupil-centred reviewing techniques to underpin pupil learning and maximise learning transfer. In the UK, professional development opportunities for teachers in these techniques are relatively few and limited to the work of the Institute for Outdoor Learning or incorporated into training courses provided by national governing bodies such as the British Mountain Bike Association. Professional journals such as *Horizons* and *PE Matters* are the most accessible and user-friendly source of ideas for reviewing and regularly feature articles sharing tips, techniques and advice. In addition, in recent years the number of published resources has increased to support teachers' development of their outdoor reviewing skills (Rohnke 1989, 2010; Cain and Jockitt 1998; Greenaway, n.d.). This is another high research priority that needs to be fully researched in a range of different school settings across the whole secondary school age range. As a starting point, teachers are encouraged to draw upon more experienced teaching colleagues, professional development opportunities and experienced outdoor education professionals within the local authority to increase their reviewing skills. Alternatively, Sutherland (2014) have developed a 'Sunday Afternoon Drive Debrief Model' that provides a useful framework for conducting reviewing sessions that allow participants to understand the social dynamics of group work and 'to provide novice facilitators with the necessary tools to help students transfer or apply the newly constructed interpersonal and intrapersonal understanding to future groupwork or others situations in their lives beyond the classroom' (12).

Assessment and validation

Self-evidently all teachers working in the state sector will need to comply with the assessment requirements of the National Curriculum. The current requirement is a 'best-fit'

assessment based on the teacher's overall evaluation of a pupil's physical education learning which may/not include OAE as a compulsory entitlement depending on whether the pupil studies in Wales or England. What really matters for any teacher taking forward a models-based approach to OAE is that they fully understand its main learning outcome to be in the affective domain with other learning benefits in the physical and cognitive domains. All teachers will need to ensure they develop familiarity with the use of particular assessment tools to measure affective learning that will inform their overall assessment of a pupil's progress and achievement. This is important on three levels. First, at the broader subject level, Hay and Penny (2013) have drawn attention to assessment as a 'message system' which communicates the value of what is being assessed. Second, 'where some facets of a subject are assessed and others are not, by implication a distinction is made between the relative values of those facets' (Hay and Penny 2013, 5). Third, teachers will need to recognise the contribution of OAE to learning through physical movement for its own sake and as part of a lifelong journey for some pupils. Whitehead's (2013) conceptualisation of physical literacy as embodied learning and an outcome of high-quality physical education points the way forward for pupils being able to value physical movement for its own sake and as a potential part of their lifelong physical activity. Recognising the contribution of the model to pupils' broader physical literacy journey is, we would suggest, crucially important in cultivating an inclusive curriculum from which current and lifelong engagement in OAE is fostered. Developing appropriate assessment tools and teaching approaches to capture a pupil's disposition to leading a physically literate life is therefore an important research undertaking to be embarked upon (Capel and Blair 2013). We believe strongly in the value of physical education as a subject area that has meaning and value to pupils' learning and personal growth and it is important that OAE is recognised as an assessable and valued component of the subject.

In moving forward this agenda, two possible assessment strategies could include critical incident reporting used for the Cooperative Learning model, and pupil peer-critiques or reflective journals used for the Inquiry Teaching model**.** In addition, assessment needs to recognise the contribution made to changes in pupil attitude and dispositions to physical activity that are fundamental to lifelong physical literacy (Whitehead 2013). No single assessment tool is likely to cover the range of affective learning outcomes and teachers will need to make use of a variety of formal, informal, alternative and traditional methods according to the particular learning outcome being measured. Work undertaken by Hellison (2011) to assess pupil learning for Teaching Personal and Social Responsibility potentially provides a framework for how personal growth through adventure may be measured. Hellison has developed a hierarchical scale focused on pupils demonstrating they are 'getting better' at social learning that allows teachers to assess individual pupil learning over time, against prerequisite outcome statements, that may be a useful starting point. Consideration should also be given to the taxonomy of feelings, attitudes and values developed by Krathwohl, Bloom, and Masia (1964, 95) which identify pupils' hierarchical abilities in receiving, responding, valuing, organisation and characterisation of affective learning. At this stage in the development of a model for OAE, we recognise that the choice of assessment tools will take time and experimentation to refine; however, work done in other models-based approaches offers a valuable starting point for OAE.

Linking assessment with model validation, it will also be necessary in the future to demonstrate the model's effectiveness in promoting the type of learning identified from the research. Metzler (2011, 21) proposes three primary sources of feedback to validate models-based approaches: research, craft knowledge and intuitive knowledge. In the

advocacy paper we sought to synthesise the research findings on OAE (the first form of feedback to validate a model) and identified its main contribution to the affective domain of learning, in particular, in relation to personal self-esteem. Craft knowledge is the second form of feedback to validate a model and often takes the form of best practice based on accumulated teacher experience and sharing of ideas and approaches about what actually works with pupils. Intuitive knowledge is the third form of feedback available to validate a model and is most commonly used in the absence of craft knowledge and research. The introduction of new initiatives such as Forest Schools and the Outdoor Learning Cards as school-focused, local opportunities suggests that many teachers with a limited background in OAE activities will initially draw upon intuitive knowledge to validate their teaching approach. Encouraging findings from small-scale research by Wainwright and Williams (2012) into the impact of professional development around the Outdoor Learning Cards suggest that such training is well received and supports teachers' intuitive knowledge around how best to introduce more outdoor and adventurous activities into schools.

Conclusion

This paper has outlined how a model for OAE might be implemented in practice in schools in the UK. Guided by the design specification outlined by Metzler (2011) and grounded in a consideration of the theory, historical influences and a selected review of research findings, four non-negotiable features of a pedagogical model for OAE are identified as essential for pupils to have meaningful outdoor adventure experiences. These are being mainly outdoors, experiential learning, challenge by choice and managed risk. Identifying the contribution OAE has to make to pupils' learning in this way reveals the potential for better alignment of teacher planning and delivery with pupil learning and achievement that will help to promote standards, better realise the full potential of physical education and prepare pupils for lifelong physical activity in OAE.

Consideration was also given to other essential features of models-based approaches to physical education that teachers need to consider to underpin the models' authenticity, including pupils' readiness for learning, teacher expertise and knowledge, and assessment and future model validation. High priority implementation needs arising from these features include encouraging pupils to take more responsibility for their own learning, developing closer links between school OAE and local opportunities, supporting teachers in making judgements about pupils managing their own risk, and developing teachers' expertise in reviewing and identifying assessment tools that measure pupils' affective learning and physical literacy disposition. The next stage in this process is to implement and research the model in practice in a range of different local schools in order to evaluate pupil and teacher responses and to develop a robust, empirically tested, pedagogical model for outdoor adventure education that can fulfil its potential to make a meaningful contribution to pupils' learning in physical education.

Disclosure statement

No potential conflict of interest was reported by the authors.

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