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## **The Nature of Learning at Forest School: Practitioners' Perspectives.**

**This paper investigates forest school practitioners perceptions of learning at forest school to identify the topics covered, the learning styles, and the philosophies underpinning its delivery, based on interviews with experienced forest school practitioners. Practitioners identified the focus of learning at forest school as social development: teamwork, relationships with others, self-knowledge, and learning to take risks. Children also engaged with nature, and developed an attachment to the woods where forest school took place. Learning styles were kinaesthetic, sensory and experiential. Forest school leaders saw themselves as facilitators of learning, rather than teachers.**

### **Keywords**

Forest school, primary school, outdoor learning, negotiated learning, children and nature.

## Introduction

Debates about learning in early years and primary education are often polarised around competing challenges: teachers are under pressure to cover subject material, working within a discourse of achievement and standards (Maynard, 2007b) which contrast with more play-based approaches which are more adaptable to individual children's needs (Waite et al., 2011). Contemporaneously a grass-roots movement focussing on reconnecting children with nature has also been growing in North America (APRA/CPRA 2010; Children and nature alliance, 2009; Louv, 2005) and in the UK (Wooley et al., 2009; RSPB, 2010; Sustainable Development Commission, 2011; DEFRA, 2011; Moss, 2012). Education and the children and nature movement have come together in Forest School, a movement within education in which children engage in regular, repeated outdoor learning facilitated by a qualified forest school leader (Knight, 2009). The roots of forest school stem from outdoor kindergartens in Scandinavia (e.g. Udeskole in Denmark (Bentsen et al., 2009)), and now an increasing number of primary schools are engaging with this across the UK (O'Brien, 2009; Cree and McCree, 2013), and also in North America (Carruther Den Hoed, 2014; MacEchearn, 2013).

Forest school takes place within the context of multiple demands to teach defined curricula and achieve targets for attainment while nurturing children's physical health and social wellbeing. Research on outdoor learning (including forest school) has highlighted the need to 'deepen the research-based understandings of the outdoor learning process' (Rickinson et al., 2004 p. 56). In this paper learning is defined as 'a process of discovery that generates new understanding about ourselves and the world around us' (Ranson, 1998; 18).

This paper investigates how forest school practitioners are facilitating learning at forest school. It identifies the topics covered, the learning styles, and the philosophies underpinning its delivery. How does forest school link to subjects within the national curriculum? How

does the style of learning being promoted at forest school differ from that of the classroom?

How does the approach of forest school leaders differ from that used in the classroom?

This paper approaches the research from the perspective of forest school leaders.

Practitioners develop a wealth of experience over years of leading forest school sessions with multiple cohorts. They are therefore able to reflect and draw on this to give insights into forest school practice. This perspective changes the focus from evaluation of impact on particular classes or children and instead captures expertise gained from reflective practice by forest school leaders who have taught multiple groups of school children across the range of primary classes over many years. The Forest Education Network (FEN) ‘cluster groups’ of forest school leaders form a community of practice (Lave and Wenger, 1991). Using this network as a sample frame, this research has identified experienced forest school leaders working with primary school children. Twenty forest school leaders were involved in semi-structured interviews resulting in rich qualitative data, which has been transcribed and coded to capture knowledge relating to the research questions.

This paper contributes to debates on the role of outdoor learning in primary teaching, and contributes to knowledge by providing a deeper analysis of how practitioners facilitate different types of learning at forest school and its place alongside classroom teaching. The findings show that although parts of the national curriculum could be taught in forest school, practitioners focus more on personal, social and emotional development. There is also development of skills (e.g. tool use), employing kinaesthetic and sensory learning approaches rather than focussing on nature education and science *per se*. Forest school leaders see their role as facilitators of child-led learning, and as children gain confidence in forest school settings the leaders help them to negotiate their learning.

## **Children and nature**

Concerns about children's access to and engagement with nature are the focus of movements in the USA (Children and nature network, ([children and nature.org](http://childrenandnature.org)), Canada (Children and Nature Alliance <http://childnature.ca/about-alliance>) and the UK (Project Wild Thing <https://projectwildthing.com>; National Trust <https://www.50things.org.uk>). It is widely claimed that concerns for safety have resulted in children's opportunities for free play outdoors being diminished (see for example Kellert, 2005; Wooley et al., 2009; Clements, 2004; Outdoor Foundation, 2008). A survey monitoring engagement in the natural environment in the UK suggests that disconnection from nature is more prevalent in urban environments and among children from lower socio-economic classes or BAME<sup>1</sup> backgrounds (Hunt et al., 2015). Research suggests that children spend less time playing outdoors than they did a generation ago (England Marketing, 2009), with children engaging in more structured activities timetabled in afterschool clubs or activities instead (Holloway and Pimlott-Wilson, 2014). With the reduction in free play in natural environments, the role of education in providing opportunities for children to learn about and engage with nature is of increasing importance.

Individual studies have found that free play supports development of social bonds with friends, exploration and risk taking, and connection with nature (Pretty et al, 2009). Playing in nature is claimed to support creativity, problem solving, emotional and intellectual development in middle childhood (Kellert, 2005). Being in nature is also said to encourage bonding with the natural world (Chawla and Cushing, 2007). Further, research shows the importance of childhood as a formative period for developing knowledge of the environment,

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<sup>1</sup> Black, Asian and Minority Ethnic

and an interest in being in and conserving the natural world (Pretty et al, 2009; Chawla, 1999 and 2009; Ward-Thompson et al., 2008). Gill's (2011) review of empirical evidence concerning children and nature covers literature published from 2003 – 2010, and includes 61 studies assessed against benefits offered in terms of health, well-being, cognition, social skills, emotional / behavioural impacts and ethical / attitudinal impacts. This review found evidence to support claims that exposure to natural environments increases environmental knowledge, encourages development of pro-environmental attitudes, impacts positively on mental health, and that proximity to green spaces is linked to physical activity. However he does emphasise that rather than being a panacea, spending time in nature is just part of a balanced diet to support children's development.

## **Outdoor Education**

Outdoor education is claimed to promote environmental learning and support personal development: what Henderson (2007) calls 'eco' and 'ego' goals. Outdoor education is said to allow children to experience nature, face challenges, and in the process develop team working and negotiating skills, engage in creative thinking, critically analyse situations and develop problem solving skills (Cooper, 2003), although Gill's (2011) review found less evidence to support these claims. Several research studies suggest that outdoor education provides a more stimulating environment, where children find learning more enjoyable and motivating (Nundy, 2001), and more memorable (Dillon et al, 2006; Dierking and Falk, 1997; Nundy, 2001; Peacock, 2006). Dierking and Falk's (1997) study of 128 adults found that 96% recalled field trips undertaken when young school children. Peacock's research with 90 children also indicated that outdoor learning was memorable, although these children were involved in sustained engagement and repeated visits to specific outdoor learning sites, rather than single trips (Peacock, 2006). A review by the U.S. National Research Council

(Bell et al., 2009) states children in informal learning environments experience ‘excitement, interest and motivation to learn’ (page 4). Rickinson et al.’s (2004) review of outdoor learning critically reviews 150 ‘pieces of research’ on outdoor learning from 1993 – 2003. Their findings stress the importance of planning, fieldwork teaching and follow up in the classroom to ensure that outdoor learning contributes to and supports classroom learning, and this contrasts with some approaches to outdoor learning as an additional ‘fun’ extra (Malone, 2008). Although generally positive about the potential of outdoor learning, Rickinson et al. (2004) do note several studies which indicate that some children may find outdoor learning frightening due to hazards or fear of dangerous plants and animals (Simmons, 1994a and b; Bixler et al, 1994; Wals, 1994) or handling unpleasant natural materials (Bixler and Floyd, 1999).

Outdoor learning can be achieved in many ways, with many schools developing their school grounds, outdoor play areas, as well as offsite day trips, and residential field trips (e.g. adventure activities, field studies council residential centres etc.). A particular form of outdoor learning which has become increasingly popular across the UK is Forest School. Challenges to embedding outdoor education in schools have been identified: many are practical or logistical such as costs; health and safety; training for staff; and awareness of opportunities (Dillon and Dickie, 2012). The authors of this report encourage provision of support and training for teachers to enable them to recognise the potential of the outdoors to support learning. Over time, education in England has moved from a more child-centred approach dominant in the 1950s and 1960s towards standardisation and the introduction of the national curriculum in 1988 (Joyce, 2012; Waite, 2010, 2011). The national curriculum is seen as a ‘centrally determined structure’ (Waite, 2011) which has homogenised teaching. Its focus is on transmission of knowledge from teacher to pupil, described as ‘directive’ (Waite,

2011). Excellence and raising standards have been the focus (DfES, 2003a), with league tables of school performance to measure achievement. This audit culture, combined with growing concerns for health and safety and risk aversion, presents a challenge for proponents of outdoor learning and more child-led forms of teaching (Waite, 2010). The Rose Review of the Primary Curriculum (Rose, 2009) called for cross-curricular learning, and Every Child Matters (DfES, 2003b) encouraged consideration of children's personal, social and emotional development. The Learning Outside the Classroom manifesto (DfES, 2006) called for greater diversity of learning sites, especially outdoor learning. Proponents of outdoor learning are increasing (UK NEA 2011, Rickinson et al., 2004), and the council for learning outside the classroom continues to champion outdoor learning. As concerns rise about time spent outdoors and over-protection of children (Malone, 2007) forest school provides opportunities for assessing and taking risks.

Education is at times perceived as a set of dichotomies: in the classroom or outdoors; teacher led or child-led; outcome oriented or process oriented. There remain tensions between meeting the demands of the national curriculum (pursuing excellence) and activities which are seen as enriching the learning experience (ensuring enjoyment), with school trips and non-core curricular activities often seen as contributing more to the latter, and less to the former (Waite, 2011 ). Malone (2008 pg. 25) differentiates between 'the real work in the classroom and the additional 'fun' work outside the classroom'. Rea (2008) asks whether outdoor learning should be an extension of classroom learning to an outdoor environment? This paper considers how forest school practitioners facilitate different types of learning.

### **The emergence of Forest School**



Forest school is a form of regular outdoor learning which draws on the outdoor kindergarten practices of Scandinavia (Knight, 2009; O'Brien, 2009; Joyce, 2012). At forest school children attend outdoor learning sessions regularly and repeatedly (e.g. weekly or bi-weekly) for a minimum of six weeks and possibly extending throughout the school year. Children are given freedom to pursue a range of activities such as den building, fire lighting, nature craft or climbing. Initially aimed at younger children in the early years / foundation stage of education (Davis and Waite, 2005), with a focus on learning through play (Fjortoft, 2001) it is now being used with older groups of children from across the primary school years, and also with older children with specific needs (see Knight, 2009, 2011). Forest school is described as 'constructivist education (O'Brien, 2009) with children constructing meaning through interaction with each other and the natural environment. The outdoor learning environment is seen to provide a flexible social space with multiple opportunities for learning and interacting with others.

Initial exploration of the impact of Forest School has been on a case-by-case basis (Maynard, 2007a; O'Brien and Murray, 2007; Swarbrick *et al.*, 2004; Knight, 2009; 2011). Early evaluation of forest school in England (O'Brien and Murray, 2007) and Wales (Davis and Waite, 2005) drew on mixed methods approaches and case studies to begin to scope the impact of forest school on children. As Davis and Waite (2005, p.2) stated 'due to the exploratory nature of the research and small numbers involved no definitive claims can be made.' O'Brien and Murray (2007) mentioned the challenge of capturing anecdotal evidence. Borradaile's (2006) evaluation of forest school in Scotland relied heavily on interviews with key informants from the forestry, environment education and outdoor learning sector, and two primary school teachers. These initial reviews highlighted the diverse benefits which might arise from forest school, as well as the variability arising across forest school provision due to differences in leaders and supporting adults, sites, children and weather during sessions (Davis and Waite,

2005). Subsequent more detailed studies often focus on a single purported benefit, drawing on case studies or small cohorts. These studies suggest forest school aims to contribute to learning in a range of ways: in addition to learning about the environment children learn social skills and citizenship skills (Knight, 2009; Swarbrick *et al.*, 2004), and it aims to support physical and mental health (Lovell and Roe, 2009; Maynard, 2007).

Since these early studies forest school has becoming more widely adopted, as practitioners argue that it is much more than “mucking about in a wood” (Ritchie, 2010) and provides a valuable learning and development experience for children. This is an area where practice has preceded debate and theoretical development. It is recognised that the effects of forest school in primary school children needs further assessment to provide more robust evidence of whether the investment in delivering forest schools is worthwhile and a call for more thorough research based on a common methodology has been made (Murray, 2003). Formal research is hampered by the practical and logistical considerations which preclude setting up a specific comparative “trial” of the impacts of forest school on a large number of children under conditions of rigid experimental control (Smith-Sebasto, 2000). The challenges of working in more detail with larger cohorts was discussed in a seminar in 2010 (Harris *et al.*, 2010) and key factors included the identification of quantifiable outcomes that are easily and reliably measured in the context of forest school sessions and activities. Use of pre and post tests is challenging in small children who are still learning to read and write. Teachers’ data assessing children’s attainment and development is often confidential and not accessible to external researchers.

Waite and Goodenough (2010) identified the role practitioners can play as ‘conduits of evidence’ through their access to children participating in woodland activities, and claim that through their training and skills in observation of children, practitioners will be able to recognise when and how activities are affecting child participants. However they also

recognised that many of the supposed benefits of forest school as ‘soft’ and harder to assess and measure objectively. This highlights the need to move on from small scale research and anecdotal evidence, and instead work with those with longer term experiences of forest school working across a range of groups of children.

Forest school practitioners are specifically trained to gain a qualification to lead the sessions. This involves training in the ethos of forest school (regular, repeated activities to allow children to build skills and self-confidence), bushcraft skills; child development (schemas); nurturing personal, social and emotional development through teamwork and managing behaviour; and risk (risk assessments, health and safety first aid) (Archimedes training Ltd, nd). Practitioners come from a range of backgrounds, including school teachers, teaching assistants, and those working in early years settings; environmental educators, (often working for wild life trusts or conservation bodies) and those from bush craft / outdoor adventure organisations. Many forest school leaders come together regularly in regional ‘cluster groups’, developed by the forest education network (formerly Forest Education Initiative). This community of practice (Lave and Wenger, 1991) allows forest school leaders to exchange ideas for best practice for working with different age groups or specific groups of children. Training is now ‘governed’ by the forest school association, which seeks to ensure rigorous quality, as well as CPD to support leaders after qualification.

## **Method**

This research was developed following a pilot study of forest school, which involved participant observation of children attending weekly forest school sessions over a half-term (5-6 weeks). The pilot study observed 6 cohorts of approximately 12 children each (total 72

children) all attending the same programme of 6 forest school sessions for a half term. This pilot study identified three research questions, and this paper focusses on the first:

What do experience leaders believe children learn while at forest school?<sup>2</sup>

In order to expand the scale of the initial pilot study, it was decided to work with forest school leaders, drawing on their experiential knowledge and informal learning through their repeated practice. Through working with practitioners who have worked in many settings and schools with a wider range of ages and classes, the research have moved away from anecdotes and case studies to wider reflection on the practice of forest school. The research draws on the expertise of 20 leaders who have each been involved in forest school for more than 40 sessions (making a minimum of 800 sessions).

Research with practitioners seeks to capture their deep understanding of forest school based on leading multiple sessions and engagements with many cohorts of children and individuals. Practitioners develop and hone their skills through observing, informal experimenting, trying things out, noticing changes, adapting and innovating. Identifying and drawing out that knowledge involves interviewing and discussion about critical incidents (Chell, 1998), ways of knowing, and reflection in action (Schon, 1983).

The FEN cluster groups provide a large sampling frame of practitioners. Practitioners from five cluster groups (54 individuals), encompassing rural, urban and peri-urban regions, were emailed with a summary of the proposed research and an invitation to participate. This was followed by telephone calls confirming willingness to participate. Only those leaders who were fully qualified (OCN Level 3), and had experience of leading more than 40 sessions,

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<sup>2</sup> The other two questions below are addressed in other papers:

2/ how do children respond to the forest school environment and experience?

3/ what is the impact of being outdoors?

focussing on primary school children, were included in the research. Twenty forest school practitioners were interviewed by telephone. The research draws on qualitative data, developing theory as it emerges from analysis and coding of the data. A semi-structured interview schedule was prepared drawing on the pilot study, and focussed on the three main research questions above. Core questions were explored further through use of interrogators (why? how?), exemplification, and discussion of critical incidents. It could be argued that there is a bias inherent in the research as active practitioners are likely to be in favour of promoting forest school, but there is no other group who has such depth of experience of forest school. To encourage a more balanced discussion those interviewed were also asked if they had any criticisms of forest school<sup>3</sup>. Twenty interviews were conducted by telephone. Each was recorded, and then transcribed. Coding was carried out for each interview, according to themes identified during the pilot study. These were then collated by theme for further analysis. Learning at forest school sessions was described in many ways. 19 themes were identified (Table 1).

[Insert Table 1 here]

## **Results**

Among forest school leaders, potential links to the national curriculum were acknowledged by 6 of the 20 interviewed, but often not overtly or explicitly pursued. Instead, forest school practitioners highlighted other aspects of learning at forest school. The most commonly mentioned themes were development of relationships with others, and development of relationships with nature. There was a strong focus on nature education and kinaesthetic and sensory learning styles, as well as taking responsibility and assessing risk. The themes have

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<sup>3</sup> Their responses largely focussed on issues relating to governance of forest school and the quality of forest school leaders, and so are not discussed in detail in this paper.

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been grouped into five broad areas as defined in Table 2 to structure the presentation of results.

[Insert Table 2 here]

### ***Personal, Social and Emotional Development***

#### *Relationships with others (L6)*

An important objective of forest school relates to personal, social and emotional development of the children, in particular children's relationships with others. Children were encouraged to take turns, to negotiate, to listen to each other, help each other and cooperate. Through this forest school leaders perceived that children developed social skills, including empathy, emotional intelligence and self-regulation.

*'it's very social, it helps with building their peer groups and things which sometimes they will be inhibited within a classroom,' (Int 8)*

*'Every session has an element of PSHE in it, ....get them to think about what things they need to consider, and why, and how they can help each other with that...' (Int 9)*

Forest school practitioners reported that this building of relationships also enhanced their communication skills (L19).

*'one unexpected outcome that has surfaced is language and communication development because obviously there's a very social element to it and children that have struggled in the classroom particularly with language, their language has really, really come on as a result of attending forest school regularly' (Int 16)*

*'And also just as good for listening' (Int 5)*

The challenge of a new setting affects children in different ways, with many interviews reporting examples of those children who are confident in a classroom setting taking time to gain confidence in an outdoor setting, and those who struggle in the classroom enjoying the space and different learning styles of the outdoor setting (see XXXX, forthcoming).

*'picking them up and taking them outside of what they're used to and popping them down in a wood and giving them all these completely different things to do is amazing because it puts everybody on a level footing. So I think... I've worked with groups before where the bully and the bully's victim have been in the same Forest School group and actually it was the victim that was much better at Forest School and the skills that we were learning in that – and so, as a result, the other one seemed quite down, and that transferred back into the school environment as well. So I think there is a huge amount to be said for that. And also, for example, a group of however many kids, when it's raining, and getting everyone to work to put a tarp up or something like that, yeah, it does work hugely on their social levels.'* (Int 1)

#### *Self Esteem and self-awareness (L7)*

Forest school leaders spoke of forest school enabling children to develop self-confidence.

*'it promotes self-esteem and self-confidence by presenting small and achievable tasks.'* (Int 2).

*'We take children at their own pace. So we're not expecting them to reach a certain level, we are supporting them to reach the level that they can reach themselves. So we're building them up rather than making them feel that they have got to succeed.'*

*We build them up to succeed by short achievable tasks and activities. So that's a very important part of it.'* (Int 18)

Those interviewed commented on children learning about themselves: their capabilities, both physical and emotional, and how to respond to challenges. They claimed children learned to cooperate and also to be independent (Int 11, 12).

*'I've noticed that the children are the shyer ones, the ones in class that aren't the most confident, the ones that won't speak out a lot, quite introverted, I have noticed when I'm doing 8 to 10 weeks that they will come out of their shell and the frequent comment that I get from the adults that come out with me is that they are completely different outside, they are taking part, they look happy. It seems to work very quickly for those sorts of children and has a big impact on those sorts of children..... shyer ones, introverted ones, it seems to bring them on very quickly I think.'* (Int 10)

### ***Risk and responsibility (L9)***

Children were encouraged to learn to identify risks such as nettles, assess risks such as how high to climb in a tree, and to address risks such as deciding how to dress to keep warm and dry in inclement weather. Older children were reported to learn to site, build and light fires. Forest school practitioners assist children learn to identify hazards and moderate their behaviour or actions if necessary. At the same time they are encouraged to push boundaries, balance on a higher or wobblier log, climb a little bit higher, and so test the balance between adventure and danger. Forest school leaders perceived that through this they also learn to take personal responsibility for their wellbeing: what are the pros and consequences of becoming



wet or muddy? what must they do to keep warm and dry? Where is a safe place to use sharp tools?

*'I think if children are going into the forest, if they're learning that they can actually work with the weather, if they can work with the cold, if they can keep themselves warm but not destroy the place in the process, those kinds of skills and attitudes....'*  
(Int 17).

## **Topics**

### *Nature Education (L1)*

Forest school provides an environment in which children can learn about the natural environment in which they are situated. However, in interviews it became apparent that nature education is not the primary goal of forest school, but incidental to the activity. The child-led learning methods results in forest school leaders following children's interests.

*'we don't plan it as a special activity per se, but what it is it is something that happens every lesson and every session,' (Int 4 CF)*

However, practitioners acknowledged that as forest school takes place in a natural environment, there exists the possibility of nature learning following children's interests, or even tacit learning and experiential learning through their activities.

*'The environmental knowledge one is probably from a Forest School point of view it's important, but I wouldn't say it was the most major factor. The Forest School is really the vehicle through which it goes. They pick up environmental knowledge, but I think it tends to be incidental to the ethos, because a lot of the things you could do*

*could be related to maths or numeracy or art, and the environment is just the, sort of – what would you call it? – the method through which it is taught. I don't think there's a great deal of environmental knowledge itself actually doing within Forest School. There is a certain amount, so if you're collecting up minibeasts and little creatures then you might talk about where they live and what they do, but I think that's really a minor part to the learning.' (Int 5JH)*

Such learning was reported to be contingent on what children see and hear while at forest school. For example, in soft mud or snow they may be able to see and follow animal tracks. Forest school leaders perceived that children notice habitats, how the environment changes, that some areas are windier or cooler, and ask 'why?'. They claimed such observations lead them to raise questions, and the explanations result in learning. In some cases forest school leaders supported children with binoculars or magnifying lenses and nature books (either on site or back indoors).

*'you get the ones that want to do the nature activities, they might want to make a bird box and put it up or make bird food into the wood, or they might want to do a bug hunt or looking for tracks, so they're really keen on the nature interaction and the learning about the environment.' (Int 18 HA)*

#### *Skills (L8) and Tool Use (L 14)*

Practitioners discussed children learning a range of skills while at forest school. In particular, tool use, which enabled children to engage in nature craft activities such as weaving, threading to make jewellery, and whittling, all of which were said to be linked to

development of fine motor skills. Practitioners also identified development of gross motor skills through gathering and collecting wood for fire building and den building

*'Quite a bit of the construction, they are building and making things. It's difficult, isn't it, moving their body some ways and bits... fine motor skills as well....tool work and showing them how to use different materials and resources...'* (Int 10)

Practitioners claimed that in doing these activities children are actively experimenting and problem solving.

#### *Learning and the national curriculum (L16)*

Forest school leaders were aware of potential links between the national curriculum or classroom learning and activities at forest school. However they also commented that forest school is quite different from children being assigned a set of activities to do:

*'I have heard people say, "Oh, yeah, we took our children out to Forest School and it didn't work on them" or something like that..... then you find out they actually only went out for a couple of sessions or there was a set of activities that the children had to do, so they're not doing what Forest School is.'* (Int 19)

*'We do this PSHE citizenship type role .... also curriculum-based learning, i.e. subject biology, geography, that kind of thing. I think it just enhances it all.'* (Int 2)

*'I wouldn't attempt to teach trigonometry necessarily outside using Forest Schools, but what I would do is I would get the children to study plants. So whereas in the classroom you might show them pictures on the whiteboard or in books, outside we can touch them; we can feel them; we can smell them; we can bring them to life.'*

*When we study, say, an alternative culture, instead of showing them pictures of them living in the huts, we can actually go out and build the huts....we bring in technology; we bring in materials;.... What I wouldn't be promoting though is that we could then go and do, say, spellings.....if it's doable, definitely doable genuinely, we do it outside. If it's not doable .... it's much better off done in the classroom.'* (Int 4)

*'on Monday we did a literacy enrichment for primary schools and the idea is that it would be like a springboard so that those children that, you know, are kinaesthetic learners and don't necessarily take to the usual delivery of literacy could find a more physical way, an exciting way of, you know, getting involved in creating stories.'* (Int 6)

*'yes, you can talk about that stuff in the classroom, but why on earth would you when you can take these children out and they can hear the birds, they can see the birds, and they can recognise them again.'* (Int 17)

*'They do maths when they are counting things in, counting things out, looking after things, they learn physics when they bounce on a log, and they work out how much force they are using to make it go, and they use problem-solving skills, when they are doing things like putting up a rope swing, how are we going to get it over there, what do we need, do we have to get a teacher, do we have to get a log, how long does the string have to be? It is huge. Geography, where we are in the woods, you know it is just massive!'* (Int 20)

However achieving national curriculum outcomes was not prioritised within most lessons.

In fact, some felt the opposite, that Forest school was a space free from the demands of the National Curriculum (see XXXX, forthcoming).

*Learning styles (L3, L11, L13, L18, L17)*

Learning styles were described as kinaesthetic (L11), play based and imaginative (L3 and L4), and sensory (L13) as well as practitioners discussing children learning through experience or discovery (L18) and peer-led learning (L17).

*‘They are observing, you know, they’re learning in a sensory way, both, sort of, being immersed in different... the sounds, the smells, the sights, so I think their observational skills often, you know, they noticeably improve their powers of observation.’ (Int 6)*

*‘I think the main thing is because you are using all of your senses, so sensory, is brilliant.’ (Int 8)*

*‘The way we’re showing things is like learning at first hand not just using obviously the talking, standing in front of the children is like letting them use their five senses to learn so we’re always explaining about, I don’t know, different materials or they can actually see, they can smell, they can touch, they see through the changes [seasonal] as well’ (Int 12)*

The ability to move around and be active while learning was ‘more suited to a number of our students’ (Int 4) and leaders said kinaesthetic learners ‘Thrive ‘ (Int 16) in the forest school environment. The difference between touching, smelling and doing instead of looking at things in books was raised by several (Ints 3, 6) as was using the full range of senses (Ints 2,3,6,8 and 12).

*'I think experimentation is very important too; just, like, having permission to do things the wrong way and then working out for themselves their own way of doing things in a better way. ....I saw how empowering it was for children to actually try things out rather than just be told that this is, you know, or look in a museum.'* (Int 6)

### ***Connecting with nature***

#### *Nature Engagement (L2)*

Forest school leaders frequently stressed that forest school allows children to engage with nature first hand – to touch, feel and smell.

*'It's one thing just looking out at it – it's quite another getting to a point where you want to pick the worm up.'* (Int 1)

Forest school practitioners noted these children are engaging with the natural world, recognising and using natural things.

*'I've certainly seen an enthusiasm amongst the children with recognising the natural world around them. This delight in being able to name a bird or name a tree or, say a leaf, "that's an elder!" you know, that kind of, just that natural ability to recognise something, want to share it with somebody else that just bubbles out of them. I think that's fantastic, and that certainly developed'. (Int 17)*

Practitioners argues that this enables children to internalise knowledge and learning so they are able to interact with nature, know how best to use natural materials, and can undertake detailed observations of nature resulting in recognition, naming and classification.

For some children, this opportunity to engage with nature only comes through school activities:

*'I'm experiencing now second generation nature deprivation – so parents have never gone and played outside, so they don't know how to take their children outside, the outside is just this rather wet and muddy and dangerous place. Okay if it's a grassy park with a climbing frame in it, but anything else, it's rather messy, dirty, full of dangers and best kept well away from. And I think that children are missing out terribly. And I think the world is going to miss out, because children aren't going to want to protect the environment if they don't know about it'. Int 18*

#### *Relationship with nature and woods (L5)*

'Yes they do develop a really close attachment to the site.' (Int 20). The ability to return to sites depends on their accessibility (public access, school grounds, private land) and distance from school and home. However, within these limitations forest school leaders spoke of children returning to forest school sites at break times, after school and at weekends, and also in subsequent years. Practitioners described how children would speak about this, or they would leave signs of having returned: continuing to construct dens of fire circles; leaving messages for other groups; and in one case, graffiti.

*'we used the playing field area which is opposite our school,... they go back at weekends, or they go to the park and they use it for family picnics and things like that. And I can tell when we go back, 'Oh, that den has been changed a bit,' so, yeah, they use it but it is a public space.' (Int 8)*

*'I certainly know the year fours that have left still go because they still come over and say hello to us and leave a little message somewhere in a den.'* (Int 8)

*'Some of them do, because a couple of the sites are actually the school's, like their woodland garden, so they do every day, they know the woods better than me!*

*Others of them don't go there, because they have to be bussed in, so they only go there with the Forest School. I do know that some of the public land that we use, the children take their parents there and then go and play the games with them, and then they run around the woods...' Int 21*

*'we have reports from parents that the children have nagged them to go out and take them to all the places. And certainly when I have done parent-children groups, they go out a lot more. I don't know how long, I mean my longest experience is kind of over a six year period, and as far as I am aware, the children are going back but that is what they do in their own time, I can't really monitor.'* (Int 20)

This attachment to the forest school site applies to urban spaces as well as more rural woodland sites.

*'the reality is that most of the people that I work with, most of the places I've worked, are urban settings that are harder... well they're harder for us as adults to see as being special places but, yes, children to develop a relationship with that place.'* (Int 11)

Forest school leaders also commented how the sessions enabled children to change their views from forests being dark and scary places to being places where they can have fun.

*'I think it becomes less threatening to them. I think a lot of children initially when they come into Forest School are quite frightened by the outside. I think that comes*



*from the sort of background. I mean, most of the children we work with come from the inner city so the woods is a scary place. We'll often get comments like, "Are there wolves in your woods?" Things like that. So it's attached with things like nursery rhymes as well and tales from the past, you know – the outside is a scary place. They've been told by their parents not to get dirty, not to go outside, so I think in their mindset outside is a scary place, and I think it takes time for them to realise that forests, woodlands are a fun place to be. So perhaps, particularly on a first session, you'll find children that don't want to explore on their own. They'll go with others, but by the time you've got on to the second and third session their relationship with the woodland is they see it as not a threatening place, but as a fun place. So I think that's probably one of the big things that, sort of, changes over the time: their relationship to the woodland environment is different at the end compared to what it was like at the start.' (Int 5)*

Forest school practitioners described children becoming familiar with specific trees and den areas, and spoke of mental maps (Int 3), and children naming special places ((Int 6). One boy returned after more than 4 years and said 'this place changed my life' (Int 6).

*'some of the children, when they first come, actually I don't think they have been in the woods, as they were like oh it is really dark in here, and a bit scary, ..... But they start to get a bit of an empathy for the woods, and they have a special place, and a favourite tree, and...there are certain areas that they like going to....and then they like being out in the woods.'* (Int 21)

It was further claimed that this attachment to a special place can then give rise to environmental concerns

*'sometimes when we've had children .... to them, a wood is just somewhere where they pull it to pieces .... other children look quite horrified at that. And then after a few sessions those children [who pull it to pieces] very quickly, sort of, learn how to act and behave around the plants and show them respect and to, sort of, look after their environment, if you look.'* (Int 4)

## **Discussion**

### ***Progression at Forest School (L15)***

Leaders recognised the need to keep forest school challenging, rather than repeating things year on year. Leaders were able to tailor sessions according to the group of children coming. In particular, they felt children of different ages gain differently from forest school (Int 1) and claimed that as children grow they 'take on' different things, and are able to develop activities for themselves (Int3). Practitioners explained how children build on their skills and knowledge as they get older (Int 10) with progression being seen through levels of skill acquisition (Int 5). For example, EYFS children engage in imaginative play, explore, and may observe minibeasts. (Int 1) and it was suggested that such children are learning to be independent and cooperate, developing communication skills. Leaders explained that younger children were allowed some structured time and some free play time (Int 10) and may interact more with adults, whereas older children are more independent from adults. Physical boundaries are also adjusted as children get older, allowing children to explore over a larger, and higher (if in trees) area.

One forest school leader described progression in terms of fires: there is a transition from children having the fire lit for them so they can toast marshmallows, to the children building

and lighting the fire themselves (Int 8, 12). Similarly, young children might engage in a bug hunt, whereas older children might do a more complex audit of bugs (Int 8). Older children might also build larger and more complex dens, learn to use knives instead of potato peelers to scrape bark from sticks, and perhaps recognise and follow animal tracks (Int 19). The development of social skills evolves as children get older (Int 1), from playing alongside each other to together, and developing communication and negotiation skills as group work becomes more complex. As children grow older some forest school leaders suggested progression lead children towards either Bush craft, (focussing on skills), or John Muir awards (focussing on environmental education) (Int5).

### ***The Challenge of negotiated learning***

Forest school leaders discussed the balance between directing learning at forest school and allowing children to shape what is done at forest school. Initial sessions tended to be led by the forest school practitioner as ground-rules were set in the new environment: delineating the places children could go and rules for behaviour (e.g. relating to safety). Once children became familiar with the site and forest school practice, negotiation began.

*‘what we’ll often start off with is very, sort of, simple activities, and we’ll introduce things for the children to do. We don’t tell them what to do; we, sort of, introduce if today you’d like to, you know, do mud painting that’s fine, this is what you can do, but if they decide to do something else and it’s safe then we’ll let them do that. And at the end of sessions we always say, “What would you like to do next? If it was your choice, what would you like to do?” ..... it’s child led, rather than teacher led learning... the children are in charge they take responsibility for it and they know that they’re going to be able to achieve at their own level and therefore that’s where the*

*confidence and self-esteem starts to grow.... if they know they're not going to be wrong, or they can't really fail at Forest School that's where the benefits come from.'*

(Int 5)

Interviewees reported that some children did this through requesting to do activities they enjoyed. There could be discussion about plans for future activities, during which children expressed their preferences.

*'they get chance to develop things and to have a say, really in how things are organised and the ways in which things happen, so they do negotiate and they do have some, sort of, a bit more control, a bit more, sort of, power I suppose.'* (Int 3)

Some forest school leaders are happy to completely change plans in response to children.

*'We present suggestions and ideas, but ... if there's something that the child wants to go with we're flexible enough to be able to, you know, take it in that direction. And I think that's absolutely crucial because, you know, for some of them it's a completely new experience to actually decide what they would like to do and how they would like to develop something.'* (Int 6)

However others do not always do this, and discussed the tensions between negotiated learning and directive learning during the interviews.

*'I think negotiated learning has its time and place. I also think that, sort of, very didactic learning has its time and place. And what I promote myself, what I sincerely hope I do in practice and what I, sort of, instil in any of the students that I have is that we build up our skill set so that if a situation arises or an activity arises that needs a particular style we deliver it to the children. You couldn't have constantly negotiated learning. Vice versa, you know, we know that, sort of, very*

*much the controlled type of education, yeah, has its moments, but it also has its weaknesses..... negotiated learning has its time and place, but unless the children know which direction they want to go in and experience it can, sort of, in cases, you know, they, sort of, get lost, if you like.’ (Int 4)*

Facilitating child-led learning was acknowledged to be a challenge.

*‘They get very little choices within school, within mainstream education, .... They’re allowed to make choices [at forest school] but the question is, is how you facilitate that and that’s the key, that’s the hard bit.... Some people can find that very easy but it’s something I think that some people have to learn how to do it.’ (Int 11)*

Other practitioners described the importance of developing their own confidence to facilitate learning, and the time taken to get to know the children (Int 10)

## **Conclusions**

This paper has drawn together the expertise, emerging from practise, of 20 forest school leaders. Ideally the research would involve a large cohort and statistically significant numbers of children, however limitations on research funding and ethical considerations regarding access to school’s data concerning children has meant that at this time, only a smaller scale project has been possible. Although still a small study, each forest school leader draws on experience with many children, so expanding the scope of this research compared to smaller case-study research. Through semi-structured interviews they were encouraged to share their experience and understanding of forest school in relation to several themes, and this paper reports on their responses concerning their perceptions of what children learn while at forest

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school. The findings describe a range of informal learning taking place, partly directed by the children themselves as they are challenged to explore and experience a new environment.

Within a context of strong drivers encouraging outdoor learning, forest school practitioners did not appear to see forest school as an opportunity for delivery of the national curriculum, even though potential links were identified (especially in science, geography, but also language and writing). Forest school sessions were often seen as quite separate from classroom teaching, often being led by different people. However the results from this paper suggest that informal learning at forest school can support and contribute to classroom teaching.

Personal, social and emotional development emerges in this study as a key focus of forest school leaders (Table 2). They believed that the challenge of a new location and change from norms of classroom rules and behaviour appeared to be a stimulus for exploration of dimensions of personal, social and emotional development. This was largely focussed on their observations of children developing relationships with others: learning to play together and to work together to achieve tasks. They also claimed children also learn about themselves as they discover the types of activities they feel comfortable engaging in, and how to overcome fears and uncertainty when encouraged to try new things. Such self-knowledge and team-working skills are transferable to the classroom learning environment and can support learning behaviours in the classroom such as the ability to pay attention and concentrate (Malone, 2008).

In contrast to many other activities for children, practitioners described how forest school accepts risk and teaches children to judge risks rather than attempting to make a risk-free environment. This is in contrast to our risk averse society where there are concerns about

over-protecting children (Malone, 2007): controlling risk to the point where children do not need to learn to assess risks for themselves.

Learning styles at forest school reported by practitioners are very different from the directive approach of the classroom. Learning is play and peer-led rather than teacher led. This links closely with kinaesthetic and discovery-led styles of teaching which suits some children more than others. The sensory aspects of learning encouraged at Forest School were said to be in marked contrast to the indoor environment of the classroom.

This research has shown that forest school leaders identify how forest school can be adapted to suit children of different ages and skill levels. As children progress through school, forest school can offer different challenges to stimulate learning and social development.

Forest school leaders saw their role as facilitators of learning, enabling children to construct knowledge for themselves, rather than as instructors delivering knowledge. Forest school practitioners identified that facilitating child-led learning required experience and confidence and in their experience some adults supporting forest school sessions (teachers, teaching assistants and parents) found this challenging. Some practitioners identified a tension between this approach when compared with a more directive classroom approach, which is at odds with the child-led focus of the forest school ethos. Tensions have also been noted by others, such as Maynard's (2007b) study on encounters at forest school and Humberstone et al (2011) analysis of critical incidents between teachers, outdoor educators and school children. Maynard et al. (2013) state that teachers can find it hard to 'let go' of child-led learning.

Finally, the findings from the interviews with forest school practitioners also suggest that children at forest school develop an interest in and engagement with the natural environment, and that this leads to a desire to protect it. Many of the practitioners commented on children

connecting with nature, and this is of significance at a time when studies suggest that children's engagement with nature is less than it was a generation ago (Louv, 2005; England Marketing, 2009). The impact of this outdoor learning activity on environmental behaviour over the long term is yet to be assessed. Further studies are required to ascertain the length and depth of place attachment, particularly in relation to promoting environmental citizenship and behaviour. Will children's experiences while attending forest school impact on children's choices of secondary subjects, A levels, and further careers? Will it influence them to make more environmentally friendly lifestyle choices? Will it impact on time spent in the natural environment as they grow and raise their own families? Research on the effect of engagement with nature when younger impacting on engagement when adults (Chawla, 2009; Pretty et al., 2009) highlights the importance of positive experiences in nature when young. Forest school may make a contribution towards this, as well as the wider aims of the children and nature movement.

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### **References**



APRA / CPRA 2010. Reporting on the pan-Canadian survey re: children and nature.

<http://s3.arpaonline.ca/docs/Children-Nature-Survey-Report.pdf>

Archimedes training Ltd. Nd. Forest Schools OCN Level 3 training materials.

<https://www.archimedes-training.co.uk/wp-content/uploads/Level-3-Booklet.pdf> Accessed 4/3/15

Bell, P., B. Lewenstein, A.W. Shouse, and M. A. Feder, 2009. Editors; *Learning Science in Informal Environments: People, Places and Pursuits*, Committee on Learning Science in Informal Environments; Board on Science Education; Center for Education; Division of Behavioral and Social Sciences and Education; National Research Council Washington, DC: The National Academies Press

Bentsen, P., E. Myging, and T.B. Randrup. 2009. Towards and understanding of *udeskole*: education outside the classroom in a Danish context, *Education 3-13*, 37, no. 1: 29-44.

Borradaile, L. (2006) *Forest School Scotland: An Evaluation*, [www.forestry.gov.uk](http://www.forestry.gov.uk).

Carruthers Den Hoed, R. 2014 *Forest School and Nature School in Canada: A Head, Heart, Hands Approach to Outdoor Learning*. Forest School Canada, 2014

Chawla, L., 1999. Life paths into effective environmental action. *The Journal of Environmental Education* 31, no. 1: 15-26.

Chawla, L. 2009. Growing up green: Becoming an agent of care for the natural world. *The Journal of Developmental Processes*, 4, no.1: 6-23.

Chawla, L. and D.F. Cushing. 2007. Education for strategic environmental behaviour. *Environmental Education Research*, 13, 437-452;

Chell, E., 1998. Critical Incident Technique, In *Qualitative Methods and Analysis in Organisational Research-a Practical Guide*, Eds. Symon G. and C. Cassell. 51-72, London: Sage.

Children and Nature Alliance, 2009. *Children and Nature Connection Framing Document*  
<http://childnature.ca/sites/default/files/downloads/Alliance-Framing-Doc.pdf>

Clements, R. 2004. An Investigation of the Status of Outdoor Play. *Contemporary Issues in Early Childhood* 5, no. 1: 68-90.

Cree, J. and M. McCree 2013. A brief history of forest school in the UK – Part 2. *Horizons Magazine* no. 62: 32-35.

Cooper, G. 2003. The demise of real experience and the case for outdoor education. *ECOS*, 24, no.3/4: 10-14.

Davis, B. and S. Waite 2005. *Forest school: opportunities and challenges in the early years*. Plymouth: University of Plymouth.

Defra 2011. *The natural choice: securing the value of nature*, Natural Environment White Paper, London: The Stationery Office

Department for Education and Skills (DfES) 2003a. *Excellence and enjoyment: A strategy for primary schools*. Retrieved from

<http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/dfes-0377-2003PrimaryEd.pdf> Accessed 5/4/2015

Department for Education and Skills (DfES) 2003b. *Every Child Matters*. CM 5860. London: The Stationery Office

Department for Education and Skills (DfES) 2006. *Learning outside the classroom manifesto*. Nottingham, UK: DfES

Dierking, L.D and J.H. FALK 1997. School field trips: assessing their long term impacts, *Curator* 40, no.3 211-218.

Dillon, J., M. Rickinson, K. Teamey, M. Morris, M.Y. Choi, D. Sanders, and P. Benefield 2006. The value of outdoor learning, *School science review* 87, no. 320: 107 – 111.

Dillon, J. and I. Dickie 2012. *Learning in the Natural Environment: Review of social and economic benefits and barriers*. Natural England Commissioned Reports, Number 092.

England Marketing, 2009. *Report to Natural England on Childhood and nature: A survey on changing relationships with nature across generations*. Warboys, Cambridgeshire: England Marketing.

Fjortoft, I. 2001. The natural environment as a playground for children: the impact of outdoor play activities in pre-primary school children, *Early Childhood Education Journal* 29 no.2: 111-117.

Gill, T. 2011 *Children and nature: a quasi systematic review of the empirical evidence*. A report to the Sustainable Development Commission. London: Greater London Authority.

Harris, F. forthcoming. "The freedom of outdoor learning spaces: the case of forest school" Manuscript submitted for publication.

Henderson, B. 2007. A Canadian meets Friluftsliv, in *Nature first: Outdoor life the Friluftsliv way*, In Eds. B. Henderson and N. Vikander, pp.3-7, Toronto:, Natural Heritage Books.

Holloway, S.L. and H. Pimlott-Wilson 2014. Enriching Children, Institutionalizing Childhood? Geographies of Play, Extracurricular Activities, and Parenting in England, *Annals of the Association of American Geographers*, 104, no.3: 613-627, DOI: 10.1080/00045608.2013.846167

Humberstone, B and I. Stan 2011. Outdoor learning: primary pupils' experiences and teachers' interaction in outdoor learning, *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 39, no.5: 529-540.

Pre-print version. Please see final published version before citing.  
Harris, F. Education 3-13 DOI 10.1080/03004279.2015.1078833

Hunt, A., J. Burt, J. and D. Stewart 2015. *Monitor of Engagement with the Natural Environment: a pilot for an indicator of visits to the natural environment by children - interim findings from Year 1 (March 2013 to February 2014)*. Natural England Commissioned Reports, Number 166.

Joyce, R. 2012. *Outdoor Learning: Past and Present* Milton Keynes: Open University Press.

Kellert, S.R. 2005. Nature and childhood development. In *Building for Life: Designing and Understanding the Human-Nature Connection*. Ed. Kellert, S.R. 63-89. Washington: Island Press

Knight, S. 2009. *Forest schools and outdoor learning the early years* London: Sage

Knight, S. 2011. *Forest School for All*. London: Sage.

Lave, J. and E. Wenger 1991. *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.

Louv, R. 2005. *Last Child in the woods* New York: Algonquin Books.

Lovell, R. and J. Roe 2009. Physical and mental health benefits of participation in forest school, *Countryside recreation network*, 17, no. 1: 20-23.

MacEachren, Z. 2013. The Canadian forest school movement. *LEARNIng Landscapes*, 7, no. 1: 291-233.

Pre-print version. Please see final published version before citing.  
Harris, F. Education 3-13 DOI 10.1080/03004279.2015.1078833

Malone, K. 2007. The bubble-wrap generation: children growing up in walled gardens, *Environmental Education Research* 13, no.4: 513-527.

Malone, K. 2008. *Every Experience Matters: An evidence based research report on the role of learning outside the classroom for children's whole development from birth to eighteen years*, Report commissioned by Farming and Countryside Education for UK Department Children, School and Families, Wollongong, Australia.

Maynard, T. 2007a Forest schools in Great Britain: an initial exploration, *Contemporary issues in early childhood* 8, no. 4: 320 – 331.

Maynard, T. 2007b. Encounters with Forest School and Foucault: A Risky Business? *Education 3-13* 35, no. 4: 379-391.

Maynard, T., J. Waters, J. Clement 2013. Moving outdoors: further explorations of 'child-initiated' learning in the outdoor environment, *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 41, no.3: 282-299.

Moss, S., 2012. *Natural Childhood*. The National Trust

Murray, R. 2003. *Forest school evaluation project. A study in Wales*. New Economics Foundation

Nundy, S. 2001. *Raising achievement through the environment: the case for fieldwork and field centres*, Walsall: NAFSO.

O'Brien, L. 2009. Learning outdoors: the Forest School approach, *Education 3-13*, 37, 45-60.

O'Brien, L. and R. Murray 2007. Forest School and its impacts on young children: case studies in Britain, *Urban Forestry and Urban Greening*, 6, 249-265.

Outdoor Foundation (2008) *Outdoor recreation participation report 2008*. The Outdoor Foundation. <http://www.outdoorfoundation.org/research.participation.2008.html> accessed 3/4/2015

Peacock, A. 2006. *Changing minds: the lasting impact of school trips*, Exeter: University of Exeter.

Pretty J, C. Angus, M. Bain, J. Barton, V. Gladwell, R. Hine, S. Pilgrim, G. Sandercock, and M. Sellens, 2009. *Nature, Childhood, Health and Life Pathways*, ICES Occasional Paper 2009-02. Colchester: University of Essex.

Ranson, S. 1998 Lineages of learning in society, in *Inside the Learning Society*. Ed. S. Ranson, 1-24. London: Cassell

Rea, T. 2008. Alternative visions of learning: Children's learning experiences in the outdoors. *Educational futures*: e-journal of the British Education Studies Association 2.  
[http://www.educationstudies.org.uk/materials/vol\\_1\\_issue\\_2\\_rea\\_final.pdf](http://www.educationstudies.org.uk/materials/vol_1_issue_2_rea_final.pdf).

Rickinson, M., J. Dillon, K. Teamey, M. Morris, M.Y. Choi, D. Sanders, and P. Benefield  
2004. *A review of research on outdoor learning*. Shrewsbury, UK: National Foundation for  
Educational Research and King's College London

Rose, J. 2009. *Independent review of the primary curriculum*. Nottingham: Department for  
Education and Skills.

RSPB. 2010. *Every child outdoors: Children need nature, nature needs children*. Sandy:  
RSPB.

Schon, D. 1983 *The Reflexive Practitioner. How professionals think in action* New York:  
Basic Books.

Smith-Sebasto, N.J. 2000 Potential guidelines for conducting and reporting environmental  
education research: qualitative methods of inquiry, *Environmental Education Research*, 6,  
no.1: 9-26.

Sustainable Development Commission, 2011. *Children and nature: A quasi-systematic  
review of the evidence*. London: Greater London Authority.

Swarbrick, N., G. Eastwood and K. Tutton 2004. Self-esteem and successful interaction as  
part of the Forest School project *Support for Learning*, 19, no. 3: 142-146.

Pre-print version. Please see final published version before citing.  
Harris, F. Education 3-13 DOI 10.1080/03004279.2015.1078833



UK NEA 2011. *The UK National ecosystem assessment: Synthesis of the key findings*.

Cambridge: UNEP, WCMC.

Waite, S. 2010. Losing our Way? the Downward Path for Outdoor Learning for Children Aged 2-11 Years. *Journal of Adventure Education and Outdoor Learning* 10, no. 2: 111-126.

Waite, S. 2011. Teaching and learning outside the classroom: personal values, alternative pedagogies and standards, *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 39, no.1, 65-82.

Waite, S. and Goodenough, A. 2010. How can we know?: Approaches to assessing some 'soft' benefits of woodland activities for children in participative research with the third sector. Paper for *Children and Nature: measuring success?* Seminar, London, 21<sup>st</sup> October, 2010.

Waite, S.J., J. Evans and S. Rogers 2011. A time of change: outdoor learning and pedagogies of transition between foundation stage and year 1. in Waite, S. (Ed.) *Children Learning outside the Classroom. From Birth to Eleven*, 50-63. London: Sage.

Ward Thompson, C., P. Aspinall and A. Montarzino 2008. The childhood factor: Adult visits to green places and the significance of childhood experience. *Environment and Behaviour*, 40, 111–143.

Wooley H., L. Pattacini and A. Somerset-Ward 2009. *Children and the natural environment: experiences, influences and interventions - Summary*. Natural England Commissioned Reports, Number 026.