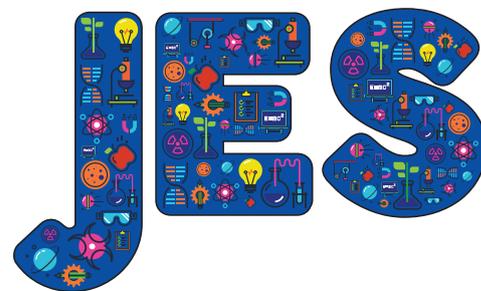


Why choose to learn outside?



● Helen Spring

Abstract

In this article, I put forward the case for learning outside, drawing largely on UK research around being outdoors, learning outdoors and specifically learning science outdoors. I will first consider the scope of 'outdoor learning' before exploring a range of research that highlights different benefits of learning outside the classroom, such as health, engagement and the development of social skills, as well as attainment. The aim is to support practitioners to consider their reasons for implementing outdoor learning strategies in schools and early years settings. It should be noted that much of the research concerning learning outdoors is based on reported impact or measures in curricular areas other than science, suggesting further research is still required.

Keywords: Outdoor learning, outdoor education, primary science, environment, nature

Introduction

Instinctively, most of us know that being outdoors is good for us in some way. As both a classroom teacher and a primary science and outdoor learning consultant, I have developed a passion for the outdoors and feel that it can be used to enhance a wide variety of learning. When choosing to teach outdoors, it is important to be aware of why this approach is being adopted. Equally, it is important to be aware of why we are choosing to teach indoors. If we know the intended impact of an approach or strategy, we are much better able to reflect on whether or not its implementation will have the desired impact, or whether we need to tweak our approach in some way. In this article, I have explored research, primarily from the UK,

largely around curriculum-linked outdoor learning and often in school grounds, although outdoor and adventurous visits have also been considered. This raises the question of the scope of 'outdoor learning', to which we turn first, before considering the benefits of such experiences.

What is included in 'outdoor learning'?

Learning outside the classroom is defined by the Council for Learning Outside the Classroom (2021) on its website as *'The use of places other than the classroom for teaching and learning'*. The Association for Science Education (ASE) makes use of this definition to describe outdoor learning as that which *'takes place beyond the four walls of the traditional classroom environment'* (ASE, 2020: 1). This could be within school grounds, local green or urban environments, or further afield. These definitions encompass many possible examples of outdoor learning, from bushcraft and Forest School (Forest School Association), to rock climbing and kayaking, to simply reading a story or playing with toy bricks outdoors. Learning and Teaching Scotland (2007) state the following: *'Outdoor education is a process in which educators, students and others take part, and outdoor learning is the learning that accrues as a result'*. Robertson (2020) discusses confusion amongst teachers and youth workers concerned that what they are doing is not 'real outdoor learning' (p.5). Robertson concludes that all approaches to learning outdoors and outdoor learning are valid, but are different from one another. I take this to mean that no one type of outdoor learning is more valid than another: validity depends on the purpose of the lesson or activity.

Schools vary wildly in their approaches to outdoor learning. Some school leaders cite reasons such as health and safety, bureaucracy, a loss of curriculum



time and the threat of litigation as reasons not to become involved in outdoor education (Hoath, 2015). Others, such as West Rise Junior School, have featured in national newspapers because of their innovative approach to learning outdoors (Lightfoot, 2016). In the UK, there is a noticeable decline in the amount of time that children spend learning outdoors as they progress through school (Bianchi & Feasey, 2011); children aged 3-5 years spend 50-90% of their time outdoors – this percentage decreases to around 10% by the end of primary school. There is also evidence that pupils in areas with high deprivation have fewer opportunities for out of classroom education than those in areas of lower deprivation, particularly by the secondary phase of education (O'Donnell, Morris & Wilson, 2006).

Health benefits

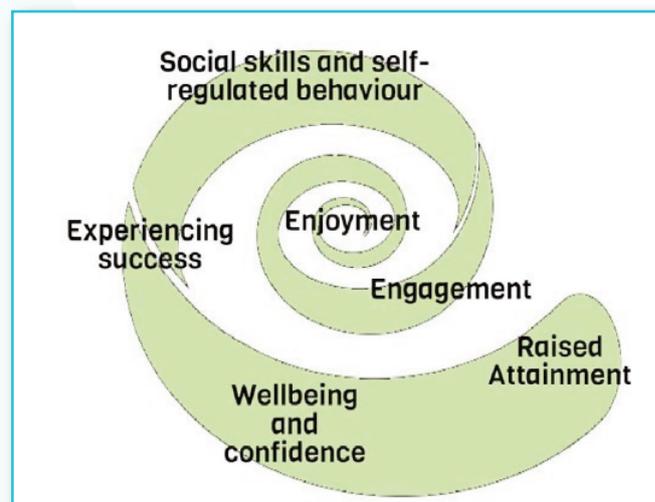
Research highlights the health benefits of simply being outdoors. A recent review (Twohig-Bennett & Jones, 2018) found health benefits in adults and children ranging from reduced blood pressure and reduced incidence of diabetes to reduced incidence of strokes and coronary heart disease. Engemann *et al* (2019) found that high levels of green space presence during childhood are associated with lower risk of psychiatric disorders later in life. These authors argue that policymakers should consider how they could create, maintain and improve green spaces for populations.

Impact on wellbeing has also been reported. The Natural Connections Demonstration Project (Waite *et al*, 2016) was a large-scale project aiming to stimulate demand for learning outside the classroom, support schools to build learning outside the classroom into their planning and stimulate the supply of high quality learning outside the classroom services. 72% of the 125 schools involved agreed that learning in natural environments had a positive impact on teachers' health and wellbeing; 92% agreed that learning in natural environments had a positive impact on pupils' health and wellbeing.

Attainment and performance

Recent research found that pupils who participate in adventure learning interventions make approximately four additional months' progress

Figure 1. Pathway to raised attainment through outdoor learning (from Waite *et al*, 2016: 10).



(Education Endowment Foundation, 2021). This research does not include activities such as Forest Schools or field trips, focusing instead on pursuits such as climbing, mountaineering and canoeing. The Education Endowment Foundation suggests that non-cognitive skills such as perseverance and resilience are developed through adventure learning and that these skills lead to an impact on academic outcomes. This is supported by Waite *et al* (2016), who propose a pathway model (Figure 1) with learning in natural environments leading to academic benefits such as engagement, self-regulation and raised attainment, which will be further explored in the sections below.

Whilst Waite *et al* (2016) found that 57% of respondents to their school survey agreed that learning in natural environments had had a positive impact on pupils' attainment, this was based on staff reporting a higher quality of children's work, rather than an increase in 'measurable' attainment in external examinations. The authors acknowledge the difficulty in making direct causal links between outdoor learning and attainment. Two schools in the research did, however, report a measurable rise in children's attainment, which could be attributed to Learning in Natural Environments activities. One senior leader commented that: '*part of our journey with that has been to develop experiences for the children to write about, and a large number of those experiences are based in the outdoors...Our writing results are now slightly above national average whereas they were well below before*' (Waite *et al*, 2016, p.80).

One study that found a direct link between learning outdoors and attainment focused on two primary school clusters in West Lothian, Scotland. Harvey *et al* (2017) found that children who learned maths in outdoor hubs made significantly more progress than the control group who were learning in indoor settings. This study is of particular note because the majority of lessons started in the classroom, moved outdoors to the playground and finished in the classroom, a typical format in many UK primary schools.

Hamilton (2018) focuses on children's performance in the outdoor setting compared with indoors. Children from across the full primary age range were involved in this research, although the majority were early years school starters with an average age of five and half years. The children carried out similar tasks indoors and outdoors. These tasks were making a toy, building a den, conducting a puppet tour and imagining an adventure on an alien planet. Hamilton found that the outdoor tasks were recollected in greater detail than the indoor tasks. All teachers involved in the research agreed that children's task performances were better outdoors than indoors. Hamilton attributes the positive impact of outdoor learning to the complexity of the environment, the novelty of the environment and the extent (the quality of the natural space) of the environment. These factors impact on children's performance as a group, leading to more opportunities for group work.

Enjoyment and engagement

In my experience, children enjoy learning outdoors. Waite *et al* (2016) found that 95% of respondents to their school survey agreed that learning in natural environments had had a positive impact on pupils' enjoyment of lessons. In their pupil survey, 92% of pupils agreed that they enjoyed lessons outside 'a lot' or 'a bit'. Barnett and Feasey (2016, p.x) state that '*children prefer working outdoors: they enjoy the freedom the space offers and the fresh air; a change from classrooms, which can be stuffy and cramped*'.

Waite *et al* (2016) also found that 92% of respondents to their school survey agreed that learning in natural environments had had a positive

impact on pupils' engagement. Waite *et al* argue that this is because learning in natural environments fosters a love of learning, offering a different way of learning that is perceived as fun and gives purpose to learning. Hamilton (2018) found that the effect of outdoor learning was particularly notable for underachieving pupils and for children with learning difficulties, proposing that the indoor setting was less motivating.

Social skills and self-regulated behaviour

Children's behaviour can be different when they are learning outside the classroom, and for some teachers this can present difficulties. Research suggests that children experience greater autonomy in the outdoor setting and are also more likely to collaborate with other children (Hamilton, 2018). Dowdell *et al* (2011) also found that learning outdoors provided children with more opportunities for social interaction than learning indoors. These two studies suggest that increased opportunities for group work can create changes in behaviour. As noted previously, these increased opportunities for collaboration can lead to increased attainment. Waite *et al* (2016) also found that 85% of respondents to their school survey agreed that learning in natural environments had had a positive impact on pupils' behaviour.

Researchers have highlighted that teachers may need support when considering their expectations and how to prepare for lessons outdoors (Dowdell *et al*, 2011; Hoath, 2015). This may alleviate concerns about behaviour. Dowdell *et al* (2011) emphasised the need for the teacher to maintain a supportive role in the outdoor environment rather than regarding it as a break from teaching. Hoath (2015) notes that, although teachers are aware of the differences between teaching in the classroom and teaching outdoors in relation to the children's behaviour, group dynamics, relationships and interrelationships, they did not approach their planning for outdoor lessons any differently from indoor lessons. Ofsted (2008, p.5) argue that '*when planned and implemented well, learning outside the classroom contributed significantly to raising standards and improving pupils' personal, social and emotional development*'. Note the importance of careful planning and preparation to reap the benefits of learning outdoors.



Success, wellbeing and confidence

In the Figure 1 pathway to raised attainment through outdoor learning (Waite *et al*, 2016), giving children opportunities to experience success and improve their wellbeing and confidence were highlighted as important factors leading to raised attainment. Waite *et al* (2016) carried out interviews with children, and found that learning in natural environments led children to have greater confidence in their own abilities, sometimes through taking risks, so that they felt able to try different challenges within and outside the classroom. This is supported by the Education Endowment Foundation's (2021) research, which suggests that non-cognitive skills such as perseverance and resilience are developed through adventure learning.

Hamilton (2018) found that the effect of outdoor learning on children's self-confidence was particularly notable for underachieving pupils, whose contribution and self-confidence matched that of their peers when learning outdoors. Hamilton also found that the positive impact of outdoor learning was particularly evident for underachievers and discusses how this could be attributed to feeling more empowered in an outdoor setting, as well as how an indoor classroom might be less motivating.

Transition

Transition between primary and secondary school is known to be a difficult period for many children (Kerr, 2016); issues can be both academic and social. Kerr (2016) discusses how a carefully designed programme of outdoor 'shared learning days' with pupils in primary schools and secondary schools working together is a sound model to help address transition issues, which relate to cognitive, affective, interpersonal/social and physical/behavioural outcomes, through learning science outdoors. Primary pupils involved in the project reflected on feeling more prepared for secondary school, learning more science, and feeling more positive about secondary school science. Secondary pupils enjoyed sharing their experiences with primary pupils, and secondary teachers commented on how much the secondary pupils benefited from being involved. The report also highlights the need for primary and secondary teachers to work together on transition projects,

Photos 1 & 2. Children exploring the components of soil.



suggesting perhaps that there are benefits to shifting away from a curriculum-focused transition project towards something that draws out the aforementioned skills and benefits of learning in the outdoors.

Teaching science outdoors

Waite *et al* (2016) found that, after physical education, science was the curriculum area most commonly taught outdoors. There are clearly many opportunities for teaching primary science



Photo 3. Exploring forces by testing a seesaw lever.



outdoors, and some aspects of primary science are better taught outdoors. Harlen and Qualter (2014, p.141), writing about teaching science, state that 'Children's learning is enhanced where they see its relevance to their lives and to the world beyond school'. Many primary science topics can be taught outdoors. These topics include not only the more obvious examples such as habitats and plants, but also topics such as forces, space and materials (Spring, 2021). Morgan (2019) argues that teaching outdoors allows children to develop a deeper and more secure understanding of what science, technology, engineering and maths are, and what scientists, engineers, technologists and designers have achieved in the real world.

In their 2013 report on science education in schools, *Maintaining Curiosity*, Ofsted discuss how good schools had embraced outdoor learning and used their outdoor learning areas to teach environmental science, allowing their pupils to experience science in action, regularly and at first hand.

However, just because it is taught outside often does not mean that this is always taught effectively. The final section will consider what makes for effective learning in the outdoors.

Effective outdoor learning

The need to properly prepare for teaching lessons outdoors was highlighted in the discussion about

Table 1. Some ideas for teaching primary science outdoors.

Topic	Lesson idea	Links / resources
Electricity	Conduct a survey of how electricity is used on the streets.	https://pstt.org.uk/resources/resources-available-through-tts/lets-go-stem-trails
Materials	Make a house for a pixie using suitable materials. Carry out a test to find out whether the pixie house is waterproof.	https://www.millgatehouse.co.uk/product/teaching-primary-science-outdoors/
Classification	Carry out a wildlife survey and create a classification key.	https://pstt.org.uk/resources/curriculum-materials/assessment
Parts of a plant	Dig up a plant, and label the parts of a plant.	https://www.ltl.org.uk/resources/parts-of-a-plant/
Grouping living things	Go to the beach, find samples of seaweed, group and sort different types of seaweed.	https://pstt.org.uk/resources/resources-available-through-tts/lets-go-stem-trails
Levers	Create a log seesaw, investigate what difference it makes when effort is applied closer or further away from the fulcrum.	https://www.millgatehouse.co.uk/product/teaching-primary-science-outdoors/



social skills and self-regulated behaviour. In addition to this, it is important to prepare for outdoor lessons effectively to ensure that children develop the knowledge and skills that we, as educators, expect. Dillon *et al* (2006) argue that, when properly conceived, planned, taught and followed up, outdoor learning provides children with opportunities to develop knowledge and skills that add value to their classroom experiences. Ofsted (2008) also state that '*learning outside the classroom was most successful when it was an integral element of long-term curriculum planning...*' (p.5).

Hoath (2015) examined the characteristics of an effective pedagogy in the outdoor setting in primary schools. Longitudinal research was carried out in two schools; this included observations of teaching indoors and outdoors, as well as interviews with teachers and the Senior Leadership Team in the schools. Hoath identifies five key characteristics of effective teaching in the outdoor setting:

- ❑ supporting children in making the transitions from within the classroom to beyond it;
- ❑ both regular and frequent use of the outdoor setting;
- ❑ preparing children for working in the outdoors by addressing the basic psychological and physiological needs of the children before leaving the classroom;
- ❑ teachers managing the transition back to the classroom as consciously as the move to the outdoor setting; and
- ❑ a shift to weaker framing: this would allow freer dialogue between the teacher and children and between the children; such off-task interactions are part of the dynamics of working in the outdoor setting.

The points above can be addressed by class teachers with their own classes. However, to develop a whole-school approach to outdoor learning, Waite *et al* (2016) highlight a number of factors that impact on whether schools are likely to engage with learning in natural environments. These include Senior Leadership support, confident, knowledgeable and enthusiastic 'Learning in Natural Environments' leadership and school leaders and staff being open-minded in their approach to teaching and learning. Hoath (2015) also highlights the need to challenge a dominant classroom-based pedagogy as a key to improving teaching in the outdoor setting.

Conclusion

As with any approach to teaching, outdoor learning needs to be effectively planned. This, in my view, means being clear about why learning is taking place in a particular environment, how curriculum objectives are going to be covered and how all children are going to be supported so that they have the opportunity to succeed. I am passionate about the outdoors, and especially about teaching science outdoors. The research shared here underpins some of the benefits of outdoor learning, as well as highlighting the need to ensure that learning outside the classroom is planned for as effectively as learning indoors should be.

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