Council for Learning Outside the Classroom

Council for Learning Outside the Classroom Evidence Note
Learning Outside the Classroom: in natural environments

Implementation cost 

Social return on investment 

Strength of evidence 

Two new (2022) reports published by Natural England confirm that high quality learning outside the classroom in natural environments can deliver a wide range of positive health and learning outcomes.

This note summarises some of the key findings for educational settings, and points to support available to take teaching practice safely and effectively beyond the classroom. We hope it is useful in providing both evidence and a social return on investment forecast to help make the case with school employers, governing bodies, and funders.
For these reports, 'natural environments' was defined as any accessible spaces that include natural elements and that allow children to play, discover and learn; including those on the school estate, in local learning areas, or accessed through educational visits.

Summary of rapid evidence review

Links between natural environments, learning and health: evidence briefing.
Prof Justin Dillon & Dr Rebecca Lovell (2022).
Natural England Evidence Information Note (EIN063)

Download the report here

The strength of the evidence base

- There is a substantial body of evidence that shows a positive link between learning in the natural environments and a very wide range of learning processes and outcomes, and health and wellbeing outcomes too.
- The quality and robustness of the research in this area has improved significantly over the last 10-15 years.
- The majority of evidence comes from studies involving school students and their teachers.
- Despite the very wide range of different studies and approaches, the evidence is almost universally positive.

The benefits of learning outside the classroom in natural environments

High quality learning outside the classroom in natural environments can deliver a very wide range of outcomes and co-benefits that support teaching and learning in educational settings.

The evidence, including several systematic reviews, demonstrates positive associations between different teaching and learning approaches in natural environments and a wide range of learning processes and outcomes.

Even the presence of natural environments in or around homes and educational settings are also associated with positive learning, behavioural, emotional, and health outcomes. (Nature connection may play a significant part in moderating learning and behavioural outcomes [12].)

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> The weight of available evidence suggests that learning that takes place in the natural environment results in or is associated with a range of positive outcomes for school children, and should, therefore, be supported [1, 2, 4].

Examples of impact on specific outcomes:

Attendance
School-based learning in the natural environment can improve attendance rates [22].

Social and behavioural
There is some evidence of an association with positive social competencies such as self-esteem, self-confidence and trusting relationships [6], and children attending a special needs school reported a positive impact on behaviour sustained over two months [4].

Achievement
School students engaged in learning in natural environments had higher achievement (in comparison to their peers or projected attainment) in reading, mathematics, science and social studies; enhanced progress in physical education and drama, and a greater motivation for studying science; and high levels of nature connectedness in 10-11 year olds was associated with higher grades in English [1-10].

Motivation/engagement with learning
Regular learning outside the classroom is linked to greater intrinsic motivation. [7]

Social capital
Among both adults and children, learning in natural environments has been associated with building social capital, fostering pride, belonging, and community involvement [1,4,15].

Affective and cognitive growth
A systematic review found that environmental education in early years was associated with affective and cognitive growth [12]. Other studies report a range of positive outcomes including advanced motor skills, higher rates of physical activity, positive play behaviours, a range of observed developmental outcomes and states of good mental health and social-emotional development [16,17,18,19,20,21].

Pro-environmental behaviours
A substantial number of studies point to the role of nature connectedness in the development of pro-environmental behaviours [10]. One environmental education study reported that 69% of the variance seen in the improvement in environmental behaviour was explained by connectedness to nature and only 2% was explained by environmental knowledge [10].

Physical health
Relatively few studies in educational settings have reported on physical or physiological health outcomes yet, but time spent outdoors has been linked to outcomes such as improved cardio-respiratory health [37].

Physical activity
Systematic reviews report that total time spent outdoors during childhood (including the school day) is associated with higher levels of physical activity, compared to other settings [36, 37]. There is also evidence for 'nature based activities' (in a range of settings, from school grounds to forests) being associated with higher rates of activity than that of other settings [13] and higher intensities of physical activity compared to control settings [35]. The link between outdoor play and learning and higher amounts and intensities of activity operates through a number of pathways [42]. These include: the affordances of more complex environments, children's motivation and interest to use these settings, and higher levels of reported enjoyment [42].

Mental health
Relatively few studies have explored the mental health outcomes of learning in natural environments. However, contact with nature, including through educational activities, is positively associated with better mental health outcomes in children and teenagers [43, 44]. One review found the most consistent relationships were with resilience, stress and overall mental health [44]. Other studies reported improvements in emotional well-being, self-esteem, and depression [44]. 'Immersive nature experiences', including activities such as adventure therapy, outdoor residential experiences, and other education outside the classroom, have been linked to improved self-esteem and to increased self-efficacy compared to controls [14].

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> In some cases, the evidence suggests that learning in the natural environment is more effective than learning inside school [4] at least in the short term.

Barriers and enablers

- Longer term, whole school and 'progressive' experiences tend to result in the greatest benefits, and students with lower predicted achievement tend to make the greatest progress [4,9].
- Embedding learning outside the classroom in natural environments into teaching practice is supported when delivery is tailored to meet individual school needs, has senior leadership support, is regularly monitored and evaluated [9] and when teacher knowledge, confidence and skills are developed [53].
- Natural environments, including those in school grounds, will not be used unless they meet school needs and staff are confident in their use [48].

Types of natural environments

There is currently no assessment of the relative importance of different types of natural environments on learning outcomes.

Woods and forests were associated with academic, social and personal skills, increases in confidence and self-esteem, and improvements in physical skills [6].

Greener school environments were linked with better motor skills [14], psychological restoration [27], and rates of physical activity [28].

Green and blue public spaces were positively associated with a range of behavioural indicators [24] and with cognitive development [25] in school children.

Addressing Health and Learning Inequalities

The relationship between learning outside the classroom in natural environments and educational and health outcomes varies with socio-demographic characteristics.

- Students from lower income and/or ethnically diverse communities are far less likely to have the opportunity to play and learn in natural environments either at home or with their school [1,30,34].
- Students from these communities are the most likely to experience health and learning inequalities, but are the most likely to benefit from learning outside the classroom opportunities [51].
- Learning in natural environments may also be of particular benefit to specific groups of students, including those suffering mental distress, with low self-perceived social and personal skills [30,31], who have a diagnosis of autism [3] or with other special needs [4].

Strength of the evidence

- Much of the evidence is drawn from small studies with no control groups or accounting for multiple sources of potential bias [5]. Nevertheless, many of these studies have a sound theoretical base and use robust research techniques resulting in findings that may be generalisable.
- There is now a need to develop the evidence with particular groups of students and on the relative impact of different types of learning outside the classroom in natural environments.

Cost effectiveness

- It is clear that learning outside the classroom can be delivered in low-cost ways and result in a range of positive health and learning outcomes [53]. However, the evidence review confirmed that there are few studies that assess the cost-effectiveness of learning in the natural environment [1, 54]. So, see findings of the new report below.

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Summary of study looking at social return on investment

A study of learning outside the classroom in the natural environment in Primary School settings to provide a forecast of social value

Author: Social Value Business 2022

Natural England Evidence Information Note (NECR442)

[Download the report here]

Background

This report shares the results of a study to explore whether it is feasible to establish a forecast of social return on investment (SROI) for learning outside the classroom in natural environments. A SROI study is a way of accounting for value which requires a mix of information including qualitative, quantitative, and financial. The SROI framework can be a useful tool to inform policy and decision making as it accounts for the wider social benefits as well as financial return on investment.

This report echoed the evidence review by concluding that there is a wealth of evidence on the benefits and the practicalities of learning outside the classroom in natural environments.

However, school practice in this area is very varied (with many different approaches, widely differing learning goals, and in diverse locations) and there is no consistency in how impact is assessed. So, the authors applied a recognised methodology to explore and report on the direct, indirect, and broader values of learning outside the classroom in the natural environments, and hence to the benefits for students, staff, and the wider community.

A sample of 6 primary schools (in England) who had already embedded learning outside the classroom into their practice were selected to help create a 'value map' and a Social Return On Investment (SROI) assessment (an assessment of value that includes but is wider than financial return on investment). The range of stakeholders involved in developing these included students, school staff, local authorities, parents, and grant funders.

The report provides an overview of the methodology used, a simple theory of change, a case study from a participating school, and an explanation of how the value map was used to forecast a figure for SROI.

Headline finding

The forecast SROI for schools who have embedded learning outside the classroom in natural environments as a whole school approach is £4.32 for every £1 invested.

The range within which this forecast is made, the so-called sensitivity analysis, shows a range between £2.87 and £4.70 for every £1 invested.

It is important to note that this is a SROI forecast for schools where they have already benefitted from having embedded learning outside the classroom practice as part of their whole school approach. (For example, in schools who have been awarded the Learning Outside the Classroom Mark). So this is not a SROI forecast for one-off learning outside the classroom in natural environment interventions or activities.

This SROI figure is likely to be an underestimate due to the consideration of: lack of attribution to concurrent multiple benefits, a reticence to ascribe benefits where these are hard to attribute to one practice, and consideration of likely outcomes in the absence of this learning practice.

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Feedback from the schools...

The report cites the following narratives from the schools:

That learning outside the classroom in natural environments offers children the opportunity to increase their knowledge of themselves, and their self-awareness. This is followed by an increased sense of responsibility towards others, increased confidence, and high levels of enjoyment and engagement in learning. Interestingly, an emerging outcome was the opportunity for increased peer work across the age groups in most of the schools, this could range from recycling to poetry writing. Schools spoke of the role modelling opportunities this afforded older children, whilst the younger children completed tasks side by side with the older children increasing their sense of responsibility.

That schools were able to provide valuable insight into the connection between children's experience of learning outside the classroom in natural environments and subsequent attainment in the classroom.

That staff are very enthusiastic about learning outside the classroom in natural environments, and this appears to be driven by the positive impact it has on the children. When asked directly to rate the impact of learning outside the classroom in natural environments on staff themselves all the responses were very strong, with the majority of schools scoring the maximum for positive impact across all key areas. Although this is very positive, it was harder to get a clear understanding from schools as to why they thought this was the case. This was in contrast to pupil outcomes where there were a wide range of outcomes, examples, and evidence that all schools could provide.

What has become clear through the consultation is that teachers and support staff value learning in natural environments as a crucial way to deliver both cognitive and non-cognitive learning for children. It allows for opportunities to consolidate key curriculum themes, Maths, and English skills, as well as offering freedom for children to create worlds, and learning opportunities of their own. One school summed up the overall difference learning outside the classroom in natural environments makes to both pupils and staff as: "A positive win-win situation. Children like leaning outside as nature is unpredictable, making the children curious as to what they will see, and what they will learn. Learning Outside the Classroom in natural environments is empowering and joyful for all involved"

> "A positive win-win situation. Children like leaning outside as nature is unpredictable, making the children curious as to what they will see, and what they will learn. It is empowering and joyful for all involved."

Conclusion

Both reports converge on the same conclusion about the diversity and value of the benefits of learning outside the classroom in natural environments to educational settings, teachers and students. Leadership support and developing teachers' confidence and knowledge in taking learning beyond the classroom appear to be critical.

A SROI ratio of £4.32 for every £1 invested is forecast for schools who have embedded learning outside the classroom in natural environments are part of their practice, and this is likely to be an underestimate.

The strength of evidence on the positive health and learning outcomes, and confirmation of the positive social return on investment, suggest that adopting learning outside the classroom in educational settings should be used to help address health and learning inequalities.

The UK Government's strategy for Sustainability and Climate Change Education is likely to provide an opportunity for longitudinal research into the impact of national policy on 'greening' the school estate and development of environmental behaviours. It is widely accepted that education and health are intimately linked, so future research priorities include the need to develop our understanding of the links between learning outside the classroom in natural environments and both educational and health outcomes in the same study.

With thanks to Natural England for their support in creating this briefing note

Want to start or develop your learning outside the classroom in natural environments?

For help to develop your teaching and learning beyond the classroom, including support from high-quality providers of learning outside the classroom, visit the Council for Learning Outside the Classroom website.

www.lotc.org.uk

Thanks to...

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