

Education 3-13

International Journal of Primary, Elementary and Early Years Education

ISSN: 0300-4279 (Print) 1475-7575 (Online) Journal homepage: <https://www.tandfonline.com/loi/rett20>

Everyday teaching and outdoor learning: developing an integrated approach to support school-based provision

Sarah MacQuarrie

To cite this article: Sarah MacQuarrie (2018) Everyday teaching and outdoor learning: developing an integrated approach to support school-based provision, *Education 3-13*, 46:3, 345-361, DOI: [10.1080/03004279.2016.1263968](https://doi.org/10.1080/03004279.2016.1263968)

To link to this article: <https://doi.org/10.1080/03004279.2016.1263968>



Published online: 08 Dec 2016.



Submit your article to this journal [↗](#)



Article views: 3871



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)



Everyday teaching and outdoor learning: developing an integrated approach to support school-based provision

Sarah MacQuarrie 

Manchester Institute of Education, University of Manchester, Manchester, UK

ABSTRACT

In the UK, teachers are increasingly being encouraged to support and undertake outdoor learning. Despite such support there is a paucity of research that has considered how outdoor learning can be implemented and offered on a regular basis by teachers. The lack of empirical research that has centralised the role of the teacher is at odds with the interest in this topic and the need for theory-driven guidance suited to teachers. Research is reported that aimed to support the provision of outdoor learning opportunities for children aged between three and eleven at nine settings (pre- or primary schools) in Scotland and England. A set of flexible guidelines that link theory and practice were used by 14 teachers. This article focuses on teachers' reports of their activity. The incorporation of outdoor learning within conventional teaching and learning approaches is found to be feasible and the implications for practice and future research are explored.

ARTICLE HISTORY

Received 18 July 2016

Accepted 17 November 2016

KEYWORDS

Outdoor learning;
implementation; school
provision; teachers

Introduction

With recent findings reporting declines in young children's engagement with nature and the outdoors (Hunt et al. 2016; Natural England 2009), the importance of outdoor learning and environmental education seems greater than ever. The research reported in this paper sought to explore outdoor learning provision by considering how primary teachers implemented study materials that supported making links between learning occurring indoors and outdoors.

Across the UK, outdoor learning has been included in policy or curricular-related documents in England (Children Schools and Families Select Committee 2010; Department for Education and Skills 2006; DfE 2012), Northern Ireland (Council for the Curriculum Examinations and Assessment 2007a, 2007b), Scotland (Learning & Teaching Scotland 2010; SCCYP 2010), and Wales (Department for Children Education Lifelong Learning and Skills 2009; Estyn 2011). Yet, there is scant evidence to suggest that the inclusion of outdoor learning within policy and curricular documents has achieved the related outcome of increasing teachers' uptake of outdoor learning. Advocacy visible within policy and practitioner-related documents does not mean that outdoor learning will be integrated within provision (Taylor, Power, and Rees 2009; Thorburn and Allison 2012) and may continue to be erratic as historically learning outside of the classroom involved upper primary or secondary pupils travelling to outdoor centres or taking part in prescriptive excursions led by expert staff (Higgins 2002; Nicol 2002a, 2002b). Christie et al. (2014) offer tentative findings based on an audit of outdoor learning in Scottish schools and suggest the integration of outdoor learning is recognisable in pre-school and primary education but like elsewhere in the UK it

remains sporadic. Essentially such provision is geared towards a school-based model that brings with it a shift in the provision of outdoor learning and the expectations of teachers and practitioners who are involved. This school-based model will require an adjustment that may clash with teachers' usual approach to teaching and learning (Stevenson 2007). The current study investigates the potential of a school-based model when teachers seek to implement outdoor learning and integrate it within the everyday experiences offered to children. In line with this subsequent sections look at known barriers to outdoor learning and the relative success of research that has linked outdoor learning with regular school provision is considered.

Barriers to outdoor learning

Research reporting the barriers practitioners encounter when outdoor learning has been attempted is of particular value when developing a school-based approach. A study considering the provision in secondary schools reported a disparity in the attitudes of teachers (Power et al. 2009). Some teachers were not enthusiastic about the provision of outdoor learning and some instances of access to outdoor learning being revoked (as a form of punishment) were noted. This finding indicates while outdoor learning may be offered it is not necessarily viewed favourably, may not have equal status with classroom-based curriculum delivery and perhaps in some cases outdoor learning may be regarded as a privilege.

Outdoor learning does not occur in isolation, yet too often insufficient consideration is given to concurrent teaching and learning (Dolan 2015). Not only does it become difficult to infer how outdoor learning can support the curriculum it also raises the question of whether such opportunities can be incorporated within provision. The emphasis on the regularity of experience is two-fold. The first comes from outdoor learning programmes that tend to have a short-term duration (Stern, Powell, and Hill 2014). Provision labelled as 'Forest schools' is an example that has been successfully shaped to suit schools. A series of separate sessions are recommended and appear to be set at a minimum of six sessions ('What is Forest School?' 2014), Knight, an advocate of the approach, has called for this to be extended to 10 (2013, 73) and there are reports of 12 sessions (Ridgers, Knowles, and Sayers 2012). For schools, sessional based provision conveys specific advantages and is appealing as it offers ease of timetabling and economic viability. However, adhering to a set number of sessions is at odds with evidence that offering regular opportunities has the benefit of achieving a whole-school approach known to support implementation (Hargreaves 2008). To be clear more research is needed, as what follows once a forest school sequence of sessions has been completed is rarely reported and does not appear to have been evaluated in any empirical form. Appreciating what forest school means in the long-term for schools eager to engage in outdoor learning is the second aspect worth considering – in particular, who is involved? It is unlikely schools have a sufficient number of teachers with appropriate specialised training that enable them to lead Forest School programmes (Ridgers, Knowles, and Sayers 2012; Swarbrick, Eastwood, and Tutton 2004). Thus, while some teachers may be involved, their role may relate to acting in a supporting capacity. Nicol (2014) notes opportunities are missed to connect outdoor experiences to the curriculum or indeed that such experience is regarded as supplementary to classroom learning. Perhaps such overlooked connections have been the case, as in contrast to school teachers, specialist outdoor teachers are not burdened by the concerns surrounding curriculum delivery or meeting outcomes that will later be assessed (Nicol 2014). This juxtaposition helpfully brings clarity to the research question being investigated – how are teachers to accommodate outdoor learning alongside meeting curriculum demands and other educational pressures? If teachers routinely take a supporting role in the provision of outdoor learning how can they transfer the subtleties of such experience and link such material with other lessons? This is the niche that the present investigation seeks to fill and evidence from examples of outdoor learning that support curriculum delivery are offered, prior to an overview of the current research.

International research into integrated outdoor learning

A project in Sweden looked at teachers from different disciplines who used outdoor learning over nine months (Fägerstam 2014). Teachers undertook a professional development course and showed that outdoor learning can directly contribute to supporting delivery of the curriculum and valued making links between experiences. An example of integrated provision takes place in Denmark, where outdoor learning for children aged between 7 and 16 years is labelled Udeskole (Bentsen, Mygind, and Randrup 2009). Such provision has risen in the last 15 years and is offered by at least 30% of schools (Bentsen et al. 2010). Learning that links to the curriculum; making regular and reoccurring use of local spaces typifies the integrated approach (Bentsen, Schipperijn, and Jensen 2013). Bentsen, Mygind, and Randrup (2009) argue the catalyst supporting this change are teachers, spurred on to engage in such provision, despite encountering known barriers such as limited available training opportunities. Thus, an integrated approach is possible and the commitment from teachers is a vital ingredient.

Research undertaken with teachers in the United States (Ernst 2014; Ernst and Tornabene 2012) suggests encouraging awareness of what is feasible is vital, rather than focus on changing attitudes or ensuring that teachers have a positive outlook regarding outdoor learning. These suggestions are valuable, yet for outdoor learning to fit into established approaches led by teachers (as opposed to being led by a more knowledgeable other) such a school-based model ought to address potential impediments. One barrier is teachers' habits they undertake as effective teaching, whether such usual ways of teaching support (or clash) with outdoor learning does need to be considered. Theory in relation to outdoor learning is recognised as being under-developed (Nicol 2014; Thorburn and Allison 2010) but there is agreement that outdoor learning calls for nuances in teaching and learning. What may be effective in a classroom may not necessarily be as effective outside. Converging evidence indicates teachers need support to move away from fine-tuned, well-established routines, particularly when a change in the teachers' role is involved (Fägerstam 2014; MacQuarrie, Howe, and Boyle 2012) and that value is ascribed to the individual efforts made by teachers (Hargreaves 2008). An additional potential impediment is that outdoor learning is not immediately identified as supporting curriculum delivery. Some value learning outside yet contrast it with the notion of 'proper learning' (Maynard, Waters, & Clement 2013) or report difficulties in knowing how to communicate what learning objectives have been addressed (MacQuarrie, Nugent, and Warden 2015). These difficulties need to be addressed so that learning taking place outside is regarded as equal to classroom learning and outdoor experiences are regarded as having inherited educational value. The significance of this study cannot be underplayed. To date little empirical research has incorporated understanding regarding the difficulties commonly encountered when teachers attempt outdoor learning and used such knowledge to support implementation of outdoor learning by teachers. As detailed in the subsequent section, the current study incorporates evidence from research within the research design.

Overview of the present study

A central tenet of this research was the premise that outdoor learning does not happen in isolation, it should be part of a wider teaching and learning framework. There is consensus across different literature and guidance documents (as mentioned at the outset) that acknowledge outside spaces as offering opportunities for learning, yet how such opportunities manifest in real, authentic practice is less well understood. This was one aspect being considered – by offering teachers a means of implementation and executing outdoor learning sensitive to the wider schooling context, would teachers be willing to address barriers and engage in outdoor learning? With this goal in mind regular, repeated provision was aimed for and described within the study materials. Training was captured within study materials enabling teachers to undertake the research and included discussion of barriers likely to be encountered when considering outdoor learning. A component of the study materials provided

guidance regarding contextual factors – supporting teachers to consider parameters that influence learning – for example, the role of the teacher, how subgroups of children were arranged and whether prescribed activities were given as lessons. This is a key aspect underlying the research – teachers are aware in most cases of these factors when learning occurs in classrooms, yet situate learning in a location other than a classroom and such factors are overlooked. In general, the research literature regarding outdoor learning rarely acknowledges that children learn with others and have relationships with their peers before they move outside.

Research design

The design of the research enabled teachers to take part and link their involvement with work ongoing in their setting. One of the few investigations considering school-based outdoor learning connected coverage of curricular objectives and outdoor learning within mathematics and geography within secondary schools (Christie, Beames, and Higgins 2015). At secondary school it is appropriate to tailor opportunities for learning with particular subjects as this corresponds with the timetabling and delivery of material whereas in primary school the separation between subjects is less strict and many subjects can be interwoven into a lesson, allowing a range of curricular goals to be covered. Accordingly the study materials were not tied to a specific curriculum topic, meaning that primary schools who were a little uncertain could engage without being concerned that delivery of the curriculum would be harmed. The main aim of the research was to explore teachers' use of materials that encouraged learning in and out of the classroom. This aim was achieved by collecting teachers' insight into their experience and gathering illustrations of the learning environment during the project. The combination of these methods enabled a number of schools to be involved, avoid any geographical restrictions and include rural and urban settings.

The study materials incorporated two aspects derived from cognitive psychology theory brought together under the description of instructional support. Interleaving describes the timing of learning and such layering of experience is argued to promote deeper, more developed learning (Carpenter 2014; Gluckman, Vlach, and Sandhofer 2014; Rohrer 2015). Having noted the limitations regarding the duration of experience within outdoor learning practice, incorporating repeated, regular experiences that support connections between knowledge acquired at different times was a central feature of project design. The second aspect influenced the presentation of material as explanations and specific advice were gradually reduced within the study materials. This has been termed fading instructional support and reported to help provide appropriate guidance and facilitate learning in different populations (Sweller, Ayres, and Kalyuga 2011). The expectation is that tailoring the guidance prompts individuals to source their own examples to support themselves. Having used the study materials participants were expected to see themselves as having ownership of the project and being involved in the construction of their learning experiences, rather than following a set plan or acting out prescribed activities. In this way, self-belief was addressed in the study materials. A common observation within documentation and studies regarding teacher views is the variability in confidence and beliefs regarding their involvement when learning goes outside (Passy 2012). Of course, there is an overlap between teachers' confidence in general and their confidence when learning goes outside. Such overlap is particularly relevant as policy that influenced early years provision in England had the unintentional effect of diluting teachers' confidence (Nundy, Dillon, and Dowd 2009).

Method

Sample

Fourteen teachers drawn from eight schools in Scotland (5) and North of England (3) self-selected to take part with the knowledge there were criteria for participation: a minimum of one class and one teacher were involved (in some cases participation extended to include multiple classes) and data

collection would last a minimum of 3 months, to a maximum of 9 months. Following ethical approval from the University¹ recruitment begun and each setting and each individual practitioner was asked to give their consent. Participants considered themselves novice or non-experts regarding outdoor learning. [Table 1](#) provides a profile of participating schools.

Materials and methods

Study materials comprised a 20-page booklet, a survey, and a mapping exercise. A review of materials involved three assessors (two teachers with outdoor learning qualifications and experience as well as a further qualified teacher) to ascertain the study materials were suitable. The booklet included three sections that incorporated the theoretical basis underpinning the research project and provided a context for the work to be completed. Across the booklet supportive detail reduced so as to move from guiding participants and progress to allow participants to make their own decisions and plans. Participants were encouraged to develop their involvement in relation to their setting and prior experience. The first section encouraged participants to become familiar with the outdoor space being used during the project and steps included participants completing a sketch of their outdoor space, engaging with children about the outdoor area used for learning and examining their objectives in relation to indoor and outdoor spaces. The second section focused on interaction, who is working with whom and explored the role of the teacher in children's learning. The third addressed making connections in children's knowledge and experiences. Each section incorporated specific activities that acted as a place-marker of progress and supported data collection across each of the sites. These activities explored factors known to act as impediments to introducing outdoor learning. Prompts in the booklet acted as reminders for participants to complete two diary entries per section. A brief survey was offered to participants at the start and end of their participation. This document recorded key information about each setting and acted as a summary record per school.

The mapping exercise consisted of a modified version of a classroom observation instrument (MacQuarrie [2013](#)), this technique has been successfully adapted for use to observe children in locations other than classrooms (MacQuarrie, Nugent, and Buchan [2015](#); Nugent et al. [2015](#)). In this project, it was used to gain an insight into the form of learning opportunities used in the project, including the interaction taking place. Practitioners were aware they would be called upon to provide these and requests to complete maps were timetabled at short notice.

Findings

In this section, an overall picture of project engagement is considered and examines practitioners perspectives recorded in their reflective diaries. In this paper, analysis addresses the principal aim by looking across the different data sources to gain insight into the implementation and practice achievable by participants and excerpts are presented in line with this. A summary of participation in the research project is reported and is followed by analysis of the reflective diaries.

The timing and duration of participants involvement was arranged on an individual basis. The initial survey documented participant's plans and was used to coordinate contact with each setting. Participants were encouraged to use their professional judgement and consider the curricular focus of their involvement in the project as the study materials was not tied to coverage of particular topics or subject areas. There is evidence within five of the eight schools that involvement in the project related to school-wide activity and a larger scheme of work. This suggests the project was fit for purpose as the content of the study materials was sufficiently malleable to gel with ongoing school activity. As evident in [Table 1](#) a small number of entries were skipped as participants reported competing priorities influenced their completion of documentation. However, the completion of maps was skipped on fewer occasions as 49 (87.5%) maps were recorded. For the purposes of this paper they act as a means of summarising activity undertaken during the project. Each map recorded

Table 1. Participating school profiles.

School & local authority ^a	Urban/rural ^b	FSM ^b	Classes	Survey		Maps		Diary		Activities ^e		Teaching year (age)	
				S1	S2	n	%	n	%	n	%		
Primary 1A	Urban	Above national average	2	2	1	7	87.5	12	100	6	100	Nursery (4)	5
												Primary 1 (5)	17
Primary 2B	Remote town	Below national average	1	1	0 ^d	4	100	1	16.6	4	66.6	Primary 6–7 (10–12)	
Primary 3B	Remote rural	Above national average	1	1	0 ^d	4	100	5	83.3	5	83.3	Primary 1–7 (5–12)	11
Primary 4C	Accessible rural	Below national average	1	1	1	3	75	6	100	6	100	Primary 1–2 (5–6)	
Primary 5D	Accessible rural	Below national average	3	3	1	12	100	18	100	18	100	Nursery (4)	6
												ASN p1–2 (5–6)	31
												Primary 6 (10)	
Nursery 6E	Rural town and fringe	n/a	2	2	2	9 ^c	100	5	41.6	4 ^d	33.3	Nursery school (3–4)	80 (40 AM, 40 PM)
Primary 7E	Urban city and town	Below national average	1	1	1	2	50	3	50	4	66.6	Reception (4)	30
Primary 8F	Rural hamlet and isolated dwellings	Below national average	3	0 ^d	2	8	66.6	12	66.6	12	66.6	Years 3 & 4 (7–8)	16
												Reception, year 1, year 2 (4–6)	14
			14	11	8	49	87.5	62	73.8	59	70.2		

^aFour schools withdrew during the study (school inspections and changes in school staffing were reasons offered for withdrawal).

^bStatistics for schools in Scotland sourced from: Scottish Government education statistics. Statistics for schools in England sourced from: Educase (2011 census data urban/rural classification, 2015 census data school level statistics).

^cAn additional map was provided by this school.

^dVerbal reports provided as alternative to documents.

^eSpecific activities completed by schools.

three points of detail using an agreed code; an example of a completed map and a blank template was offered to teachers. This included (A) key features of the outdoor space, (Bi) location of pupils, (Bii) pupils' group or solitary working arrangements intended by teacher, (Biii) pupils' group or solitary working arrangements as observed and (C) curriculum area/topics being studied. Teachers were particularly enthusiastic regarding these mapping exercises and reported them to be a valuable exercise for their purposes. For the project, they provide an insight into the experiences offered to pupils and is a helpful addition when seeking to profile the activity of project participants. From these maps, a key consideration is the location of learning. Common across the schools was the proximity of the different areas that were used and included school grounds, local woodland, and green spaces. Teachers noted time constraints meant they preferred to adopt local spaces for use to maximise the time children could experience being outdoors and this is supported by research undertaken in Scottish primary schools (Thorburn and Allison 2012). More varied were the features within these spaces. Figures 1 and 2 provide examples of the maps completed by participants.

Two of the eight schools incorporated a local woodland space into their outdoor learning. From the completed maps and commentary provided by teachers relatively little materials were carried into such areas and there was a reliance on the naturally occurring features for learning (e.g. paper was taken to complete tree rubbing). The remaining schools relied on their immediate grounds, five of whom reported the use of a wildlife area. This type of space has become more commonplace within school grounds and has a deliberate, unkempt appearance. Younger children accessed specific nursery only areas (and this included expansive protective surfaces), whereas older children accessed conventional playground areas. School grounds vary considerably in the features and space they provide (Casey 2003; Dymont 2005; Lucas and Dymont 2010; O'Donnell, Morris,

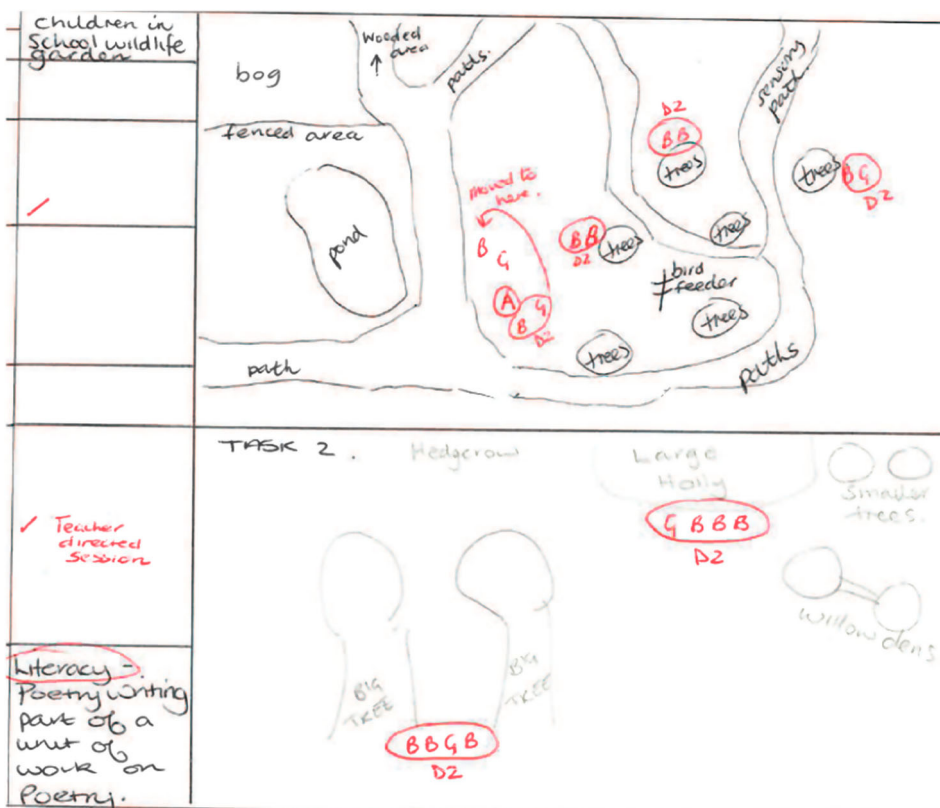


Figure 1. Completed map from participant 4C.

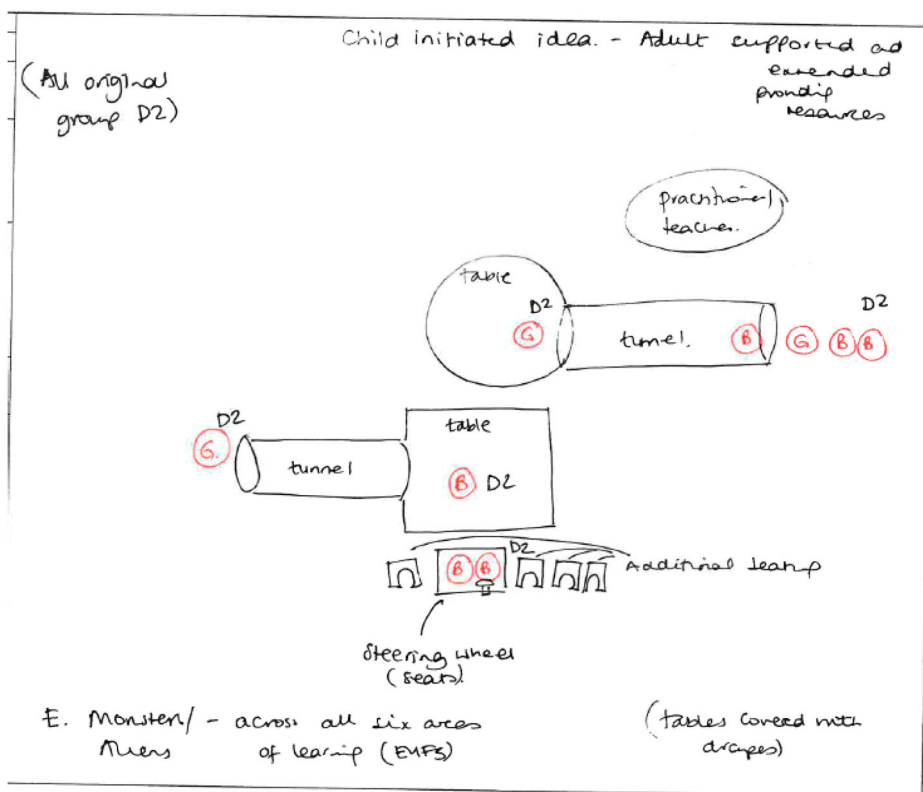


Figure 2. Completed map from participant 6Ei.

and Wilson 2006) and this was evident in the size, shape, and form of the spaces recorded by teachers. Features available were mixed, including those naturally occurring (e.g. tree stump) and those added to the area (e.g. bench). Some areas offered sheltered areas and different types of seating other than benches. A range of curriculum areas and topics were studied and included core subjects such as English, mathematics and science as well as other topics including science, art and design, design and technology, geography and music. In one example, computing was also covered when children followed up an investigation that started outside upon their return to the classroom to learn more about life cycles of plants and animals.

There was a mixture of group work (cooperative work where pupils had little input from teachers), guided interaction (where teachers offered support to pupils working in dyads/groups) and individual pupil work. This separation between group working and guided interaction was used to help identify the variety of interaction occurring during learning and helped teachers to identify any separation between intended working arrangements and actual working arrangements. The content recorded onto such maps is valuable as an illustration of the activity schools, teachers, and pupils engaged in during the project. Content from the reflective diaries helps to offer insights from the perspective of teachers who were involved.

Reflective diaries

Reflective diaries from 14 participants were analysed to consider teachers' perceptions when implementing outdoor learning. The data was analysed into five themes. Cyclical coding was used in two stages (Saldaña 2009) within the six phases of thematic analysis (Braun and Clarke 2006) that involved inspection and consideration of the transcript, developing and revising codes, focusing on what was

reported rather than the frequency of statements. Any inconsistencies were resolved through further review of the transcript accompanied by verification sought from a participant's project participation. Analysis and theme development was supported by the research aims, literature and the data (Ryan and Bernard 2000). The content of the diaries revealed completion of a reflective account helped to capture the authentic experience of being involved in the project as participants recorded challenges as well as successes. As illustrated in this section and the excerpts that follow participants recorded insights regarding their experiences, commenting on the effects of the project materials in preparing them for their role and at other times exploring their thoughts and perspectives regarding their practice that involved outdoor learning.

Shared understanding and consultation

Emphasis on the shared understanding held between pupils and teachers was evident throughout teachers' reflective accounts. Children's voices were sought through conversations and discussions about areas available to them. A range of consultative strategies were used and included some overt and more subtle efforts:

Children worked in mixed ability groups to decide what they would like to do with our outdoor space. The children went outside to sketch a birds eye view of the school grounds. (Participant 3B)

I asked the children to take me on a tour of the wildlife garden. Each child seemed to have their own special areas of interest but a common theme which cropped up time and again were our climbing trees. (Participant 4C)

I have set up an 'outdoor learning suggestion box' in my classroom to gain input as to which activities, areas, subjects, etc the children would like to work more on. (*and later during the project*) I have noticed several more ideas going into the suggestion box. (Participant 5Diii) (emphasis added)

Children were told I needed 'detectives' to go onto the yard and draw maps or take pictures of what we had out, what did they see, what did they like or dislike. (Participant 7E)

These excerpts reflect a shared understanding was achieved in different ways and the exchanges between pupils and their teacher were valued. The discrepancy between pupils and teacher views was clear in a number of participating schools. Teachers appreciated pupils' views, using them to reconsider their own viewpoints and the divergence between teachers and their pupils appeared to be a valuable outcome of the process:

Areas which I found interesting were often ignored and the children went to areas I would not have noticed, such as running down the hill and watching traffic at the fence. (Participant 5Dii)

In terms of places of interest, the children did not really recognise the paved area as an area of interest, even though I see them playing there most days ... (*consultation*) was very useful to glean information about how we as staff regard the outdoors in comparison with how the children view it. (Participant 8Fi) (emphasis added)

We expected some of the children to chose enhancements like the bikes but were surprised that they didn't choose areas like the woodland area or the hill. Observing the children may demonstrate that they do like those areas but when asked they choose a specific object/manmade additions. (Participant 6Eii)

One teacher noted 'With this age group it is hard to tell if this is true reflection of their own thoughts.' (Participant 1Aii) indicating consultative methods adopted for use need to be sensitively applied but may not accurately reflect children's viewpoints. Participant 1Aii was referring to children aged 4–5 in their first year of primary school and it is difficult to ascertain precisely the issue being raised. Different interpretations are possible but two seem most pertinent: the teacher may have had concerns that pupils were echoing what they had overheard from their peers (even so pupils' voices are being reported). Alternatively, pupils may be sensitive to questioning and provide answers they believe teachers would appreciate, and such social classroom expectations are well-documented within traditional learning environments (Tharp and Gallimore 1991). The second interpretation overlaps with the excerpt from participant 6Eii where teachers identified inconsistencies between pupils' reported use and their actual use of outdoor areas. Such ambiguity is an inherent feature with the use

of reflective diaries, there is the potential for some points to be under-represented as the reflective account from teachers is based on the transparency of their writing and triangulation available with the wider data collected. Fortunately, this was the single source where a lack of clarity was a concern.

Integration of children's ideas into activity

Consulting children is a key step within such practice but of equal importance is what happens next. There are examples within the reflective diaries that indicate teachers' were eager to explain how and when ideas given by children's were realised and acted upon. In some instances, there was a direct outcome between pupils' views and children's experiences. In others, teachers reported foregrounding certain points and shadowing other ideas. Teachers' reported a variety of engagement with pupils' contributions that fuelled how experiences offered to children were shaped:

Work at the sandpit was a direct result from the research project activity when pupils consulted on what they liked to do outdoors. (Participant 1Aii)

The children said the playground is better now that they are allowed to use the wildlife garden at playtimes. (Participant 4C)

The plans for extending use and adding to our outdoor area were wholly based upon ideas generated by the children. (Participant 3B)

Curiously, such reflection about recognising pupils' ideas and creating learning opportunities based on these ideas predominantly appears to come from teachers supporting younger children and is accordance with pedagogical techniques common within early childhood education, where children follow their interests and are encouraged to think around a topic.

Outdoor learning and curriculum coverage

A broader range of responses across teachers was evident when learning opportunities and the curriculum was considered. Another teacher revealed an interesting tension. They showed enthusiasm about going outside and could clearly identify the benefits for pupils and the teaching and learning experiences being offered:

The class had some great times this year when we 'just decided' to go outdoors. They really developed some leadership qualities and were so proud of themselves. Even in the extreme winds we had this year, we popped our heads outside to experience it and they've still not stopped talking about it. Prescriptive themes are much too overrated for activities like that. (Participant 5Diii)

The same teacher emphasised that ensuring curriculum coverage was laborious and necessitated input and steering from the teacher:

I did find it hard at times as sometimes the links with curricular work seemed quite tedious. I was glad however that I did know my intended outcomes however for each lessons as I could 'guide' the learning in the direction I wanted. Had I not been aware of the required learning (desired learning) the outcomes may have taken a completely different route (Participant 5Diii)

These excerpts suggest children's contributions are sought time and again and are meaningful for both teachers and pupils. Teachers offered opportunities for children to explore where learning followed the discoveries and ideas unearthed in the experience, in contrast to opportunities where a pre-determined learning objective has been established and teachers are geared towards achieving particular goals. Such reflection and inclusion of their contributions signalled to children their opinions and experiences are important, and have meaning for them and the adults involved. In essence, an exploratory approach is a specific strategy being adopted in order to make the most of experiences that are not planned for and helps to give an insight into project activity. The least common approach was when outdoor learning was included within structured lessons that included strict priorities:

I recently introduced the topic of WW1 with children linked to Remembrance Day ... We also followed this up by a Remembrance Day assembly and we all went out as a whole school and each class planted poppy seeds in a designated planter. (Participant 1Aii)

Most frequently reported was when exploration featured but was connected with improving children's experience, prior learning and could involve the influence of teachers' ideas:

The children successfully made the ball run and have had great fun using it and experimenting with different sized balls, and arranging guttering indifferent ways. The whole school use this area and the ball run has proven very popular. The activity was extended by the children's interest in the various mini-beasts that were found while digging to make the ball run. This interest was extended indoors with books, painting pictures, making models, etc. (Participant 5Di)

We sectioned off part of the yard and only allowed bikes out on 5 afternoons. When they used the bikes children had to plan a route or use their imagination to turn the bikes into something else e.g. police cars, taxis, etc. We found children enjoyed this much more than riding around. From this children set up a garage and car wash. We were able to bring numeracy into this activity as children had to pay for a service / wash, etc. (Participant 7E)

Innovative teachers and collaborative action

Teachers focused on a range of curriculum topics within the project suggesting that teachers were linking their understanding of what learning was occurring with content encountered on a separate occasion. Making connections between experiences is not likely to be a new skill for teachers, it is a crucial aspect of teaching inside or outside. Rather teachers were keen to report and emphasise the value of learning outside the classroom and this included some detailed reflection about their contribution as a teacher. Teachers' referred to the flexibility they could encourage when learning in nature, being responsive to children's interests as well as addressing the curriculum. This is a key outcome as being able to evidence curriculum coverage is an established, concern voiced by teachers regarding outdoor learning (MacQuarrie, Nugent, and Warden 2015; Waite 2010).

When I have taken the class outside I have often had a specific task in mind and been quite focussed on my outcome however taking part in this project has reawakened my old values that there is much to be gained from spontaneous play and child led learning. if something really absorbed the children I took time to tease out the learning in the moment and facilitated some individual or group exploration. (Participant 4C)

I now think about how I can transfer an activity outdoor, and do not feel as restricted to sticking with curricular activities when we do go outside, instead allowing the children more time to explore and lead activities ... I am now more open to the children leading learning, or to simply experience being outdoors. The theme of such opportunities can vary, depending on what the children show interest in that day. (Participant 5Dii)

My heart tells me the children have had a wonderful year but my head asks me how I measure that and evidence it so I guess if I need more support it is in developing these key areas. (Participant 4C)

The contribution of teachers was also noted in the interaction recorded during the project. The first excerpt notes the practical difficulty of changing an established routine when working with pupils with additional needs and the intricacies of teacher-pupil interaction is echoed by a different participant:

As our children require 1:1 support for the majority of the time, it has been a challenge to encourage staff, and myself, to take a step back to encouraged strengthened child-child interactions. (Participant 5Dii)

it became very apparent that it is important sometimes to step back as the adult, to let children 'get on' with finding things out for themselves. This is especially the case when working outdoors as children have been so motivated! (Participant 8Fi)

Reviewing as a bridge between spontaneous and guided learning opportunities

The final theme linked to the role of the teacher was reviewing. Teachers were encouraged to review and include children's views within the project and acknowledged the skills needed to support

reviewing 'when to question, when to add a resource or idea and when to leave well alone' (Participant 4C). One participant explained 'it is a different person each week that goes outdoors with children. Observations are noted and shared with the team' (Participant 5Di). In this example, sharing accounts was essential to support pupils but there was little indication of the role of pupils and their voice in this form of reviewing that seemed to be focused on the adults involved. More fluid approaches to reviewing, both in terms of the timing and who was involved, were noted by other teachers:

Reviewing of activities can vary, often with a short discussion straight afterwards, followed by a more detailed evaluation at a later date. (Participant 5Dii)

Reviewing traditionally happens at the end of lessons, blocks of learning and end of topics. However, I find it useful to have many reviewing opportunities like 'mini plenaries', during lessons. This ensures the children consolidate learning frequently and allows me to check that there are no areas of uncertainty. (Participant 8Fi)

These examples help to identify the different approaches used by teachers. The differing contexts of reviewing are likely to influence teachers' aims and objective and subsequently, how they approach reviewing:

Depending on what you want to get out of reviewing different times work better and don't really matter. For example, if I wanted a true and accurate reflective I found I had to do the review immediately after otherwise the children had forgotten or distorted their memories. At times when I asked children to think back to outdoor lessons carried out previously they had a much deeper understanding as they'd had time to reflect upon it. (Participant 5Diii)

This analysis of participants' reflective accounts helps to demonstrate how outdoor learning can be integrated by teachers and blended with regular school provision. In this regard, a positive impact accompanied participants' involvement in the project and this was identified early on as teachers noted the benefit for interaction amongst pupils, including those who were quieter or found it difficult to engage with their peers who were encouraged by their experiences learning outdoors:

Children that struggled socially at playtimes were happily taking part in their group and begin encouraged by peers. It would appear outdoor activities take some of the tension off children who struggle to mix in the classroom. (Participant 3B)

I have noticed that some of the more dominant classroom characters are less intrusive outdoors and almost take on a more positive leadership role and a few of the really quiet children have proved to be more engaged and confident when applying skills learned outdoors to new situations. (Participant 4C)

Within four of the eight participating schools, at least two and sometimes three teachers were involved. Each teacher related to a separate class and this level of collaboration is commendable. Having support, guidance, and a source of feedback are identified as crucial factors contributing to developing practice (Thurlings, Evers, and Vermeulen 2015). Additional analysis could be applied to consider if collaboration and/or the guidance available as project documents appeared to be more or less helpful for participants. Project duration was arranged on a school-by-school basis and participation in a research project such as this stimulates innovation and encourages regular reflection across a period of weeks, and in some cases an entire term, could run the risk of creating stress for teachers. However, teachers were encouraged by their involvement, noting the benefits to their practice, their pupils and in some cases at a wider school level. Looking ahead they offered some indication how they would continue their engagement with outdoor learning:

The school improvement plan, policies and funding all play a part in shaping what teachers and pupils take forward with outdoor learning. (Participant 4C)

This project has highlighted how much learning takes place in this natural area and we will make changes to ensure the children use this area more frequently. (Participant 5Di)

Implications and directions for future research

Traditional learning environments are classrooms, driven by pedagogy and processes that are well-documented. In contrast, the considerations teachers undergo when engaging with outdoor learning is under researched. The project targeted this need and the main aim of the project was achieved as outdoor learning was undertaken by teachers and integrated within their regular classroom provision. This project provided specific materials that filled a dual role of providing participants with knowledge regarding their involvement but also supported data collection and helped gain an appreciation of the experiences that were cultivated in response to being involved in the research. Participants reasoned and deliberated about their use of outdoor learning and made links with pupil's prior learning. Attempts by teachers to contextualise learning occurred before and after outdoor learning activity and drew on a range of different disciplines.

Reflective accounts

Reflective diary entries have been reported in this paper. Such diaries allow the practitioners' voice to be heard and were a valuable contribution to this research project, giving a contextual perspective of how outdoor learning was incorporated by teachers within their regular practice. Future research could address the limitations noted regarding such methodology by including participant interviews within similar studies and consider additional research questions. From teachers' reflective accounts it is evident they used the materials and ensured they were the main person involved and they engaged in outdoor learning over an extended period of time. It is the duration of experience that separates the activities and experiences occurring during the project from earlier attempts of outdoor learning by teachers. Consideration of such change or adaptation could be achieved more conclusively within a longer term project, that could consider how teachers could be best supported when they seek to extend their repertoire of skills; including for example specific activities such as the use of a fire pit are noteworthy in the outdoor learning literature but are rarely reported within nursery and primary schooling (the exception being specialised provision such as nature kindergarten or forest school). Such further investigation is warranted to identify the characteristics that enhance outdoor learning opportunities for both pupils and teachers. A volume of literature has considered the barriers encountered by schools and teachers when seeking to engage in outdoor learning. In contrast, fewer studies have documented the challenges when teachers attempt to further outdoor learning provision. One candidate area is how practitioners identify themselves in relation to experience. Identity within informal learning has been noted as a key criterion when teachers engage in professional development that involves reflection regarding their role and the processes that occur at the individual and school levels (Kyndt et al. 2016) and would be a valuable inclusion to future studies.

Linking theory and practice and potential directions for future research

The separation between theory and teaching practice is often scrutinised and given critical comment, however, the practitioners involved in this research are amongst those striving to achieve a convergence. It is possible to set out a research programme that can be integrated within regular schooling and does not overstretch those involved. A further strength of the research relates to the approach taken regarding outdoor learning; teachers were encouraged to incorporate outdoor learning within everyday practice. Indications the theory underlying the project materials has relevance in educational settings include that practitioners strived to consult children in meaningful ways and regularly sought children's opinions. It follows the knowledge and understanding stemming from participating in the project is tied to their workplace and experience of education and accordingly, different outcomes can be expected for different teachers (Eraut 2004).

Teachers in the current study undertook outdoor learning within a broad range of curricular topics and it is likely such experiences contributed to children's learning across many domains. Looking

ahead, outdoor learning is identified as a source of affordance rich environments where objects have little fixed purpose and can take on any role attributed by a child (Kernan 2010; Sandseter 2009). There is scant research looking closely at such interaction and the role it may hold for young children's category development and knowledge acquisition. Perhaps such studies could be inspired by creative approaches presented in word learning research (Buchsbbaum et al. 2012; McMurray, Horst, and Samuelson 2012) that have sought to explore complicated knowledge acquisition in a practical fashion. A potential avenue for exploration would be children's acquisition of biological knowledge relating to their engagement with authentic and realistic examples. A theme of related research has focused on children's engagement with animals (Geerdt, Van de Walle, and LoBue 2015a, 2015b) and comprehension of science curriculum (Gluckman, Vlach, and Sandhofer 2014). Such research would explore the role of outdoor learning in supporting children's cognitive development.

Achieving interdisciplinary connections is foregrounded within policy documents but is also identifiable within psychological theory as a feature likely to support the educational value of experiences and warrants further consideration. Outdoor learning is well suited to support interdisciplinary connections (Thorburn and Allison 2012), as meaning derived from an experience can support children's wider understanding. Particularly in the study being reported teachers controlled the timing and frequency of their efforts to layer experiences, by building on previous knowledge and understanding, and contributed to children's learning as a whole. Recent evidence suggests varying the amount of time between learning events can be advantageous and enhance children's memory and recall (Vlach, Sandhofer, and Bjork 2014). Within education there is an inherent expectation that learning transfer will occur, what is learnt at one point in time will be recalled and provide an advantage at a later time. By contextualising and making links teachers' can support children's learning across curriculum areas influencing knowledge acquisition and retention. While this area is ripe for investigation (Rohrer 2015) developing an appropriate design is not straightforward if ecological validity is tenable. It is interesting to note that a number of research articles show considerable variation in the detail provided regarding the spacing schedule used to operationalise learning events in their experimental method and this does lead to concerns regarding the replicability of such work when carried over into real-life settings such as schools (Gluckman, Vlach, and Sandhofer 2014; Hopkins et al. 2015). Key to such layering is practitioner skill at recognising opportunities that present themselves in relation to curriculum aspects, both indoors and out. The tactic of encouraging teachers to moderate their activity rather than follow a specific series of spaced intervals aimed to address this difficulty but whether this should be the case does need to be addressed but should not limit future studies that involve school-based outdoor learning. Whether or not sufficient learning opportunities were provided to target or fulfil aspects of the curriculum is a concern that needs to be set aside. Within this study, it is encouraging to see practitioners are eager to engage with nature and outdoor spaces and broaden their approaches to teaching and learning, within both early years and primary school settings. Teachers can capitalise on that available in their local vicinity and use this to support their teaching and the experiences offered to children. Learning outdoors complements children's indoor experience. Thus, rather than examining learning outdoors solely to inspect its potential to support curricular objectives, we should prioritise whether such provision was purposeful and productive and consider its general contribution to curricular outcomes.

Note

1. In Scotland, schools function within regional forms of local government (known as local authorities) and must also be involved in research projects.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by Innovate UK funding under Grant number 8213.

ORCID

Sarah MacQuarrie  <http://orcid.org/0000-0003-0950-3037>

References

- Bentsen, P., E. Mygind, and T. B. Randrup. 2009. "Towards an Understanding of Udeskole: Education Outside the Classroom in a Danish Context." *Education 3-13* 37 (1): 29–44. doi:10.1080/03004270802291780.
- Bentsen, P., J. Schipperijn, and F. S. Jensen. 2013. "Green Space as Classroom: Outdoor School Teachers' Use, Preferences and Ecostrategies." *Landscape Research* 38 (5): 561–575.
- Bentsen, P., F. Søndergaard Jensen, E. Mygind, and T. Barfoed Randrup. 2010. "The Extent and Dissemination of Udeskole in Danish Schools." *Urban Forestry & Urban Greening* 9 (3): 235–243. doi:10.1016/j.ufug.2010.02.001.
- Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101.
- Buchsbaum, D., S. Bridgers, D. S. Weisberg, and A. Gopnik. 2012. "The Power of Possibility: Causal Learning, Counterfactual Reasoning, and Pretend Play." *Philosophical Transactions of the Royal Society B: Biological Sciences* 367 (1599): 2202–2212.
- Carpenter, S. K. 2014. "Spacing and Interleaving of Study and Practice." In *Applying Science of Learning in Education: Infusing Psychological Science into the Curriculum*, edited by V. A. Benassi, C. E. Overson, and C. M. Hakala, 131–141. Society for the Teaching of Psychology. Retrieved from the Society for the Teaching of Psychology web site: <http://teachpsych.org/ebooks/asle2014/index.php>: Society for the Teaching of Psychology.
- Casey, T. 2003. *School Ground Literature Review. Phase One of the Scottish School Grounds Research Project 2002/3*. Stirling: Grounds for learning, Sportscotland, Play Scotland.
- Children Schools and Families Select Committee. 2010. Transforming Education Outside the Classroom. Sixth report of session 2009–10, HC 418, April 1 *Third Special Report (HC 525)* London: Education committee.
- Christie, B., S. Beames, and P. Higgins. 2015. "Culture, Context and Critical Thinking." *British Educational Research Journal* 42 (3).
- Christie, B., S. Beames, P. Higgins, R. Nicol, and H. Ross. 2014. "Outdoor Learning Provision in Scottish Schools." *Scottish Educational Review* 46 (1): 48–64.
- Council for the Curriculum Examinations and Assessment. 2007a. The Revised Northern Ireland Curriculum Primary. http://www.nicurriculum.org.uk/docs/key_stages_1_and_2/northern_ireland_curriculum_primary.pdf.
- Council for the Curriculum Examinations and Assessment. 2007b. The Revised Northern Ireland Curriculum Understanding the Foundation Stage. http://www.nicurriculum.org.uk/docs/foundation_stage/UF_web.pdf.
- Department for Children Education Lifelong Learning and Skills. 2009. Foundation Phase Outdoor Learning Handbook. <http://learning.wales.gov.uk/docs/learningwales/publications/140828-foundation-phase-outdoor-learning-handbook-en.pdf>.
- Department for Education and Skills. 2006. Learning Outside the Classroom: Manifesto. HMSO DfES, (DFES-04232-2006). <http://www.lotc.org.uk/wp-content/uploads/2011/03/G1-LOTc-Manifesto.pdf>.
- DfE (Department for Education). 2012. *Statutory Framework for the Early Years Foundation Stage*. London: Department for Education.
- Dolan, A. M. 2015. "Place-Based Curriculum Making: Devising a Synthesis between Primary Geography and Outdoor Learning." *Journal of Adventure Education and Outdoor Learning* 16 (1), 1–14.
- Dymont, J. E. 2005. "Green School Grounds as Sites for Outdoor Learning: Barriers and Opportunities." *International Research in Geographical and Environmental Education* 14 (1): 28–45.
- Eraut, M. 2004. "Informal Learning in the Workplace." *Studies in Continuing Education* 26 (2): 247–273.
- Ernst, J. 2014. "Early Childhood Educators' Use of Natural Outdoor Settings as Learning Environments: An Exploratory Study of Beliefs, Practices, and Barriers." *Environmental Education Research* 20 (6): 735–752.
- Ernst, J., and L. Tornabene. 2012. "Preservice Early Childhood Educators' Perceptions of Outdoor Settings as Learning Environments." *Environmental Education Research* 18 (3): 643–664.
- Estyn. 2011. Outdoor Learning: An Evaluation of Learning in the Outdoors for Children under Five in the Foundation Phase. <http://www.estyn.gov.uk/english/docViewer/221594.1/outdoor-learning-an-evaluation-of-learning-in-the-outdoors-for-children-under-five-in-the-foundation-phase-september-2011/?navmap=30,163>.
- Fägerstam, E. 2014. "High School Teachers' Experience of the Educational Potential of Outdoor Teaching and Learning." *Journal of Adventure Education and Outdoor Learning* 14 (1): 56–81.
- Geerds, M. S., G. A. Van de Walle, and V. LoBue. 2015a. "Daily Animal Exposure and Children's Biological Concepts." *Journal of Experimental Child Psychology* 130: 132–146. doi:10.1016/j.jecp.2014.10.001.

- Geerdt, M. S., G. A. Van de Walle, and V. LoBue. 2015b. "Parent–Child Conversations about Animals in Informal Learning Environments." *Visitor Studies* 18 (1): 39–63. doi:10.1080/10645578.2015.1016366.
- Gluckman, M., H. A. Vlach, and C. M. Sandhofer. 2014. "Spacing Simultaneously Promotes Multiple Forms of Learning in Children's Science Curriculum." *Applied Cognitive Psychology* 28 (2): 266–273. doi:10.1002/acp.2997.
- Hargreaves, L. 2008. "The Whole-School Approach to Education for Sustainable Development: From Pilot Projects to Systemic Change." *Policy & Practice: A Development Education Review* 6: 69–74.
- Higgins, P. 2002. "Outdoor Education in Scotland." *Journal of Adventure Education and Outdoor Learning* 2 (2): 149–168.
- Hopkins, R. F., K. B. Lyle, J. L. Hieb, and P. A. S. Ralston. 2015. "Spaced Retrieval Practice Increases College Students' Short- and Long-Term Retention of Mathematics Knowledge." *Educational Psychology Review* 28 (4): 853–873. doi:10.1007/s10648-015-9349-8.
- Hunt, A., D. Stewart, J. Burt, and J. Dillon. 2016. Monitor of Engagement with the Natural Environment: A Pilot to Develop an Indicator of Visits to the Natural Environment by Children – Results from Years 1 and 2 (March 2013 to February 2015). Natural England Commissioned Reports, Number 208.
- Kernan, M. 2010. "Outdoor Affordances in Early Childhood Education and Care Settings: Adults' and Children's Perspectives." *Children Youth and Environments* 20 (1): 152–177.
- Knight, S. 2013. *Forest School and Outdoor Learning in the Early Years*. London: Sage.
- Kyndt, E., D. Gijbels, I. Grosemans, and V. Donche. 2016. "Teachers' Everyday Professional Development: Mapping Informal Learning Activities, Antecedents, and Learning Outcomes." *Review of Educational Research* 86 (4): 1111–1150. doi:10.3102/0034654315627864.
- Learning & Teaching Scotland. 2010. *Curriculum for Excellence through Outdoor Learning*. Glasgow: Learning and Teaching Scotland.
- Lucas, A. J., and J. E. Dymont. 2010. "Where Do Children Choose to Play on the School Ground? The Influence of Green Design." *Education 3-13* 38 (2): 177–189.
- MacQuarrie, S. 2013. "Briefing and Debriefing: Investigating the Role of the Teacher within Group Work Science Lessons." *International Journal of Educational Research* 62: 87–99.
- MacQuarrie, S., C. Howe, and J. Boyle. 2012. "Exploring the Characteristics of Small Groups within Science and English Secondary Classrooms." *Cambridge Journal of Education* 42 (4): 527–546.
- MacQuarrie, S., C. Nugent, and N. Buchan. 2015. "We've Just Picked This Straight Off The Bush': Comparing Nature Play in Botanic Gardens." Paper presented at the Pacific Early Childhood Education Research Association (PECERA) Sydney, Australia.
- MacQuarrie, S., C. Nugent, and C. Warden. 2015. "Learning with Nature and Learning from Others: Nature as Setting and Resource for Early Childhood Education." *Journal of Adventure Education and Outdoor Learning* 15 (1): 1–23.
- Maynard, T., J. Waters, and J. Clement. 2013. "Moving Outdoors: Further Explorations of 'Child-Initiated' Learning in the Outdoor Environment." *Education 3-13* 41 (3): 282–299.
- McMurray, B., J. S. Horst, and L. K. Samuelson. 2012. "Word Learning Emerges from the Interaction of Online Referent Selection and Slow Associative Learning." *Psychological Review* 119 (4): 831–877.
- Natural England. 2009. *Childhood and Nature: A Survey on Changing Relationships with Nature across Generations*. Cambridgeshire: Natural England.
- Nicol, R. 2002a. "Outdoor Education: Research Topic or Universal Value? Part One." *Journal of Adventure Education & Outdoor Learning* 2 (1): 29–41.
- Nicol, R. 2002b. "Outdoor Education: Research Topic or Universal Value? Part Two." *Journal of Adventure Education and Outdoor Learning* 2 (2): 85–99.
- Nicol, R. 2014. "Entering the Fray: The Role of Outdoor Education in Providing Nature-Based Experiences that Matter." *Educational Philosophy and Theory* 46 (5): 449–461.
- Nugent, C., I. Edwards, S. Hutcheon, and J. MacDonald. 2015. "Nature Play: Nature Conservation." Project report on behalf of Royal Botanic Gardens Edinburgh. Funded by Calouste Gulbenkian Foundation.
- Nundy, S., J. Dillon, and P. Dowd. 2009. "Improving and Encouraging Teacher Confidence in Out-of-Classroom Learning: The Impact of the Hampshire Trailblazer Project on 3–13 Curriculum Practitioners." *Education 3-13* 37 (1): 61–73.
- O' Donnell, L., M. Morris, and R. Wilson. 2006. *Education Outside the Classroom: An Assessment of Activity and Practice in Schools and Local Authorities*. London: DFES.
- Passy, R. 2012. "School Gardens: Teaching and Learning Outside the Front Door." *Education 3-13*, 1–16. doi:10.1080/03004279.2011.636371.
- Power, S., C. Taylor, G. Rees, and K. Jones. 2009. "Out-of-School Learning: Variations in Provision and Participation in Secondary Schools." *Research Papers in Education* 24 (4): 439–460.
- Ridgers, N. D., Z. R. Knowles, and J. Sayers. 2012. "Encouraging Play in the Natural Environment: A Child-Focused Case Study of Forest School." *Children's Geographies* 10 (1): 49–65.
- Rohrer, D. 2015. "Student Instruction Should be Distributed Over Long Time Periods." *Educational Psychology Review* 27 (4): 635–643.
- Ryan, G. W., and H. R. Bernard. 2000. "Data Management and Analysis Methods." In *The Sage Handbook of Qualitative Research*. 2nd ed., edited by N. K. Denzin and Y. S. Lincoln, 769–832. Thousand Oaks, CA: Sage.
- Saldaña, J. 2009. *The Coding Manual for Qualitative Researchers*. London: Sage Publications Ltd.

- Sandseter, E. B. H. 2009. "Affordances for Risky Play in Preschool: The Importance of Features in the Play Environment." *Early Childhood Education Journal* 36 (5): 439–446. doi:10.1007/s10643-009-0307-2.
- SCCYP (Scottish Commissioner for Children and Young People). 2010. *Go Outdoors! Guidance and Good Practice on Encouraging Outdoor Activities in Residential Child Care*. Scottish Commissioner for Children and Young People.
- Stern, M. J., R. B. Powell, and D. Hill. 2014. "Environmental Education Program Evaluation in the New Millennium: What Do We Measure and What Have We Learned?" *Environmental Education Research* 20 (5): 581–611.
- Stevenson, R. B. 2007. "Schooling and Environmental Education: Contradictions in Purpose and Practice." *Environmental Education Research* 13 (2): 139–153.
- Swarbrick, N., G. Eastwood, and K. Tutton. 2004. "Self-Esteem and Successful Interaction as Part of the Forest School Project." *Support for Learning* 19 (3): 142–146.
- Sweller, J., P. Ayres, and S. Kalyuga. 2011. "The Guidance Fading Effect." In *Cognitive Load Theory*, edited by J. M. Spector and S. LaJoie, 171–182. New York: Springer.
- Taylor, C., S. Power, and G. Rees. 2009. "Out-of-School Learning: The Uneven Distribution of School Provision and Local Authority Support." *British Educational Research Journal* 36 (6): 1017–1036.
- Tharp, R. G., and R. Gallimore. 1991. *Rousing Minds to Life: Teaching, Learning, and Schooling in Social Context*. Cambridge: Cambridge Univ Press.
- Thorburn, M., and P. Allison. 2010. "Are We Ready to Go Outdoors Now? The Prospects for Outdoor Education During a Period of Curriculum Renewal in Scotland." *The Curriculum Journal* 21 (1): 97–108.
- Thorburn, M., and P. Allison. 2012. "Analysing Attempts to Support Outdoor Learning in Scottish Schools." *Journal of Curriculum Studies* 45 (3): 1–23. doi:10.1080/00220272.2012.689863.
- Thurlings, M., A. T. Evers, and M. Vermeulen. 2015. "Toward a Model of Explaining Teachers' Innovative Behavior: A Literature Review." *Review of Educational Research* 85 (3): 430–471.
- Vlach, H. A., C. M. Sandhofer, and R. A. Bjork. 2014. "Equal Spacing and Expanding Schedules in Children's Categorization and Generalization." *Journal of Experimental Child Psychology* 123: 129–137. doi:10.1016/j.jecp.2014.01.004.
- Waite, S. 2010. "Losing Our Way? The Downward Path for Outdoor Learning for Children Aged 2–11 Years." *Journal of Adventure Education & Outdoor Learning* 10 (2): 111–126.
- What is Forest School? 2014. Accessed July 30. http://www.foresteducation.org/woodland_learning/forest_schools/.