The value of outdoor learning: evidence from research in the UK and elsewhere

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Research indicates that fieldwork, properly conceived, adequately planned, well taught and effectively followed up, offers learners opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom

This article summarises the key findings of a review that critically examined 150 pieces of research on outdoor learning published between 1993 and 2003 (Rickinson *et al*., 2004). The Field Studies Council and partner organisations commissioned the review in response to the growing concern that opportunities for outdoor learning by school students in England have decreased substantially in recent years (Harris, 1999; Barker, Slingsby and Tilling, 2002).

We found substantial evidence to indicate that fieldwork, properly conceived, adequately planned, well taught and effectively followed up, offers learners opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom. In this article we distil some of the review's findings of particular relevance to secondary school teachers. We look first at the impacts of fieldwork and outdoor educational visits, and then discuss what is known about effective practice before concluding with a look at barriers to fieldwork.

ABSTRACT
This article summarises the key findings of a review of the research into outdoor learning published between 1993 and 2003. It summarises what is known about the impacts of fieldwork and then discusses what is known about effective practice before concluding with a look at barriers to fieldwork.

The impacts of fieldwork and outdoor educational visits

Not surprisingly, research suggests that students remember fieldwork and outdoor visits for many years. Dierking and Falk (1997) found that 96 per cent of a group (128 children and adults) could recall field trips taken during their early years at school. However, simply recalling a visit does not mean that it was an effective learning experience or that the time could not be more usefully spent in the classroom.

Evidence for the relative efficacy of fieldwork comes from a study of secondary students from 11 Californian schools that used an environmentally focused curriculum. The students scored higher in 72 per cent of the academic assessments (reading, science, maths, attendance rates and grade point averages) than students from traditional schools (SEER, 2000). Eaton (2000) found that outdoor learning experiences were more effective for developing cognitive skills than classroom-based learning. Such comparative studies, though important, are rare and very difficult to carry out.

In terms of the impact on students' attitudes, Mittelstaedt, Sanker and Vanderveer (1999) looked at the impact of a week-long experiential programme on 46 US children. The children (31 male, 15 female) attended a five-day summer-school programme of biodiversity activities. The authors found that '*even though the children arrived with a positive*

attitude toward the environment, they left with an even stronger positive attitude' (p. 147). Uzzell and colleagues, however, sound a note of caution about making too many assumptions about the relative permanency of attitudinal changes (Uzzell, Rutland and Whistance, 1995). The researchers point out that environmental attitudes are fairly well entrenched: '*What they learn ... both in the classroom and in the field, only serves to strengthen their views and perhaps heighten their sense of action paralysis*' (p. 177).

In terms of changing students' behaviours, Bogner (1998) tested one-day and five-day versions of a long-established outdoor ecological programme with 700 students aged 11–13 in a German national park. Bogner reported that '*the 5-day program explicitly provoked favorable shifts in individual behavior, both actual and intended*' (p. 17).

What counts as effective practice?

There is considerable evidence indicating that longer programmes are more effective than shorter ones. A study by Emmons (1997) of an outdoor environmental education programme in Belize argued that:

> *the length of time that students spent at Cockscomb (five days for most) appeared to be important in the reduction of negative perceptions of the environment, including fears ... A shorter environmental education programme may not have had the same effect.* (p. 342)

Bogner's (1998) evaluation, mentioned above, found that '*only the residential five-day programme had any effect on behavioural levels*' (p. 26).

The value of preparatory work prior to outdoor learning is another factor well-evidenced in the literature. For example, in their study of nature-based excursions in Queensland, Ballantyne and Packer (2002) found significant differences between students who had done pre-visit activities and those who had not. The former both looked forward to, and enjoyed, their visit more than the latter. Work by Orion and Hofstein (1994) in Israel provides a strong rationale for preparatory work that introduces students to the cognitive (field trip concepts and skills), geographic (field trip setting), and psychological (field trip processes) aspects of fieldwork. The benefit of preparatory meetings, discussions, explanations and materials for creating accessible and inclusive field courses is stressed by Healey *et al*. (2001).

Several studies highlight the importance of carefully designed learning activities and assessment of students' outdoor learning. Ballantyne and Packer (2002: 228) warn against over-structuring learning activities. They found that '*the use of worksheets, note-taking and reports were all unpopular with students, and did not appear to contribute greatly to [their] environmental learning*'. They suggest that touching and interacting with wildlife is a more effective strategy. Emmons' (1997) study of a five-day field course in Belize found that students' learning was facilitated by their shared and direct experience of the surroundings, as well as their teachers' role-modelling of their interests and likes about the forest environment.

The ability to choose between different kinds of learning activity appears to be an important requirement for students. Openshaw and Whittle (1993) comment upon the need for teachers and outdoor educators to balance '*the students' desire for a structure within which they can feel comfortable and not threatened and the added excitement caused by the unexpected*' (pp. 63–64).

The need for effective follow-up work after outdoor experiences is stressed by several authors (for example, Orion and Hofstein, 1994). Uzzell *et al*. (1995) emphasise the need for clear links to be made between outdoor activities ('*the world of our physical surroundings*') and indoor activities ('*the world of the school*').

Factors influencing outdoor learning and its provision

So far we have looked at the impacts of fieldwork and at what constitutes effective practice. It is the case, though, that there is substantial variation between students and schools in terms of opportunities to experience the outdoors and in the subsequent learning that takes place. So what are the factors that affect how much learning takes place outdoors and the amount and quality of provision of experiences for students? Notable barriers include:

- fear and concern about health and safety;
- teachers' lack of confidence in teaching outdoors;
- school curriculum requirements;
- shortages of time, resources and support;
- wider changes within and beyond the education sector.

As well as these external factors, a range of personal influences on learning have been identified as indicated below.

Age

An Australian study of school students' perceptions of learning in natural environments found significant differences between the primary and secondary school age group (Ballantyne and Packer, 2002). Primary school students were found to be significantly more enthusiastic than their secondary counterparts, both before and after the experience. The two groups were also looking forward to different aspects of the experience:

> *Primary school students tended to focus on specific features of the programme ... Secondary school students gave a more varied range of responses, including getting out of school, experiencing nature ... and experiencing something new or different.* (p. 221)

Prior knowledge and experience

Students' learning can be strongly influenced by their previous field and classroom-based experiences (Orion and Hofstein, 1994; Lai, 1999). Openshaw and Whittle note that '*if students have been accustomed to a diet of "experiments" based on well tried recipes that "work", then real experimental practical ecology is likely to prove a difficult experience for them*' (1993: 64).

Fears and phobias

Several studies suggest that outdoor settings can be the source of genuine fear and concern for young people. Simmons (1994a,b) found children in Chicago expressed concerns about a variety of nature scenes: possible natural hazards; threats from other people; and inconveniences for their physical comfort. Similar worries about getting lost and encountering snakes or poisonous plants are reported by others (Bixler *et al.*, 1994; Wals, 1994). The important point is that such fears '*pose barriers to enjoying and learning [in and] about wildlands*' (Bixler *et al.*, 1994: 31). This phenomenon is seen in students with a high 'disgust sensitivity' who are found to prefer activities that do not involve handling of organic matter, and fieldwork sites with clear water, no algae and easy lakeshore access (Bixler and Floyd, 1999).

Learning styles and preferences

There is growing appreciation of the importance of students' learning styles and preferences in outdoor learning, especially fieldwork. Lai's (1999) in-depth study of Hong Kong secondary school students on a geography field trip found marked differences in individuals' responses to the two parts of the day. While some preferred the teacher-guided tour of local physical features in the morning, others were much happier with the student-led field investigation in the afternoon when they could '*work on their own and hence have more freedom*' (p. 248).

Physical disabilities and special educational needs

Recent work in the UK has highlighted the many barriers that disabled students can face to participating fully in fieldwork, and the ways in which institutions, departments and tutors can help to reduce them (Healey *et al.*, 2001). This challenge is also pertinent to organisations conducting horticultural and gardening activities with school students (Marsden, 2003).

Ethnic and cultural identity

Recent research in Australia suggests that young people's ethnic and cultural identities can be important factors in their outdoor learning. Purdie, Neill and Richards (2002) found that learning outcomes varied significantly with individuals' cultural identities: '*Most of the gains were made by students who rated themselves as totally Australian, and not by students who expressed somewhat of a lesser affiliation with an Australian identity*' (p. 38). They recommend that outdoor educators '*need to devise strategies to counter the psychological discounting and disengagement processes that are typical of how individuals attempt to cope with stereotype threat*' (p. 39).

The setting

The importance of the setting is not a new theme in outdoor education research, especially on fieldwork (see, for example, Martin, Falk and Balling, 1981). A number of more recent studies have emphasised the importance of the location as a factor affecting students' outdoor learning. A recurring idea is that outdoor environments can place on students learning demands and emotional challenges, the impacts of which are not always sufficiently recognised by teachers and outdoor educators. Australian researchers reporting on a study of high school science students during visits to a marine theme park argued that '*teachers need to ensure that students are not distracted by the novelty of the location*' (Burnett, Lucas and Dooley, 1996: 63).

There is, however, clearly a balance to be struck between novelty and familiarity. In their study of students' perceptions of nature-based excursions, Ballantyne and Packer (2002) found that '*students who had not visited the particular site before were*

looking forward to their visit more than those who had' (p. 221). Emmons (1997) saw significance in the fact that the programme that she evaluated '*did not completely remove students from all that was familiar to them, as might a nature experience for inner-city children in the USA, for example*' (p. 342). Instead, in her view, it was an environment that '*although certainly novel*' was also one that the students could link with, due to '*their own experiences in rural Belize*' and this contributed to its ability to challenge participants' environmental perceptions (p. 342).

In conclusion

There is a concern that the amount of fieldwork in secondary schools is under threat. However, the evidence from research carried out around the world is that fieldwork can have a range of beneficial impacts on participants. To be effective, fieldwork needs to be carefully planned, thoughtfully implemented and followed up back at school. In planning activities, teachers and outdoor educators need to take account of factors such as students' fears and phobias, prior experience and preferred learning styles.

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The authors were all involved in the research review summarised here.
The full research review (Rickinson *et al.*, 2004) can be obtained from FSC Publications (£8 plus £2 p&p.), telephone 0845 3454072 (local phone rate call – UK only) or 01743 852140, email publications@field-studies-council.org.
An executive summary of the report can be downloaded from: http://www.field-studies-council.org/reports/nfer/index.aspx.
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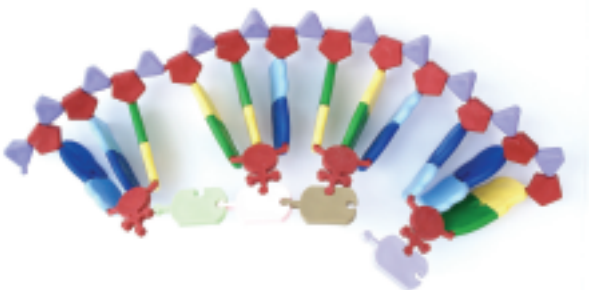

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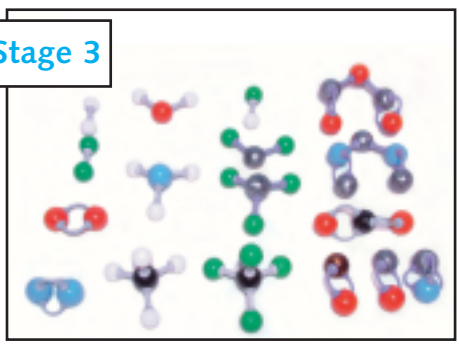

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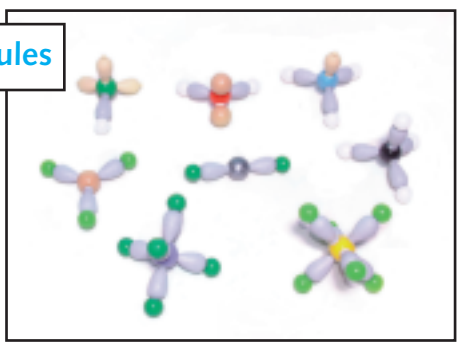

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