Outdoor Education in the Schools: What can it achieve?

James T. Neill
B.Sc.(Hons), AMAPsS

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Abstract
Although outdoor education has become firmly established in many school curriculums, it remains unclear what this has achieved. This paper reviews the current state of research on a wide range of school outdoor education programs. The surprising lack of good quality studies prompted this paper to emphasize a rationale for research and evaluation and to provide strategies for implementing more systematic study of outdoor education programs.

Introduction
The original aim of this paper was to answer some fundamental questions, including:
- What outcomes do students achieve through outdoor education programs?
- Do the outcomes justify the program costs (compared to the outcomes achieved by other educational approaches)?
- What are the critical factors which determine outcomes for individual students?
- How have outdoor educators applied research and evaluation to the ongoing improvement and development of outdoor education programs for school students?

Unfortunately, there is a surprising paucity in the quality and variety of research and evaluation studies in this field. There are some notable exceptions, however these studies do not constitute a sufficient body of knowledge from which to answer the questions posed. Consequently, the focus of this paper is:
- to provide an overview of the claims, aims, and evaluation practices used by outdoor education programs with school students;
- to present the research trends and highlight some relevant studies which point towards the positive and negative potentials of outdoor education for school students, and
- to discuss some strategies for, and benefits of, overcoming the barriers to research and evaluation in outdoor education.

Claims, Aims, and Evaluation Practices
There is no shortage of literature that makes substantial claims for the educational achievements of experiential outdoor programs in schools (e.g. Keighley, 1985a,b; Mitchell, 1992; Payne, 1993; Royce, 1987; Thomson, 1990). These claims range from the global and comprehensive, for example “that outdoor education is a panacea for ills which pervade our contemporary educational and societal systems” (Gray & Perusco, 1993, p.20), to extensive lists of specific physical, social, intellectual, and psychological outcomes.

For some people the value of outdoor education programs is self-evident and they require no further justification or proof. This position tends to be held by outdoor instructors and enthusiasts. For others, a systematic and rigorous approach is required to understand the processes and outcomes of outdoor education. This position tends to be taken by funding agencies, researchers, academics, some school principals, and a minority of outdoor educators. Clearly, it is also the point of view expressed in this paper.

In attempting to review the evaluation literature, it is important to establish a picture of the range of aims for outdoor education programs with school students.

McRae (1990b) conducted a survey of outdoor educators in twenty-five schools in the Australian Capital Territory, reporting on their assumptions about outdoor education and the objectives of their programs. He ranked and categorized the stated objectives of the outdoor education programs (see Table 1). Three out of every five programs had objectives relating to the enhancement of personal qualities and capacities and of relations with other persons. Followup interviews with the survey informants suggested that personal and social objectives were intended even when they were not stated in curriculum documents. It was thought that many outdoor education teachers considered that “it was not necessary to state the obvious” (McRae, 1990b, p.25).

Correspondence concerning this article should be addressed to the author at National Outdoor Education and Leadership Services (National Outdoor Education and Leadership Services), 17 Goble Street, Hughes, ACT 2605, Australia. Electronic mail may be sent via Internet to noelsaust@msn.com.
Table 1. Categories and Rankings of Broad Objectives

<table>
<thead>
<tr>
<th>Category</th>
<th>% Rank</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Develop the basic skills required to participate in selected outdoor experiences</td>
<td>Outdoor skills</td>
<td>100.0</td>
</tr>
<tr>
<td>Develop basic skills in bushcraft</td>
<td>Outdoor skills</td>
<td>86.0</td>
</tr>
<tr>
<td>Develop positive attitudes to physical fitness</td>
<td>Personal</td>
<td>65.1</td>
</tr>
<tr>
<td>Enhance personal qualities and abilities</td>
<td>Personal</td>
<td>62.8</td>
</tr>
<tr>
<td>Enhance relations with others</td>
<td>Social</td>
<td>55.8</td>
</tr>
<tr>
<td>Develop positive attitudes to leisure</td>
<td>Personal</td>
<td>53.5</td>
</tr>
<tr>
<td>Become environmentally concerned</td>
<td>Environmental concern</td>
<td>51.2</td>
</tr>
<tr>
<td>Become proficient in the basic skills of map-reading and navigation</td>
<td>Outdoor skills</td>
<td>46.5</td>
</tr>
<tr>
<td>Enhance their abilities to plan outdoor experiences</td>
<td>Outdoor skills</td>
<td>44.6</td>
</tr>
<tr>
<td>Develop basic skills in first aid</td>
<td>Outdoor skills</td>
<td>39.5</td>
</tr>
<tr>
<td>Cope with emergencies in the outdoors</td>
<td>Outdoor skills</td>
<td>37.2</td>
</tr>
<tr>
<td>Enhance learning in a range of curriculum areas</td>
<td>Learning</td>
<td>18.6</td>
</tr>
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</table>


Given the range of objectives found by McRae’s (1990b) study of outdoor education programs, the next question is “How do outdoor education programs evaluate their objectives?”

Chenery and Hammerman (1985) surveyed residential outdoor education centres in the United States about their evaluation practices. They found that “observation of the program” and “group discussions with participants” were used as evaluation tools in 90% and 79% of centres respectively. The predominant use of these evaluation methods is consistent with the lack of written research and evaluation. While sitting in a group discussing opinions and feelings play an important role for participants in most outdoor education programs, outdoor educators need to be wary of using the same methodology for the tasks of program evaluation and program development. This is an important point which is often missed: outdoor educators must be careful not to confuse their medium with their method. The medium may well be experiential learning, but the method needs to be a carefully planned, delivered and evaluated educational process.

In 1990, McIntyre made the optimistic observation that “the Australian (and New Zealand) scene is beginning to move from its previous fascination with program description, and exhortation, to an empirical stage which attempts to examine the process of outdoor education and its impact on participants” (p.230). Unfortunately the field is still characterised by a potted history of studies of varying quality and has yet to build a comprehensive and rigorous body of research-based knowledge.

Despite the lack of systematic evaluation, the prevalence of outdoor education programs in our schools appears to be flourishing. This state of affairs is, however, far from ideal. In an industry experiencing rapid increases in competition, outdoor education providers would do well to take it upon themselves to invest in research and evaluation practices, if only for the bottom line sake of their own livelihood.

If outdoor education providers do not take the onus upon themselves to evaluate their programs, the demand will soon come from their clients. Increasing pressure has been placed on schools in the 1990’s to educate the “whole” student. As Beane (1991) observes, “the question is not whether schools should enhance students’ self-esteem, but how they propose to do so” (p.25). Not only are schools asked to improve self-esteem, but it is “only by evaluating the effectiveness of self-esteem activities [that]...school personnel [can] be assured their interventions are on target” (Scott, Murray, Mertens, & Dustin, 19996, p.293). The lack of evaluation is starting to work against outdoor education, for example Whitehead (1992) observed that “while camping programs are entrenched in the fabric of most schools, a few are tentatively examining whether to have a camping program at all” (p.25).

School authorities are perfectly justified in applying pressures for results to outdoor education providers. It is the client-driven and funding-driven demands of corporate outdoor programs and adventure therapy programs that have largely motivated much larger bodies of research in these fields. The problem for outdoor education providers is that unless they take the initiative to introduce and use appropriate performance indicators, school authorities will soon impose their own evaluation agendas.

**Trends and Highlights**

Barret and Greenaway (1995, p.53) recently critiqued research on outdoor adventure for young people’s personal and social development. Commenting on research outside the United Kingdom, they reported the following weaknesses:
• little attention is given to young people’s own accounts and perspectives;
• much research is of a one-off nature and there is a dearth of coordinated research programs;
• identified outcomes are assumed to be caused by the adventure ingredient of outdoor adventure with a consequent failure to recognise the significance of other ingredients;
• much of the research cannot be generalized to other situations because it is focused on specific programs;
• there is a lack of long term studies;
• there is an absence of research examining the failure of particular outdoor adventure experiences;
• there is a gap between practice and research, with a tendency among researchers to write for an academic audience
• many studies are flawed by low questionnaire rates, small sample sizes, a lack of basic contextual or statistical information, or an absence of suitable control or comparison groups.

Bearing the harsh but fair criticisms of Barret and Greenaway (1995) in mind, we can examine trends and highlights in the research literature, and look towards a focus for future efforts.

Outcome Studies
Outcome studies measuring changes in areas such as self-esteem, self-concept, self-efficacy, and so on, have been the most common style of formal research and evaluation in outdoor education for school students. The vast majority of outcome studies have been on Outward Bound programs overseas (e.g. Carpenter, 1958 as cited in Fletcher, 1971; Elledge, 1973; Koepke, 1973; Lovett, 1971; Naches & Roberts, 1967; Schulze, 1971; Smith, 1971; Stimpson & Petersen, 1970) and more recently on Outward Bound programs in Australia (Craigy, 1996; Goodman, 1995; McDonald, 1996; Neill, 1994; Neill & Heubeck, 1995b; Neill & Richards, 1996; Nussbaumer, 1988; Parle, 1986a,b; Purdie & Neill, 1996; Richards, 1987; Richards & Richards, 1981; Spinaze, 1986; G. Wells, personal communication, September 23, 1996). Generalization of the results of Outward Bound studies to other outdoor education programs is, however, generally not appropriate (Hattie, Marsh, Neill, & Richards, in press; McIntyre, 1987). Hattie, et al. found highly variable outcomes between different outdoor education programs and even between Outward Bound schools.

Outcome studies on outdoor education programs for school students other than Outward Bound are more scarce, particularly in Australia. Of note are studies by McIntyre (1987) on primary school students, McRae (1990a) and Cope (1995) on high school students, and Gray (Gray & Patterson, 1995; Gray, Patterson, & Linke, 1993) on extended stay outdoor education school programs such as Timbertop. In addition, there are some interesting post-graduate studies in progress by D. Cohen (personal communication, September 23, 1996) on the Outdoor Activities Group school programs, A. Pryor (personal communication, September 27, 1996) on attitude changes with students attending the Mittagundi program, and W. Davis (personal communication, September 27, 1996) on the outdoor education program at the Blue Mountains Grammar School.

Considered together, the outcome studies suggest the potential of outdoor education to provide effective personal growth experiences for school students. However, the results indicate a low to moderate amount of change is actually achieved, with considerable variability in outcomes between various programs (Cason & Gillis, 1994; Hattie, et al., in press).

Academic Achievement
There is a distinct shortage of studies investigating the potential of outdoor education to enhance academic achievement. A study by Marsh and Richards (1988) reported large academic and self-concept improvements yet, except for further analysis by Gouvernet (1988), this has not inspired other practitioners or researchers to seek replication or further application of a very effective outdoor education academic intervention program.

Program Components and Characteristics
How do outdoor educators decide on program length and a sequence of activities? A study by Thomas (1992) indicated that the predominant influence on outdoor education practitioners is their colleagues and that this influence is more in the area of program content than in areas of process or theory. This finding warrants some concern that practitioners may not be making appropriate use of the available research findings on the effect of program length and content.

Thomas (1985) studied the effect of course length on self-concept changes in junior school participants on Outward Bound programs. He reported no differences in self-concept improvements between students participating in 14 and 21 day programs, although the meta-analyses by Gillis and Cason (1994) and Hattie, et al. (in press) found that longer programs were associated with more effective outcomes. As pressure is applied to outdoor educators to deliver shorter and shorter programs, it is important that the implications of program length, suggested by the research findings, are taken into account.

Another area for programming research is to investigate the effect of specific program components on school students. Examples of research in this area are Wilde’s (1994) measurement of children’s physiological responses during participation in ropes courses, Neill and Heubeck’s (1995a) testing of girls’ anxiety and confidence responses to abseiling, McKenna’s (1995) investigation of the role of reflective journals in changing self-concept, and...
Hastie’s (1992) study of students’ enjoyment of adventure activities. Despite these beginnings, Shore’s conclusion about Outward Bound studies in 1977 (as cited in Kesselheim, 1978) is still relevant today: the research literature...is weak. It has focused on disciplinary issues (self-concept, self-esteem) to the virtual exclusion of their relationship to programmatic issues (length of course, mix of activities, and nature of instruction). There have been few attempts to link outcome measures with program components, and very little statistical analysis in this sense, as opposed to statistical reporting.

In an attempt to address such issues, Neill (1994) reviewed the literature on the characteristics of personal change programs conducted in schools, and predicted that the most effective programs would:

- be physically oriented;
- use the school context (i.e. be conducted through the school), but take place away from the school setting;
- take place in a 24-hour-a-day setting (i.e. students do not return to home or school during the program);
- be of a long duration (e.g. at least a week);
- be conducted by therapists or trained group leaders (rather than teachers);
- incorporate the aims of adolescents, parents and teachers, and
- include teachers, parents and others involved with adolescents as targets in the program.

It would be exciting to see the outdoor education industry take up the challenge of systematically testing these program characteristics and measuring corresponding changes in effectiveness.

School Climate and Student Culture

Outdoor education studies typically measure change using individual students as units of analysis. An area awaiting further investigation is the effect that outdoor education programs can have on school climate and student culture.

An example of the possibilities in this area is a study by Parle (1986a,b) which investigated the self-efficacy of two groups of female schools students from the same school. Self-efficacy refers to an individual’s belief in his or her ability to successfully perform a range of behaviours or tasks. In Parle’s study, one group of students chose to participate in an Outward Bound program, while the other group chose to stay at school.

The self-efficacy of the students attending the Outward Bound program increased more than for the girls remaining at school, however when the Outward Bound group returned to the school, there was a corresponding increase in the self-efficacy of the students who had not attended the Outward Bound program. This was an unanticipated finding which suggested that the Outward Bound attendees had a positive social influence on the non-attendees.

Another example of research in this area was a study by McConnnell (1985 as cited in Abbott, 1987) which found dramatic improvements in student-teacher relationships as reported by Christchurch secondary students following an outdoor education experience.

Individual Differences

There is a tendency for outdoor education programs to be designed and conducted as though students are a homogenous group. Other areas of education, including subjects as diverse as mathematics and physical education, are well ahead of outdoor education in programming for individual differences such as gender, academic ability, and physical competence. Health professionals and sports psychologists are now using sophisticated tools for measuring individual’s readiness for change and then applying specific intervention strategies appropriate to their needs (e.g. Gorley & Gordon, 1995).

A further aspect of individual differences largely ignored in outdoor education research is that outdoor programs are not always beneficial to all participants. Evidence and discussion on this matter has only begun appearing relatively recently (Druian, Owens, & Owens, 1986; Kiewa, 1992; Mackay, 1981; McIntyre, 1987; Richards, 1987; Voight, 1988; Wurdinger, 1995) and deserves much more attention.

Comparative Studies and Meta-Analyses

Comparative studies of outcomes from different outdoor education programs are rare, particularly for school student programs. This is unfortunate, given the potentially rich and valuable information that such studies could provide. The only comparative study of school outdoor education programs found for this review was Nussbaumer’s (1988) thesis on changes in physical self-concept.

In recent years, outdoor education researchers have started to use meta-analysis. This involves a relatively simple statistical procedure for summarizing the results of many different studies. Hattie (1992) conducted a meta-analysis of self-concept change programs, including cognitively-oriented programs, emotionally-oriented programs and a range of other approaches. One of the categories with the highest level of change was “physically oriented” programs, with the subgroup of camps and summer schools achieving the highest level of change in the study. Intrigued by this finding, Hattie, Marsh, Neill, and Richards (in press) conducted a meta-analysis which focused on 151 studies of adventure program outcomes. The results indicated much larger effects for adults than for students. In addition, of particularly concern for outdoor educators, was the finding that the overall outcomes for students were less than for outcomes reported by studies of
innovative, non-adventure-based programs for school students.

A meta-analysis conducted by Cason and Gillis (1994) focused specifically on outdoor adventure program outcomes for adolescents. Using 43 studies, the results linked larger effects to younger students and longer programs. Overall, the effects in the Cason and Gillis study were larger than for the same age group in Hattie, et al’s (in press) study. Like Hattie, et al., however, Cason and Gillis commented on a wide variability in outcomes, ranging from negative through to highly positive.

**Barriers and Benefits**

It is interesting that outdoor educators readily deliver challenges through their programs, but rarely seek challenges about their programs. Without ongoing research and evaluation to challenge outdoor educators, idiosyncratic, ineffective or even negative programs can evolve and be delivered. Yet commitment to a positive cycle of objective evaluation followed by systematic program adjustments holds promise for offering significant benefits for students’ learning outcomes.

So, what are the perceived barriers to a greater role for research and evaluation in outdoor education programs for school students? The chief barrier is that the outdoor education culture does not collectively value or invite critical appraisal of its practices. Wholehearted, long-term embodiment of research and evaluation practices within outdoor education organisations are very rare and have invariably resulted from the vision and commitment of single individuals (e.g. Garry Richards previously at Outward Bound Australia, Colin Abbott through organisations such as The Outdoor Experience Program, Brian Nettleton who has recently retired from University of Melbourne, and from overseas, Simon Priest with the Corporate Adventure Training Institute at Brock University).

Establishing a culture of ongoing evaluation is not easy. At first there can be fear, hesitancy, and skepticism about the value and purpose of research and evaluation in outdoor education. However, if conducted professionally, feedback about the results can increase staff understanding and be used to improve program design and processes. With staff on side, the culture of evaluation can become self-perpetuating and set program development on an upward spiral.

One of the initial deterrents to evaluation is that demonstrating significant and reliable changes for short programs conducted with adolescents is not easy. Fledging attempts at formal evaluation often provide disappointing results and the evaluation process goes no further. Yet, poor results are an important beginning. Depending on the situation, the next step may involve developing more appropriate research methods or employing strategies to improve program quality.

A perceived lack of time and expertise is another barrier to research and evaluation. This is where utilizing external expertise, such as a university, can help. This does not, however, guarantee the establishment of ongoing evaluation processes designed to meet the needs of a particular school or organisation. More likely to be fruitful are collaborative partnerships with established research programs in the outdoor education industry.

Cost is often perceived as another barrier. The reality, however, is that economic value flows from well designed research and evaluation. The results can be used for internal program development, given to clients to enhance ongoing relations, disseminated to the broader community, and presented to funding bodies and sponsors to help justify and encourage their contributions.

A further perceived barrier that can be overcome is organisational size. A success story is The Outdoor Experience in Victoria which runs several programs for “at risk” and “drug problem” youth each year with a couple of staff. Despite a minimum of resources, The Outdoor Experience has taken the initiative to get assistance and can now boast a small but valuable body of research on their programs (Abbott, 1990; Grassmere Youth Services, 1995; Holmes, 1996; Neill, 1996b; Scott, 1995). It is unfortunate that similar examples cannot be drawn from mainstream outdoor education programs with school students.

**Summary and Conclusion**

Contrary to common belief, the research evidence does not show that outdoor education is inherently good. Overall, there is evidence for a great deal of variability in outcomes between different studies, different programs, and different individuals. The potential value of outdoor education for school students is indicated by some studies which demonstrate highly positive learning outcomes. There are many more studies, however, which show that low to moderate changes are achieved. A further concern is that an unknown number of studies with less than positive findings are simply not published. Were it not for the notable efforts of a small number of individuals and institutions, the volume and quality of available research evidence would be cause for even greater concern than is already the case.

Returning to the question “Outdoor education in the schools - what can it achieve?”, the answer is that we don’t yet know. What’s more, unless research and evaluation is included as a fundamental component of outdoor education, we will continue not knowing.

To date, the vast majority of outdoor education programs have been sustained by an act of faith. We
can choose to continue walking along the path of faith, however, this will require praying harder than ever that schools, teachers, parents, and funding bodies don’t dare question the evidence for that faith.

Footnotes
1 Similar conclusions can be drawn from Masters’s theses by Mackay (1981), based on interviews with 90 New Zealand teachers, Thomas (1992), based on interviews with 8 outdoor education practitioners in South-East Queensland, and Huxley (1995), based on analysis of outdoor education programs in nine elite Sydney schools.
2 A study by Lambert (1978) was noted, but not obtained for this review.

References
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