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The Handbook of Physical Education

Edited by

David Kirk, Doune Macdonald and
Mary O'Sullivan

2006



Los Angeles | London | New Delhi
Singapore | Washington DC

5.8 Adventure education and physical education

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Introduction

The concept of impelling people into adventurous situations to achieve educational goals is not a recent phenomenon. It has been argued that the use of adventurous activities for educational purposes can be traced, in Western culture at least, to the works of Plato (Hunt, 1990). In this century the work of Dewey, Hahn, Lewin, Piaget and others have laid the foundations of the modern adventure education movement. The influence of these theorists and practitioners is well documented (see Kolb, 1984; Miles and Priest, 1990; Warren et al., 1995). Adventure education is based on the experiential learning model which combines direct experience with guided reflection and analysis under the supervision of a group instructor/facilitator/teacher. Adventure education is one branch of an area that is loosely termed outdoor education. As Boyes (2000) points out there is still a lack of agreement about the most appropriate terminology to use in this discipline area; frequently used terms include environmental education, wilderness education, outdoor pursuits, camp and education outside the classroom. As with any socially constructed discipline area the terminology associated with outdoor education has arisen due to different professional conceptualisations and ideologies which practitioners and scholars bring to the field (Martin, 1998). Miles and Priest, two authoritative writers in the field of outdoor and adventure education state that,

Adventure education involves the purposeful planning and implementation of educational processes that involve risk in some way. ... The defining characteristic of adventure education is that a conscious and overt goal of the adventure is to expand the self, to learn and grow and progress toward the realization of human potential. (1990: 1)

In this chapter the term adventure education is used to describe experiential education programs

that are conducted in an outdoor setting and/or involve physical engagement in an activity which provides a sense of challenge to participants. Within adventure education the "action-reflection" cycle is integral to the learning process as it assists the student to focus on the experience and gain valuable insights about one's self and one's relationship to the world (Joplin, 1995; Sugarman et al., 2000). With particular reference to adventure programs conducted within the physical education curriculum, it should be explicitly stated that such programs may be conducted in school gymnasiums or on sports fields – the key point being that the participant is actively engaged in the learning endeavour, preferably in a holistic manner which requires physical, mental and emotional commitment. Whilst it might be argued that adventure education can only be conducted in "natural" or "wilderness settings", in the context of a discussion of adventure and physical education, this restricts adventure education to too narrow a group of programs and too small a potential participant base. The use of adventure education pedagogy (pedagogy employing the experiential approach) in "short" or "lesson-space" periods of time is not without its difficulties if one conceptualizes adventure education as being based on the development of three fundamental relationships: (a) intrapersonal relationships; defined as how an individual relates to themselves (e.g. self-concept, confidence, spirituality), (b) interpersonal relationships (e.g. communication, trust, co-operation), (c) relationship to/with the environment (see Priest and Gass, 1997). It is the third relationship which is potentially the most problematic to convey in school-based programs and the one currently emphasized as adventure/outdoor educators seek to embrace a holistic and ecological approach to the field as the more "traditional" adventurous and personal development outcomes are being increasingly called into question (see Brookes, 2003a, 2003b; Zink, 2003).

Whilst direct experience and reflection are the cornerstones of adventure education, the

implementation and practices of educators are not necessarily similar in different localities. The different emphases placed on personal development or team building through "high" adventure activities or the promotion of an increased understanding of the environment and one's place within the ecological sphere reflect different cultural and geographical imperatives. Wattchow (2001) for example expounds the value of a pedagogy of production as a way of embodying knowing through the action of craft in outdoor education. Based on data collected from teachers, Rubens (1999) has provided a conceptualisation of outdoor education which provides a way of demonstrating and classifying the different perceptions of outdoor education. He refers to adventure being broadly classified as "narrowly" or "broadly" conceived. Narrow conceptions are characterised by short duration experiences requiring minimal effort, activities with high "thrill" value and significant levels of anxiety (e.g. abseiling or ziplines/ropes course). In contrast the broad conception involves longer time frames, more effort, varied challenges and the devolution of responsibilities to the students (e.g. a journey or expedition). In this classification 'narrow' adventure education is dedicated to the development of the learner's interpersonal and intrapersonal abilities while the 'broad' notion expands on these elements through its emphasis on the development of a relationship with and for the environment. This "narrow" conception of adventure education is articulated by Priest who states that:

The process of adventure education involves the use of adventurous activities such as recreational pursuits in the outdoors or the so-called artificial adventure environs (ropes courses and group initiatives). These activities are used to provide a group or an individual with tasks to accomplish. These tasks often involve problem solving and challenge. The problem solving requires decision making, judgement, cooperation, communication, and trust. The challenge may take the form of testing one's competence against mental, social or physical risks. (Priest, 1999: 112)

With the aforementioned comments in mind it may well be more appropriate to call adventure education in the physical education curriculum Adventure Based Learning (ABL), a term which emphasises the potential development of the first two relationships without making potentially spurious and unfounded claims in regard to how we might (or might not be) educating our students about and for the environment. Cosgriff (2000: 90) defines ABL as "the deliberate use of sequenced adventure activities particularly games, trust activities and problem solving initiatives for the personal and social development of participants".

She highlights the following as key features of ABL programs:

- (a) the place of innovative and sequenced physical activity;
- (b) the importance of experiential learning;
- (c) the interdependence of educational goals and curriculum;
- (d) the goal that students become committed and active members of the school and local community.

Bearing in mind the comments made earlier about the difficulty of defining and clearly differentiating adventure education and outdoor education I will refer to both terms (certainly when they are used by others in quotations) interchangeably. However in the context of adventure in physical education I am primarily concerned with the role of adventure activities/programs in achieving educational outcomes relating to intra- and interpersonal domains.

Elements of contemporary adventure education have developed from, and conversely been incorporated into, the broader "camping movement". Recreational camps organised by schools, community and youth groups (e.g. scouts, church congregations) have featured in both educational and recreational endeavours in western societies for well over one hundred years (for a more detailed history of the camping movement see Ewert, 1989; Hammerman, 1980; McRae, 1990). Perhaps the best known international provider of outdoor programs is the Outward Bound movement which was co-founded by German educator Kurt Hahn in Wales during the Second World War.

Outdoor education has not had a prominent position as a key learning area within the formal school curriculum. In Australia, for example, outdoor education is often positioned, if at all, within the physical education curriculum as a series of activities. It is not until the senior years of schooling that it can be chosen as an independent subject in its own right (and then only in one state). As a result outdoor education is often seen as an extracurricular activity in many schools, its continued existence dependent on the enthusiasm and expertise of individual teachers. In contrast to the state education sector there are a large number of independent (private) schools who conduct outdoor education programs which compliment the existing "formal" curriculum. These are often long term (one month to one year) residential programs which integrate "formal" studies with outdoor camping and expeditionary components. These programs are often presented to prospective parents as means to enhance "life skills" or aid in "personal development". As will be discussed in more detail, the measurable outcomes of outdoor education programs are not always easily defined and recourse to ideas of outdoor education as "building character"

(a suitably vague and difficult term to define) are coming under increasing scrutiny.

This chapter will briefly examine the principles of adventure programming prior to discussing the place of adventure education with physical education. This is followed by a review of research conducted within the broad gambit of adventure/outdoor education and a summary of the claimed outcomes of adventure programs. In the next section the focus will be on research on adventure education within physical education. Finally, in discussing the major issues, trends and future directions my aim is to draw together some of the key issues faced by both physical education and adventure/outdoor education researchers in an effort to encourage a dialogue that will enhance our understanding of what it is we claim to know and conversely what it is we should be seeking to know to promote adventure education in the physical education curriculum.

Core concepts of adventure programmes

Central to adventure education programs is the concept of experiential learning; the belief that learning will occur more effectively if the learner is as involved as possible in the activity. This involvement is maximised if the student is required to commit themselves to the activity mentally, emotionally and physically. Student participation would ideally include involvement in the planning, executing, reflecting and evaluating of the experience. Integral to the experiential process is the provision of direct experience with guided reflection and analysis.

Broadly defined, experiential education is a philosophical orientation toward teaching and learning that values and encourages linkages between concrete educative activities and abstract lessons to maximize learning. Through these experiences, it is hoped and believed that learners attain a qualitatively superior level of knowing than can be achieved through abstract lessons alone.... (Sakofs, 1995: 149)

However experiential learning is not simply "learning by doing", for as Proudman (1995) points out, repetitively performing a task can become a ritualised and habitual conditioning process rather than an educational undertaking. Experiential education is the intentional planning of learning that requires two components, the provision of an experience for the learner and the facilitation of that experience through reflection. Adventure education programs combine direct experience, through adventurous or challenging activities that are meaningful to the student, with guided reflection

and analysis that offers challenge and calls on them to make decisions and take responsibility (Luckner and Nadler, 1997; Priest and Gass, 1997).

Luckner and Nadler (1997) state that what experiential education does best is to instill a sense of ownership over what is learned, adding interest and engagement for the student and providing the ability to transfer learning to other situations. It is the process that defines a learning experience as experiential rather than the activity that is performed.

Experiential learning is also based on the belief that change occurs when people are placed outside a position of comfort and into a state of dissonance, or the difference between the current situation and the desired future. In such a state, people are challenged by the adaptations necessary to reach a new state of equilibrium, yet are also supported through such processes by peers and leaders. Reaching these self-directed states produces changes that result in growth and learning. One of the major differences between experiential learning and other formats is that experiential learning is not a product of learning, but a learning process that is implemented under appropriate circumstances. (Priest and Gass, 1997: 136)

A number of educators and researchers (Dewey, 1938; Joplin, 1995; Pfeiffer and Jones, 1980; Priest and Gass, 1997; Walsh and Golins, 1976) have constructed models to explain the essential features of experiential learning; all of which have emphasised the cyclic component of the learning process. Kolb's (1984) four stage model of experiential learning (see Figure 5.8.1) is perhaps the most widely known in adventure education literature.

Luckner and Nadler (1997) point out that although the stages of the experiential learning cycle, are presented in discrete terms, they are interrelated and there is interaction between the various components. The four components of the cycle are: experiencing, reflecting, generalizing and applying.

Once the learning objectives have been identified (for example, team-building, communication) many types of experience(s) can be selected. However, experience alone is not a guarantee that learning will occur. Reflection provides an opportunity to integrate the new experience with past experiences. In the reflection stage the intention is that the student will reflect back on and examine what they felt, observed and thought about during the experience (Luckner and Nadler, 1997). At the third stage the intention is that students share, normally verbally, what they felt, observed and thought during the experience. The intention at this point is to assist students to find out "what happened at a cognitive, affective and behaviour level – before the activity, while the activity was progressing, and after its completion" (Luckner and Nadler, 1992: 2). The

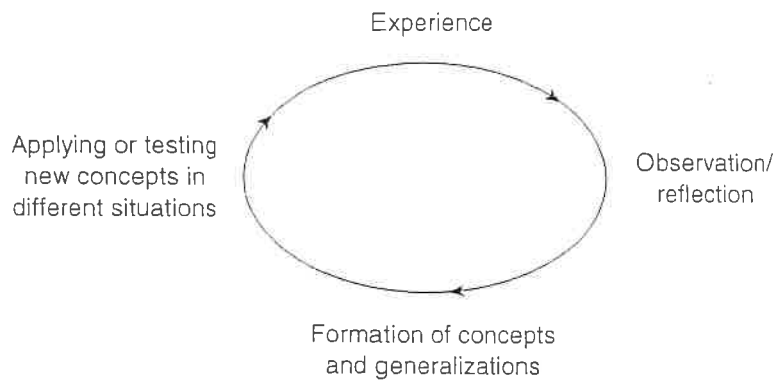


Figure 5.8.1 Adaptation of Kolb's (1984) model of the experiential learning cycle

participant moves from an analysis of what occurred in a specific situation to an understanding of patterns of behaviour across situations. The focus moves from "what happened in this experience" to "what tends to happen when I am placed in situations that mirror this experience". Thus generalizations are made from specific actions or behaviours to ways of acting/behaving. Finally, for experiential learning to be considered effective, participants need to be able to apply what they have learned in one specific situation to other settings. The application of what has been learned feeds back into the next experience, so continuing the cycle.

Priest and Gass (1997) have outlined eight principles of adventure programming that have been developed by the Association of Experiential Education to reflect the ideals of the experiential approach.

- (1) Adventure programs should be based on direct and purposeful experiences. Change and growth have experience at their origin and therefore placing the participant close to this experience will enhance learning.
- (2) Adventure programs focus on appropriately challenging participants. Adventure education is premised on the belief that change occurs when people are placed in a situation which is challenging and creates a perception of disequilibrium with presently held attitudes or practices. Participants are required to use their abilities and those of their group to regain a state of equilibrium. It is maintained that the quest for equilibrium may require change within the individual resulting in the type of growth clients are attempting to achieve. In order to achieve change, programs are designed to put participants in appropriate environments and situations that encourage a change of attitude.
- (3) The activities in the program must have meaningful and natural consequences within an appropriate safety framework. Consequences are a result of

decisions or actions taken by the participants and should be real and immediate.

- (4) Consequences that are natural, rather than construed, result in changes that are participant-based rather than leader-determined. This allows participants to determine the level and meaning of their experiences.
- (5) Changes that occur within groups or individuals should have relevance not only for the task at hand, but for the future.
- (6) Synthesis and reflection are used as elements of the change process. Processing and reflection help to enhance the internalisation of change for the participant. (Carver, 1996; Dewey, 1938; Joplin, 1995; Kolb, 1984; Proudman, 1995)
- (7) Participants are called on to be responsible for their involvement – they are impelled rather than compelled. Participants are given power and control over their learning through the "challenge by choice principle". (Rohnke, 1984)
- (8) Participants have the opportunity to become actively involved in their learning through adventure activities. They can deal with new situations by applying what they have learned and identified in previous situations.

Adventure education's emphasis on using challenging outdoor/physical activities as a medium in which to learn means that in the process of facilitation, participants need to be able to make connections concerning the applicability of this learning to other non-outdoor/physical settings. For example, learning how to rock climb or canoe is less important than the intra and interpersonal insights gained from these activities; insights that need to be transferable for adventure education to make claims to legitimacy. The important pedagogical features of adventure education include challenge, a sense of uncertainty of outcome and appropriate sequencing of activities which lead to success. Martin and Priest (1986) refer to these features as the "Adventure

Experience Paradigm"; a model which is currently being critiqued and is the subject of further discussion later in the chapter.

The place of adventure education within physical education

In the following section I highlight some of the claims made in regard to the role of adventure/outdoor activities within physical education and discuss how adventure education has been promoted by some physical education specialists as a curriculum innovation model. It is important to stress that many of the assumed benefits or outcomes attributed to an adventure education curriculum are often based on anecdotal evidence rather than empirical research. By way of example, Hammersley states,

There can be no doubt about the value of adventure education in the mind of anyone who has witnessed the powerful learning experiences of students such as Anne, whose face beamed with accomplishment and a new glimmer of confidence, as she said triumphantly, 'I never thought I could do it'. (1992: 67)

In a similar vein Panucci (2002: 41) states somewhat evangelically and without an empirical basis, that "The Adventure approach promotes the acquisition and mastery of simple and complex motor skills, allows for real kinesthetic exploration. Adventure can help prepare students for today's world". Rogers (2000) also makes a case for adventure-based learning in the secondary physical education curriculum and states that students who have participated in outdoor adventure activities as part of the school curriculum may continue to participate in such activities throughout life and therefore keep them active. However Rogers does not provide evidence to support this assertion, nor can I find any independent research to back up this claim. Perhaps more debateable is the assertion that as businesses today are demanding more from their employees in the areas of teamwork and group communication skills, "It could be proposed that if high school students had the opportunity to participate in outdoor adventure activities, they would have an advantage in the job market" (Rogers, 2000: 11). A strong correlation has yet to be established which links participation in school based adventure education programs to increased physical fitness, this is despite wishful claims (for example, see Latess, 1986) by some adventure education advocates.

Whilst many of these claims are contestable, adventure education has been promoted within physical education for its student centred pedagogy which is seen as an innovative and holistic approach to movement education and a means of developing

social interaction and personal qualities. In a paper specifically focused on physical education and outdoor education, Bunting (1989) listed social development, improved intrapersonal attitudes, environmental awareness, enhancement of learning, skill development and physical fitness as being objectives common to both OE and physical education. Chen and Ennis (1996) argue that curriculum innovation is an imperative for physical educators and adventure education is seen as a viable alternative model to traditional approaches to physical education. Latess (1986) suggests that it is only a matter of time before we consider adventure activities as an integral component of the 'traditional' physical education curriculum. Panucci states that:

Many believe the addition of an Adventure curriculum has kept their PE programs from being eliminated. Whether true or not, all of us who have taught PE using Adventure know that these programs are a contributing factor to many students graduating with a stronger sense of self and a "can-do" attitude that encompasses the physical and transcends it into many other areas of their lives. (2000: 53)

It is issues relating to students' personal, social and physical development that those who have introduced adventure education are hoping to address through the implementation of authentic tasks with real outcomes which involve the students in a holistic manner. Hammersley (1992) cites work by Dunn and Wilson (1991) in which they describe how co-operative learning can result in higher academic performance, greater sense of locus of control, improved social relations and better language skills; all benefits which may result from co-operative learning which is inherent in adventure education. Another integral component of the adventure education approach is the student-centered pedagogy.

Person-centred learning, in which individuals feel valued and in which trust is communicated between teachers and pupils and between pupils and pupils is in a sense, essential in much of the work in OE. It is essential because of the possibility of physical or psychological harm occurring as a consequence of badly organised and/or poorly taught hazardous activities. ... Consequently, it is not just for ideological but also for pragmatic reasons that OE pedagogy tends to be child-centred. (Humberstone, 1993: 223)

As briefly mentioned earlier, one of the key drivers for the inclusion of ABL into "mainstream" schooling was the advent of Project Adventure (PA). PA was instigated by a Massachusetts High school

principal to incorporate the Outward Bound process and philosophy into a public secondary school setting (Hirsch, 1999). PA has been widely promoted as a curricular innovation in physical education classes (Cosgriff, 2000; Cosgriff and Schusser, 1999; Dyson, 1996; Dyson and O'Sullivan, 1998). Initially employing staff with Outward Bound experience and teachers who sought pedagogical innovation, this program introduced a modified curriculum that was focused on physical education with the aim of nurturing "joy in one's physical self and in being with others" (Rohnke, 1984: 9). Additional curricular units were subsequently written for other subject areas. The PA model aims to promote the education of "the total student by developing each child mentally, physically, emotionally, and socially to produce an effective citizen for our society" (Project Adventure, 1991: 6).

The PA approach is characterised by the use of *non-wilderness* activities including games, initiatives and ropes courses (Hirsch, 1999). For examples of how this approach might be implemented in a class see the following texts (Dyson and Brown, 2005; Schoel et al., 1988). PA has expanded beyond the United States and has become an innovative and influential international adventure training organisation, for example PA concepts such as "full value contract" and "challenge by choice" are widely employed in a variety of non-PA adventure education programs.

While PA has developed a particular "variety" or form of adventure education, students' involvement with the outdoors has also been fostered through school residential camps, summer camping experiences run by charitable or commercial organisations and outdoor pursuit groups run by dedicated and enthusiastic teachers and parents.

Whilst there is considerable rhetoric about the potential value of adventure education programs within physical education, much of which appears to be based on "casual observation" or untested assumptions, it is clear that adventure education is seen as a viable curriculum innovation. Attention will now turn to research findings based within the adventure/outdoor education field followed by a more detailed examination of research of adventure programs in PE.

Major findings in outdoor education research

This section presents a brief overview on how research has been conducted in the wider field of adventure education, highlighting some of the problematic methodological issues, coupled with recent shifts in research approaches as researchers

have attempted to examine not only the outcomes of adventure programs but to also investigate how these outcomes are achieved. This is followed by a discussion of the claimed outcomes of adventure education programs and a section detailing research that has specifically focussed on adventure education within the physical education curriculum.

Approaches to research within adventure education

In this sub-section I will briefly trace the move within the discipline to more "process-oriented" studies that build on earlier researcher's work which had a strong focus on measuring the outcomes of adventure programs. Adventure educators may well, with some understandable reticence, agree with comments by Gass (1993) that the field lacks a strong research base (see Ewert, 1989; Richards, 1997; Warner, 1990). Richards (1997) claims that much of the early research and evaluation in outdoor and adventure education has been of dubious value. Warner (1990) maintains that too much time and effort has been devoted to poorly controlled outcome studies on psychological variables. Early research in the field was limited to and typified by "one-time" outcome studies conducted using pre- and post-treatment questionnaires in order to record changes in designated personality traits and attitudes; traits that are themselves the source of ongoing debate (Bocarro and Richards, 1998). Much of the research in adventure education has tended to concentrate on the dependent variable that could commonly be referred to as "personal development outcomes": self-esteem, self-concept, self-efficacy, self-worth and self-confidence (Ibbott, 1997). Ibbott also notes that not only are these constructs conceptually difficult to define, but the measurement instruments and the effects of adventure programs do not necessarily translate readily into measurable differences. Neill (1997) notes that in this preoccupation with describing positive outcomes individual differences were largely ignored and research tended to gloss over the fact that programs were not always beneficial to all participants.

The rationale behind these outcome-based studies was to determine if outdoor education "worked" (Allison and Pomeroy, 2000; Richards, 1997) and whether the program had an effect on the participants. The two main methodologies in the outcome-based approach were: (a) interviewing the participants at the end of the experience to determine what they thought of the program and had gained from it; and (b) giving participants some form of questionnaire at the start of the program and again at the end (a pre-post test design) and comparing the results (Richards, 1997). This research has received criticism for its "over reliance on self-selected samples and measures using a

self-report format" (Ewert, 1989: 17), resulting in claims that such studies are often methodologically flawed (Miles, 1995).

While the outcome-based approach to research may have been of some use in supporting educators' claims about the benefits of adventure education programs and provided external funding agencies with a justification for continuing their support, it has done little to improve practice or the understanding of the experiences of program participants (Allison and Pomeroy, 2000).

The predominance of outcome-based research coupled with the lengthy and protracted debate in adventure education literature concerning appropriate methodological approaches to capturing the "uniqueness" of experiential learning (Ewert, 1987; Kolb, 1991; Richards, 1997; Rowley, 1987), has meant that until relatively recently little research has been conducted on "process", programmatic or instructional issues in adventure education. It is possible that this relative lack of research on "process" reflects the prevailing dominance of researchers and graduate students from psychology departments who bring with them a set of research methods determined by the epistemological perspective in which they operate. This is not to cast doubt on the value of psychological approaches but to indicate that this approach can be complemented by the differing perspectives offered by sociology, linguistics or cultural studies researchers (Brown, 2002b).

Researchers (Allison and Pomeroy, 2000; Richards, 1997) note that while process-oriented studies have not been as prevalent as outcome-based approaches, there is a growing recognition that these studies offer important insights not afforded by outcome-based approaches. There is "the increasing recognition that better outcomes will come from better processes and that therefore understanding processes is the primary route to gaining better outcomes" (Richards, 1997: 245).

The increasing acceptance of process-oriented studies has been the result of a debate within experiential and adventure education circles which centres on the argument that research that is outcome-based and seeks to treat the program or the individual in neatly packaged discrete portions is "philosophically out of tune with experiential theory and practice" (Warner, 1990: 310). In a similar vein Allison and Pomeroy (2000) advocate for a shift in the epistemological basis of existing research and the embracing of a new set of research questions. Like Warner (1990) they argue that an "incongruent epistemology is often employed in research in this field" (Allison and Pomeroy, 2000: 97). They maintain that the experiential approach to learning is based on a constructivist epistemological vision that is not reflected in the outcome-focused objectivist epistemology on which most research in the field is based. Allison and Pomeroy (2000) argue that in the field of

experiential and adventure education there is the need to move away from proving that these programs work to develop an understanding of the processes that are involved through the use of ethnography, case studies, phenomenology and biographies. Bocarro and Richards (1998) maintain that there is the continual need to develop new research techniques and measures in order to better understand and deal with the uniqueness of adventure-based experiential learning programs. "This may require a paradigm shift away from what has traditionally been considered the 'correct' way to conduct research" (Bocarro and Richards, 1998: 107). Miles and Priest assert that practitioners

are only beginning to ask why they do things in a certain way, what the outcomes of their approaches are, what alternatives to their approaches might be. They have little idea which parts of the processes they use result in which effects ... (1990: 2)

In providing this review of approaches to research in adventure education and the various paradigmatic positions adopted I do not want to construct or re-enact the unproductive debate surrounding qualitative verses quantitative research methods. The intention has been to provide a background to the type of research that has been traditionally conducted in adventure education and to foreshadow the changing nature of research in the area and acknowledge that there is a call for, and a valued place, for process-oriented studies in this field.

What has become apparent from the review of literature is that while there are many articles and books on how to organise adventure education programs (and how to conduct "adventurous" activities), and considerable research on outcomes (see Cason and Gillis, 1994; Hattie et al., 1997) there are few studies, with the notable exceptions discussed below, on adventure education within physical education.

Humberstone (1995) claims that researchers and educators in mainstream physical education tend to neglect outdoor education as peripheral to physical education. She claims that when OE does appear on the physical education agenda, in the UK at least, it is usually in relation to its removal from the physical education curriculum.

The marginalization of outdoor education may partly be a consequence of the paradoxical and perplexing relationship between it and physical education. Both are concerned with physical activities, but their ideological underpinnings are different In addition, material issues surround the use of outdoor education. Most other forms of physical activity are more cost effective and offer less exposure to physical risk than do outdoor/adventurous activities. (Humberstone, 1995: 153)

What are the claimed outcomes of adventure programs?

As evidenced in the earlier section, on the place of adventure education within physical education, there is no shortage of literature that makes substantial claims for the educational achievements of outdoor programs in schools. For some people in the field the value of outdoor education programs is self-evident and requires no further justification or proof (Neill, 1997).

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 and Perusco, 1993: 20), to extensive lists of specific physical, social, intellectual, and psychological outcomes. (Neill, 1997: 193)

In an attempt to gain a "big picture" view of the results of outcome-based studies researchers have started using meta-analyses, an analytic method which enables investigators to summarise the results of a large number of independent studies (see Cason and Gillis, 1994; Hattie et al., 1997; Neill and Richards, 1998).

The first published meta-analysis of outdoor education outcomes was conducted by Cason and Gillis (1994). The data analysed was collected from studies of adolescents in outdoor programs (age 11 to freshmen). Forty-three studies were used in the analysis generating 235 effect sizes describing 19 outcome measures. The studies ranged from college courses in outdoor education to three week Outward Bound courses. In their findings they state that adolescents who participated in adventure programs were "better off", that is they exhibited significantly significant differences in seven broad categories of outcome measurements (e.g. self-concept, locus of control, behavioural assessments, attitude surveys, clinical scales, grades and school attendance) than 62% who did not participate. The average of the 147 effect sizes was 0.31, a small to moderate effect size. The authors commented on the limitations of the study including course length, undocumented variables, leadership styles, participants in individual studies, activities undertaken, and the quality of the original measurement instrument.

The wide variance in findings raises questions about the validity of quantitative research for this field, the reliability of instruments used for assessment of pre- and post program changes, and the host of unknown variables that may be influencing both positive and negative effects of adventure programming. (Cason and Gillis, 1994: 46)

In a later and more comprehensive study Hattie et al. (1997) conducted a meta-analysis which examined the effects of adventure programs on a range of outcomes including self-concept, locus of control and leadership. The study drew 151 samples from 96 studies. They concluded that in general terms the average effects from attending adventure programs was not dissimilar to the effects of innovations in classrooms. "This overall picture appears comforting. The details, however, reveal a different picture. Only some adventure programs are effective, and then on only some outcomes ..." (Hattie et al., 1997: 70).

Interestingly the results indicate larger gains for adults than for school-aged students and the outcomes improved as the length of the program increased. Their results also indicate that short or intermediate term gains were followed by additional gains between the end of the program and any follow-up assessment. The researchers claim that adventure programs appear to be most effective at providing participants with a sense of self-regulation. The effects on leadership, personality and adventuresome dimensions were noted but these decrease over time. It should be noted that programs analysed in this study ranged from short, several day experiences to programs of up to 26 days in duration. "Overall, the results suggest that adventure programs can obtain notable outcomes... It is clear, however, that adventure programs are not inherently good. There is a great deal of variability in outcomes between different studies, different programs, and different individuals" (Hattie et al., 1997: 77).

Therefore it is not unreasonable to claim, on the basis of these studies that the overall effects of adventure programs on the outcome measures are at least equivalent to those of typical in-class educational interventions on achievement (Hattie et al., 1997). Neill (1997: 195) argues that 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".

Whilst these meta-analyses draw on a large number of studies on the outcomes of adventure programs few empirical studies have examined the processes involved in achieving these outcomes. In a review of the literature on how adventure education program outcomes are achieved McKenzie (2000) identified and examined the following categories as being important to the adventure education process: the physical environment, activities, processing (facilitation), group structure, instructors and the participant. Interestingly she noted that the "current understandings of how adventure education

program outcomes are achieved is based largely on theory, rather than empirical research" (McKenzie, 2000: 19). Therefore our practice may well prove to be grounded on assumptions that may or may not be correct. We are in essence working with what Ewert (1983: 27) describes as an "educational black box"; "we know something works but we don't know why or how". McKenzie argues that it is the quality of adventure activities (holistic involvement, challenge which is increased incrementally, mastery, and success/failure) that are responsible for outcomes rather than the specific activities themselves. She suggests that the same outcomes can be achieved using a variety of challenging activities; it is not the activity per se that is important, rather it is the quality or teaching/learning approach employed in adventure activities.

Research in adventure education within physical education

In presenting material relating to research in physical education I have made a somewhat arbitrary distinction between research conducted with participants in school settings or of school age (approximately aged 5–18) and that conducted in university or other tertiary settings. This distinction is done more for reasons of maintaining a semblance of order rather than to suggest that one body of research has primacy over the other.

School level

Whilst this first study (Dyson and O'Sullivan, 1998) primarily sought to describe and interpret the factors that supported and maintained curricular innovation at two elementary schools it is of interest because it featured Project Adventure as the vehicle to facilitate substantive school change. As Dyson and O'Sullivan (1998: 251) note, the reform at these schools,

was not a subtle transformation of the existing status quo but a radical restructuring of the philosophy, content, and teaching methodology. The teachers and principals ... emphasized a holistic approach to learning by promoting the physical, intellectual, emotional, and social development of their students.

The researchers identified the following factors as supporting school reform: a shared vision, external support for the program, curricula integration, the centrality of physical education, and shared decision making. Dyson and O'Sullivan (1998: 248) reported that interdisciplinary integration was the one of the key elements of the reform.

[T]his integrated approach allowed the students the opportunity to use their strengths and the environment to improve their limitations. Students may excel at certain physical or academic tasks, or in both; therefore, each discipline interrelates in a way that uniquely supports and develops the Project Adventure concepts.

The research indicated that the use of the Project Adventure approach within the physical education program was an integral component of a substantive curricular reform in these two schools.

Dyson (1995) has also investigated students' perceptions of their physical education classes that were conducted on the PA principles of trust, risk, cooperation, problem solving and challenge. The physical education teachers at the two schools involved in the study sought to build the students' social skills, have them take responsibility, have fun, develop cognitive skills and a healthy attitude toward competition. Dyson (1995) reported that the students claimed to have increased their enjoyment and learning in their modified physical education lessons. Importantly they revealed that they liked to challenge themselves in physical education. In adopting the PA approach students appeared to be less intimidated attempting difficult and risky tasks if trying their best was emphasized by their teachers. "For many students, success was equated with trying hard, instead of being limited to attaining the goal of the activity or having their team win" (Dyson, 1995: 405). Dyson's study is also supported by Rubens (1999) who argues, from motivational research, that reinforcing the importance of student effort is more important to learning than student performance. Students reported positively on the value they placed on being given responsibility and the opportunity to choose their own activities in physical education class. Of particular interest was the alignment between the students' goals and those of their teachers: cooperating, personal challenges, taking risks, having fun and learning new motor skills. Dyson asserts that several lessons can be learned from gaining students' perceptions about their physical education classes. He argues that at these schools, a positive, trusting, and supportive environment allowed students to participate in and enjoy certain activities that they might not otherwise have engaged in (see Dyson and O'Sullivan, 1998).

In a further paper Dyson (1996) examined two physical education teachers' experiences of conducting the Project Adventure approach in physical education. The rationale behind this study was to gain an understanding of the program from the teachers' perspective; to give their experiences "voice". He argues that teachers' personal theories and beliefs impact on classroom practice and curriculum decision making, therefore it is of some

importance that we endeavour to understand teachers' underlying beliefs and teaching and learning theories. Data collection and analysis were based on interviews, non-participant observation and document analysis. Data was analysed using constant comparison (Glaser and Strauss, 1967).

Both teachers believed in a holistic approach to education; education for physical, emotional, social and cognitive development. Their common goals were building social skills and self esteem, giving the students the opportunity to take responsibility, creating fun in a learning environment and developing a healthy attitude toward competition. Both teachers believed they employed a student-focused teaching style through the use of co-operative activities and taking a more facilitative than instructional role. To this end the teachers employed extensive use of co-operative activities included peer tutoring and small group initiatives. Dyson contends that even if teachers do not implement a PA program within their school, the innovative strategies used by these teachers may be of benefit in reforming the classroom teaching and learning environment. Dyson states that the goals espoused by the teachers indicate that PA has the potential to be a valuable curriculum approach in elementary physical education programs.

In a research project investigating the construction of gender identities Humberstone (1990) sought to examine whether, in an adventure education context, girls might be more involved in the learning process than is apparent in mixed-sex classrooms. She contends that in mixed-sex classrooms girls are marginalized and their abilities underrated. Using an ethnographic case study (participants aged 13–15) she found that, at least at the residential outdoor education centre where the study was conducted, interaction patterns and forms of communication contradicted those which prevail in mainstream schools. Outdoor education, as practiced in this locality, with its "particular material, social and ideological features ... seems to provide a powerful medium through which social change, at least at the level of identity and relations, may be a possibility" (Humberstone, 1990: 200). Humberstone remarked on the importance of positive peer group expectations and the effect which this had upon the girls' involvement and feelings of success. "The particular form of learning made available to girls and boys gave them the opportunity to develop friendships amongst themselves and with the other sex. This tended to foster a mutual understanding and trust between the sexes rather than antagonism and contempt" (Humberstone, 1990: 209).

This "particular form of learning" de-emphasized the importance of competition where students who do not "win" feel a sense of inadequacy. Humberstone argues that the creation of "winners"

and "losers" may well "engender antagonism between pupils and militate against a context which is conducive to mutual understanding and to co-operation" (1990: 210). In contrast the centre and its staff promoted the positive aspects of competition which are generated from a challenge against perceived difficult circumstances or situations (see comments above concerning effort and performance and Dyson, 1995; Rubens, 1999). Humberstone observed that the teachers exhibited a "child-centred" pedagogy and that they seldom adopted an authoritarian position. "As a consequence of the material conditions, and the imperative for co-operative endeavours, this ideology was more easily realised than in a more restrictive competitive school situation" (Humberstone, 1990: 212). What is of significance from this study is the contrast between "traditional" physical education programs that are mediated through an ideology which supports masculine imagery and superiority (Humberstone, 1990) and that evidenced in the adventure education programs which facilitated behaviours which encouraged collaborative endeavours and non-competitive challenge. She also reported that the girls perceived that the teachers fostered understanding and co-operation between the sexes and that the teachers were concerned to help them overcome their hesitation to participate in unknown endeavours which involved an element of risk. Humberstone suggests that the high teacher-student ratios at the centre gave teachers more freedom to interact individually and with greater equity with the students. The organization of students into co-educational groupings also provided a setting where it was possible for both sexes to challenge gender stereotyping.

In a later paper Humberstone (1995) argued that evidence suggests that by adopting some of outdoor education's features, such as child-centred approaches, smaller class sizes and non-authoritarian pedagogy, physical education may provide a setting that might enhance gender equity. She remarked that the teachers at the outdoor centre at which the study was conducted displayed a pedagogy that was supportive, child-centred, utilizing a non-authoritarian more symmetrical mode of communication.

There is evidence of coeducational groups in outdoor contexts acting as "oppositional educational paradigms" (cf. Humberstone, 1993), in which new skills and knowledge are encountered and through which (a) conventional sex stereotyping is challenged and (b) transformative gender relations (between boys and girls) and power relations (between teachers and pupils) are created. ... Yet this evidence is absent from recent feminist discourse on coeducational grouping in physical education (cf. Scraton, 1993) and from physical education discourse more broadly. (Humberstone, 1995: 152)

McCaughy and Wojewuczki have conducted two recently published studies (2003a,b) which examined the implementation of an adventure education curriculum. The purpose of the first study (McCaughy and Wojewuczki, 2003a) was to develop and field test an elementary adventure education physical education curriculum as part of a larger project merging the need for "more systematic and field tested adventure education curriculum with recent calls for incorporating social objectives into school physical education" (2003: A-50). The authors developed a 30 lesson unit organized around the social themes deemed to be inherent in education; empathy, co-operation, trust and communication. Data was collected through participant observation, teacher and student interviews and it was analyzed through constant comparison, negative case analysis and member checks. The authors identified three principles related to effective implementation of the curriculum;

- (1) The importance of the introduction for setting the stage for social learning. To be effective the lesson should commence with a single well-defined social theme, students' prior knowledge base should be determined and students should be encouraged to make connections between this and the upcoming activities.
- (2) Need to establish the connections and continuity between the social theme and the upcoming activities. The particular social theme should be embedded within the activity.
- (3) Need for thorough debriefings if learning is to be maximised. There is a need for substantive discussion of the social theme and how this theme was experienced in the activity. Linkages should be made to other aspects of students' lives.

McCaughy and Wojewuczki (2003a) contend that without reference to these principles students had difficulty in identifying instances where these themes emerged during the activities and they were unable to make connections with everyday life.

This study shows the inherent value of adventure content in addressing typically overlooked social objectives, points out valuable mechanisms to facilitate curriculum development, and offers initial, and long overdue, curriculum for school physical education aimed at moving beyond the status quo. (McCaughy and Wojewuczki, 2003a: A-50)

In the second study (2003b), which was also part of the larger project mentioned above, the researchers used cognitive learning theory as a means to identify the factors that enable or inhibit teachers to learn how to implement an adventure curriculum. Data was collected through field observations and interviews. The authors found that

three factors inhibited the teachers' curricular learning and implementation;

- (1) Difficulties differentiating between social themes. Teachers tended to use social themes interchangeably and not teach the particular social theme that was the focus of the lesson.
- (2) Troubles moving beyond surface level discussions in the debriefing. Depth and detail in discussing social themes was absent. Discussions tended to be vague and superficial and hence opportunities to delve deeper into critical incidents were missed.
- (3) Problems becoming familiar and comfortable with the new curriculum. The teaching of social themes initially proved problematic; certain themes caused anxiety and there was fearfulness about where free-flowing discussions might lead and hesitancy about removing competition from the curriculum.

The authors acknowledged that learning a new curriculum model can be problematic, however they assert that this process can be facilitated in a positive manner when troublesome components are identified and specifically addressed to teacher learning and development programs.

Whilst the following two studies (Boyle, 2003; Meyer and Wenger, 1998) were not conducted with students in physical education lessons they have been included as they are examples of how adventure programs have been used in sports teams to assist in the development of teamwork and psychological skills development. Given that physical education professionals are often involved in school sports teams the findings may encourage teachers to advocate for the inclusion of such programs in extra-curricular activities. In one of the few studies of secondary school age athletes (members of a tennis team) in an adventure education program, Meyer and Wenger (1998) sought to determine the effects, both short and long term, that ropes course participation might have on both the individual and the team. Their data indicated that both individual and group benefits were achieved from participation in the ropes course. Reported individual benefits included increases in confidence and concentration, both of which are claimed to be a result of the detailed goal setting and/or contracting stressed by facilitators prior to and during the session. In addition to these individual benefits, the authors reported that group related benefits were achieved as well. The data suggested that involvement in the ropes course allowed the participants an opportunity to get to know and trust one another, thereby increasing their sense of commitment and dedication to the team. Overall, the results of this study were claimed to be consistent with those of other efficacy studies conducted on other populations (Cason and Gillis, 1994) which reported psychosocial benefits from participation in adventure education programs. As one would expect,

the authors noted that the ropes course program appeared to have differential impact on the participants and some participants were more effective in their ability to transfer the concepts they had learned.

In another study involving an elite sports team (State netball representatives, age 17–19), Boyle (2003) sought to investigate the major outcomes of participation in an adventure-based program. Using both quantitative and qualitative methods he presented data to support the efficacy of adventure-based training as a valid and viable approach to improve team cohesion and psychological skills development for elite sportspeople. He stated that an unexpected and more significant outcome was the positive impact the adventure experience had on the athletes' performances in competition. Importantly he noted that the "Athlete's accounts of the implementation of skills learnt during the adventure training intervention, gave clear and unequivocal support for the notion of transfer from the adventure setting to netball" (Boyle, 2003: 61). He argued that adventure-based training can make a difference to sporting teams and their performance.

Tertiary level

In a study involving students enrolled in pre-service physical education teacher degree program, Hastie (1994) sought to examine the outcomes of an adventure experience which aimed to increase these students' awareness of the concepts of enjoyment, success, and challenge which he claimed were significant in the planning of physical education activities for school students. Drawing upon the literature Hastie proposed that the "adventure experience has been shown to provide a setting where reflective experiences are promoted", hence his rationale behind using a weekend engaged in a series of outdoor activities was based on their "widespread use as a means to help people reflect upon their personal and professional values" (Hastie, 1994: 29).

At the weekend camp the students were given the opportunity to participate in a high ropes course, climbing wall, group problem solving activities and low ropes elements. The fundamental ethic of the weekend was for the students to "have a go" and they were not formally assessed according to performance criteria. However their reflections were submitted in an assignment which was evaluated. As result of the experience Hastie made the following comments and observations in regard to the students' perceptions of the role of the teacher in the learning process. The pre-service teachers in the study agreed that as teachers they would need to construct learning experiences so that their students have the opportunity to achieve success. They became aware of the need to plan programs that were challenging and enjoyable, whilst developing a positive supportive learning environment in which

students would feel comfortable attempting activities they perceived to contain an element of risk. Hastie went on to state that it would appear that the participants in the program were able to identify certain features of physical education teaching they thought were important. "It was evident they had become more thoughtful about what programs in physical education could look like, and they seemed to have a heightened awareness of the need for going "beyond fun" and to provide students with opportunities to experience success" (Hastie, 1994: 32). Of particular significance was the students' recognition that "busy", "happy" and "good" are not a valid measure of teaching. "The students at least recognized that the learner is central in the physical education experience". (1994: 33).

Anderson and Frison (1992) conducted a study with 16 second year university students who were participating in an adventure based program (mixture of academic and practical sessions coupled with an overnight expedition) with the aim of developing students' awareness of how adventure based activities might be incorporated into a physical education or recreation program. The authors sought to identify, through interviews and journals, some of the skills that had developed through these activities and some of the positive effects of participation in such a program. The researchers used participant observation methods and recordings of briefing and de-briefing sessions. Students were also required to write a short reflective summary of their experience. The study indicates that the students:

- (1) gained new insights into the role of open communication in proper group functioning;
- (2) increased trust in other group members;
- (3) felt more comfortable as part of a group;
- (4) felt more comfortable voicing concerns and opinions without fear of ridicule, lessening of fear of self-disclosure; and
- (5) reported increased self-confidence and a willingness to engage in risk taking behavior.

Carlson and McKenna (2000) expressed concern that pre-service physical education teachers' experiences of physical education in school may serve to construct an understanding of physical education that may not recognize the diverse needs and desires of their future students. This potential lack of congruency between student teachers' perceptions of physical education and the reality for many students presents teacher educators with a considerable challenge; "how to assist student teachers to reconstruct some of their knowledge and beliefs about teaching and learning in physical education to create a supportive environment" (Carlson and McKenna, 2000: 17).

In an effort to raise student teachers' awareness and understanding of the elements that might constitute a supportive physical education environment, Carlson and McKenna conducted an

adventure-based experiential learning program. The program was based on the premise that teacher preparation programs should be grounded "in the same practices, principles, and purposes as the education teachers will eventually provide for their students" (2000: 18). The adventure education program involved 40 third-year pre-service teachers who were involved in two sessions at the university, a weekend program at an outdoor centre and an evaluation at the conclusion of the program. The data was collected from student reflective writings and was analysed using constant comparison (Glasser and Strauss, 1967; Lincoln and Guba, 1985 cited in Carlson and McKenna, 2000).

The adventure education program aimed to promote change in student teachers' ideas about the level of support needed for students in the physical education context with the aim of encouraging them to define a supportive environment within this context. To do this the student teachers were placed in an environment where they were required to deconstruct and then reconstruct both the personal and professional paradigms from which they were operating. The activities were chosen to provide students with a powerful "destabilizing" experience with the aim of exposing them to alternative ideas and ways of thinking. It was hoped that this experience would lead to an action-reflection praxis phase.

In challenging participants, both physically and emotionally, within a carefully maintain supportive environment, they were exposed to the feelings of vulnerable students and the potential impact of certain teachers' behaviours. This exposure served to thaw preconceived notions of teaching and learning. The program offered the participants some strategies to make the "shift" to a new way of approaching certain issues and problems. (Carlson and McKenna, 2000: 24)

A major outcome of the program was the students' exposure to personal feelings of self-doubt. The authors claim that such experiences, accompanied by appropriate facilitation assisted the student teachers to recognize and empathise with feelings of apprehension and unease that their students might experience during physical education classes. Carlson and McKenna claim that "The development of such empathy within future physical educators is paramount to the delivery of effective education" (2000: 24). The authors state that the program had a positive effect on at least some of the participants' learning and therefore offers the potential for the transfer of learning. This research is in general agreement with the work of Hastie (1994) who found that student teachers who participated in an adventure program altered their perceptions about the concepts of enjoyment, success, and challenge.

These studies suggest that the adventure education experience may be a creditable way to assist student physical education teachers to change their perceptions on teaching and learning in physical education.

Issues, major trends and future directions in adventure education

Within adventure/outdoor education literature there is an increasingly critical focus on some of the underlying assumptions that have hitherto been taken for granted in the field. The greater emphasis being placed on the "process" of adventure education pedagogy has resulted in a number of studies which have problematised some of the assumptions upon which adventure education theory has been constructed. One of the main areas that has come under scrutiny is related to the role of the instructor/leader/teacher in assisting the learner in their reflection on an experience (see Bell, 1993; Brown, 2002a, 2003; Hovelynck, 1999). Using transcripts from verbal facilitation sessions, Brown (2002a; 2003) has called attention to how knowledge is articulated and whose knowledge is privileged in these settings, issues which are at the very core of adventure education theory which is premised on the centrality of the learner's experience as the basis for valid knowledge. The challenge that faces us pedagogically is how to provide experiences and reflection on these experiences in ways that allow students to remain the "agents" of their experience and their learning (Hovelynck, 1999). We can no longer simply claim that adventure education permits teachers to "move beyond teacher-student rhetoric to enhance deep learning within students" (Spiegel, 1996: 30).

Brookes (2003a,b) has called into question many of the traditional claims relating to adventure education being a site for character-building. Drawing on dispositional social psychology he argues that outdoor adventure programs do not build character, rather they provide situations that elicit certain behaviours. "Character building" he argues, must be seen as a source of bias in the literature rather than a foundation on which we justify our programs (Brookes, 2003b). In a similar vein Leberman and Martin (2003) have questioned the premise on which much adventure education theory is based (see Luckner and Nadler, 1992, 1997; Priest and Gass, 1997); that it is necessary to take people out of their comfort zone to ensure that learning takes place. The findings of their research indicate that the activities in which students felt out of their comfort zones may not necessarily be the activities that are most effective in promoting learning.

Participants in the programs under investigation reported that it was the physical components of the course that pushed them out of their comfort zones yet it was the social, creative and reflective activities that produced the most learning. The authors caution facilitators to recognize that participants' perceptions of risk differ, and with it their zone of comfort, and therefore facilitators should remain responsive to participants' needs. Learning may be derived from activities that do not necessarily create the highest perception of risk for participants. As Zink states,

The ongoing focus on outcomes such as self-esteem and 'character building' that permeate much of outdoor education rhetoric tend to foreground the roles of challenging activities as the means of achieving this.... I suggest there is a need for a great deal more research on students' and teachers' subjective experiences of outdoor education. The current lack of research in this area... limits the ways in which we not only make decisions about what to include in an outdoor education programme, but also makes it difficult to question some of the assumptions that underpin the decisions we do make. (2003: 61)

Whilst one might initially regard such work as "heretical", the basis for these critiques are well researched and indicate an increased level of sophistication and complexity in adventure education research; a sign of a maturation in the field. The increased academic rigour being applied to our discipline area from scholars of diverse backgrounds is a positive step forward for adventure education theory and practice; a process which is well anchored in the reflective practice which we encourage in our learners.

In regard to school-based adventure programs within physical education, Beedie (2000) reports that the educational potential of "internally" lead activities, (facilitated by the students' usual teacher, rather than being contracted out to an external agency or outdoor education center) is likely to be greater due to issues of continuity, the likelihood of transfer to other school-based activities and endeavours and is more empowering for physical education teachers who can build relationships with students in non-traditional teaching and learning situations. Beedie argues that urban outdoor education which is essentially school based, is achievable by any physical education teacher. He argues that a school-based program,

offers an opportunity for all pupils to have an outdoor experiential experience; it becomes a common right and is therefore more egalitarian.... [A] structured and teacher lead programme can be

progressive and continuous thereby offering greater potential for learning assessment and evaluation. (2000: 20)

Beedie goes on to state that the economic issues which often hinder students attending residential camps "can be addressed by recognising that programmes can be delivered that require very little technical equipment and do not need wilderness locations to implement" (2000: 20). He argues that instead of "buying in" expertise, schools may be better served by focusing on developing the competencies of their staff so that teachers feel empowered and fulfilled in their relationships with their students. This approach might help to address some of the concerns raised by Burrus-Bammel and Bammel (1990) who reported that teachers indicated that the greatest barriers to OE instruction are lack of instructional resources and misgivings about their level of competence; issues that are surmountable with a move away from "high-adventure" and technical activities which are risk-oriented and expensive to conduct.

Rubens (1999) also provides a caution in regard to adopting too "narrow" an approach to adventure education within existing school structures and timetabling considerations. He argues that teachers need to be aware that the use of "sensational" or performance-based activities requiring skill rather than effort may not cater for all students. Additionally skill-based activities may not allow for the delegation of responsibility to students or incorporate the acquisition of necessary skills and behaviours that such programs ultimately seek to deliver.

Boyes (2000) draws attention to the fact that there is a growing recognition from scholars of outdoor education that our discipline operates within a wider socio-ecological context and the primacy of "adventure" or risk-taking endeavours through the commodification of adventurous activities restricts the possibilities for the field to embrace more balanced sociological and ecological perspectives (see Martin, 1999; Wattchow and O'Connor, 2003). This is a point that Brookes makes when he speaks of his optimism for the future of outdoor education research, especially in areas that look at the "relationships between participants and the experiences they have, that place those experiences thoughtfully in the landscape, and that consider them in the context of the metaphorical landscape of individual lives" (2003a: 23).

The Adventure Experience Paradigm may be useful for explaining and understanding aspects of outdoor education. But as Zink states:

it also privileges certain ways of thinking about outdoor education. The focus of this model is the experience of the individual student and activities that

are perceived to involve risk and skills based competence, that is, individualised pursuits. This in itself may not be problematic, but when it becomes the dominant way of understanding outdoor education then skills based pursuits are positioned in a privileged position over activities with a different emphasis.... Concepts of outdoor education orientated around this model privileges a focus on the individual student and also outcomes associated with self-esteem and self-confidence related to individual action. (2003: 59)

Conclusion

Whilst ABL might be promoted as an "innovative curricular strategy" (Salter 1999b, cited in Cosgriff, 2000) or an approach that promotes "holistic learning" to assist in the acquisition of life skills (Hodge et al., 1999a cited in Cosgriff, 2000) there is little empirical research *within* physical education literature to support such claims. The empirical evidence from within the adventure and outdoor education discipline area (Cason and Gillis, 1994; Hattie et al., 1997) suggests that adventure programs can have a small to moderate impact on socio-psychological constructs to a similar magnitude as other educational interventions. Of particular note is that there appears to be no evidence that adventure programs increase physical fitness, a claim made repeatedly by many proponents of the inclusion of adventure activities into the physical education curriculum. As Neill notes, "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" (1997: 198).

What researchers in physical education have accomplished is a sound body of qualitative research based on students' perceptions of participation in adventure programs (Carlson and McKenna, 2000; Dyson, 1995, 1996; Hastie, 1994; Humberstone, 1990, 1993). These attempts to investigate participant "voice" are to be encouraged as they provide insights into programmatic issues that are seldom available in outcome based studies (although programmatic issues were addressed in Hattie et al., 1997).

At present the main research thrust, certainly of a critical nature is coming from those scholars involved in adventure education from the "broader" outdoor education perspective (see Bell, 1993; Brookes, 2003a,b; Brown, 2002a, 2003; Hovelynck, 1999; Humberstone, 1990, 1993; Leberman and Martin, 2003; Martin, 1999). This is not entirely unexpected given outdoor education's long association with "adventure" and the experiential approach

to teaching and learning. The challenge is to forge productive links between these similar, but often disparate discipline areas to create a dialogue which will produce research that will improve our practice and ultimately be of benefit to our students.

The greater emphasis being placed on the "process" of adventure education pedagogy has resulted in a number of studies which have problematised some of the assumptions upon which adventure education theory has been constructed. The increased academic rigour being applied to our discipline area from scholars of diverse backgrounds is a positive step forward for adventure education theory and practice; a process which should be well anchored in the reflective practice which we encourage in our learners. Physical education and outdoor education researchers have a formidable, but not insurmountable challenge ahead of them as they seek to ground "what we know happens" within a strong research base that supports our claims. As Humberstone reports, "[o]utdoor education needs greater recognition both as an area of research and as a valuable part of the physical education program. It is productive to critically compare physical education and outdoor education to provide opportunities for physical and outdoor educators to develop greater understanding of transformative pedagogy" (1995: 154).

If we were to pose the question, "What do adventure education programs achieve in the physical education?", the answer is that we don't yet have the full picture. We can reasonably claim that adventure activities have the potential to affect various socio-psychological constructs in programs ranging from several days to three weeks, but what of "lesson duration" adventure programs conducted in schools as part of the physical education curriculum? We know from the work of Dyson (1995, 1996) that both teachers and students report favorably on their experiences and that inclusion of a PA-based initiative can play a part in school reform (Dyson and O'Sullivan, 1998). It is possible that "student-centred" adventure pedagogy in physical education may enable positive changes in gender relationships (Humberstone, 1990) and, through a focus on effort rather than performance we can help improve students enjoyment of physical education (Dyson, 1995; Rubens, 1999). We also can appreciate the role adventure may play in improving pre-service physical education teachers' understandings of the diversity of students experiences of school-based physical education (Carlson and McKenna, 2000; Hastie, 1994). However unless research and evaluation is included as a fundamental component of adventure education in physical education we will continue to be working on faith rather than evidence in large areas of our practice. It is time to move beyond anecdote and hearsay and

seriously consider and empirically examine the effects on physical education students from participating in adventure education programs. It is imperative that practitioners and researchers alike make a concerted effort to document both the outcomes and processes involved in adventure education in physical education to improve the scholarly base of our field and therefore improve the educational experiences of our students.

Acknowledgments

This chapter is dedicated to Teresa Carlson, an enthusiastic teacher and researcher who used adventure in physical education teacher preparation classes. Thanks to Brian Wattchow who read an earlier draft of this chapter.

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