

The Effects of Wilderness Settings on Organized Groups: A State-of-Knowledge Paper

Alan Ewert
Leo McAvoy

Abstract—Organized groups present a major use of wilderness resources. The focus of this paper is on the research findings that have emerged over the past 12 years concerning the benefits and effects of participation by groups in wilderness and wilderness-like areas. In general, the majority of research in this area has provided evidence of the beneficial and positive effects of wilderness participation by both individuals and groups. This paper categorizes these benefits and effects into three major variable clusters: self-systems, therapeutic outcomes, and group dynamics. Also included is a discussion of the implications of these findings and issues to managers, educators, and researchers.

The wilderness gave them their first taste of those rewards and penalties for wise and foolish acts which every [woodsperson] faces daily, but against which civilization has built a thousand buffers (Aldo Leopold).

In a recent issue of *Society and Natural Resources*, Daniel Payne (1999) talks about the development of environmental policy in North America. He argues that in the early part of the 20th century, (often referred to as the Progressive Era), debates occurred about the natural environment. These debates centered around land allocation, wildlife protection, and the “proper” use of natural resources. He goes on to describe the “second generation” of more recent environmental issues which include pesticide use, global warming and air pollution.

We would propose that there is now a “third generation” of environmentally related issues. These issues focus on the use of natural environments such as wilderness and wilderness-like areas to improve the human condition and that these improvements go beyond the production of commodities or material goods. More specifically, we believe that participation in activities based in wilderness and wilderness-like settings can have profound effects on both groups and individuals. This premise, however, gives rise to a number of questions. If effects are evident, what are they?

In: McCool, Stephen F.; Cole, David N.; Borrie, William T.; O’Loughlin, Jennifer, comps. 2000. Wilderness science in a time of change conference—Volume 3: Wilderness as a place for scientific inquiry; 1999 May 23–27; Missoula, MT. Proceedings RMRS-P-15-VOL-3. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Alan Ewert, Ph.D., Department of Recreation and Park Administration, Indiana University, HPER 133, Bloomington, IN 47405 U.S.A., (812) 855-8116, e-mail: aewert@indiana.edu. Leo McAvoy, Ph.D., Division of Recreation, Park and Leisure Studies, University of Minnesota, Cooke Hall, 1900 University Ave. S.E., Minneapolis, MN 55455 U.S.A., (612) 625-5887, e-mail: mcavo001@tc.umn.edu

How do they manifest themselves, and does the setting (wilderness) provide the principal vector for change, or do other confounding variables such as group, activity, or individual attributes?

This paper provides an overview of a sampling of research efforts—methods and findings—conducted since the last Wilderness Research Conference was held in 1985 (Lucas 1987). For an understanding of the research efforts conducted on the wilderness user presented at the 1985 conference, the reader is referred to the following works: Driver, Nash and Haas (1987), Roggenbuck and Lucas (1987), Stankey and Schreyer (1987).

Importance of the Topic

People have been visiting and traveling through wilderness and wilderness-like areas, within the framework of organized groups, since the inception of humankind. It was not until fairly recently however, that wilderness and other undeveloped landscapes were considered to have some redeeming characteristics (Bergon 1980; Jenseth and Lotto 1996; Nash 1982). Indeed, it was not until the advent of the Romantic Era (1700-1800s) that wilderness began to be more widely accepted as a place for possible enjoyment rather than desolation and hardship (Ewert and Hollenhorst, 1990). By the 1990s, the picture had changed completely. Wilderness is now eagerly sought out by millions of visitors and used by a growing number of organizations for personal growth and therapeutic intentions (Easley and others 1990; Gager and others 1998). Friese (1996) reports that there are over 700 organizations offering wilderness programs for personal growth and Gager (1996) suggests that these types of programs are growing at approximately 15 percent per year. While it appears that the rate of visitation to wilderness areas among the general public has slowed (Loomis and others 1999), the use of these lands by organized groups, particularly those seeking specialized outcomes, such as personal growth and development, has grown dramatically.

How the Topic was Studied: Assumptions and Caveats

The wilderness experience and benefits from wilderness-like environments have been widely studied (Driver and others 1987; Lucas 1990). This current analysis examined research studies conducted since 1987 and used the criteria suggested by Driver, Easley, and Passineau (1990): qualification (specification of types of benefits and effects), quantification

(the magnitude of those effects and benefits) and valuation or relative importance of the benefits.

Given the extent and variety of research efforts done in this area, a delimitation procedure was employed. Essentially, if over 50 studies were conducted on a specific topic associated with the effects of wilderness activities on organized groups the literature search was restricted to refereed literature. If relatively fewer studies were generated, the literature search was expanded to include the Dissertation Abstracts International (DAI), proceedings articles, and other sources of research information.

This review used a number of assumptions and caveats. First, while technically different, the terms wilderness, wilderness-like areas, and wildlands are used interchangeably. Inherent in all three definitions is the component of undeveloped, relatively contiguous areas that are substantially free of significant human impacts.

Second, organized groups was the primary unit of interest. Given the broad spectrum of organizations, it is acknowledged that there is a wide variance of organized groups, often with differing structures, wilderness experiences, and involvement with wilderness areas. For the purpose of this study, organized groups referred to collections of individuals that are part of a larger organization. For example, the organization might be a church group, a wilderness experience group such as the National Outdoor Leadership School (N.O.L.S.) or a group of Scouts. This type of structure differentiates organized groups from a collection of friends that participate in a wilderness experience.

It is also acknowledged that there are a variety of benefits that are possible outcomes from wilderness participation. Within this work, benefits are defined as improved condition or the prevention of a worse condition to an individual or group of individuals (e.g., collection of friends, family, community, nation, etc.) (Driver and Peterson 1987; Lee and Driver 1999). Despite the effort to acquire and review the highest quality literature available, it is freely conceded that some material and studies were probably incorrectly evaluated or missed completely.

In addition, a range of samples and specific variables were examined. A partial listing of these includes the following: marriage and family, informal and formal, educational organizations, environmental organizations, special-focus groups (e.g., business groups) and groups involved with therapeutic applications.

A number of specific variables appeared with some consistency in the literature. These included: mutual support, social interaction, trust, communication, group development, stress reduction and/or coping, recidivism rates, self-systems such as self-concept, perceived and actual competence, decision-making, and group dynamics. Of these specific variables studied, those associated with self-systems were the most numerous.

Finally, there appears to be considerable overlap in the literature among the concepts of wilderness experience, adventure education and challenge programming. In this work, the emphasis was on using wilderness or wildlands as the setting for participation. Thus, a study was not included in this analysis if the participants were not exposed to a wilderness, or wilderness-like environment. For example, ropes courses are now used extensively in numerous programs and numerous research efforts have now examined

their effects. Under the guidelines for this paper, studies using only ropes courses were not included in the analysis. In another example, Outward Bound programs utilize a variety of undeveloped landscapes and unless a study indicated that an urban or developed site was the location of the program, these studies were included in the analysis.

Challenges of Conducting Research on Wilderness Groups

It is difficult to conduct research with organized wilderness group programs and the researcher faces a number of challenges in conducting research that is valid and reliable, yet not overly intrusive to the participants. The first challenge is the environment. The very same environmental factors that make a wilderness trip exciting, unique, and challenging make research difficult. It often takes a great deal of effort to carry and protect data collection instruments into wilderness. Inclement weather provides challenges in keeping survey forms and paper-pencil test instruments dry and usable. Carrying tape recorders or video recorders in packs can be arduous in rough terrain. Keeping instruments dry and secure is a trying endeavor in rain, snow, on white-water rivers, on glaciers, and in sea kayaks. Another challenge is the fact that most groups in these programs are small, around 6-10 members to encourage positive group dynamics, and also because of minimum-impact group size regulations in many wilderness areas. This means sample sizes are small, and attempts to increase sample size means working with a number of groups spread out over time.

The logistics and schedules of wilderness group programs also present a challenge. Participants often are not an intact group, and come to an organization or the trailhead from all over the world. The logistics of getting participants outfitted with necessary equipment, oriented to the organization and the trip, and instructed on the basics of safety and group movement into the wilderness leave very little time or energy for data collection at the beginning of a program. This is often the case at the end of the program as well, when participants have to turn in gear, arrange departure schedules and logistics, conduct agency mandated evaluations, and attempt to re-enter a hectic world that seemed held a bay while they were in a wilderness environment as an intact group. Most organized wilderness group programs also have a number of organizationally identified goals that are to be addressed throughout the program. These goals are often comported by program activities during the wilderness trip. If the researcher chooses to study variables that may not be directly related to these program goals, there may be little time available during the trip to address the those interests.

Another major challenge faced by the researcher is to be non-intrusive to the group wilderness experience. As groups are usually small in these programs, a researcher may have a difficult time becoming integrated sufficiently with the group to collect data. Yet it is important that the researcher not be integrated to such an extent that the he/she begins to influence the dynamics of the group and the experience of the participants. Some research methods can be intrusive and negatively influence the wilderness experience. Not only does that potential pose a bias problem for the data

collected, but it may also create a public relations or marketing problem for the organization. Participants may begin to ask themselves, "Why do I have to put up with this research stuff? I came on this trip to enjoy the wilderness."

Group wilderness programs put participants in a milieu of heightened emotions and this can be an additional challenge to the researcher. The emotional environment is one of the positive aspects of these programs, and can lead to major personal development and insights. But intensified emotions can also make participants feel that attempts to research and document what is happening to them somehow denigrates or lessens the quality of their experience. Participants may want to avoid verbalizing elements of their experience to a researcher, particularly one they perceive as not being a complete member of their immediate group on the wilderness experience. This can lead to less intense or accurate descriptions of the participants' experience as they may not want to reveal the true depth of their experience to an outsider.

Another difficulty in ascertaining benefits from wilderness participation lies in the internal motivations of the wilderness participant. Borstelman (1977) made a significant finding from his study of Outward Bound students and instructors that continues to vex the entire field of beneficial effects from outdoor and wilderness programs. Essentially, he found that students who attended these types of courses were often "ready to change," and this attitude was possibly what created the majority of positive changes observed in various research studies. He termed this state, the "readiness to change syndrome." If true, his findings cast doubt on the effectiveness of any setting or self-reported finding, or as Ewert (1982) states, "[readiness to change] would place a pallor of skepticism on any statistically significant results." Consequently, are many reported changes due to participation in wilderness or, as previously suggested, are they a manifestation of another, more covert variable such as an individual's initial motivation for participation?

Finally, as mentioned previously, it was difficult to distinguish the effects on an individual from the effects on an individual as a member of a group. That is, while the individual was usually the unit of measurement, few of the studies investigated were able to discern the effect of the group upon the individual outcomes. Thus, from a theoretical as well as practical standpoint, potentially confounding effects of group influence, instructor/leader traits and impacts on participants, and type and structure of the experience were often nested within the larger parameters under study such as self-systems. As a result, from a scientific perspective, it is difficult to ascertain whether any observed changes or impacts were a result of the wilderness or simple, manifest outcomes from the type of program, the group, or other non-wilderness setting vectors. Thus, the question of whether the presence of wilderness "made the difference" remains an enigma, in many cases.

History of the Topic

Evolving Research Themes and Methods

Early research on the benefits of organized groups using wilderness focused almost exclusively on the individual, documenting benefits and/or changes to the individual as a

result of the organized group participating together in a wilderness context. This is still the case in many of the therapeutic programs that use wilderness as a medium for treatment of individual conditions. But there is now an increasing research interest and focus on the influences these wilderness experiences have and can have on the group itself. Research is now beginning to shift toward identifying, documenting and measuring the influences wilderness group experiences can have on group variables, including: group development, group cohesion, trust, social relations and family functioning. Wilderness group experiences offer a rich setting and a set of powerful conditions for various elements of group development. The growing emphasis on cooperative and collaborative group functioning in organizations ranging from corporate groups, to schools, to treatment centers seems to be driving this increased interest in group development and group functioning. Research on group development in organized wilderness group programs is just beginning and will probably continue to develop as a major research theme.

As documented in other sections of this paper, the research designs and methods used in studying wilderness group programs are becoming more diverse and innovative. Early research on groups in wilderness focused on using standardized psychological testing instruments to attempt to document individual changes that could be attributed to participation in the wilderness group programs. This was due, in part, to legitimize the research as scientific and to legitimize the programs as being clinical and effective in precipitating individual improvement. Standardized psychological tests, such as the Tennessee Self-Concept Scale, have been used extensively in a variety of programs and are still used quite extensively in therapeutic and clinical programs. A number of new and more appropriate and accurate standardized testing instruments are now being used to analyzing these therapeutic benefits of organized wilderness programs (for examples, see Bandoroff and Scherer 1994; Gillis and Simpson 1991; Kelley and others 1997; Russell and others 1998) .

Other non-clinical programs, as well as a number of clinical programs, are now being studied using a much wider range of research designs and methods. (See Implications for Researchers for citations). The current research emphasis on organized wilderness groups is attempting to go beyond identifying the benefits, the *what* of the programs and experiences. Research is now attempting to move more into trying to increase the level of understanding of the *how* and the *why* of these experiences. How do people and groups grow or receive benefits from group participation in an organized wilderness program? What is it about the program that creates an environment for that growth and why does that growth take place in a group environment in a wilderness setting?

Evolution of the Theoretical Frameworks in Group Benefits

There are numerous examples of the early use of wilderness for therapeutic as well as recreational endeavors. Some examples of these early organizations and groups are provided by Davis-Berman and Berman (1994) and include the following: the Gunnery School for Boys (1861), the Fresh

Air Camps (1871), the Boy Scouts (1908) and Girl Scouts (1912) and the “Tent Therapy Programs” (1901).

It was not until 1940s, however, that two programs emerged that would have lasting impact not only on the therapeutic applications of wilderness and wildlands, but also impact the use of wilderness today. These programs were the Salesmanship Club of Dallas and Outward Bound. In both cases, systematic attempts were made to design programs that used the natural environment as a mechanism to teach specific learning and personal objectives. Of the two, Outward Bound became the most widely modeled and serves today as the theoretical model for most organized groups using the wilderness with therapeutic intent. Based on the work of Walsh and Golins (1975) this model of participant change is illustrated in Figure 1.

More recently, Gager (1977) has expanded on the Walsh and Golins model by a more precise specification of the various change agents. Figure 2 illustrates that model.

Although not all wilderness-based programs ascribe to the models by Walsh and Golins (1975) or Gager (1977), these models provide the theoretical basis for many if not most such programs. Thus, the wilderness experience may provide a mechanism for change by providing the unique physical setting from which the individual, as part of a unique social setting (the group), goes through a series of physical and mental challenges and is subject to feedback from the instructor/leader and/or other individuals in the group in addition to personal reflection. Following this, the individual may experience a set of values, behaviors, attitudes, etc. that are different from before the wilderness experience. The question remains whether this process or any other similar change model actually works.

Research Findings

One of the presenters at this conference, Dr. John Hendee, stated in one of his presentations that “Wilderness is used for growing people, as well as growing natural resources.” Research over the past three decades suggests that this is true. Wilderness is being used extensively as a place and as an idea to help individuals and groups to grow. A variety of group types utilize wilderness for group and individual growth and development. The research findings that follow are organized into the types of variables and groups studied in group research. The variables include self and systems growth and group dynamics. The group types included in the discussion of variables and research results are: (a) formal groups like Outward Bound the National Outdoor Leadership School; (b) wilderness oriented camps and programs like Boy Scouts and YMCA/YWCA, and other similar programs; (c) informal groups like private personal growth programs (non-profit and for profit); (d) church and youth groups; and (e) educational groups like university classes and outdoor programs, and public and private schools. The research results for wilderness therapy groups and for special-focus groups are presented by group type. The special-focus groups reported in this document are all-women programs, programs that include persons with a variety of disabilities, and wilderness therapy groups including youth with problem behaviors, psychiatric treatment groups, and family therapy groups.

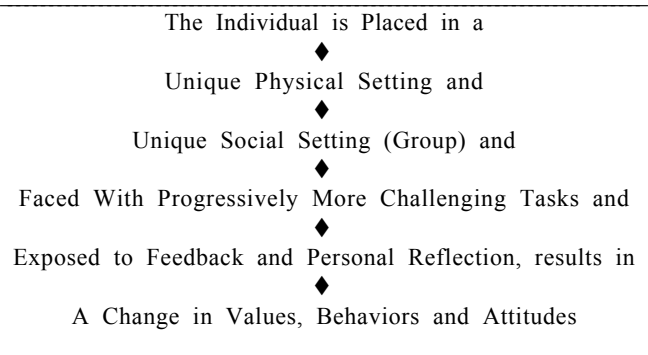


Figure 1—Theoretical model of participant change.

Research Findings by Variables

Self Systems—As previously described, self-systems research generated the largest number of studies reported in the literature. Within this context, self-systems generally refer to a body of knowledge and beliefs that an individual holds about themselves and it is developed through experience and comparison with others (Baumeister 1998). The related terms of self-concept and self-esteem can be defined, respectively, as “an individual’s perception of him or herself including personal abilities, appearance, and performance” (Curry and Johnson 1990) and the judgments and attitudes one holds about him or herself (Baumeister 1998).

In general, the literature provided a pattern of positive and beneficial change that is fairly predictable. Usually, younger individuals experienced a “readiness to change” attitude; and those who were female reported greater changes in self-systems than their counterparts. Reported changes in actual behavior and the durability of any of the changes

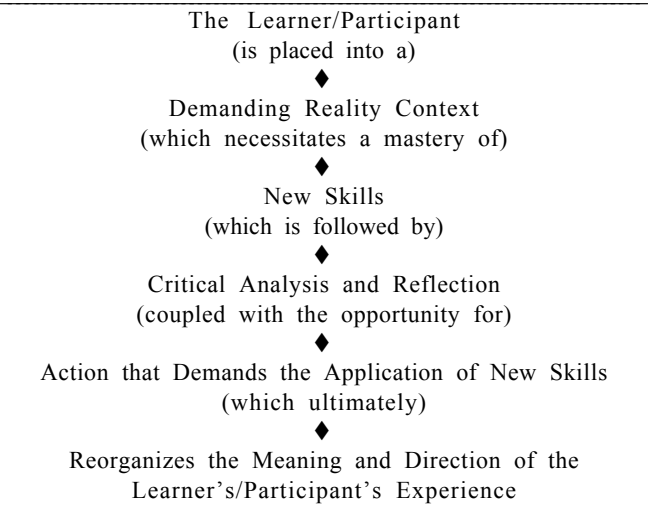


Figure 2—Gager’s model of participant change.

from participation in a wilderness experience were less evident. For example, a number of researchers now suggest that how participants perceive the wilderness experience and what factors, such as personality, influence that perception are the least understood areas of research in these types of experiences (Kaplan and Talbot 1983; Scherl 1988). Thus, any conclusions about the effects of the wilderness experience on a construct as complex as the self-system are bound to be vulnerable to questions of validity and comprehensiveness of the variable set.

Extending this thought, Marsh and others (1986) proposed that while self-concept has been studied as a relatively unidimensional construct, more recent evidence support a multi-dimensionality aspect. They studied the effects of participation in a wilderness-based experience through Outward Bound on specific facets of self-concept rather than as one generalized concept. Using a multiple-time-series design for three different times, they observed increases in various specific aspects of self-concept. In a follow-up study, Marsh and others (1986) included an 18 post-post measurement and found additional support for the efficacy of these types of programs in positively influencing specific aspects of the self-concept. They also found that this effect was "durable," in the sense that specific changes to the self-concept were noted 18 months after the end of the course. In related work, Hattie and others (1997) performed a meta-analysis on the effects of adventure programs on a diverse array of outcomes including self-systems and found significant effect sizes for immediate, short term and long term assessments. Not surprisingly, given the wide variety of programs, there was substantial variance in outcomes as a function of program, age of participant, etc.

Gillett and his colleagues (1991) also looked at self-concept as a multi-dimension construct in their investigation of the effects of wilderness camping and hiking on self-concept and environmental knowledge and attitudes of twelfth grade students. Statistical analysis of the pre and posttest scores using the Tennessee Self-Concept Scale (TSCS) and the Coopersmith Self-Esteem Inventory (SEI) revealed a significant increase on three of the ten measures of self-concept for the TSCS and two of the five measures of the SEI. They found no change in environmental attitude when compared to a control group and significant change in environmental knowledge in the experimental group. These findings argue against the claims made by Simpson (1985), who suggested that short-term experiences, like most wilderness outings, are relatively ineffectual in changing the environmental ethics of the participants.

There is one additional and interesting note regarding the SEI measurement used by the researchers. The SEI utilizes a Lie scale as part of the measuring protocol. The researchers in this study found that participants generally answered the instrument items truthfully, thus arguing against the argument made by Ewert and Baker (1999) that participants in many wilderness and environment-related studies are influenced by the wording of the questionnaire or social-based pressures to falsify their response.

Luckner (1989) used a non-traditional population when studying the effects of outdoor adventure education participation upon hearing-impaired individuals through a 10-day winter ski trip. Using a pre-post, control group design with two instruments (Culture-Free Self-Esteem Inventory and

the Semantic Differential Scale of Self-Concept), he found significant positive changes in the treatment group. Furthermore, he found that these differences persisted through a two-month follow-up measurement. Luckner (1989) concluded that when combined with the interpersonal and supportive context of group interaction, outdoor adventure experiences, such as wilderness programs, can provide an effective platform for promoting self-concept change.

Related to the construct of self-systems, Kellert (1999) found that participation in three wilderness-based programs (Outward Bound, National Outdoor Leadership School and the Student Conservation Association) produced a number of significant changes. A sampling of these changes included: a life-changing event, increased interest in school, physical and mental fitness, positive behavioral changes and a stronger commitment to conservation and the environment. Kellert (1999) also found that many of these changes had some durability and persisted beyond the end of the course.

Another construct in the category of self-system is self-efficacy which was examined by Propst and Koesler (1998). As defined by Bandura (1977), self-efficacy refers to personal judgments of one's abilities and capability to act in situations that may be novel, unpredictable and potentially stressful (such as wilderness tripping). Using an "untreated control group pre/post test design," Propst and Koesler (1998) found that participation in an outdoor adventure trip increased levels of self-efficacy both immediately after and one-year after the course. They also found differences in efficacy statements as a function of gender immediately after the course, but these differences were not evident in the one-year follow-up. See Neill (1997) for a synopsis of the effects of gender on outdoor education experiences.

Several documents categorize and summarize many of the research findings and studies recently done on wilderness participation. These include studies in the development of adventure and wilderness therapy (Itin 1998), use of wilderness for personal growth (Frieze and others 1995), and the use of wilderness for therapy and education (Easley and others 1990).

Group Dynamics and Development—Increasingly, the wilderness has become a place where a group goes to work on being a group. That is, organizations from a wide spectrum of business, church, military, community, and other groups, now use the wilderness setting as a place to develop teamwork, intra-group trust, improved communication, risk taking and overall functioning as a team (Smith and others 1992). Other group dynamics issues typically addressed dealt through wilderness participation involve decision-making, conflict resolution and organizational structuring (Graham 1997).

Despite the importance and popularity of the issues associated with group dynamics, there have been relatively few systematic studies done under the rubric of organized groups in wilderness settings. As stated earlier, it is difficult to distinguish between group effects and individual effects. What studies have been done have usually demonstrated increases in communication between group members, increased trust and willingness to take risks and increased group identity.

For example, Oakes and others (1995) used a wilderness setting and an Outward Bound program to study the

phenomena of familiarity and in-group homogeneity. Their findings revealed, as predicted, that as the group progressed through their Outward Bound course they perceived each other as more alike than different. Given the nature of the wilderness setting and the goals of most Outward Bound programs (such as expected cooperation, supportiveness, and openness), the results seemed to suggest more about the efficacy of the program than the setting.

In a similar manner, Sachs and Miller (1992) examined the effects of a wilderness experience on the social interactions and expectations of a group of behaviorally disordered adolescents. Using a pre/post/post control group design, the researchers found a significant positive increase in the cooperative behavior of the wilderness participants. This change persisted one month after the course but was not significantly different from the control group at this stage.

Ewert and Heywood (1991) examined the impacts of an Outward Bound course on group development. Using Jones and Bearley's (1986) Group Development Assessment Questionnaire, increases from pre to post scores were noted on the sub-variables of orientation to the group, group organization, cohesion, and interdependency. Moreover, decreases were noted in the sub-variables of difficulty in problem-solving and dependency. Clearly, in this case, the program and possibly the setting were effective in strengthening the groups studied.

Taking a more extreme approach, however, Leon and others (1994) examined the effects on the group from a 61-day trek across Siberia. Measurements from this 12-person Soviet-American team revealed that group cohesion tended to break down over time, during the stops at various towns and in the perceived unfairness of tasks, both in terms of group feelings and functioning.

In a later study, examining two Australian teams on 100-day traverses of the Antarctic (Wood and others, 1999), results were somewhat similar. Feelings about the team tended to break down over time and there was much variance in how individual members reacted to group goals and stress.

The previous two studies illustrate an interesting point about group dynamics in wilderness settings. Short-term wilderness experiences appear to be useful in building team morale, cohesiveness and functioning. This appears to be particularly true if the tasks are not too demanding or stress-producing. Add a great deal of stress through environmental conditions or difficulties encountered and variables such as group cohesion and functioning tend to diminish. If true, the implication is clear: Wilderness experiences work to build groups as long as the trip is not too long, too stressful or too demanding. Cross the line of demands and challenges and a functioning group with effective group dynamics tends to diminish in effectiveness, functioning, and individual morale.

Research Findings by Group Type

As previously described, the authors of this paper were challenged by how to present a summary of the research literature on wilderness groups. For example, should the summary be organized according to variables or group type? For clarity, given the range of group types, program goals,

and clients, the research findings were organized by variables for formal groups like Outward Bound, NOLS, wilderness camps and programs; informal groups such as private personal growth programs, church and youth groups; and educational groups.

Given, that specialized groups such as those for women, for persons with disabilities and therapeutic groups are different enough from other wilderness groups and programs, the findings from research done on these groups is presented by group type. Those in the practice of leading and managing these types of groups often see the above mentioned groups as significantly different from most other wilderness group programs, particularly in areas such as program goals, group organization and structure, and participant behaviors. In addition, these programs are often targeted at addressing specialized variables such as recidivism, social integration, empowerment, level of substance abuse, and mental health. Thus, those in specialized group and wilderness therapy practice often search for research results according to group type. To facilitate that search, the following research results in specialized and therapeutic groups are presented by group type.

Persons with Disabilities—Wilderness groups that include people with disabilities usually are of two types: segregated groups made up primarily of people with disabilities and integrated groups that include people with and without disabilities. Groups and programs that include people with disabilities have been using wilderness for individual and group development for a number of years. Wilderness Inquiry, Inc. of Minneapolis, the largest integrated wilderness program, has been taking integrated groups to wilderness since 1978.

Reviews of the research literature have summarized the psychological, social and mental health benefits of wilderness group experiences for people with disabilities (McAvoy and others 1995; Robb and Ewert 1987). These benefits include increased self-concept, self-esteem, and self-fulfillment, personal growth, increased leisure skills, increased social adjustment and cooperation, enhanced body image and positive behavior change.

Although little current research focuses on people with disabilities and wilderness, what research does exist over the past 10 years has concentrated on integrated groups. Research by McAvoy and others (1989) found that people with disabilities in integrated wilderness group programs had positive attitude and lifestyle changes, increased outdoor recreation skills, increased social relationships, increased willingness to take risks and higher feelings of self-efficacy. People with disabilities in this study reported that these benefits were transferred to other aspects of their lives after the wilderness experience. The persons without disabilities in this integrated program reported increased levels of understanding of the capabilities of persons with disabilities, more positive attitudes about people with disabilities and increased tolerance of differences among people. These programmatic outcomes are important indications that these programs are achieving one of their goals—of increasing general social integration and tolerance for differences as a result of participation together in a wilderness program in a wilderness environment (McAvoy and others 1989; McAvoy and others 1995).

A more recent study by Anderson and others (1997) confirmed many of the above benefits. This study also found that specific training to improve the outdoor recreation skill level of participants with disabilities effectively assisted in the integration process on the trip, and that these participants continued to use these outdoor skills (canoeing and camping) well after their wilderness experience. Other benefits included increased sensitivity to the needs of others, increased sense of priorities and an increased respect for nature. The people with disabilities also indicated that wilderness provides a unique contribution to the attainment of these benefits. They reported that wilderness seems to intensify and focus personal efforts, which produces a positive impact on group development and increases the social integration of the group. The wilderness environment is important in helping participants come together and perform as a functioning group. This study used journal analysis and interviews to collect part of the data. The theme of "wilderness" appeared repeatedly throughout these journals and interview transcripts.

A disability group that has received little attention in wilderness group research is people with developmental disabilities. This group would include persons with mental retardation, autism and cognitive disabilities. This is a challenging group to study because it is difficult to use self-reporting instruments due to the cognitive and verbal limitations of many participants in these programs. The few studies in the literature generally indicate increases in variables like locus of control and self-esteem from pre to post-testing, but these positive changes are often not maintained over time (Herbert 1998). The studies also have small populations, making application to a broader set of participants difficult. For example, Robinson (1991) found modest gains in self-concept for a small group (4) of mildly "developmentally challenged" young adults in a program based in provincial parks of Ontario.

Rose and Massey (1993) used unique program and research methods to assess a number of potential benefits for a small group (7) of adults with severe cognitive disabilities participating in an expedition on Mount Blanc in the French Alps. Due to the low level of communication possible with the participants in this study, the researchers used interviews with participants who had a primary relationship with the study subjects on the expedition, interviews with staff and volunteers, analysis of detailed diaries kept by staff and the researcher, as well as video tape to document engagement levels of the study subjects. The qualitative results indicate the study participants experienced an enhanced sense of accomplishment, cooperation, trust, self esteem, role reversal, increased fitness level and increased problem solving ability. This program included an extensive training program prior to the expedition, and it is difficult to determine if the benefits resulted from the expedition itself, or the combination of the training and the expedition. The level of involvement of the participants with disabilities, as well as the environment in which they experienced the expedition, would suggest that the training component had as much influence on the achievement of benefits as the expedition itself. There are methodological limitations in this study, but the methods used by these researchers are an interesting and innovative attempt to document the benefits of

this type of group in which self-reporting of outcomes is such a challenge.

All-Women Wilderness Groups—All-Women Wilderness Groups are usually programs where groups of women are led by other women into wilderness to achieve specific benefits and outcomes. A number of wilderness program practitioners and scholars have written about the potential benefits of wilderness for women (Henderson 1996) and the benefits of all-women wilderness programs (Asher and others 1994; Mitten 1994; Powch 1994). There have been few studies that actually document the benefits, and many of the studies have been qualitative that makes it difficult to generalize results. However, the literature does suggest these programs can produce important and pervasive benefits for participants. These benefits are gained as individuals work together as a group to successfully meet the challenges of wilderness. This group process produces benefits that include increased self-esteem, self-efficacy and empowerment (Hornibrook and others 1997; Pohl 1998).

Due to socially imposed and perceived constraints, some women are turning to all-women wilderness programs to gain a sense of empowerment, a sense that they have the freedom and the capability to take action to improve their life situation. Some women have been socialized to believe they do not have the necessary skills or capabilities to participate in outdoor recreation activities associated with wilderness, thus, participating in wilderness programs is a source of empowerment for them (Mitten, 1994; Pohl 1998). Wilderness can be a unique environment for empowerment for women because it provides a neutral environment that is not cluttered with socially imposed role expectations. Wilderness offers immediate feedback on decisions and actions, evenhandedness of consequences and a feeling of connecting to the earth and its forces (Powch 1994).

In her in-depth interviews with women who had been involved in wilderness for various lengths of time, Pohl (1998) found that wilderness recreation can lead to increased self-sufficiency, empowerment, problem solving skills, connection to others, and mental clarity. Moreover, Pohl's study suggests all-women groups can be effective in creating beneficial outcomes because participants believed this type of group was more accepting, supportive, and less threatening than groups that include men and women together. In an integrated wilderness group, men seem to dominate the skill areas. But, in an all-women's group there were increased opportunities to learn and practice outdoor skills. Fredrickson and Anderson (1999) found that participants in all-women's wilderness groups experienced spiritual benefits and spiritual growth. This was a theme that also appeared in Pohl's interviews. These programs offered the opportunity for participants to connect deeply with the natural environment on a personal and spiritual level.

The major quantitative study of the benefits and motivations of all-women programs is the Hornibrook and others (1997) study, based on 273 respondents to a survey of Woodswomen, Inc. (Minneapolis, MN) participants. The most important motivations for participating in a variety of wilderness-based programs were: the fact that it was a program exclusive to women; the opportunity to "merge" with nature; participating in physical activity; having a new

experience; and the non-competitive nature of the all-women program. The major outcomes or benefits achieved by the participants were an increased belief in themselves and a sense of pride in accomplishment. Another major outcome was the desire to participate again in an all-women wilderness program. The participants commented frequently in the open-ended responses that they attributed their positive experiences to "...a safe, non-competitive atmosphere, the cooperation between participants, the commonality among the women, the extraordinary leadership, and the opportunity to know different women" (Hornibrook and others 1997).

There seems to be general agreement in the literature that participants in all-women wilderness programs do experience the benefits described above. But there is little information on how wilderness actually contributes to the benefits and outcomes of these programs for these groups.

Wilderness Therapeutic Groups—Wilderness therapy is a part of a larger service system called adventure therapy. Adventure therapy has been defined as a set of adventure activities used to enhance therapeutic assessment and treatment. Adventure therapy is often used to enhance established treatment approaches because it provides a rich therapeutic environment for personal change (Gass 1993). The major elements of adventure therapy are an action-centered therapy, in an unfamiliar environment, where there is the climate of change and where personal and professional assessment can take place. Adventure therapy focuses on small group development, genuine community and successful rather than dysfunctional behavior. The role of the therapist changes from the passive role in traditional therapies to an active role in adventure therapy (Gass 1993).

Wilderness therapy is adventure therapy that occurs in remote wilderness or wildland areas and consists of small-group, multiple day experiences where the group remains relatively intact for the duration of the program. While most of the therapy happens in the context of the experiences, there is often follow-up and transition therapy in some programs. The combination of the wilderness environment and the therapeutic modality constitute the wilderness therapy milieu. These programs usually use a combination of generic group therapy and group systems models, along with interpersonal behavior therapy methods. As members of the group live and interact together as a living community in an isolated natural environment, it creates a situation in which participants have experience the natural consequences of their behaviors (Crisp 1998). Crisp defines wilderness therapy as, "...[involving] modified group psychotherapy applied and integrated into a wilderness activity setting." The wilderness therapists' role is to "...facilitate the process by which a person engages the wilderness, either alone or with others, and derives healing from that interaction" (Powch 1994).

Determining the number and focus of wilderness therapy programs depends on the definitions used to classify programs and approaches. Friese and others (1998) define "Wilderness Experience Programs" (WEP) as those that use wilderness or wildlands for personal growth, therapy, rehabilitation, education and leadership development. Their national survey of 700 potential programs identified at least 266 WEPs in the United States. Russell and Hendee (1999)

have identified 38 wilderness therapy programs in the United States. Davis-Berman and others (1994) conducted a national survey of professionals in experiential education and found 31 wilderness therapy programs. Most served adolescents, and the categories of programs included: mental health programs, court programs, school programs, health programs and enrichment programs.

Two excellent reviews of the research in adventure therapy (including wilderness therapy) have been written by Gillis (1992) and Gillis and Thomsen (1996). The reader is urged to consult those reviews for specific information on research results and directions in adventure therapy research. Another recent publication from the proceedings of an international conference on adventure therapy (Itin 1998), offers papers on best practices in adventure therapy, as well as information on outcomes of selected programs.

The following discussion of research findings in wilderness therapy groups and programs is divided into three categories: youth-problem behavior groups, psychiatric treatment groups and wilderness family therapy groups. It is difficult to separate studies according to any category system because some studies cover more than one group type and because some groups include more than one of these categories of participants. Within the youth problem-behavior group discussed below is included discussion of youth-at-risk and youth who have been adjudicated and are part of the criminal justice system.

Youth-Problem Behaviors—Wilderness therapy programs primarily serve adolescents. Cooley (1998) estimates that approximately 10,000 adolescents are served each year in wilderness therapy programs in the United States. Although somewhat of an oversimplification, there are generally two categories of programs within the "youth-problem behaviors" category of programs and groups. One group is often termed "youth-at-risk" although many professionals in the youth development field will argue that all youth in the United States are "at-risk." This first group of youth have the following characteristics: They are often failing at school or dropping out of school, they are abusing or are addicted to drugs, and they are often in defiance of parental and community authorities (Russell and others 1998). The youth in the first category may not have serious psychiatric problems and they may not yet be a part of the juvenile justice system.

Research by Russell and others (1998) on a sample of programs serving youth with problem behaviors has indicated that these wilderness therapy programs result in increased self-concept, self-esteem and self-efficacy which leads to a sense of personal power and motivation to take control and responsibility for their lives. The participants also learned how to communicate with others. Since the programs studied were affiliated with the Federal Job Corps program, the researchers were interested in benefits that related to employability. They found that participation in the wilderness programs increased the length of participation in the Job Corps program, which experts believe leads to a decrease in the incidence of criminal behavior, a decrease in substance abuse and an increase in employability. Neill and Heubeck (1998) found that participation in a nine day wilderness program for at-risk youth resulted in more productive coping styles and less non-productive coping styles.

Much of the research in this category of programs is reported only in dissertations, and these studies often have some methodological limitations. Fried (1994) found that participation of at-risk adolescents in a 22-day wilderness program resulted in higher self-concept, higher perception of control and higher levels of perceived competence among the participants. Wichmann (1991) found that problem solving skills increased among adolescents who participated in a 30-day wilderness course, and that interpersonal problem solving level is predictive of asocial behavior. Sale (1993) found that participation in a six month wilderness adventure education program resulted in ego development and increased self-concept. Sveen and Denholm (1997) found that adolescents who participated in an Australian wilderness-based developmental program based on the Outward Bound model showed increased self-esteem and self-actualization. This finding was particularly evident in female participants. However, the body image score was found to be lower after participation. A 12-month follow-up indicated major decreases in the number of offenses committed by the 62 participants in the program, and the number of those committing the offenses also dropped markedly.

A second category of programs with youth with problem behaviors are those aimed at juvenile offenders who are referred by the courts. There are a number of dissertation studies and other studies in the literature that describe various programs, but there is little reported research on the impacts of these programs on juvenile offenders. Gillis and Simpson (1991) found that an adventure-based therapy approach was effective in reducing conduct-disordered behavior associated with delinquency and drug use by court-involved youth. They found that participants had decreased levels of depression, obsessive compulsive behavior, disorganized thinking, manic excitement and anxiety as a result of participation in the program. Their findings suggest that action-oriented, adventure-based therapy may be helpful in allowing adolescents to become more insightful and to benefit from more traditional forms of treatment. In an older study, Traynelis- Yurek and Giacobbe (1988) found that the length of stay in a residential program for male juvenile offenders which included a wilderness trip component was positively related to lower recidivism rates.

Minor and Elrod (1994) and Elrod & Minor (1992) studied the effects of a program which consisted of job preparation workshops, an outdoor/wilderness experience and family skill building workshops on juveniles on probation for delinquent and/or status offenses. They studied self-concept, locus of control and perceptions of the juvenile justice system. They found no significant increases in any of these variables as a result of program participation. Speculating on why there were no significant gains they cited lack of participation by the families in the family workshops, poorly designed job skills training, and the intensity and duration of the experience. This program only included a three-day wilderness program as part of the overall three-month program.

Eggleston (1998) studied the effects of a one-month wilderness program on at-risk Maori youth who had previous criminal records and had suffered physical or psychological abuse. The program occurred on a remote island. Theme analysis of interviews found the experience increased respect, communication skills and relationships for most

participants. Most also reported feeling more in touch with their culture. Roberts and Camasso's study (1991) presented an elaborate rationale for a wilderness-based program for youth-at-risk. They compared the costs and recidivism rates of typical family therapy participants with participants in a wilderness youth program for at-risk youth. When considering the recidivism rates, the wilderness youth program was significantly more cost effective.

Psychiatric Wilderness Treatment Groups—Wilderness therapy programs are used to both assess and treat psychiatric patients. Wilderness therapists believe wilderness trip programs can be an excellent opportunity to observe a patient and determine the nature and extent of their psychiatric difficulties (Gass 1993). These therapists believe these programs can be effective in assessment because participants must live and interact within a community (the wilderness group), adapt to new situations and engage their mental-physical-emotional selves in meeting the challenges of wilderness living; they are also away from other influences that may negatively influence their sense of reality. McCord (1995) used psychological testing with a wilderness-based residential treatment program to assess adolescents. McCord found this to be an effective way to assess adolescents in treatment and was able to assign patients to distinct treatment groups as a result.

Crisp (1998) reported on the results of using a wilderness therapy program for treatment of adolescents with severe mental health issues related to physical and psychological abuse, mental illness, substance abuse or school refusal. Crisp found that participation in a 10-week treatment program with two 4-5 day wilderness expeditions resulted in a decrease in behavior difficulties and an increase in school attendance. Berman and Anton (1988) studied adolescent psychiatric inpatients who were either withdrawn or acting out. The program consisted of outdoor skills training followed by either a seven or nine day wilderness group program experience. They found that patient symptoms decreased as a result of the program, with the most rapid decrease occurring on the wilderness phase of the program. They concluded that this is a viable treatment modality for moderately disturbed adolescent patients.

Kelley and others (1997) studied 79 male and female adults diagnosed with schizophrenia, affective disorders or schizoaffective disorder. They found that a wilderness therapy program of weekly day-long wildland outings for outdoor recreation activities (climbing, canoeing, caving, biking) resulted in increased levels of self-efficacy and self-esteem; weaker results were found for decreasing anxiety and depression. No effects were found in self-reported psychiatric symptoms. However, Pawlowski and others (1993) studied hospitalized patients with schizophrenia and bi-polar disorders in a wilderness therapy program and found a decrease in symptoms and a decrease in hospital re-admission.

Wilderness therapy has been used with psychiatric patients for a number of years. Like many other areas of wilderness therapy, research with these groups is difficult, and the studies reported in the literature often have a number of limitations. But psychiatric wilderness therapy probably has the largest body of wilderness therapy work reported in the literature. Wilderness therapy programs appear to be effective in the psychiatric treatment of

moderately disturbed patients. A summary of the research results indicates that these programs benefit psychiatric patients through increases in levels of self-concept, self-esteem and self efficacy; increases in levels of locus of control (the expectation that powerful others and chance would have less control in one's life, and one would have more control); a decrease in anxiety and depression levels; and decreases in hostility and paranoia.

Wilderness Family Therapy—There is very little in the literature concerning wilderness family therapy. A delphi study of adventure family therapy professionals (Burg 1994) has documented some of the issues, outcomes and directions in this field, of which wilderness family therapy would be a part. The primary benefits to families in adventure family therapy seem to be the development and recognition of family strengths and resources including trust, communication, cohesiveness and fun. Wilderness family therapy is different from other types of wilderness therapy in that there are strong pre-established bonds among family members, a previous history and culture among participants, and increased intensity of interactions. A major need of the field, as indicated in the Burg study, is a decision about which family therapy theories seem to be most effective and appropriate for adventure family therapy, as well as the need for more outcome and process research.

The major study on wilderness family therapy is by Bendoroff and Scherer (1994), who studied 27 families who participated with their at-risk adolescent children in the last four days of a wilderness treatment program. The adolescents had just completed a 21-day wilderness survival expedition, where they were each given the basic necessities (a blanket, knife, one set of clothes, journal and survival rations). The youth had to master a number of primitive living skills (matchless fires) before finishing the course. The last three days of the course were done solo. The wilderness family therapy sessions consisted of the family camping together in a wilderness camping situation, where the youth taught their families some of the wilderness skills they had learned while on their expedition. The program also included family therapy, multiple family therapy, parents solos, negotiation skills and contracting. The research showed an increase in self-concept among adolescents during the expedition, an increase in normal family functioning, a decrease in adolescent rating of delinquency, a decrease in parental-reported problem behavior of the adolescents, and a decrease in parental reported police and court contacts of their adolescent children.

Implications

Implications for Educators

A review and synthesis of the research on the benefits of organized group wilderness experiences revealed four major category of implications for educators and those who sponsor, lead and/or facilitate these types of experiences: skill levels of leaders; the pervasiveness of outcomes; the impact of the group dynamics on benefits; and the role of experiential education in group facilitation.

Intuition tells us that the leader or facilitator of these organized wilderness group experiences can have major

influences on the benefits that individuals can realize from participation. These programs operate in a unique situation because of the isolation created by the wilderness environment, the leader is the sole authority and has sole responsibility for all elements of the individual and group processes, 24 hours a day. The leader can have a great deal of influence on whether the individuals and the group realize their and the organization's goals. There has been a long debate in the wilderness leadership field about the necessary qualities and competencies of wilderness group leaders. A recent meta-analysis of nearly 100 wilderness group research studies (Hattie and others 1997) indicates that wilderness program leaders who are trained as teachers or therapists are more effective in creating individual and group growth and goal attainment than those wilderness program leaders who may be highly skilled outdoor adventurer but not professionally-trained teachers or therapists. The research reported in this review indicates that the organized wilderness program field needs to pay more attention to the quality of leadership of wilderness group programs. Researchers also need to pay more attention to how the quality of leadership and different types of leadership influence the benefits attained through wilderness group programs.

The benefits and outcomes of these group programs are deeper and more extensive than the research community's limited ability to document those benefits. These wilderness group programs often have deep, profound and lasting influences on the lives of participants (Hattie and others 1997; Paxton 1998; Pohl 1998). The wilderness research community should treat these programs seriously. The group wilderness programming community must strive to offer high quality programs; and the wilderness management community needs to provide access to wilderness because of the significant benefits these programs provide for their participants.

Roggenbuck and Driver, in another paper in these proceedings emphasize four dimensions of a "lived experience" of wilderness use by individuals. These are anticipation of the experience, on-site elements of the experience while in wilderness, the reflection back on the experience after returning home and the integration of the benefits of the experience into one's everyday life. A possible fifth dimension may well be the group dynamics within these organized wilderness group experiences. The group dynamics, group interaction and group development that happen during group experiences tend to influence most of the potential and documented benefits reported in this paper. The reality is that if the group dynamics work and help precipitate a positive experience, the participants can acquire a number of benefits. If the group dynamics do not work, the benefits may not materialize.

The authors of this review recommend that wilderness group programs be more pro-active in incorporating the experiential education process model into their programs. This review indicated that programs that most successfully realized their stated program goals used a version of the experiential education model. The experiential education model includes the components: authenticity (activities and consequences are related to participants' lives); active learning (participants are physically and mentally engaged in the learning process); drawing on experiences (participants are guided in understanding experiences through reflection);

and, providing opportunities for connecting experience to future opportunity (participants develop skills and knowledge that is useful to them in the future) (Carver 1996; Luckman 1996). This pedagogical approach and sequence of program components helps participants to be better equipped to reflect on their wilderness experience and to incorporate the wilderness program benefits into their everyday personal and work lives.

Implications for Researchers

A number of implications for researchers can be formulated from this review of research literature on organized wilderness group programs and experiences. Some are recommendations for directions of the research in this general topic, and others relate more directly to research design and methods that need to be addressed in the future. More specific directions for future research can be found in a later section of this paper.

Organized wilderness group programs consist of a number of components intended to individually or in combination produce the benefits and outcomes that are stated in the program goals. Most research in this field has focused on the benefits, and very little research has concentrated on understanding the different components that make up the group wilderness experience. There is a need to analyze the program components that make up these programs to determine which program elements are actually creating the benefits and outcomes. Are specific program components crucial to creating benefits, is there a specific combination of components that produce specific benefits, and what is the most effective sequence of program components that results in the desired benefits? Many group wilderness programs are based on the Outward Bound model of program components and sequencing. Researchers need to address whether that is the most effective model. Are there alternative models that are more effective for specific populations or for specific program benefits?

Wilderness group programs have long been criticized as “feel good” experiences that have little significant or lasting influence on the lives of participants. Early research using standardized testing instruments contributed to that criticism because it indicated that gains made during the experience often dissipated after time. These studies indicated participants returned to pre-experience levels shortly after the experience. Critics of wilderness group programs claimed they were simply a nice camping vacation, but had little lasting value for personal or group development. More recent studies, however, and even the re-analysis of some earlier data from studies, are showing that some of these programs and experiences can and do have major life changing influences on participants (Hattie and others 1997). These more recent studies are showing that the benefits gained on these programs can be transferred into the everyday lives of the participants (Paxton 1998; Pohl 1998). Future research in this field needs to address the transference of the benefits of these programs into the work, school and personal lives of the participants. Research should also focus on more than the immediate or the short-term benefits of these programs and instead center on the longer term benefits to the lives of the participants.

Diversity is an issue that is concerned with both the research topics selected and the methods selected. Many of the past studies of organized wilderness groups focused on people who typically comprised a stereotypic Outward Bound program. These participants/research subjects tended to be young adult, male, affluent or from affluent families, and college students. Other research focused on psychiatric and mental health patients, “youth-at-risk,” adjudicated youth and other population segments. More recent studies are addressing a broader range of participants, and indications are that this will be the wave of the future. More studies are being reported that now address women, girls, persons of color, corporate executives, persons with physical disabilities, persons with developmental and/or cognitive disabilities, families, youth with problem behaviors, and elderly persons. Diversity in selected methods means that researchers need to pay more attention to those that will accurately measure or more fully describe the benefits which a more diverse population of participants receive from these programs. This means that some of the traditional paper-pencil, psychological testing approaches, or even the mailed questionnaire approach, may not be appropriate for some populations. Some populations cannot fully participate in these data collection methods because of language limitations. Others prefer other methods to share such intimate topics as the benefits or long-term outcomes of a wilderness program. These populations may be best approached using some of the more qualitative research methods, like interviews and journal analysis.

Researchers seeking to better document and describe the benefits and outcomes of organized wilderness group programs need to utilize multi-dimensional research approaches to understand the complex processes and benefits associated with these programs. Scholars need to identify not only the benefits of these experiences, but also how these benefits are created and why they are so important to the lives of participants. Scholars should use not only traditional research methods to document the benefits, but also the more qualitative approaches to understand the nature of the experiences and benefits. There are a number of recent and current studies that are using a multi-dimensional approach, utilizing some of the more qualitative methods to try and understand the why and the how of these group programs. These methods include: in-depth personal interviews of participants during and/or after the wilderness experience (McAvoy and others 1989; Paxton 1998; Pohl 1998); task analysis and single-subject designs (Anderson and others 1997); journal analysis and focus groups (Russell and others 1998); and experience sampling (Anderson and others 1997).

Research on these programs has been criticized for its lack of appropriate testing and assessment tools to document the potential benefits. This was especially the case in some of the past research on therapeutic programs. Many of the psychological testing instruments were simply not appropriate for programs that did not take place in a lab or institutional setting. The research field needs to develop and test new, innovative and appropriate instruments that will accurately measure the changes, outcomes and benefits that can accrue as a result of participation in these wilderness group programs.

Most studies reviewed for this paper have limitations, usually because these types of programs present the researcher with significant challenges in the “control” element of the research design. Our challenge as researchers is to continue to find ways in which to conduct valid and reliable research, and yet not be so intrusive that the research process significantly influences or diminishes the experience of the participant. Wilderness presents the opportunity for major benefits to the participants of these programs. Researchers must realize that the ethics of research always demand that no harm comes to the participant. Harm may include missed opportunities for growth as much as overt damage to an individual. Ethics demand that researchers keep the welfare of the participant foremost in the list of priorities and avoid creating research methods that obstruct the participant’s ability to realize the potential benefits of wilderness group experiences.

Implications for Managers

Given the findings described above, there are a number of implications that may be useful for managers. First is the argument of priority. Given the type and level of personal and societal benefits they provide, if wilderness locations are effective in producing positive changes, particularly when they are linked to a properly designed and led program, should education and therapeutic organizations receive preferential treatment over commercial organizations? One could argue that commercial organizations also provide benefits, but programs that are designed to be educational and/or therapeutic clearly produce those types of outcomes more readily than those programs that are primarily recreational.

Second, does wilderness need to be part of the programing requirements? As discussed elsewhere in this paper, the effect of wilderness on outcomes is confounded by a host of other variables. There can be little doubt that, in certain situations and with certain programs, wilderness, particularly officially-designated wilderness areas, may be a necessity. However, for many, if not most, programs and groups, the accomplishment of pre-determined goals may not be a complete necessity.

The final implication is the proverbial problem faced by managers of what takes precedence—beneficial participant outcomes or resource protection. While it is true that groups can use wilderness resources and practice environmentally-sound practices to reduce impacts, it is also true that any use by humans, however well intentioned and practiced, generally leads to impacts of various types. What this paper has demonstrated is that wilderness participation by groups results in a variety of positive outcomes. These outcomes transcend simple recreational values, but they also include personal growth and development and therapeutic aspects. While it is often difficult to partition out what factor creates what outcome, it is clear that these types of programs and experiences result in beneficial and demonstrable individual, group and societal outcomes. Thus, it is no longer the case that precluding use simply precludes some recreation use; the outcomes increasingly are more serious and important.

Directions for Future Research

Perusal of the process and paper provides three items for consideration in ascertaining where and how research should proceed in the investigation of wilderness experiences and groups. First, increased attention should be shown to both secondary as well as primary outcomes. That is, a primary outcome might be self-concept, while a secondary outcome may be environmental awareness or a change in beliefs (Hanna 1995). Much effort is spent on the primary outcomes although it could be argued that the secondary or more hidden outcomes are as important for both the individual and ultimately, society.

Second, as has been stated elsewhere, research on this topic, like many other topics related to natural environments and humans, needs to employ a multi-dimensional approach (Hattie and others 1997; Scherl, 1986). Most studies have not and will not capture the multitude of variables, the complexity of the setting or the interaction within and between the group, among other factors to consider when people and wilderness meet.

The final item from a research perspective, is the issue of recreation vs. education and therapy. As Crisp (1998) suggests, wilderness programs can vary from recreation to enrichment to therapy. While recreation and therapy are self-explanatory, enrichment refers to programs or experiences that are educational or aesthetic in nature and provide the participant with something other than a purely recreational experience. It is our belief that the field has enough research on the recreational aspects of the wilderness trip. Juxtaposed to this position is our belief that research efforts should now focus on the outcomes of enrichment and therapeutic perspectives of wilderness use. We believe that it is in these areas that wilderness can play its most important role in society for the 21st century.

References

- Anderson, L., Schleien, S., McAvoy, L., Lais, G., & Seligman, D. 1997. Creating positive change through an integrated outdoor adventure program. *Therapeutic Recreation Journal*, 31(4). 214-229.
- Asher, S., Huffaker, G., & McNally, M. 1994. Therapeutic considerations of wilderness experiences for incest and rape survivors. *Women & Therapy*. 15(3-4). 161-174.
- Bandoroff, S., & Scherer, D. 1994. Wilderness family therapy: An innovative treatment approach for problem youth. *Journal of Child and Family Studies*, 3(2). 175-191.
- Bandura, A. 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84. 191-212.
- Baumeister, R.F. 1998. The self. In: D.T. Gilbert, S.T. Fiske, G. Lindzey, eds. *The handbook of social psychology*. Boston: The McGraw-Hill Companies. 680-740.
- Bergon, F. ed. 1980. *The wilderness reader*. Reno, NV: University of Nevada Press.
- Berman, D., & Anton, M. 1988. Wilderness therapy program as an alternative to adolescent psychiatric hospitalization. *Residential Treatment for Children and Youth*, 5(3). 41-53.
- Borstelman, L.J. 1977. Psychological readiness for and change associated with the Outward Bound program. Unpublished paper presented to North Carolina Outward Bound School.
- Burg, J. 1994. Exploring adventure family therapy: A modified delphi study. *Dissertation Abstracts International*. 56(02B). 1148-199.

- Carver, R. 1996. Theory for practice: A framework for thinking about experiential education. *Journal of Experiential Education*, 19 (1): 8-13.
- Cooley, R. 1998. Wilderness therapy can help troubled teens. *International Journal of Wilderness*, 4(3): 18-21.
- Crisp, S. 1998. International models of best practice in wilderness and adventure therapy. In Itin, C.M. ed. *Exploring the boundaries of adventure therapy: International perspectives*. Pp 56-74. Boulder, CO: Association for Experiential Education.
- Curry, N.E., Johnson, C.N. 1990. *Beyond self-esteem: developing a genuine sense of human value*. (Research Monograph Volume 4). Washington, D.C.: The National Association for the Education of Youth.
- Davis-Berman, J., Berman, D.S., & Capone, L. 1994. Therapeutic wilderness programs: a national survey. *Journal of Experiential Education*, 17(2). 49-53.
- Driver, B.L., Easley, A.T., Passineau, J.F. 1990. Introductory comments on the benefits of wilderness. In A.T. Easley, J.F. Passineau, B.L. Driver, comp. *The use of wilderness for personal growth, therapy, and education*. Gen. Tech. RM-193. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 1-10
- Driver, B.L., Peterson, G.L. 1987. Benefits of outdoor recreation: an integrating overview. In: *A literature review - President's Commission on Americans Outdoors*. Washington, D.C.: Government Printing Office. 1-10.
- Driver, B.L., Nash, R. and Haas, G. 1987. Wilderness benefits: a state-of-knowledge review. In Lucas, R., ed. *Proceedings - national wilderness research conference: issues, state-of-knowledge, future directions*. 1985 July 23-26; Fort Collins, CO. Gen. Tech. Rep. INT-220. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 294-319.
- Easley, A.T., Passineau, J.F., Driver, B.L., comp. 1990. *The use of wilderness for personal growth, therapy, and education*. Gen. Tech. RM-193. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 197 pages.
- Eggleston, E. 1998. Reflections on wilderness therapy. In Itin, C.M. ed. *Exploring the boundaries of adventure therapy: International perspectives*. pp 265-285. Boulder, CO: Association for Experiential Education.
- Elrod, P., & Minor, K. 1992. Second wave evaluation of a multifaceted intervention for juvenile court probationers. *International Journal of Offender Therapy and Comparative Criminology*, 36(3). 247-262.
- Ewert, A.W. 1982. A study of the effects of participation in an Outward Bound short course upon the reported self-concepts of selected participants. Unpublished Ph.D. dissertation, University of Oregon.
- Ewert, A., Baker, D. 1998. Standing up for where you sit: the relationship between environmental position and disciplinary background. *Seventh International Symposium on Society and Resource Management*, University of Missouri-Columbia, Columbia, MO, May 27-31, 1998.
- Ewert, A. W., Heywood, J. 1991. Group development in the natural environment: expectations, outcomes, and techniques. *Environment and Behavior*, 23, 592-615.
- Ewert, A.W., Hollenhorst, S.J. 1990. Risking it on wildlands: the evolution of adventure recreation. *Journal of Environmental Education*, 21(3): 29-36.
- Fredrickson, L. & Anderson, D. (1999) A qualitative exploration of the wilderness experience as a source of spiritual inspiration. *Journal of Environmental Psychology*, 19:21-39.
- Fried, K. 1994. The impact of a vigorous physical and emotionally demanding social experience on modifying adolescent self-concept. *Dissertation Abstracts International*, 54(11-B).
- Friese, G. T. 1996. A typology and survey of wilderness experience programs nationwide. Unpublished master's thesis, University of Idaho, Moscow.
- Friese, G. Hendee, J. C., & Kinzinger, M. 1998. The wilderness experience program in the United States: characteristics and dynamics. *Journal of Experiential Education*, 21(1): 40-45.
- Friese, G.T., Pittman, J.T., Hendee, J.C. 1995. *Studies of the use of wilderness for personal growth, therapy, education, and leadership development: an annotation and evaluation*. Moscow, ID: University of Idaho Wilderness Research Center.
- Gager, R. 1977. Experiential learning process flow. *Voyager Reports*. Boulder, CO: Journal of Experiential Education, 1, 4-5.
- Gager, D. 1996. Agency policies and wilderness managers attitudes towards wilderness experience programs. Unpublished master's thesis. University of Idaho.
- Gager, D., Hendee, J., Kinzinger, M., Krumpke, E. 1998. What managers are saying and doing about Wilderness Experience Programs. *Journal of Forestry*, 96(8): 33-37.
- Gass, M. ed. 1993. *Adventure therapy: Therapeutic applications of adventure programming*. Dubuque, IA: Kendall/Hunt.
- Gillett, D.P., Thomas, G.P. Skok, R.L. McLaughlin, T.F. 1991. The effects of wilderness camping and hiking. *Journal of Environmental Education*, 21, 33-44.
- Gillis, H., & Simpson, C. 1991. Project Choices: Adventure-based residential drug treatment for court-referred youth. *Addictions and Offender Counseling*, 12(1). 12-27.
- Gillis, H.L. 1992. Therapeutic uses of adventure-challenge-outdoor-wilderness: Theory and research. *Coalition for Education in the Outdoors: First Research Symposium Proceedings*, Jan17-19, 1992, pp.35-47. Cortland, NY: Coalition for Education in the Outdoors, State University of New York College at Cortland.
- Gillis, H., & Thomsen, D. 1996. A research update of adventure therapy (1992-1995): Challenge activities and ropes courses, wilderness expeditions, and residential camping programs. *Coalition for Education in the Outdoors: Third Research Symposium Proceedings*, Jan 12-14, 1996, pp. 77-90. Cortland, NY: Coalition for Education in the Outdoors, State University of New York College at Cortland.
- Graham, J. 1997. *Outdoor leadership: technique, common sense and self-confidence*. Seattle, WA: The Mountaineers.
- Hanna, G. 1995. Wilderness-related environmental outcomes of adventure and ecology education programming. *Journal of Environmental Education*, 27, 21-32.
- Hattie, J., Marsh, H.W., Neill, J.T. & Richards, G.E. 1997. Adventure education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research*, 67(1): 43-87.
- Henderson, K.A. 1996. Women and the outdoors: Toward spiritual empowerment. In Warren, K. ed. *Women's voices in experiential education* (pp. 193-202). Dubuque, IO: Kendall/Hunt Publishing.
- Herbert, J. 1998. Therapeutic effects of participating in an adventure therapy program. *Proceedings of the 1998 American Sociological Society Conference*, 41(3). 201-216.
- Hornibrook, T., Brinkert, E., Parry, D., Seimens, R., Mitten, D. & Priest, S. 1997. The benefits and motivations of all women outdoor programs. *Journal of Experiential Education*, 20 (3):152-158.
- Itin, C.M. ed. 1998. *Exploring the boundaries of adventure therapy: International perspectives*. Boulder, CO: Association for Experiential Education.
- Jenseth, R., Lotto, E.E. 1996. *Constructing nature: readings from the American experience*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Jones, J.E., Bearley, W.L. 1986. *Group development assessment questionnaire*. Pittsburgh, PA: Organizational Design and Development, Inc.
- Kaplan, S., Talbot, J.F. 1983. Psychological benefits of a wilderness experience. In I. Altman and J.F. Wohlwill, eds, *Human behavior and environment: behavior and the natural environment*. New York: Plenum. (Vol. 6, pp. 163-203).
- Kellert, S. 1999. A national study of wilderness experience. In: R. Witzansky, S. Reed, New study demonstrates outdoor experience may prove life changing to adolescents, help solve education woes, *The Outdoor Network*, Vol. IX, Issue 4, 1, 27.
- Kelley, M. P., Coursey, R. D., & Selby, P. M. 1997. Therapeutic adventures outdoors: A demonstration of benefits for people with mental illness. *Psychiatric Rehabilitation Journal*, 20(4). 61-73.
- Lee, M.E., Driver, B.L. 1999. Benefits-based management: a new paradigm for managing amenity resources. In: J. Aley, W.R. Burch, B. Conover, and D. Field, eds. *Ecosystem management: adaptive strategies for natural resources organizations in the 21st century*. Philadelphia: Taylor and Francis. 143-154.
- Leon, G.R., Kanfer, R., Hoffman, R.G., Dupre, L. 1994. Group processes and task effectiveness in a Soviet-American expedition team. *Environment and Behavior*, 26, 149-165.

- Luckner, J.L. 1989. Effects of participation in an outdoor adventure education course on the self-concept of hearing-impaired individuals. *American Annals of the Deaf*, 134(1): 45-49.
- Luckman, C. 1996. Defining experiential education. *Journal of Experiential Education*, 19 (1): 6-7.
- Lucas, R.C. 1987. Perspectives on the history of wilderness research. In: Lucas, R.C. 1987. Proceedings - national wilderness research conference: issues, state-of-knowledge, future directions. 1985 July 23-26; Fort Collins, CO. Gen. Tech. Rep. INT-220. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 15-28.
- Marsh, H.W., Richards, G.E., Barnes, J. 1986. Multidimensional self-concepts: A long-term follow-up of the effect of participation in an Outward Bound Program. *Personality and Social Psychology Bulletin*, 12, 475-492.
- McAvoy, L., Lais, G., Anderson, L. & Schleien, S. 1995. Wilderness and person with disabilities: A review of research and policy directions. *Trends*, 32(1): 33-37, 48.
- McAvoy, L., Schatz, C., Stutz, M., Schleien, S., & Lais, G. 1989. Integrated wilderness adventure: effects on personal and lifestyle traits of persons with and without disabilities. *Therapeutic Recreation Journal*, 23(3). 50-64.
- McCord, D. 1995. Toward a typology of wilderness-based residential treatment program participants. *Residential Treatment for Children and Youth*, 12(4). 51-60.
- Minor, K., & Elrod, P. 1994. The effects of a probation intervention on juvenile offenders' self-concepts, loci of control, and perception of juvenile justice. *Youth and Society*, 25(4). 490-511.
- Mitten, D. 1994. Ethical considerations in adventure therapy: A feminist critique. *Women & Therapy*, 15(3/4):55-84.
- Mossman, E. An evaluation of the outdoor challenge program (OACP) at Rolleston Prison. In Itin, C.M. ed. *Exploring the boundaries of adventure therapy: International perspectives*. pp.293-304. Boulder, CO: Association for Experiential Education.
- Nash, R. 1982. *Wilderness and the American mind*. New Haven, CT: Yale University Press.
- Neill, J.T. 1997. Gender: how does it effect the outdoor education experience? Paper presented to the 10th National Outdoor Education Conference, Sydney, Australia, January 20-24, 1997.
- Neill, J. & Heubeck, B. 1998. Adolescent coping styles and outdoor education. In Itin, C.M. ed. *Exploring the boundaries of adventure therapy: International perspectives*. pp. 227-243 . Boulder, CO: Association for Experiential Education.
- Oakes, P.J., Haslam, S.A., Morrison, B., Grace, D. 1995. Becoming an in-group: reexamining the impact of familiarity on perceptions of group homogeneity. *Social Psychology Quarterly*, 58, 52-61.
- Pawlowski, M., Holme, G., & Hafner, R. 1993. Wilderness therapy for psychiatric disorder. *Mental Health in Australia*, 5(1). 8-14.
- Paxton, T. 1998. Self-efficacy and outdoor adventure programs: A quantitative and qualitative analysis. Unpublished doctoral thesis. Minneapolis, MN: University of Minnesota.
- Payne, D.G. 1999. "Talking freely around the campfire": the influence of nature writing on American environmental policy. *Society and Natural Resources*, 12(1): 39-48.
- Pohl, S. 1998. Women, wilderness and everyday life: An examination of the connection between wilderness recreation and women's liberation. Unpublished masters thesis. Missoula, MT: University of Montana.
- Powch, I. 1994. Wilderness therapy: What makes it empowering for women? *Women & Therapy*, 15(3-4). 11-27.
- Propst, D.B., Koesler, R.A. 1998. Bandura goes outdoors: role of self-efficacy in the outdoor leadership development process. *Leisure Sciences*, 20, 319-344.
- Robb, G. M. & Ewert, A. 1987. Risk recreation and persons with disabilities. *Therapeutic Recreation Journal*, 21(1). 58-69.
- Roberts, A., & Camasso, M. 1991. Juvenile offender treatment programs and cost benefit. *Juvenile and Family Court Journal*, 42(1). 37-45.
- Robinson, D. W. 1991. Adventure recreation programming for the developmentally challenged: a pilot study on affective change. In: Bell, F. I. & Van Gyn, G. H. eds. *Proceedings for the 10th Commonwealth and International Scientific Congress: Access to Active Living*. 498-502. Victoria, B. C.: University of Victoria.
- Roggenbuck, J.W., Lucas, R.C. 1987. Wilderness use and user characteristics: a state-of-knowledge review. In Lucas, R., ed. *Proceedings - national wilderness research conference: issues, state-of-knowledge, future directions*. 1985 July 23-26; Fort Collins, CO. Gen. Tech. Rep. INT-220. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 204-245.
- Rose, S., & Massey, P. 1993. Adventurous outdoor activities: An investigation into the benefits of adventure for seven people with severe learning difficulties. *Mental Handicap Research*, 6(4). 287-302.
- Russell, K.C. & Hendee, J.C. 1999. Wilderness therapy as an intervention and treatment for adolescents with behavioral problems. . In, Watson, A.E., Aplet, G. ed. *Personal, societal and ecological values of wilderness: Sixth world wilderness congress proceedings on research, management and allocation*, Vol. II, Proc. RMRS-P-000. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Russell, K., Hendee, J.C., & Cooke, S. 1998. Social and economic benefits of a U.S. wilderness experience program for youth-at-risk in the federal Job Corps. *International Journal of Wilderness*, 4(3): 32-38.
- Sachs, J.J., Miller, S.R. 1992. The impact of a wilderness experience on the social interactions and social expectations of behaviorally disordered adolescents. *Behavioral Disorders*, 17, 89-98.
- Sale, P. 1993. Ego and self-concept development among juvenile delinquent participants in adventure-based programming. *Dissertation Abstracts International*, 53 (7-A). 2253.
- Scherl, L. 1986. Self in wilderness: is personal control a viable notion for understanding individual-wilderness interaction? Paper presented at the 15th Annual Meeting of Australian Social Psychologists, Townsville.
- Scherl, L. 1988. Constructions of a wilderness experience: Using the repertory grid technique in the natural setting. *Australian Psychologist*, 23(2). 225-242.
- Simpson, S. 1985. Short-term wilderness experiences and environmental ethics. *Journal of Experiential Education*, 8, 25-28.
- Stankey, G.H., R. Schreyer. 1987. Attitudes toward wilderness and factors affecting visitor behavior: a state-of-knowledge review. In Lucas, R., ed. *Proceedings - national wilderness research conference: issues, state-of-knowledge, future directions*. 1985 July 23-26; Fort Collins, CO. Gen. Tech. Rep. INT-220. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 246-293.
- Sveen, R., & Denholm, C. 1997. Testing the theoretical fit of an abseiling harness: A study of an Australian primary and secondary prevention program. *Journal of Primary Prevention*, 18(2). 213-225.
- Traynelis-Yurek, E., & Giacobbe, G. 1988. Length of stay and recidivism after a quality treatment program. *International Journal of Adolescence and Youth*, 1(3). 257-267.
- Walsh, V., Golins, G. 1975. *The exploration of the Outward Bound process*. Denver: Colorado Outward Bound School.
- Wichmann, T. 1991. Interpersonal problem solving and asocial behavior in a therapeutic wilderness program. *Dissertation Abstracts International*, 52(5-A). 1697-1698.
- Wood, J. Lugg, D., Hysong, S.J. Harm, D.L. 1999. Psychological changes in hundred-day remote Antarctic field groups. *Environment and Behavior*, 31, 299-337.