

Abstracts

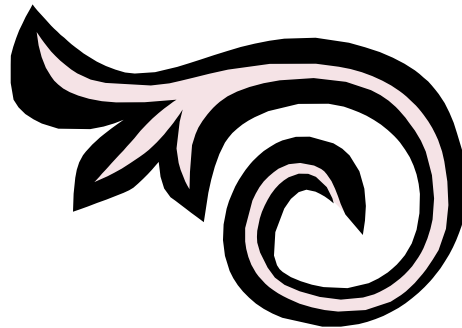
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2007 Symposium on Experiential Education Research (SEER)

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Welcome to SEER

Welcome to the Fifth Annual Symposium on Experiential Education Research (SEER). The purpose of this Symposium is to provide you with a formal setting for the reporting of research findings in the fields of Experiential Education. Toward that end, all the research presentations were blind reviewed by a panel of referees. There were 25 submissions for the 12 available presentation slots. Whether accepted or not, the authors who submitted material should be congratulated for their efforts. In many cases, their works were not selected because of the strict time constraints and not because of any deficiencies in the quality of their work.

Along with the researchers who submitted their work for review, a number of other entities and people deserve a note of thanks for their efforts in making this idea a reality. First, the AEE and its various staff members including Evan Narotsky and AEE Executive Director Pat Hammond and the 2007 conference host committee for their support and coordination of SEER.

Much appreciation goes to the many scholars and academicians who graciously served as reviewers of the submitted abstracts: Lee Gillis, Alan Ewert, Ken Gilbertson, Bandoroff, Jayson Seaman, and Michael Gass.

We would also like to thank Maurie Lung and Dick Prouty for providing the opening and closing comments to the Symposium and Jayson Seaman and Katherine Pinch for providing summaries and reactions to the sessions.

And finally, a special thank you is given to the attendees of the Symposium, as it is on you and the other members of the experiential education community that this Symposium is focused. For without you and the various educational endeavors you provide within the experiential education rubric, all of our efforts would be for naught.

Thanks to all of you for being a part of SEER.

Keith C. Russell, Chair
Cheryl A. Stevens, Chair-elect
SEER 2007

BOOK OF ABSTRACTS

2007 SYMPOSIUM ON EXPERIENTIAL EDUCATION RESEARCH

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Student Involvement and Critical Concerns of Outdoor Orientation Programs

Brent J. Bell, Ph.D., Marion R. Holmes, Branden Vigneault, and Brady Williams, University of New Hampshire

Introduction

Outdoor orientation programs have been operating at United States colleges and universities since 1935, when Dartmouth College ran its first pre-college trips for first-year students (Hooke, 1987). Although this program provided an effective transitional experience to Dartmouth, 33 passed years before another college or university – Prescott College – implemented a wilderness orientation program in 1968. The Prescott program was more heavily influenced by Outward Bound (OB) than the Dartmouth trips (Prescott, 2007). The ensuing ten years (1968-1978) saw significant growth in outdoor orientation programs, mainly at private colleges and universities across the U.S. These programs developed largely independent of each other, under the leadership of a few key personalities within an institution, rather than out of a national conversation on orientation practices and principles.

Over the years, researchers have attempted to gather information on outdoor orientation programs. Past researchers used different sampling techniques to locate programs (Gass, 1984; O’Keefe 1989; Davis-Berman & Berman, 1996; and Galloway, 2000), but all concluded more outdoor orientation programs probably existed than they were able to find.

In the fall of 2005, a research group set out to create a definitive list of all college and university outdoor orientation programs. The list was limited to programs that met the following criteria: they used adventure activities and they spent at least one night away from campus, camping in small groups. This definition seemed to best capture the earlier Outward Bound-adapted model that developed at Prescott and other schools with long-running outdoor orientation programs.

Identified programs were surveyed to ascertain key program characteristics. The data allowed researchers to investigate multiple questions. First, the researchers were interested how programs run by a professional director compared with student-run programs. Secondly, the researchers investigated the training of student leaders. Lastly, researchers sought to identify areas in need of improvement within the outdoor orientation field as whole.

Methodology

The researchers contacted all four-year colleges and universities in the U.S. For the purposes of this study, colleges and universities were defined as schools which offered a baccalaureate degree, were accredited, and which had a primarily residential, rather than online or virtual, campus. Members of the research team were assigned states and were given the task of locating and contacting all outdoor orientation programs within their states. If a college or university did have an outdoor orientation program, the researchers sent a program representative a link to an online survey.

The survey posed questions specific to the researcher’s inquiries, such as: Who administers your program?, What is the minimum number of hours of training you require of your leaders?, What are the minimum First Aid requirements of your leaders?, Do you have an active risk management committee?, and Have you ever participated in a formal program review?

After the data was collected, it was placed in an SPSS program for analysis. The researchers used Chi Square testing to look for significant differences between variables.

Results

The research identified ($N = 202$) programs. Through reminder e-mails and follow-up telephone calls, the research team was able to generate a 97% response rate to the online survey. Data cleaning resulted in the removal of 28 programs that upon analysis did not match the researchers' established criteria of an outdoor orientation program. Most of the 28 programs not fitting the criteria did use outdoor adventure activities, but did not spend a night away from campus in small groups.

Student or Professional Leadership

While most programs ($n=151$) were under the direction of a full or part-time professional director, a number of programs ($n=16$) reported being completely student run. Professional-run and student-run programs differed significantly in only one notable area: student-run programs were more likely to possess National Forest Service permits, Pearson $\chi^2(2, n = 167) = 6.151, p = 0.046$, Cramér's $V = 0.192$. In general, student-run programs did *not* differ significantly from professional-run programs in program operations, including risk management practices, hours of leader training, and medical certifications required of leaders.

Leaders

While the main goal of outdoor orientation programs may be to ease the transition of first-year students into college, outdoor orientation programs also train many peer leaders in backcountry and interpersonal skills. The number of outdoor orientation leaders varied from program to program. Although the average number of leadership staff was 22—two large programs, Dartmouth and Princeton, each with over 180 leaders—skewed the results. When looking at programs with fewer than 100 leaders, the average number was much lower ($n = 10$). On average, these leaders received 48 hours of training. Approximately a third of the programs required Wilderness First Aid training ($n=52$) for leaders. Thirty-five programs required basic first aid training, while another 42 required Wilderness First Responder.

Areas to Improve

Many programs did not have a number of risk management practices common to outdoor programs accredited by the Association of Experiential Education. Only 44 of the 185 programs reported an active risk management committee. Even fewer programs have conducted a formal external review ($n = 26$). Although 55 programs conducted informal risk management reviews, a total of 93 programs (53.4%) have not conducted any review.

Conclusion

Data from this survey revealed that there are few notable differences between programs run by a professional director and programs run by students. It was expected that programs with professional leadership would be more likely follow higher standards, such as the accreditation standards of the Association of Experiential Education, and generally be more supported by and integrated into the college or university. This was not found to be the case; the only significant difference between professionally-run and student-run programs was that student-run programs were more likely to possess National Forest Service permits. Possessing permits may be an indication that student-run programs were more attentive to public land use policies, or that student-run programs were more likely to use public lands (and thus need permits). What can be surmised is that student-run programs are not, in aggregate, very different from professionally-run outdoor orientation programs.

Although some students may be involved in the operations and management of outdoor orientation programs, they are more commonly involved as peer leaders. The researchers in this study found that more than 4,000 undergraduates in 2006 were actively involved in leading outdoor orientation programs. While the amount and type of training varied among programs, these leaders were typically trained in backcountry skills, group facilitation, and first aid. Although the focus of outdoor orientation programs is upon the first-year students transitioning to college, the benefits to the student leaders remain largely unknown. There is potential for research regarding the effects of outdoor orientation leadership training on the student leaders.

The researchers found risk management systems and review processes, largely lacking among outdoor orientation programs, to be an area in need of increased consistency and standardization. Although having an active risk management committee or external program review does not directly translate into program quality, these measures do denote a level of sophistication and seriousness about an orientation program's risk management system. Given that outdoor orientation programs place students into challenging situations, it is important that program staff review risk management systems to provide support congruent with the level of challenge. External reviews and risk management committees are two methods for insuring sufficient attention is being paid to risk management, and in a larger sense program quality. Increased use of these practices is likely to improve the impact of outdoor orientation programs.

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Psychological Sense of Community and Group Cohesion on Wilderness Trips

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Introduction

A primary purpose of many wilderness trip programs is the development of positive interpersonal relationships and group experiences that lead to enhanced sense of community among group members (Mitten, 1999). The development of a strong sense of community is in fact a common theme found within the mission statements, goals, and objectives of many wilderness trip programs. Sense of community has been characterized as the “feeling an individual has about belonging to a group and involves the strength of the attachment people feel for their communities or group” (Halamova, 2001, p. 137). Additionally, a main factor in developing a sense of community is group cohesiveness, which has been defined as the “bond that links group members to the group, the degree to which the members are attracted to one another and the group, and the unity a group has towards its members” (Wilson, 2005, p. 238).

Heightened feelings of community may be a direct result of participation in a wilderness trip program. However, Hill (1996) noted a distinct lack of research related to psychological sense of community and involvement with nature. Additionally, a review of the literature has provided little conclusive and recorded evidence to support this outcome (i.e., increased sense of community) explicitly.

Methods

This present study was designed to examine the development of people's sense of community on wilderness trips. Participants for this study consisted of undergraduate students from a department of recreation and leisure program in the United States. There were two methods of data collection for this study. In the summer of 2005, students completed two pre- and post- trip surveys including the Perceived Sense of Community Scale (Bishop, Chertok, & Jason, 1997) and Group Cohesion Evaluation Questionnaire (Glass & Benschhoff, 2002) related to a six day wilderness trip experience. The results from this quantitative data comprised one component of a larger study that examined perceived sense of community and group cohesion and will not be presented here.

In November 2006, three follow-up focus group sessions, consisting of 23 study participants, were conducted. These sessions allowed the researchers to qualitatively measure people's perceived sense of community and group cohesion six months after their wilderness trip experiences. The results from this qualitative data will be presented here. Data from the focus group sessions was fully transcribed. The qualitative research software, Atlas.ti is being employed to code the data. Data are in the preliminary stages of being analyzed.

Results

The initial results thus far suggest that students' perceived sense of community increased as a result of their participation in a six day wilderness trip experience and that their sense of group cohesion also increased. These results would be congruent with the results of the quantitative data that has been previously analyzed. Additionally, the early part of the data

analysis suggests that students' perceptions' of sense of community and group cohesion six months after their trip experience continues to be an important factor in their memories of the wilderness trip experience.

Discussion

These early results support the contention made by McMillan and Chavis (1986) that emphasizes the importance of shared emotional connections as well as the integration and fulfillment of needs as key determinants of psychological sense of community. A key theoretical proposition concerning sense of community is that "it will be higher in communities which have to invest considerable energies and resources just to survive" (Lounsbury & DeNeui, 1995, p. 271). This feeling of "getting back to the basics" is often an inherent perception held by individuals on wilderness trips. Participants have to focus on fundamental human needs such as travel, shelter, and food. The shared sense of purpose and the shared goals (i.e., mission and reciprocal responsibility) that result from participation on a wilderness trip experience lend themselves to the development of this sense of community (Jason & Kobayashi, 1995).

Implications

Based on these early results, wilderness trip providers should consider how social structures can be applied to encourage community building and group cohesion. Further research examining the factors influencing creation of sense of community and group cohesion on wilderness trips is needed. Leadership styles, gender of the leader(s), environmental factors and personality traits of group members should be considered in future research. Additionally, longitudinal studies following perceived sense of community and group cohesion in both wilderness and everyday settings while utilizing a control group is warranted.

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A Preliminary Exploration of the Influence of Short-Term Adventure-Based Expeditions on Levels of Resilience

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Mention the terms Indonesian Tsunami, 9/11, Hurricane Katrina, Colorado blizzards, and among the many pictures that come to mind is one of individuals surviving these catastrophes and “bouncing back” in the aftermath. From a theoretical perspective, this “bouncing back” has typically been linked to the concept of resiliency. Defined as an individual constellation of characteristics and capacities that mitigate the impact of biological, psychological and social factors that threaten an individual’s health (Kaplan, 1999; Ungar, Dumond, & McDonald, 2005), resiliency represents one of the most important outcomes from participation in experiential and adventure-based programs. The purpose of this study was to investigate the effect of participation in a three-week adventure-based expedition on levels and types of resiliency.

Background and Logic

Resilience is derived from the Latin word *resilio*, meaning “to jump back” and gains much of its visibility from the fields of ecology (i.e., the ability of an ecosystem to survive a stressful, natural occurrence), and psychology (i.e., the negative effects of an adversity such as divorce or other traumatic stressors upon children) (Manyena, 2006). From the perspective of experiential education, the question arises, however, as to whether short-term, expedition-type experiences can impact individual levels of resiliency. In related work, past research suggests that remote expeditions lasting up to 100 days on locations such as the Canadian High Arctic or Antarctica can produce profound effects to the participants (Atlis, Leon, Sandal, & Infante, 2004; Leon, List, & Magor, 2004). The literature also suggests that resiliency is similar to other psychological phenomena such as hardiness (Bartone, 1999; Golby & Sheard, 2004), mental toughness (Clough, Earle, & Sewell, 2002; Loehr, 1986), and dispositional optimism (Scheier & Carver, 1985; Sheard & Golby, 2006). While much of this work provides support for the existence of these concepts, fewer studies have investigated whether a concept such as resilience can actually be enhanced from participation in an experiential education (EE) or adventure-education (AE) program.

The belief that EE/AE programs and activities can improve levels of resiliency is not without its logic, however. First, Srivastava et al., (2003) suggest that personality characteristics and traits are not “cast in stone” at an early age, but can be changed and altered, often through life experiences and events. Thus, rather than being relatively static and immutable, psychological constructs such as resiliency can be altered and changed. Second, many of the experience components inherent in EE/AE programs, such as physical challenge, periods of reflection, social issues that must be addressed, direct involvement with the natural environment, overcoming adversity, hopefulness, and involvement as a team member, are remarkably similar to those traits commonly found among resilient individuals (Davis, Ray, & Sayles, 1995; Haras, Bunting, & Witt, 2006; Unger, Dumond, & McDonald, 2005; also see McKenzie, 2003). Thus, while not directly implicating a cause and effect relationship, these similarities form the basis of belief that a short-term expedition may be influential in altering the levels and types of resilience held by participants. Accordingly, the following hypotheses were examined:

- H₁: There will be no differences on the aggregated levels of resiliency between the experiential and non-experiential groups.
- H₂: There will be no differences in levels of resiliency on individual items related to types of resiliency between the experiential and non-experiential groups.

Methods

In this study, the experiential group consisted of 17 males and females who had enrolled in a semester-long, college outdoor program, and were asked to rate their levels of resilience before and after participating in a three-week outdoor adventure expedition. This expedition was part of a semester-long college program and involved activities such as rock climbing, winter camping, mountain climbing, desert travel, river crossings, and a three-day “solo” experience.

Data were collected within a week prior to and immediately after the outdoor adventure expedition using a modified version of the Resilience Scale (Wagnild & Young, 1993) to assess the level of individual resilience. This modified instrument consists of 37 items (e.g., *I enjoy dealing with new and unusual situations; I can deal with whatever comes in the future*). Participants were asked to answer to which extent they would *agree* or *disagree* on each statement using a 100-point scale. Internal consistency, assessed with Cronbach’s alpha, was .95 for this study’s sample.

Data were entered, cleaned, and formed into 45 matched pairs. After screening data for incomplete, out-of-range or illegal responses, 8 data sets were removed, which resulted in a usable sample size of 37 ($N = 17$ for the experiential group; $N = 20$ for the non-experiential group). A two-way repeated measure ANOVA was conducted comparing the pretest and posttest resilience scores across the experiential and non-experiential groups. Both aggregated scores and scores of individual instrument items were analyzed in order to examine the overall differences in levels of resilience and to ascertain any differences in levels of specific types of resilience.

Findings

For aggregated scores of the resilience instrument (average scores of the 37 items), no significant interaction was found between pretest and posttest scores across experiential and non-experiential groups. Overall posttest scores were significantly higher than pretest scores ($p > .05$) in both groups (mean = 68.8 (post-expedition) and 66.1 (pre-expedition) respectively for the experiential group; mean = 69.9 (post) and 67.0 (pre) respectively for the non-experiential group). There was no significant difference between the aggregated levels of resiliency between the experiential and non-experiential groups.

At the individual item level, significant differences in a number of specific items were found between pretest and posttest across the experiential and non-experiential groups. Using ANOVA and follow-up pairwise *t*-tests, the experiential group showed significantly higher posttest scores than pretest scores ($p > .05$) in the following six items: “*I feel proud that I have accomplished things in my life*” (mean = 74.5 and 67.8 respectively) ; “*I can usually find something to laugh about*” (mean = 76.8 and 72.0 respectively); “*I have enough energy to do what I have to do*” (mean = 70.8 and 60.8 respectively); “*I can deal with whatever comes in the future*” (mean = 71.8 and 60.7 respectively); “*I actively look for ways to replace the losses I encounter in life*” (mean = 63.5 and 56.6 respectively); and “*I am regarded as a very energetic person*” (mean = 63.5 and 57.6 respectively).

Discussion

Despite the small sample size, the results of this study suggest that an expedition may have a positive effect on the levels of self-reported resilience. This appears particularly true for some of the resilience characteristics suggested by Wagnild and Young (1993), such as self-reliance, equanimity, and perseverance. These findings are congruent with earlier works done in the area of resilience and experientially-based programs (see Neill & Dias, 2001; Skehill, 2001). Given the very nature of the EE/AE expedition experience as one of high psychological and physical demands being placed on the individual, it seems reasonable to expect that these and similar types of resilience impacts could be anticipated and even programmed for within the EE/AE context.

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Healthy Camps: Initial Lessons On Illnesses and Injuries From A Longitudinal Study

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Over 11 million children attend more than 12,000 summer camps each year. The challenges to keeping children and the staff healthy and safe can be daunting for administrators who are continually faced with situations where that protection is demanded. The majority of previously published research related to summer camp health issues focused on outbreak investigations or investigations of the specific needs of ill children attending specialty camps such as asthma camp, burn camp, cancer camp, and diabetes camp. To better understand the types of illnesses and injuries common to the camp environment, the American Camp Association (ACA) has undertaken a five year study—funded by the Markel Insurance Company—to document these occurrences. The purpose of this study is to monitor illness and injury rates among campers and staff at U.S. summer camps and identify risk and protective factors associated with such adverse events. The research questions addressed in this presentation are: 1) What were the benchmarks for accident and illness rates for campers and staff at summer camp in Year 1? 2) Were any differences based on camp demographics?

Methods

All US summer camps were eligible to participate in the Healthy Camp Study. Information about the study was distributed throughout the camping community through formal and/or informal presentations at camp conferences, newsletter articles, targeted mailings to non-ACA camps, postings on the ACA website, and word of mouth. Summer camps expressing interest in participation were asked to complete a camp demographics survey and designate a reporter, preferably one with health-care experience. In return for participating, enrolled camps received a summary report along with an individualized report that they can use to compare patterns of adverse events at their camp to patterns occurring nationally. Each reporter was asked to complete 10 weekly exposure reports during summer 2006. Reports collected exposure information (number of camper and staff camp-days) and the number of adverse events sustained by campers and staff that met the study definition. Additionally, for each adverse event reported, reporters completed an illness or injury report form that detailed information about the affected individual (age, gender, location/housing, etc.), the illness (signs, symptoms, severity, etc.) or the injury (site, type, severity, etc.), and the circumstances associated with the illness or injury (date and time of onset, involvement of vectors, use of protective equipment, etc.). Data were collected through the Camp RIO™ (Reporting Information Online) and analyzed with descriptive and inferential statistics for this initial year.

Results

Of the 186 US camps enrolled in the study, 140 of them provided data from the summer of 2006. Thirty-seven percent of the camps were day camps and 64% were resident camps. Overall accident and illness rates were low with an average of .75 adverse event rates (illnesses and injuries/1000 exposures) in day camps and 1.49 for resident camps. These rates can be compared to other youth activities such as boys' football (4.36), boys' soccer (2.43), girls' soccer (2.36),

and girls' volleyball (1.64). When analyzed by type of camp (day/resident) and participant (campers/staff), we found statistical differences (see Table 1). The analysis showed that campers and staff were more likely to be ill at camp than to be injured. Day camps reported the highest percentage of illnesses and injuries occurring during scheduled activities. During free time injuries were more likely to occur than illnesses. Injuries at resident camps were more likely to occur during scheduled activities when compared with occurrences during free time or evening programs. Illnesses were more likely to be reported during free time followed by overnight and camp activities. Injuries were most likely to occur on the second day of camp for both day and resident campers. Staff were more likely to report injuries at the end of the week. Other results included:

- Communicable diseases accounted for 32 percent of day camp illnesses among campers (33 percent of illnesses among day camp staff) and 40 percent of resident camp illness among campers (51 percent for staff).
- Head injuries explained 41 percent of the injuries to day campers and 21 percent of injuries to resident campers.
- In day camps, for events in which wearing protective equipment was applicable, it was not being worn in 56 percent of reported situations.
- In resident camps, failure to wear protective equipment was reported in 29 percent of incidents.
- Trips and falls were the most common causes of injury in all groups: campers and staff, day and resident.

Discussion

One of the goals for this study is to use the data to make the camp experience healthier and safer. The good news is that camp is a very safe activity when compared to other activities in which children participate. For example, the risk of a child missing a day of their sport due to an injury in a practice or game was more than five times higher than the risk of a child or staff member missing four hours of camp participation (CDC, 2005-2006). However, much can be learned from the data that will improve practices and behaviors at camp. For example:

- Nearly 25% of the adverse events happened in unsupervised time while almost half of the injuries happened in supervised and scheduled activities. An analysis of when and where incidents occurred in camp could be helpful to a camp as they implement new ways of addressing these concerns.
- Since a significant number of injuries for both campers and staff were related to a trip/fall, a camp may want to review its guidelines regarding footwear (close-toes shoes are always safest) and watch for injury patterns related to physical activities and where they are done.
- Head injuries can often be prevented by following some tips such as using well-fitting and activity-specific helmets, have at least 12 inches of safety materials around play equipment, use bunk bed rails, and use equipment appropriate for the age and developmental level of the person.
- Illness management in our camp communities needs to center on maintaining resilience (rest, hydration, nutrition, etc.) and implementing practices that minimize illnesses (appropriate hand washing and/or use of hand sanitizers, etc.)

The most powerful benefit of the Healthy Camps study will be the ability to track illness and injury trends over time. Not only will the individual camps who participate in this study learn

valuable information to help them make their camps safer and healthier, but the trends data will provide opportunities to develop “best practices” for all camps to consider as we continue to offer quality programs built on solid information.

Table 1. Adverse Event Rates By Type of Camp and Participant

	Adverse event rate per 1,000 camp-days		
	All adverse events	Illness	Injury
Overall	1.25	0.82	0.43
Camper	1.24	0.81	0.43
Staff	1.20	0.82	0.38
Day Camps	0.75	0.48	0.27
Camper	0.69	0.46	0.23
Staff	0.83	0.51	0.32
Resident Camps	1.49	0.98	0.50
Camper	1.54	1.00	0.54
Staff	1.33	0.93	0.40

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A Means-End Investigation of Outcomes Associated with Outward Bound and NOLS Programs

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Introduction

This study compares outcomes associated with participation in Outward Bound (OB) and National Outdoor Leadership Schools (NOLS) courses. Common perception is that these two large outdoor organizations vary in the type of programs offered and the outcomes participants obtain. The study was conducted in the summer of 2006 and used means-end theory to analyze the 510 subjects' responses.

Background of the Study

Means-end theory, developed by Gutman (1982), has justifiable application to outdoor recreation such as understanding the outcomes associated with ropes course programming (Goldenberg, Klenosky, O'Leary, & Templin, 2000; Haras, Bunting, & Witt, 2006) and examining the components of an outdoor experience (Goldenberg, McAvoy, & Klenosky, 2005; McAvoy, Holman, Goldenberg, & Klenosky, 2006). These studies have demonstrated the potential of means-end theory in examining the outcomes associated with participation in recreation experiences.

Both OB and NOLS have a long tradition in the outdoor education field. OB currently operates outdoor programs for participants of all ages at a multitude of sites in the US and internationally varying in course length from one day to an entire semester (Outward Bound USA, n.d.). This study focused on participants of courses 14 days or longer, ages 14 and over at OB program sites in Colorado. NOLS currently operates 11 schools worldwide and is considered by many to be the world leader in outdoor education (NOLS, n.d.). Courses vary in length from 1 week to an entire semester. This study focused on NOLS participants of courses lasting 14 days or longer based out of the Lander, Wyoming headquarters.

Methodology

Means-end theory links the physical objects or services, the means, with the outcomes and the personal values of the individual, the ends (Klenosky et al, 1998). The theory focuses on the interrelationship among attributes, consequences, and values, as three levels of abstraction. The attributes are the physical objects, or experiences of the individual. Consequences are the direct result of attributes whether positive or negative. The values are the desired end state in the participants' minds.

Subjects were selected using a convenience sampling method using a semi-structured interview. Subjects were asked to identify what components of the course were most meaningful to them. For each component, the subjects were first asked "why is (component #1) important to you." The researcher then asks the subject, "why is (answer #1) important to you," and then

“why is (answer #2) important to you,” until the subject could no longer associate any more reasons with the current outcome being discussed.

Once collected, the laddering data were analyzed using three step method. Ladders were coded and entered into a data processing computer program known as LadderMap (Gengler & Reynolds, 1995) by the researchers. While entering the ladders, content codes were developed to categorize the responses by keywords and recurring phrases. The content codes were tested by another researcher to determine intercoder reliability. The second step in data analysis was the development of an implication matrix; a tool that helps identify the number of times concepts are linked in the participants’ ladders. The final step in the data analysis was the development of hierarchical value maps (HVMs). HVMs are a visual representation of the themes emerging from the data in the implication matrix.

Results

Data were collected from 162 OB students and 348 NOLS students. Despite subtle differences in program structures, participants from both organizations cited many of the same program attributes as their most meaningful experiences. The most frequently mentioned attributes were group (n=225), expeditioning (n=173), and climbing (n=172). Group as an attribute was the most frequently mentioned course component for both organizations and very often led to one or multiple consequences.

The most frequently mentioned consequences were interactions (n=351), skill development (n=329), awareness (n=289), new experience (n=274), and new perspective (n=228). Some differences were noted between the two organizations. For example, NOLS students frequently mentioned the consequence of independence (n=58) being derived from the attribute new experience. Independence was not mentioned by OB students and they strongly associated new experience with skill development.

Values obtained also varied by organization. Top OB values included warm relationships with others (n=36), self confidence (n=45), sense of accomplishment (n=74), and life improvement (n=57). NOLS values included warm relationships with others (n=63), self confidence (n=112), sense of accomplishment (n=108), life improvement (n=115), and fun and enjoyment of life (n=42).

Discussion

Data from this study suggest that the most significant components of an outdoor education experience are related to the group experience rather than the actual activities of the course. Strenuous activities also had a strong link to group interactions and bonding through shared challenges faced by the group, leading the researcher to conclude that the most important aspect of programming is fostering the group experience through group challenges. The type of challenge seemed to make little difference in the consequences and values obtained as long as the group faced the challenge together. The only attribute to produce significantly different results was individual activities which often led to new perspectives and ultimately warm relationships with others as a result of their new-found appreciation. This suggests to programmers that another important component of a course seeking personal development is individual activities such as solo.

Data also suggest that OB and NOLS participants vary slightly in the means-end chains (attributes, consequences, and values) they produce but the consequences and values achieved are nearly identical. This suggests that subtle variances in program structure only determine how

participants go about achieving the outcomes but the outcomes themselves are somewhat standardized for wilderness participation in a group setting. The data does not support the commonly perceived idea that NOLS instills more technical skills while OB instills more interpersonal skills.

The data and specific HVMs can be used by programmers of future courses to determine exactly what components led to specific consequences and values. This may assist programmers and leaders in the field to adapt programming to the specific needs of the group and achieve specific outcomes. Examining the consequences in the means-end chain could reveal further information, for example student led small group expeditions had strong linkages to self confidence and warm relationships with others but only if the participant experienced the consequence of getting lost.

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Why Individuals Hike the Appalachian Trail: A Qualitative Approach to Benefits

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Introduction

The Appalachian Trail (AT) is a 2,174 mile long National Scenic Trail extending from Maine to Georgia. Since its inception in the early 1920's, the AT has been used by individuals, families, schools and other organizations, just to name a few. Approximately 3 to 4 million visitors hike a portion of the AT each year (ATC, 2006). Throughout its 80-year history and millions of hikers, much of the empirical research on the AT has focused on place attachment (Kyle, Graefe, & Manning, 2004; Kyle, Graefe, Manning, & Bacon, 2003). In 2005, Nisbett and Hinton explored motivations for AT hikers with disabilities. However, little research could be found on understanding motives among other AT users. In addition, researchers have indicated need to further examine "types" of hikers (i.e., day, weekender, section, and thru) of the AT (Kyle et al., 2004). To better understand the AT hiker, the means-end theoretical framework was used.

Means-end analysis seeks to develop an understanding of how participants feel about a particular product or service. The theory focuses on the interrelationship among product meaning at three levels of abstraction (Goldenberg et al., 2000): attributes, consequences, and values. For an outdoor adventure experience, key "product" attributes would include the length of the experience, location, activities done while in the backcountry setting, and the number and nature of individuals in the group. The positive consequences, or benefits, for participants completing a wilderness based experience may include: companionship and camaraderie, acquisition of skills needed to function in outdoor settings, or increased environmental awareness. Values for participation in an outdoor adventure experience include self-esteem, warm relationships with others, self-fulfillment, and fun and enjoyment of life.

Methods

The process of means-end data collection is a qualitative approach termed laddering (Reynolds & Gutman, 1988). This questioning technique was completed through phone and face to face interviews that lasted approximately 10 minutes for each interviewee. The interviews were conducted with four levels of AT hikers: Day Hikers, Weekend,ers, Multi-day users, and Thru-hikers (i.e., hikers attempting to complete the entire 2,174 mile trail).

For this study, researchers asked a series of open-ended questions that first had participants identify the concrete attributes of hiking Appalachian Trail (AT). In other words, what they feel was received from hiking the AT. The participant was then asked why a particular outcome was important. More often than not, the participant gave a more abstract consequence. At that point, "why is that important?" was asked again. This process of asking "why is that important?" continued for each response given until the respondent no longer provided a meaningful answer (e.g., the response is "I don't know," or "it just is..."). The procedure is called 'laddering' because it forced the participant up the "ladder of abstraction," bridging relatively concrete concepts at the outcome or benefit level to more abstract concepts at the value

level (Klenosky et al., 1993). From the relationships identified in the implication matrix, a hierarchical value map (HVM) was created. The HVM provides a graphical summary of the linkages that emerged across participants' ladders.

Results

A total of 43 data sets were collected. Descriptive statistics were run to determine demographics of the sample. The sample consisted of 16% thru-hikers, 12% section hikers, 41% weekenders, 27% day hikers, and 4% who classified themselves in multiple areas as "type of hiker." Thus, the largest single group of the study was weekenders (41%). Females represented the majority of this sample (65%). The study was 98% Caucasian, with only one African-American participant. The occupations held were diverse; however, the largest single group was retired individuals (23%).

The non-demographic data were analyzed through Ladder Map. Ladder Map is a MS DOS program that creates Hierarchical Value Maps based on input. Various attributes that emerged from the data included: being outdoors, hiking, the trail, camping, and survival. Consequences that emerged included environmental awareness, physical challenge, camaraderie, exercise, and solitude. Self-fulfillment, self-reliance, fun and enjoyment of life, and warm relationships with others are some of the values that emerged. Specifically, strong links exist between hiking and exercise, exercise and health, and health and fun and enjoyment of life. Fun and enjoyment of life is the biggest value and has many correlations. Generally people hike the AT for fun and enjoyment of life and for warm relationships with others.

Discussion

As society is concerned with obesity and diabetes, thwarted by sedentary lifestyles, this type of physical activity can be more beneficial than may be realized by potential users. This data supports hiking as an activity for a healthy lifestyle. Physical activity, such as day hiking is not only physically healthy, but psychologically beneficial as well. As the results indicate, self-fulfillment, self-reliance, fun and enjoyment of life, and warm relationships are several of the emerging values. These positive attributes parallel much of the recreation benefits movement. Most would argue that these are highly valuable and would benefit many that have not yet experienced hiking on one of our amazing natural resources, the AT.

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Investigating Sense of Community in First Year College Students

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Background

Why do students leave college and how can colleges get them to stay? Researchers and administrators have been asking these questions for decades and have discovered that student persistence is a complex phenomenon. First year student departure from post secondary institutions is a concern for most colleges and universities. U.S. colleges and universities experience an average departure rate for first year students of 25% (Braxton, 2000). University administrators have responded to this problem, developing a variety of first year success programs designed to increase student retention. Despite the creation and implementation of orientation programs, freshmen introductory courses, support groups, and other retention methods, student departure remains an important issue among college administrators and researchers.

Colleges and universities are being held accountable for retention and graduation rates. Policy makers in several states are using retention and graduation rates as indicators of performance for higher education institutions. According to a study by the State Higher Education Executive Officers (SHEEO), 32 states use graduation or retention rates as one of several indicators of performance for higher education institutions. Policy makers at the federal level are considering policy options associated with the reauthorization of the Higher Education Act that includes linking institutional eligibility for federal student financial aid programs to institutional graduation rates.

Vincent Tinto (1975) has developed the most widely accepted model of student persistence called the Student Integration and Model. The Student Integration Model has been subject to rigorous empirical testing, as evidenced by over 400 citations and over 170 dissertations (Braxton, 2000). This model has been shown to be a valid and useful predictor of student persistence. However, one integral component of the model, social integration, has remained unexplained in terms of its constitution and its sources and influences (Braxton, Sullivan & Johnson, 1997). In response, a recent focus of student persistence research has been to identify the sources and factors that influence social integration. Student persistence researchers have adapted concepts from other disciplines, including the field of community psychology to identify possible sources and influences of social integration. The construct of Sense of Community has been adapted to student persistence research and has been identified as a source of social integration (Berger, 1997).

The purpose of this study was to determine what influence first year college students' sense of community had on their intent to return. In addition, this study examined what influence various first year college student characteristics had on both their sense of community and their intent to return. This study was meant to be exploratory in terms of identifying possible influences of sense of community with the intent of exploring significant influences in more depth in future research.

Methods

This study utilized an adapted version of the Sense of Community Index (SCI). The SCI has been established as a valid measure of sense of community, and has proven useful in student persistence research. The instrument included various student characteristic variables identified as potentially significant to this study during the review of literature. The population for this study included approximately 4,000 first year students at a predominately undergraduate university in the western United States. The sample included 305 participants, from General Education courses including 12 sections of an English composition course and 7 sections of speech communication class.

The data were analyzed using the general linear model of multiple linear regression in Minitab 14. Factor analysis was used to determine the sense of community subscales and their congruence with the subscales developed by Berger (1997). To determine what influence each student characteristic had on overall sense of community and each subscale (identity, solidarity, and interaction), the general linear model was used. All betas were calculated at a 95% confidence level. To determine the influence of sense of community on student intent to return, the general linear model was used to calculate betas at a 95% confidence level.

Results

Although the context was quite different, the results of this study were comparable with Berger's 1997 results. Findings for both studies indicated that sense of community had a significant positive influence on intent to return. Sense of community was shown to be a positive predictor of student persistence in two diverse settings, indicating that sense of community is an important factor in student persistence research.

This study identified several subgroups which influence sense of community of the overall campus community. Consistent with previous research, Greek membership, residence, and ethnicity were shown to influence sense of community and intent to return (Beil & Shope, 1990). This research has also shown that employment status and desire to change major may significantly influence sense of community. Additionally, this research has provided further support for residence, ethnicity, Greek membership, campus club membership, and employment as significant influences of persistence.

Implications for Experiential Education

Experiential education, both as a methodology and philosophy, is well suited to potentially have a positive influence on a learner's sense of community. As universities seek to implement programs to help with first year student persistence, this study will direct universities to consider programs that have the ability to foster and promote a sense of community among first year students. Programs familiar to experiential educations, such as wilderness and outdoor orientation programs and challenge course programs, will be well positioned to help universities in fostering a sense of community and improving student persistence.

In addition, the findings from this study indicate a need for future studies that will be able to identify additional factors that can positively influence sense of community. While this study identified Greek membership, residence status, ethnicity, and employment status as factors that influence sense of community, additional variable should be considered. The method and type of

instruction, educational setting, and intentional utilization of experiential education can be examined to determine their influence and impact on sense of community. It is unlikely that the desire of universities to retain students will decrease. If experiential education methods and programs can assist universities with their retention efforts, this may help bring positive recognition and regard to experiential education. The learner's active engagement, which is part of the experiential learning process, as well as the relationships developed and nurtured through experiential education are likely to positively and significantly influence a learner's sense of community.

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Difficulties Affecting Field Instructors in Wilderness Therapy

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Study Background

While the problem of burnout for camp counselors has been commonly studied (Voekl, Austin, & Szymanski, 1985; Magnuson, 1992), the outdoor education industry has mostly relied on anecdotal stories and opinions to bring attention to the problems of stress, burnout and personal difficulties associated with outdoor professions. More specific to the area of wilderness therapy, Bunce (1998) published an extensive and alarming list of difficulties experienced by field instructors and therapists alike. In support of her study, social workers and therapists alike have been under scrutiny for years regarding possible consequences of their work, including countertransference, burnout and vicarious trauma (Maslach, 1976; McCann & Pearlman, 1990; Hesse, 2002; Lloyd, King & Chenoweth, 2002). These difficulties may be partially responsible for high turnover rates and burnout observed in outdoor education professions (Dawson, 1979; Thompson, 1984; Birmingham, 1989; Barnes, 2001).

This study aimed at creating the ground work to determine what difficulties affect field instructors in wilderness therapy and construct possible solutions to alleviate these difficulties. Emphasis was also given on establishing demographics for this group of professionals.

Methodology

In 2005, $N=200$ instructors were surveyed from three different private wilderness therapy program. $N=125$ completed the *Field Instructor Survey* for a return rate of 63%. All instructors had an ongoing schedule of eight days on with six days off and primarily worked with non-violent and non-adjudicated teenagers between the ages of 13 and 17 years old.

The Field Instructor Survey was developed to analyze and quantify difficulties. Bunce's results from the 1997 workshop served as guidelines to create statements that would represent the best possible difficulties for instructors in current wilderness therapy setting. A total of 48 items were created and the data was classified into three distinct categories: a) difficulties experienced inside work setting, b) difficulties experienced outside work setting and c) benefits. In total, the survey identified and collected 74 possible categories including demographics.

Demographics were first analyzed separately and then compared to the three distinct categories of difficulties. Gender, length of time at work and age of instructors were analyzed to test for differences between instructors' work related difficulties. Using the 48 items, a factor analysis was performed to extract significant variables. Three specific constructs related to difficulties were identified using explanatory factor analysis of varimax. Demographics (gender, education, marital status, pet ownership and degree title) were used as grouping variables to explore differences between instructors across the factors using analysis of variance.

Results

Overall, this study showed that field instructors were more affected by difficulties outside the work setting than difficulties inside the work setting, particularly regarding relationships with friends, partners and family. These findings support Gass (1993) idea that a study focusing on personal relationships may well be alarming. Instructors were generally young (80% < 30 years old), single (48%) and composed of males (56%) and females (44%). Almost

half of the instructors (45%) had been working in the field for less than five months. Older instructors had significantly longer job tenure than younger ones.

Three main factors were found to contribute to the levels of difficulty: a) time and schedule constraints, b) difficulties related to anxiety and c) difficulties linked to physical or emotional challenges. An analysis of variance showed that instructors who were married or in a relationship were particularly affected by difficulties linked to time and schedule constraints. Instructors who owned a dog and brought their dog in the field during their work rotation were less affected by time and schedule constraints. Education and degree title did not show any significance within these factors.

Discussion

The results of this study may not be applicable to all areas of field instructing, but may lead to a better understanding of wilderness therapy professionals and related professions, as well as create new directions for future studies on this subject. The idea of better understanding the profession is supported by previous findings, and validates Bunce's (1998) lists of difficulties of working in wilderness therapy. Statements created for this survey are based on Bunce's workshop participants as well as individual anecdotes from field instructors, and may not represent all possible difficulties encountered by the current field instructors. A specific qualitative study directed specifically towards field instructors could bring more depth and validity to future surveys about difficulties of the profession.

This study does confirm that this work can be very stressful, and that there are strong concerns that instructors are struggling in their personal relationships with family, friends and partners, possibly leading to premature departure. Connections were found between difficulties and a) factors of time and schedule constraints, b) anxiety, and c) physical or emotional challenges. More research needs to be done to understand if these statements are related to turnover of instructors and which difficulties may have more influence on instructor's departure from field instruction. Furthermore, the average young age of instructors and the high turnover rate may amplify difficulties for instructors and programs alike. Most importantly, a reduction in the quality of care to students is possible due to this high turnover rate. Students who have created bonds with their field instructors may have a harder time focusing on their therapeutic plan when the working alliance is regularly distracted. Given that the relationships that adolescent clients establish with these instructors play critical roles in therapeutic outcome (Russell, & Phillips-Miller, 2002), further studies examining wilderness therapy field instructors' difficulties seems necessary. Future studies could finally put an end to years of speculations of specific difficulties of instructing in wilderness therapy.

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Backcountry Adventure as Spiritual Development: A Means-End Study

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Introduction

What do people mean when they describe backcountry adventure experiences as being “spiritual”? A growing body of research, from Mitchell’s (1983) exploration of the mountain experience to the more recent study of transcendence in forest environments by Williams and Harvey (2001), has recognized a connection between adventure, setting, and spirituality. In the body of studies, the various factors influencing “spiritual” experiences include the influence of the natural setting, type of experience, and the impact of the degree of socialization (Kaplan & Kaplan, 1989; Stringer & McAvoy, 1992; Fredrickson & Anderson, 1999). Other authors have examined aspects of experience that are not termed “spiritual”; yet reflect the characteristics of spiritual development. These concepts of self-actualization (Young & Crandall, 1984), self-transcendence (Beck, 1987; Williams & Harvey, 2001) or flow (Mitchell, 1983) experiences have been examined in the adventure context. However, this body of research has left the definition of the term “spiritual” to the individual participants, and has not yet developed a broadly accepted definition of the term “spiritual” that can be used in research, nor has the prior research explored the meaning that participants ascribe when describing an experience as “spiritual”. North American leisure scholars (Cordell, 1995; Coalter, 1999; Driver, 1999; Hemingway, 1999) have called for an increased study of participant leisure experiences as a way to better understand the social and contextual meaning of leisure and leisure satisfaction.

Methods

Interviews were conducted in the region of Teton Pass, Wyoming, between December 17, 2006 and January 08, 2007. Sixty-three backcountry skiers, telemarkers and snow boarders participated, 42 (66%) were men and 21 (33%) were women. The age span was between 18 and 65, with 35 (53%) of subjects falling in the 26 to 35 year old range. Means-end laddering interviews were grounded in the initial questions, “Have you ever had a backcountry experience that you considered to be “spiritual”? Would you tell me about it?” Responses were probed with the question, “Why is that (attribute, consequence, or value most recently mentioned by the participant) important to you?”

Means-end theory (Gutman, 1982) was developed as a way to understand cognitive processes in relation to decision-making and engagement in experiences. Means-end theory provides the basis for understanding the cognitive connection between specific situational knowledge (i.e. attributes and consequences), and self-knowledge (i.e. consequences and values) (Gutman, 1982). The method used to explore this relationship between attributes, consequences, and values is based on laddering interviews (Reynolds & Gutman, 1988). The repetitive query approach of laddering serves to guide the subject through a chain of reasoning from the attribute to the consequence and then to a valuation of the consequence (Klenosky, Gengler, Mulvey & 1993). The theory and associated methods have been successfully applied in adventure research (Goldenberg, et. al., 2000; Goldenberg, McAvoy & Klenosky, 2005; Haras, Bunting & Witt, 2006).

The laddering data generated from the interviews was content analyzed to insure the integrity of the categorization process that is inherent in means-end analysis. A second coder

critiqued the initial coding; disagreements on content category placement were resolved through negotiation. A third coder critiqued these results and any disagreement will be resolved through negotiation by the initial and second coders (Gutman, 1982; Reynolds & Gutman, 1988). Interrater reliability was calculated at 99.22%. The LadderMap (Peffer & Gengler, 2003) software package was used to convert the finalized content categories into an implication matrix from which hierarchical value maps (HVM) were generated. A HVM graphically displays the prominent attributes, consequences, and values of the experience, as well as the strength of the relationships between each of these elements.

Results

First, informant statements were coded during content analysis. A total of 23 content categories were generated: six attributes, nine consequences and eight values. These concepts compose the spiritual experience of backcountry adventures expressed in the data.

For stage two, implication matrices were generated for the frequency of association between the attribute, consequence, and value (ACV) concepts represented in each hierarchical value map. An analysis of informant subgroups was conducted based on gender, age, years of backcountry experience, type of activity leading to spiritual experience, and level of skill associated with that activity. A total of 18 hierarchical value maps (HVM) were generated for analysis, two for the overall data and one for each of the 16 subgroups. These HVM were interpreted visually and numerically based on frequency and strength of ACV associations.

The study identified values reflecting spiritual development as a transcendent experience (63%), increased awareness (46%), and a sense of fulfillment (29%). The major benefits were focus (38%), reflection (30%), tranquility (32%) and an appreciation of beauty (32%). The primary attributes were the nature of the backcountry setting (95%) and the adventure (35%). The attribute of a social interaction (29%) was identified as important for the consequence (i.e. benefit) of sharing an experience (27%) and the resulting value of an enhanced sense of connection (43%). Mental and physical exercise (35%), resulting in the benefits of enhanced sense of wellbeing (22%), were also recognized as contributing to the spiritual meaning. The backcountry provided the benefit of enjoyment (25%). Other values and associations related to spiritual meaning were identified; those relevant to experiential education are discussed below.

These findings can be used to further extend research in this arena, to extend means-end theory; to guide practice and policy for resource managers as well as educational and adventure programs, to enhance individual spiritual development, and to develop marketing strategies for programs or resource areas.

Discussion

The first contribution of the study is the understanding of what is meant when a backcountry experience is described as “spiritual”. In essence, to the informants, “spiritual” means a transcendent experience in which one is connected to others, nature, and something greater. That something was described as God, god, mother nature, the universe and something greater. In addition to connection beyond the self, a heightened sense of clarity and self-awareness was recognized. Senses of rejuvenation and fulfillment were reported. Half of the informants reported that spiritual experiences of varying degrees occurred for them in all of their backcountry activities, including climbing, hiking, alpine and telemark skiing and snowboarding, paddling, mountain biking and hunting.

The second contribution of the research is more directly related to educational programs:

the role of the attributes of the experience in attaining values that are represented in meaning of “spiritual” as it is used to describe a backcountry experience. For educational programs this clarifies the potential spiritual values that can be experienced as a result of the development of the personal attributes of technical skill development (25%) and a positive attitude toward physical and mental exercise (35%), as well as the social aspects (30%) and interpersonal skills and personal confidences desirable in embarking on an adventure. Additionally, the findings reinforce the teaching of an appreciation for nature and the backcountry setting, as well as the opportunity for experiencing solitude (28%).

In future research, replication of this study in different regions is called for in order to determine if there are differences in meaning across backcountry adventurers based on local cultures. Additionally, a research method that captured more of the richness of the experiences would serve to better convey the nuances and power of the generalizations described herein. The number of people who say that an experience was spiritual can be tallied, and the length of time for which they were engaged in order to achieve meaning can be measured. Also, of interest is the question of personality type and the draw to backcountry adventure for spiritual reasons. Perhaps when it comes to spiritual experiences, at the level of the individual, we are better off studying meaning so that outdoor educators, leaders, and resource managers can better facilitate access to the attributes of the experiences that allow such meanings to be achieved.

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Cultivating Environmental Virtue among 7th & 8th Graders in an Expeditionary Learning Outward Bound School

Bruce Martin, Alan Bright, Phil Cafaro, Robin Mittelstaedt, & Brett Bruyere

The goal of this study was to assess the cultivation of environmental virtue in 7th and 8th grade students in an Expeditionary Learning Outward Bound school. Expeditionary Learning Outward Bound (ELOB) is based on ten design principles, one of which focuses specifically on helping students to develop a harmonious relationship with the natural world. This principle is characterized as follows: “A direct and respectful relationship with the natural world refreshes the human spirit and reveals the important lessons of recurring cycles and cause and effect. Students learn to become stewards of the earth and of the generations to come” (Cousins, 1998, p. 50). The aim of this study was to explore the extent to which the school fulfills the goal of this design principle. Holding true to Outward Bound’s traditional focus on character development (Hahn, 1965; Hogan, 1968; Hunt, 1990; James, 1995, 1990; Miner & Boldt, 2002; Wilson, 1981), this study addresses this question in terms of the development of environmental virtue (Sandler & Cafaro, 2005; Wensveen, 2000).

It is generally believed that Expeditionary Learning Outward Bound schools are predisposed to achieve the goals of environmental education as a result of their unique approach to education. However, there is little empirical evidence to support this belief. This study is concerned with the validity of this assumption. Is the assumption true? To test this assumption, this study proposes the following hypotheses:

H₁: The mean environmental virtue scores of students (treatment group) in the Expeditionary Learning Outward Bound school will increase significantly after participation in the school’s curriculum.

H₂: There will be no significant improvement in the mean environmental virtue scores of students (control group) in a neighboring school that adheres to a traditional educational approach.

Methods

This study was conducted at an Expeditionary Learning school located in a city along Colorado’s Front Range. The school is a secondary charter school (grades 7-12). The study focused on a 7th & 8th grade learning unit entitled “From Watershed to Water Faucets.” The unit explored a watershed that serves as a primary residential water source for the city where the school is located, addressing the value of the watershed as a resource to the community and the surrounding region. The learning unit lasted approximately ten weeks, beginning in late October 2005 and ending in mid-January 2006. Primary participants in the study included a convenience sample of approximately 45 members (n = 45) of the 7th & 8th grades at the expeditionary learning school.

The study relied on quantitative research methods in its collection and analysis of data. The study’s instrument was intended to assess the extent to which students develop certain environmental virtues over the course of a particular learning unit. The instrument used in this study is called the Children’s Environmental Virtue Scale (CEVS). CEVS is a 30 item scale consisting of 30 comprised of 30 statements designed to measure environmental virtue in

children along the five primary virtue domains discussed earlier: *courage* and *cowardice*, *temperance* and *gluttony*, *acceptance* and *greed*, *compassion* and *apathy*, and *humility* and *arrogance*. Students responded to statements using a 5-point Likert-type scale, ranging from 1 = “very false” to 5 = “very true.”

The survey instrument was administered as a pretest to a convenience sample of 7th and 8th grade students (treatment group) at the Expeditionary learning school at the beginning of the Watershed to Water Faucets learning unit in October 2005. It was administered again as a posttest at the end of the learning unit in January 2006. 63 students completed the pretest. 59 students completed the posttest. The survey was also administered as a pretest to a convenience sample of 76 8th grade students (control group) at another school at the beginning of the Spring semester 2006 and again as a posttest at the end of Spring semester 2006. 76 students completed the pretest. 74 students completed the posttest.

Two basic analyses of the data were conducted: (1) a reliability analysis and (2) paired samples T-tests to compare the pretest and posttest scores of the matched samples. The internal consistency of the CEVS was determined using Cronbach’s alpha reliability coefficients. Both of the analyses were conducted using SPSS 14.0 for Windows.

Results

The results do not support the hypothesis that the mean environmental virtue scores of the study’s participants would increase after participation in the Expeditionary learning school’s curriculum; however, the results do support the hypothesis that there would be no significant difference in the environmental virtue scores of the control group.

Discussion

There are a number of possible explanations for the study’s failure to support the first hypothesis. First, it is possible that participants gave a more accurate self-assessment in the posttest than in the pre-test. Possible explanation for this is that participants may have had an inflated opinion of self prior to the learning unit while the learning unit compelled them to engage in self-reflection. Second, the instrument’s items may have lacked the level of specificity needed to capture what occurred in the program. Third, the development of virtue is something that occurs over time through a gradual process of development and habituation (Steutel and Spiecker, 2004). This study attempted to assess the development of virtue over a 10-week period of time. To truly gauge the development of virtue in individuals, a longitudinal study is needed. This presents new challenges to the researcher. Fourth, another possible explanation relates to developmental considerations. Despite the fact the instrument was pilot-tested to ensure that it was an age-appropriate instrument, it still may have contained concepts that were beyond the reach of the study’s participants. Finally, another possible explanation includes the inattention of survey participants to the task at hand. It is possible that students did not treat the survey seriously due to other needs/demands, such as hunger, hormones, and greater interest in spitball fighting than in taking a survey.

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Are Dewey's Ideas Alive and Well in New Zealand Undergraduate Education? Kiwi Case Studies of Inquiry-Based Learning

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The isolation of thinking from confrontation with facts encourages that kind of observation which merely accumulates brute facts, which occupies itself laboriously with mere details, but never inquires into their meaning or consequences – a safe occupation, for it never contemplates any use to be made of the observed facts (Dewey, 1920).

For many undergraduates, Dewey's description of "brute facts" and "mere details" instead of thinking is unfortunately accurate. The encouragement to think, inquire, and consider the "use to be made of observed facts" is often reserved for graduate students. Dewey's charge to an undergraduate instructor, then, is to find an approach (in his vision, progressive or experiential) that combines thinking with facts. He characterized this challenge with a series of questions: "What is the place and meaning of subject matter and of organization within experience? How does subject matter function?" (Dewey, 1938).

Inquiry-based learning (IBL) is an approach for undergraduate education that appears to meet these suggestions by Dewey to integrate students' interests and experiences with content knowledge. The IBL approach has been described as "a range of strategies used to promote learning through students' active, and increasingly independent, investigation of questions, problems and issues, often for which there is no single answer" (Lee, 2004). Further, characteristics of IBL as: "it is student-directed, it encourages reflection on the teaching/learning process, it develops collaborative learning skills, it promotes active and deep learning" (Plowright and Walker, 2004), align with most descriptions of experiential education.

In order to identify, explore, and describe what an IBL approach looks like in undergraduate education, research was conducted during the first semester of 2007 at the University of Canterbury in Christchurch, New Zealand.

Methodology

Through a grant from the New Zealand Ministry of Education, three in-depth case studies of undergraduate classes in Communications Disorders (CMDS 381: Clinical Practice 3), Engineering (ENGR 101: Foundations of Engineering), and Sociology (SOC1 111: Exploring Society) have been developed. To do this, the Naturalistic Inquiry conceptual framework, data collection, and data processing strategies described by Lincoln and Guba (1985) was used.

This study was an opportunity to research IBL approaches within university classroom settings and followed Lincoln and Guba's criteria to conduct research in a "natural setting." The selection of the courses was based on preliminary conversations with faculty members and observations and was thus a "purposive sample." Within this natural setting and purposive sample, data was obtained from: interviews with teachers, classroom observations, course-related documents, surveys of students, and student focus groups. Data was analysed to provide insight into the relationship between participants' experiences and characteristics of IBL and served as the basis for the findings in the form of case studies.

Findings: Snapshots of the Case Studies

The full case study for each course provides a thick description of their contexts to provide a nuanced understanding of students' and teachers' experiences in relation to characteristics of IBL in the literature, such as Lee's (2004) and Plowright and Walker's (2004).

CMD5 381: "learning to be independent and creative" (student)

The instructor described her intention of using a learning contract in this field placement course so students would "look at their ability to set their own goals as to what their interest level is and also what do they see as the gaps in their knowledge base." While initially reluctant to fully embrace this invitation, students in the class introducing this concept appeared to eventually accept the idea and subsequently created the contracts with the instructor's support. Their survey responses about actions in the course leaned more toward applying, evaluating, creating, and reflecting rather than memorising, explaining, and analysing.

ENGR 101: "useful for future engineering career" (student)

The instructor emphasised that the purpose of this introductory course was not on the specifics of the discipline but in "design as problem solving and trying to produce something that will do the job you want it to do. It's really just helping students learn a more structured way of problem solving instead of trying to jump to a conclusion early on." Students appeared to fully engage with their design tasks all the way through from introduction to presentations 6 weeks later. The most telling aspect was the students' ability to confidently defend their projects through answering questions during their presentations to peers and instructors. Their survey responses about actions in the course leaned more toward applying, evaluating, creating, and reflecting rather than memorising, explaining, and analysing.

SOCI 111: "learning how to think critically about societies" (student)

The instructor viewed her course as learning how to ask questions beyond the discipline with, "the content is less relevant than the process. What is relevant is the relationship between asking sociological questions and finding out. So, how do you ask a good question in order to find something out and then how do you find something out?" It appeared that students fully engaged with this ambiguity of sociological questioning presented by the lecturers with statements such as, "thinking outside the square, not taking for granted stereotypes which society imposes." Their survey responses about actions in the course leaned more toward applying, evaluating, creating, and reflecting rather than memorising, explaining, and analysing.

Discussion: Cross-Case Themes & Implications

While the disciplines, levels, and colleges of these three courses were different, the experiences of the students and instructors in them appeared to be more similar than not. Both students and instructors reported that their actions were congruent with Dewey's admonition to go beyond just accumulating facts. In each course, the specifics of the discipline or content were almost downplayed with a broader emphasis on opportunities to struggle with open-ended

questions in a collaborative atmosphere. Are these isolated cases in the undergraduate landscape that represent few and far between, Deweyian peaks?

Perhaps. However, subsequent interactions with students in the upper levels of two of these programmes – Engineering and Sociology - suggest otherwise. In those interactions, students appeared to be at the other end of the processes begun in the 100 level courses and were now identifying themselves as engineers and sociologists. Taken with the field placements and learning contracts that students in the 300 level course of Communications Disorders were doing during this study, undergraduate education in these programmes at this university appears to be effectively using IBL teaching approaches to achieve Dewey's goal of better integrating school with society instead of setting it apart in an ivory tower.

Learning from these courses and their overarching programmes leads to a recognition that the main component they contain and foster may prove to be challenging in other undergraduate environments, and even within the same university of this study. Gone with these courses was an overt focus on discipline first, learning outcomes second. Instead, the instructors and programmes viewed their roles as facilitators for students to learn about becoming critical thinkers first, discipline specialists second. To do so, choice and real-world applicability in the classrooms appear to be critical factors in allowing students and instructors to delve into the murky waters of IBL. Indeed, Dewey would be delighted to see his philosophies in action through IBL as illustrated in these case studies from New Zealand.

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Constructing the Model of Mechanisms for Challenge Ropes Courses Benefits

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Positive benefits for intrapersonal and interpersonal brought out by outdoor adventure education had been proved in past researches since 1950s. However, the reason “why” and the process “how” these benefits brought out by outdoor adventure education remained unclear in the black box and needed further research. After literature review, the researchers found past studies focus only on single or several specific possible mechanisms for benefits and lack of theoretical discussion. Therefore, by adopting theories and concepts from multi-disciplines as well as inducting mechanisms mentioned in past researches, this study proposed a hypothesis on the structural equation model between the variables of “preparation for learning”, “processes of activities”, “characteristics of experiences” and “benefits for activities”.

In order to test the hypothesis, purposive sampling was used. Research participants were high school and undergraduate students participated in challenge ropes courses at National College of PE and Sports, Oriental Team Adventure Learning Institute, and the Methodist church in Taiwan during November 2005 to April 2006. Total 1,150 questionnaires were distributed, 963 valid questionnaires were collected. Among these 963 valid questionnaires, 196 samples were used for exploratory factor analysis(EFA) of scales, another 209 samples were used for confirmatory factor analysis(CFA) of scales and the other 558 samples were equally divided into two sets by the SPSS12.0 random procedure then used for model identification and cross validation.

After a series of analytic procedures, including: item analysis, EFA, reliability analysis and CFA, reliable and valid scales for measuring challenge ropes courses participants’ perceptions about preparation for learning, processes of activities, characteristics of experiences and benefits for activities were developed. *LISREL 8.54* was then employed in the procedure of model identification, modification and cross validation. The hypothesized model was rejected and replaced by an alternative model with good fitness. The goodness of fit statistics for this alternative model were: $\chi^2(132)$

=242.75 ; $p < .05$; GFI=0.91 ; AGFI=0.89 ; SRMR=0.04 ; RMSEA=0.05 ; NNFI=0.98 ; CFI=0.98 ; PNFI=0.82 ; CN=213 ; Normed $\chi^2=1.84$. The cross validation was then tested and the model’s stability was confirmed. According to the above-mentioned results, the model of the mechanisms for challenge ropes courses benefits was constructed. In the end, the researchers made some discussions for the results and proposed suggestions for the following research and implications for practitioners in the hope to make this study more contributive.

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