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Abstracts from the 2013 Outdoor Leadership Research Symposium

Held at the

**Wilderness Education Association
2013 Colloquium on Outdoor Education**

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Compiled by

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Welcome to the 2013 Outdoor Leadership Research Symposium

Welcome to the 2013 Outdoor Leadership Research Symposium (OLRS). This symposium is being held this year in conjunction with the Wilderness Education Association (WEA) Colloquium on Outdoor Education. OLRS is intended to provide a forum for practitioners and scholars to share recent and on-going research related to outdoor leadership. The goal of this symposium is to help promote critical scholarship as well as the development of evidence-based practice in the field of outdoor leadership. Submissions were all blind peer-reviewed and judged according to their relevance to the field of outdoor leadership as well as the basic quality of the research conducted. Whether accepted or not, all authors who submitted abstracts for review should be applauded for their efforts to help promote the development of a tradition of critical scholarship and evidence-based practice in the field of outdoor leadership.

Presenters are allowed 15 minutes to present their research. Each presentation is followed by five minutes of questions and answers. The presentations will be followed by a discussion of central themes and ideas that emerge in the presentations.

Many thanks to all who helped make this symposium a reality. Thanks go to the WEA for including this symposium as a part of its 2013 Colloquium on Outdoor Education. Thanks go to those who are here to present their research and to others who submitted abstracts. Thanks go to the folks who graciously gave their time in reviewing the abstracts that were submitted for consideration. And, thanks go to Eric Frauman and Brad Daniel for serving as discussants for the symposium this year. Finally, thanks go to those in the audience for whom this symposium is intended. We hope that you find value in the work presented here.

Bruce Martin & Brad Daniel
2013 OLRS Co-Chairs

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OLRS 2012 ABSTRACT

A Qualitative Study of the Perceived Significant Life Outcomes of a University Summer Outdoor Education Course

Jennifer Wigglesworth & Paul Heintzman

Background

There is relatively little research on the life significance of outdoor education (OE) programs and courses. One exception is Daniel's (2003) research on the life significance of a university wilderness expedition. Significant life experience (SLE) research often entails asking participants to remember and describe experiences that have contributed to future decisions about environmental protection (Chawla, 1998). Daniel (2003) and Kellert (1998) asserted that more research should explore the long-term effects of wilderness experiences through retrospective and longitudinal studies. Within OE, there is huge variety in programs; therefore, it is important to distinguish any confounding variables such as participant's prior knowledge and experience, the length of the program and instructor effectiveness (Ewert & Sibthorp, 2009). While Daniel's (2003) research examined the life significance of an outdoor wilderness expedition, few studies have explored the life significance of an OE course. Cachelin et al. (2009) used the SLE framework to study the outcomes of an OE course where the participants were 4th grade students, the course was a half day, and students recalled their experiences shortly after participation in the course. The purpose of the present study, one part of a large study on OE as a SLE, was to investigate the significant life outcomes of a university undergraduate summer OE course upon participants more than 20 years after the course, including the effect of the course upon participants' *intrapersonal*, *interpersonal* and *environmental* relationships. The study examined the life significance of the entire OE course and of its individual components.

Methods

The current study explored the impact of participation in a summer OE course offered by the University of Ottawa since the mid-1970s. For close to 25 years, the course outline, purpose, objectives, location and duration remained pretty much the same. The course was based at the university's camp located in a natural setting and it was two weeks in length. The following was the 1979-1980 calendar description for the summer OE course: "Introduction to social, organizational, technological, environmental and educational topics associated with group living, ecology and summer camping skills, conducted in an appropriate setting." Activities included hébertisme, canoeing, canoe-camping, sailing, rock climbing, orientation and a wilderness solo.

The current research built upon Daniel's (2003, 2007) study of the life-significance of a wilderness expedition. Semi-structured, in-depth interviews were held with 15 persons who had expressed interest in discussing their experience as a student in the university summer OE course. Purposive sampling was used to select people who were especially informative for the research question under study, in this case, former students who had taken the OE course over 20 years ago. Theoretical sampling determined the final sample size of 15 participants for the summer OE course because the sampling and data collection stopped once the researcher felt she

attained theoretical saturation (Henderson & Bialeschki, 1995). The sampling strategy took the following order: alumni directory; online e-mail newsletter to the Faculty of Health Sciences alumni; a founder of the program, who passed on the recruitment notice to alumni; the researcher's thesis supervisor, who had a number of contacts in the OE field; and the snowballing technique. The in-depth semi-structured interview questions employed in this research were patterned upon Daniel's (2005) six open-ended questions about life significance. The interviews, approximately 45 minutes in length, were audio-taped, and then the researcher manually transcribed and coded the data. Interpretive analysis was employed in which the transcripts were analyzed *inductively* to seek patterns and themes based on the data (Patton, 1990). Further, the researcher used the constant comparative method (Corbin & Strauss, 1990). To ensure that the interpretation of data was valid, the researcher's supervisor reviewed the transcripts and themes, while transcripts were sent to the participants for review.

Results

The majority of participants took the summer OE course at the ages of 21 and 22; however, one took the course at 25 years of age. Participants' current ages ranged from mid-forties to mid-sixties. At the time participants had taken the university OE course, eight were in the Physical Education program, two were in the Recreation program, and five were in the Kinanthropology program. A majority of respondents stated that they had not participated in an OE program before taking the university OE course; however, there were a few who stated they had extensive outdoor experiences prior to the course. Participants' motivations for enrolling in the OE course included an interest in the outdoors; an experience of fun; time to spend with friends; knowledge of outdoor techniques and survival; and to earn "quick and easy credits."

The following six themes emerged from the qualitative data with respect to significant life impacts from the summer OE course: development of interpersonal/social skills; self-discovery; environmental impacts; leisure style change; transfer to others; and advancement of outdoor knowledge/skills. A majority of participants explained that the OE course influenced their development of social skills, with specific mention of strong interpersonal bonds and the use of these social skills within a work environment. With respect to the impact of self-discovery, participants not only observed how the course enabled them to learn about themselves but also noted how this personal growth was carried forward to later events in life. Participants also commented on how the course brought about a positive change in environmental behaviours and/or an appreciation for the environment, nature and the outdoors. The prevalent theme of leisure style change pertained to an alteration in one's "overall patterns of leisure activity engagement and time usage" (Mannell & Kleiber, 1997, p. 59), and this specifically applied to a more outdoors oriented leisure style. Another significant life outcome theme was the notion of transferring outdoor knowledge and skills from the course to family and children. For those participants who were teachers, they also indicated transfer to their students.

Most participants stated that they experienced one or more of the above significant life impacts as a result of participating in the summer OE course. No students perceived experiencing lasting negative impacts. The summer OE course was perceived by the majority of interview participants as a SLE; however, for a few, the OE course was not a SLE. A group of respondents referred to the idea that the OE course served as confirmation or reinforcement of previously

held beliefs and behaviours about the outdoors rather than being a new or significant experience. Some of those participants who viewed the OE course as a SLE also perceived it as confirmation.

Discussion

In general, the significant life impact themes identified through the data analysis were consistent with previous conceptual discussion and research findings. Studies by Kellert (1998) and Daniel (2005) have reported that participants often believe that extended wilderness expeditions had meaningful influences on their lives. That the OE course was conducive to advancement of outdoor knowledge/skills is consistent with findings of Whittington (2011) that technical-skill development is a long-term impact of an outdoor adventure program. Several themes aligned with the OE course objectives, supporting research that evaluated program outcomes should be specifically related to program goals and objectives (Sibthorp et al., 2007). The notion of the OE course as a reinforcement can be connected with Ewert and Sibthorp's (2009) idea of confounding variables. In the present study, a few participants spoke of their extensive previous outdoor experiences before enrolling in the OE course; therefore, it is possible that this pre-experience may have affected how they constructed the meaning of the OE course, and more importantly, how the course was understood with reference to their entire lives.

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OLRS 2012 ABSTRACT

Group Identification and Group Homogeneity: A Case Study of NOLS Courses

Jeremy Jostad

Background

Group processes are a central aspect of all outdoor adventure education (OAE) programs. How well a group functions is a product of the interactions between individuals and can have an impact on the individual and group outcomes of the program. Group identification shows how members identify with individuals in the group and the group as a whole (Henry, Arrow, & Carini, 1999). By increasing the individual level of group identity, groups can become more efficient and work harder toward the group's goal (Haslam, 2004). When members of the group have higher levels of identity, they see their own values and interests coming together with that of the group, thus "anchoring" them closer and stronger to the group (Anderson, Riddle, & Martin, 1999; Cassidy, 2007). Thus, group identification is a construct that can provide a sense of how well a group functions.

Little is known about group homogeneity and group processes in OAE. This study seeks to understand how varying the homogeneity of individuals affects group identification on courses with the National Outdoor Leadership School (NOLS). The proxy used for homogeneity was "students who receive scholarship." Students receiving scholarships are typically from lower socioeconomic backgrounds and have little experience in wilderness type environments, whereas "traditional" NOLS students generally come from affluent backgrounds with more previous opportunities for wilderness experiences. Therefore, the purpose of this study was to understand the difference in group identification of three different concentrations of students receiving scholarship on NOLS courses over 30 days.

Methods

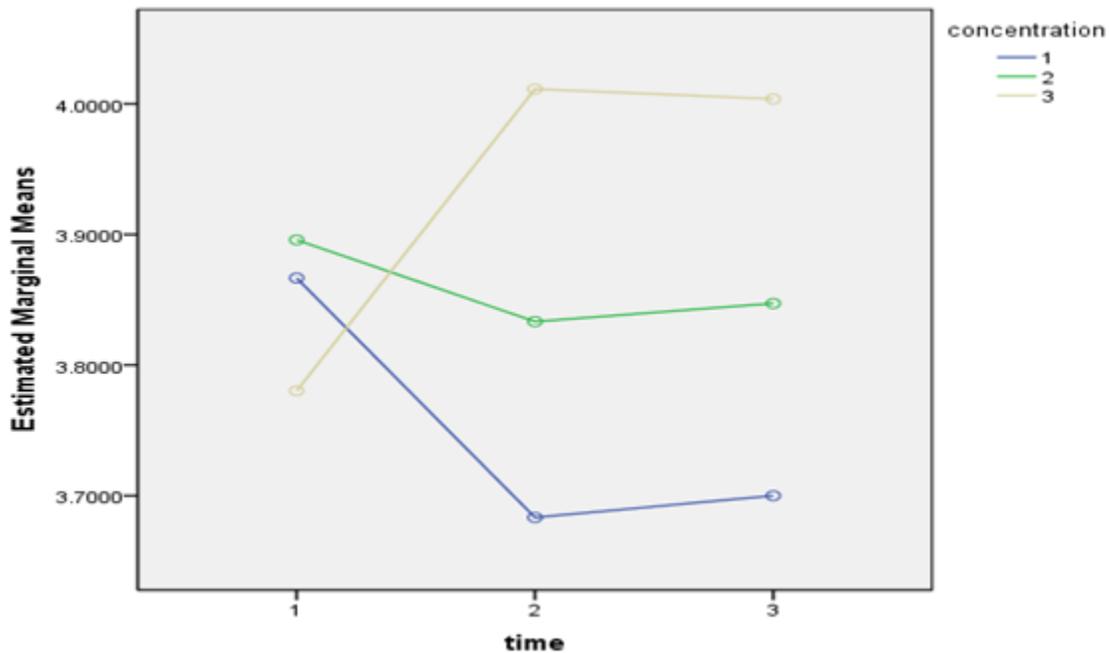
Data were collected in the summer of 2012 from four NOLS courses ($n = 44$) that were 30 days in length. Three different concentrations of students receiving scholarship were studied, which consisted of two students receiving scholarship (concentration one), six students receiving scholarship (concentration two), and all students receiving scholarship (concentration three). The Group Identification Scale (Henry, Arrow, & Carini, 1999) was administered at approximately the 10, 20, and 30 (end) day points in the course. The scale is composed of 12 questions on a five-point Likert type scale and has shown good reliability (.87). Data were analyzed using a repeated measures ANOVA with group identification as the dependent variable with time and concentration as the independent variables.

Results

The repeated measures ANOVA indicated a statistically significant effect ($F_{(3, 66)} = 2.27, p < .10$) of the interaction between time and concentration. The within subjects contrast shows the

significant difference was between time one and time two ($p < .05$). A simple effects analysis showed significant changes between times one and two, and depended on concentration. This also indicated significant differences between concentrations one and three in times two and three. Figure one shows the changes in group identification for each concentration over the three administrations.

Figure 1. Group identification over time by concentration



Discussion

The purpose of this study was to understand the difference of group identification over time in three different concentrations of students receiving scholarship on NOLS courses. As can be seen in figure one, each group had noticeable changes in their scores from time one to time two and then fairly stable scores from time two to time three. Somewhere near the midpoint of the course, student's identification with the group became stable. Furthermore, concentrations one and three had statistically significant changes on their scores from time two, showing different trajectories of identification. This result provides some evidence that homogeneity within the group may provide higher levels of group identification.

The pattern across the three administrations may provide further relevance for Gersick's (1988) mid-point transition, which posits that group's use time as a parameter in guiding their behavior to achieve particular goals. Specifically, she noted that groups use the first half of their time together to gather and exchange information between members (phase 1); whereas groups use the second half of their time for analysis and resolution toward their given goals (phase 2). Others have also suggested small groups use this type of temporal pacing to calibrate their actions (Arrow, 1997; Okhuysen & Waller, 2002). These data show large changes from time one to time two (phase 1), and suggest students may use the length of the course as a marker to guide

their social processes and goal oriented actions with the group. The first half of the course students may be geared toward developing relationships, understanding similarities and differences, whereas the second half of the course students may focus on the completion of group goals once identity within the group is established. Though this model has traditionally been used to explain group task behavior, we believe it offers insights to how individuals pace their identity with the group. The socialization process is critical for students on OAE courses and the development of group identity can have implications on how well a functions, and thus on the achieved outcomes of the course.

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OLRS 2012 ABSTRACT

The Use and Support of Intuition among University Outdoor Program Professional Staff: A Preliminary Investigation

Eric Frauman

Background

A number of authors have pointed to the role that intuition may play in organizational and managerial decision making (Gigerenzer, 2007; Gladwell, 2005). There has been a great amount of academic research directed toward understanding intuition with much centered on what intuition is (Hodgkinson, Langan-Fox and Sadler-Smith, 2008), the aspects that encourage individuals to trust and use it (Hodgkinson, Langan-Fox and Sadler-Smith, 2008), and the factors that account for when intuition should be used, especially when it is as or potentially more effective than analytical decision making (e.g. Dane and Pratt, 2007). With regard to the process of intuition, Dane and Pratt (2009) found that most conceptualizations include the following features: (1) non-conscious information processing, (2) holistic associations, (3) affect, and (4) speed. The non-conscious system allows individuals to learn from experience and develop feelings of knowing in the absence of conscious attention (Dane and Pratt, 2009; Hogarth, 2001). As non-consciously held patterns are linked to environmental stimuli through a holistic associative process, intuitive judgments arise rapidly accompanied by affect - commonly reflected in the expressions “gut feelings” and “gut instincts” (Dane and Pratt, 2009).

Today, most university Outdoor Program offices around the United States have professional staff whose roles commonly include administering an organization, training staff, and leading participants, be they student staff or university community members into frontcountry and backcountry settings. While professionally staffed Outdoor Programs generally have established protocols for administering, training, and leading, it is unclear whether the use of intuition plays any formal role in each of the components. Although it can be assumed intuition, as expressed above, is utilized informally in some decision making, should intuition be more systematically infused into organizational and managerial efforts?

To date, there doesn't appear to be any systematic study examining the role of intuition among university Outdoor Programs. Thus, the primary purpose of this study was to examine use and support of intuition among university outdoor program professional staff particularly given their positions of authority and influence on outdoor program direction.

Methods

A four page online survey was created using SurveyMonkey software in Fall of 2011 and included 25 questions posed in different formats. Fourteen of the 25 questions addressed the concept of intuition in various ways most providing one statement/question that participants were asked to respond to (e.g., Have you ever ignored your intuition while leading a group in the field? *Yes/No*). The remaining questions addressed demographic and work experience related items. An eight item 5-point Likert scale question was the main focus for this paper measuring

the use and support of intuition in staff training and field experiences. An introductory statement on the survey defined intuition as “...*the purest form of instinct. Some call it a "gut feeling." It is knowing something or deciding to do something without necessarily having a logical explanation. It may occur due to previous experiences and sometimes is a feeling that may or may not conflict with objective facts.*” Data was collected late Fall 2011 for three weeks and was reinitiated in Fall 2012. The primary source for data collection in Fall 2011 was the Association of Outdoor Recreation and Education listserve whose membership includes university outdoor programs. The Fall 2012 data source was a comprehensive list of approximately 250 university outdoor programs in the United States (see Poff, 2010). Targeted emails were sent to listed directors with invitations directed at full time professionals with the respective programs. Excel and SPSS (version 20) were used in examination of the data.

Results

One hundred and thirty nine professionals responded to the study (104 male, 32 female) with 85.3% (n = 116) of the Programs directed by males. Respondents have worked in college/university Outdoor Program settings an average of 10.43 years (*s.d.* = 8.24, range = 1 to 33 years). Respondents have worked in the outdoor programs/education/leadership/recreation profession an average of 14.59 years (*s.d.* = 8.80, range = 2 to 40 years).

Three-fourths (74.1%) of respondents have ignored their intuition while leading a group in the field. Nearly half (47.5%) of respondents use their intuition as a professional “often” or “always” (5-point Likert scale where 1 = “never” and 5 = “always”). Two-thirds (64.0%) of respondents believe intuition is something Outdoor Program professionals “gain only from field experience”, while 28.1% believe it is something they “naturally have” with 7.9% believing they “must be trained to have.”

Figure 1 depicts level of agreement (1 = “strongly disagree” to 5 = “strongly agree”) with eight statements associated with intuition. In general, respondents agree that intuition should play a role in training and leading in the field. Mean scores ranged from 2.31 (“Intuition should not have a role in decision making in the field given the lack of rationale that often accompanies it”) to 4.18 (“Intuition experienced by a trip/program leader should be discussed with co-leaders when in the field”). *Note:* Two of the statements could be perceived as worded in a negative way – 4th and 6th from top to bottom in Figure 1, as such the lower agreement levels).

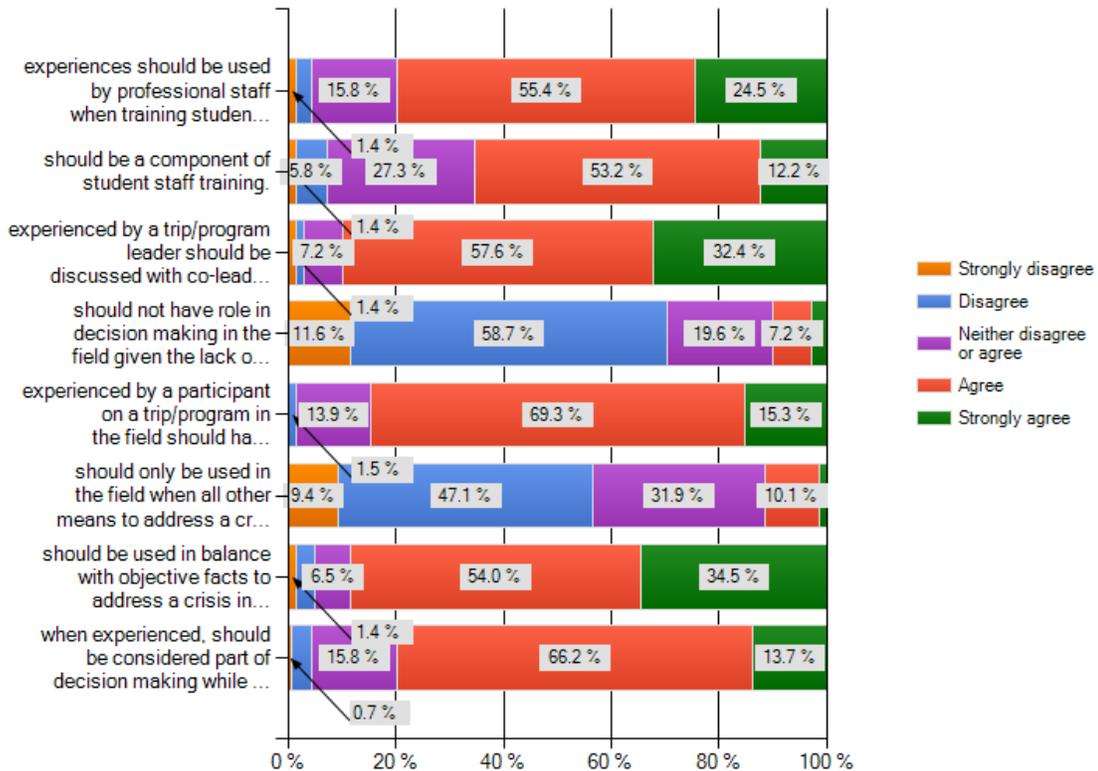
Independent Sample T-tests and the Eight Intuition Statements

Gender did not statistically differentiate ($p < .05$) for any of the eight statements with no patterns identified in mean response. Outdoor Programs directed by males revealed greater agreement with each of the statements with one statistically significant ($p = .026$) for “Intuition should not have role in decision making in the field given the lack of rationale that often accompanies it” - ‘male directed Programs’ mean = 2.38 versus ‘female directed Programs’ mean = 1.89.

Respondents who have ignored their intuition while leading a group in the field tended to agree less with the eight statements with two statistically significant ($p < .05$) differences found: 1) Those who said “yes” they have ignored intuition had a mean of 3.90 versus “no” = 4.22 ($p =$

.041) for “Intuition experiences should be used by professional staff when training student staff”, and 2) “yes” mean = 2.56 versus “no” = 2.22 ($p = .042$) for “Intuition should only be used in the field when all other means to address a crisis have been exhausted.”

Figure 1 - Please respond to the statements below given the following: Intuition ...



Analysis of Variance (ANOVA) and the Eight Intuition Statements

No statistically significant mean differences ($p < .05$) were found among respondents when grouped based on how they believe Outdoor Program professionals acquire intuition (Group 1: “gain only from field experience”, Group 2: something they “naturally have” and, Group 3: they “must be trained to have”). Although respondents in Group 1 tended to agree less with each of the statements with the exception of “Intuition should not have role in decision making in the field given the lack of rationale that often accompanies it.”

Bivariate Correlation Tests and the Eight Intuition Statements

Concerning the number of years respondents have been working in an Outdoor Programs setting at a University/College there were no statistically significant ($p < .05$) correlations with any of the eight statements. The same was found concerning the number of years respondents have been working in the outdoor programs/education/leadership/recreation profession with the exception of one weak and negative correlation ($r = -.173$) for the statement, “Intuition should be used in balance with objective facts to address a crisis in the field.” Lastly, when respondents

were asked how often in general they use intuition as a professional (5-point Likert scale based on level of agreement) six statistically significant correlations were found: “Intuition experiences should be used by professional staff when training student staff” ($r = .262$; $p = .002$), “Intuition should be a component of student staff training” ($r = .336$; $p = .000$), “Intuition should not have role in decision making in the field given the lack of rationale that often accompanies it” ($r = -.196$; $p = .021$), “Intuition should only be used in the field when all other means to address a crisis have been exhausted” ($r = -.264$; $p = .022$), “Intuition should be used in balance with objective facts to address a crisis in the field” ($r = .175$; $p = .040$), and “Intuition when experienced, should be considered part of decision making while in the field” ($r = .246$; $p = .003$).

Discussion

In general, respondents in this study regardless of gender, whether their Program is directed by a male or female, years of experience working in the field or with a university/college outdoor program tend to agree that intuition has a place in staff training and field use when leading groups. The same can be said when measuring how often respondents use their intuition as professionals, whether they have ignored their intuition while leading a group in the field, or whether they believe intuition is something Outdoor Program professionals “gain only from field experience,” something they “naturally have,” or believe they “must be trained to have.”

One major limitation to this study is that despite the introduction in the survey attempting to operationalize the concept of intuition it is very likely that some respondents see intuition as a fuzzy concept that is hard to measure and thus may have had difficulty in responding to the survey or ignored it completely. It should be noted that we only had one respondent contact us about their concern measuring intuition. In addition the relatively small sample size could be considered a limitation, and while we did provide an option for respondents to share the name of their university/college this was not a required question and thus it was hard for us to track all respondents and non-respondents.

This paper was primarily focused on the eight intuition statements linked to staff training and field use. While few statistically significant differences or correlations were found, with few of those revealing meaningful findings (e.g., six modest positive correlations between how often respondents use intuition as a professional and the eight statements, two differences between those who have ignored their intuition versus those who haven't), the information from this study should provide some “food for thought” for university outdoor programs interested in more closely examining how “gut feelings” and “gut instincts” (Dane and Pratt, 2009) play a role in training and field leadership.

A complete examination of all the questions ($n = 25$) posed to respondents in the survey (e.g., a multi-statement Likert scaled measure of a respondent's tendency to use their intuition, support for encouraging use of intuition among participants) may reveal additional information for outdoor programs and their respective directors, particularly in combination with the questions analyzed in this paper. In addition, further examination of the data presented in this paper is warranted; for instance, how might work experience broken down into five year categories differentiate respondents across the eight statements? As well, how might two or more of the

variables in the study (e.g., gender, years of experience, and whether respondents believe intuition is something you primarily learn in the field versus naturally have) influence response to the eight intuition statements?

Should the concept of intuition be more systematically infused into organizational and managerial efforts among university and college outdoor programs around the country? It is hoped the information presented in this paper will start a dialogue among and within programs around the country to address this question and more fully examine the role of intuition.

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OLRS 2012 ABSTRACT

Promoting Resiliency in Adolescent Girls through Adventure Education

Anja Whittington, Nadine Budbill & Jeff Aspelmeier

Background

Each discipline such as nursing, developmental psychology, social work, medicine, education and youth development have sought to define resiliency and develop ways to promote resiliency factors in individuals. The adventure recreation, adventure education, outdoor adventure education, and recreation fields as a whole have also sought to define and develop ways to promote resiliency in youth through intentionally designed programming (Cooper & Allen, 2004; Garst, Schneider, & Baker, 2001; Haras, Bunting, & Witt, 2006; Stiehl & Parker, 2007). These terms have been used interchangeably throughout the literature and, despite the program design, all have been found to promote resiliency in youth in various ways. Resiliency can be described as the interaction between risk and protective processes that support an individual to overcome obstacles, risks, and/or a negative or stressful event in their life (Olsson, Bond, Burns, Vella-Brodick, Sawyer, 2002). Resiliency is the ability to respond or perform positively in the face of adversity, and to achieve despite disadvantages (Bottrell, 2009; Brennan, 2008; Fergus & Zimmerman, 2005; Olsson et al., 2002; Short & Russell-Mayhew, 2009). By creating youth intervention programs that promote and develop protective factors for resiliency (Cooper & Allen, 2004), recreation can serve as an external factor that supports resiliency. Research has documented a variety of benefits to participating in adventure education programs. This includes, but is not limited to, personal growth, educational and physical outcomes and group development skills (Garst, Schneider, Baker, 2001; Stiehl & Parker, 2007). Because adventure and experiential education programs mimic the internal and external factors necessary for resiliency they have the potential to increase resiliency factors in youth (Bieghtol, Jeverson, Gray, Carter & Gass, 2009; Benard & Marshall, 2001). Adventure education programs focused on girls have shown a variety of outcomes. This includes: increased self-esteem and confidence, resistance to gender role stereotypes, increased courage, improved body image and opportunities for positive risk-taking and self-expression (Culp, 1998; Mitten, 1992; Whittington, 2006; Whittington & Mack 2010). Lacking in the research is an examination of the impacts of an adventure education program on promoting resiliency on adolescent girls.

This study investigated the experience of girls, ages 10-16 who participated in a Dirt Divas program. Dirt Divas, a mountain bike program designed to support the positive development of adolescent girls is grounded in research on girls' development and psychology, and one of their main goals is to support girls' resiliency. The purpose of this study was to examine whether participation in an adventure education program, focused on the developmental needs of girls, promotes resiliency in girls.

Method

A total of 87 girls between the ages of 10-15 (mean age of 11.6) who participated in a Dirt Divas program completed this study. The Resiliency Scale for Children and Adolescents (RSCA)®

was used to examine the outcomes of girls' participation. The RSCA® is grounded in theory, is user-friendly, practical to use, and can be linked to intervention (Prince-Embury, 2010). The RSCA® consists of three self-report scales including Sense of Mastery (20 items), Sense of relatedness (24 items) and Emotional Reactivity (20 items) and are written at a third grade reading level (Prince-Embury, 2007).

The study was conducted over a two year period and a total of 87 girls participated in the study. The RSCA® was collected on the first and last day of the girls' participation in their adventure education program.

Results & Discussion

Using SPSS® a series of tests were conducted to analyze the data. To determine whether participants' sense of resilience improved after participating in the Dirt Divas program, self-report resiliency scores were compared with scores obtained on the first and final day of the program. Cronbach's Alpha for each scale was calculated and all scales demonstrate at least minimal standards for adequate reliability, with Cronbach alphas ranging between .62 and .95. Table 1 reports the paired-sample *t*-tests. Participants reported significantly higher levels of resilience after completing the Dirt Divas program, compared to their pre-program reports. An increase in resilience appears to have been consistently experienced by participants, demonstrated by the strong correlations between pre- and post-participation scores. With respect to effect size, using Cohen's (1992) standards for evaluating the difference between means, the change in self-reported resilience appears to be relatively small. Cohen (1988, 1992) recommends the following standards for evaluating effect sizes represented as the absolute value of the standardized difference between group means (Cohen's *d*): Small = .20, Medium = .50, and Large = .80.

Table 1. Change in Resiliency after Participating in Dirt Divas Program: Including the First and Second Year Cohorts

Scale	Time Point		Correlation	Paired Comparison	
	Pre Participation	Post Participation		<i>t</i> (<i>df</i>)	Effect Size <i>d</i> ^a
Sense of Mastery	3.06 (.4809)	3.26 (.5814)	.69	-4.26 ^{***} (85)	-.37
Sense of Relatedness	3.30 (.4620)	3.38 (.5462)	.77	-2.25 [*] (85)	-.16
Emotional Reactivity	1.08 (.7202)	0.94 (.7086)	.78	2.76 ^{**} (85)	.20

Note. ^{*} $p \leq .05$, ^{**} $p \leq .01$, ^{***} $p \leq .001$.

Standard deviations appear in parentheses below means.

a. Value represents proportion of the differences between averages of the pretest and post test scores relative to the pooled standard deviation of the pretest and post test scores

Results indicate that Dirt Divas is meeting their goals to promote resiliency in girls. While reported changes were small they were consistent across all three areas of resiliency: Sense of

Mastery, Sense of Relatedness and Emotional Reactivity. These consistent changes indicate that the Dirt Divas program does impact overall resiliency in girls.

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OLRS 2012 ABSTRACT

A Psychometric Investigation of the North Carolina Outward Bound Student Course Impression Scale

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Background

Outward Bound (OB) wilderness programs in the United States recently experienced a major shift when the organization was decentralized and returned to its original regional schools model (e.g. Colorado Outward Bound School, Voyageur Outward Bound and others). Because of this organizational change in October, 2011 Outward Bound's national efforts to design and implement an outcomes instrument linked directly to its educational framework were halted. Each school is now responsible for designing its own outcomes assessment. The North Carolina Outward Bound School (NCOBS) adapted the former OB Outcomes Instrument (OBOI) to match its educational framework. A psychometric analysis was a first step in understanding the usefulness of this instrument. Better understanding the utility of the NCOBS Course Impression Survey (NCOBSCIS) will help other OB schools and wilderness experience programs in their assessment and may serve as a model for conducting similar program evaluation.

Methods

In order to determine the instrument's internal consistency, NCOBS students ($n=268$) including male ($n=172$) and female ($n=94$) ranging in age from 12 to 54 years, with a mean age of 18, completed the NCOBSCIS following the completion of a wilderness expedition during the 2011 summer. The course lengths varied: 4-day ($n=21$), 8-day ($n=95$), 14-day ($n=80$), 21-day ($n=57$), 28-day ($n=12$).

Instrument

The NCOBSCIS (Figure 1) is a 20-item measure using a 7-point Likert scale to rate the degree of agreement with each statement (1 = strongly disagree to 7 = strongly agree).

Figure 1. North Carolina Outward Bound Student Course Impression Scale

- 1). I can accomplish most things I set my mind to. (Self-Confidence)
- 2). Community service is important to me. (Environmental Awareness)
- 3). I am motivated to set and accomplish goals for my education or for my career/life. (Goal Setting)
- 4). I have a sense of direction and purpose in my life. (Empowerment)
- 5). I am able to work productively with others. (Group Collaboration)
- 6). I take responsibility in caring for the environment. (Environmental Awareness)
- 7). I am sensitive to the needs and feelings of others. (Compassion)
- 8). I listen when people talk to me. (Effective Communication)
- 9). I respect and feel a connection to nature. (Environmental Awareness)
- 10). I have a personal commitment to physical fitness. (Goal Setting)
- 11). I find peaceful solutions to conflict. (Effective Communication)
- 12). I feel proud of myself. (Self-Confidence)
- 13). I am flexible in my thinking and ideas. (Problem Solving)

- 14). I contribute when I work in a group. (Group Collaboration)
- 15). I realize my potential. (Self-Confidence)
- 16). I help others when they need it. (Group Collaboration)
- 17). I balance the time I spend on work/school and leisure time. (Resilience)
- 18). I recognize that others may be different from me. (Compassion)
- 19). I deal well with unexpected events. (Resilience)
- 20). I realize the value of and embrace the differences that others may have from me. (Compassion)

Note: The definition category ratings made by the researchers are listed in parentheses.

Procedures

The content of the NCOBSCIS was visibly inspected to determine which items corresponded to the original factors constructed in the OBOI. According to the OBOI Guidelines, the OBOI was a 27-item questionnaire designed to measure the outcomes defined in the Outward Bound Educational Framework. Further, the guidelines stated that the OBOI specifically measured the following three factors: 1) character development (self-confidence, goal setting, resilience, empowerment), 2) leadership (goal setting, problem solving, effective communication, group collaboration, compassion), 3) environmental awareness. The OBOI definitions of each item in the three factors were used to match items 1-20 from the NCOBSCIS to the corresponding categories. Each item was then categorized into one of three factors: 1) Character Development (CD), 2) Leadership (L), and Environmental Awareness (EA). This process resulted in the following item structure: CD – items 1, 3, 4, 10, 12, 15, 17, 19; L – items 3, 5, 7, 8, 10, 11, 13, 14, 16, 18, 20; EA – items 2, 6, and 9. This process formed the theoretical basis for comparing the factor structure generated by the Factor Analysis.

Analysis

This investigation included descriptive statistics, Inter-Item Correlations, and Test Retest Reliabilities. Additionally, a series of Factor Analyses were conducted to explore the underlying factor structure of the NCOBSCIS. Finally, Internal Consistency (Cronbach's Alpha) was calculated for both single and 3-factor solutions using both Pre- and Post- NCOBSCIS scores.

Results

The Inter-Item correlations ranged from $r = .08$ to $r = .65$. All of the correlations, with the exception of 3, were significant. The test/retest reliability estimates for the Pre- and Post- scores ranged from $r = .37$ for item number 12, to $r = .74$ for item number 2. A Factor Analysis using Principal Components Analysis (PCA) and eigenvalues = 1, resulted in 3-factor solution accounting for 50.6% of variance observed in the data. This 3-factor solution provided a good fit to the structure of the measure as indicated by the original OBOI guidelines, and it was appropriate to use the measure in this way. Given that all the items loaded strongly on the first factor and the high degree of correlation amongst all the items, it was also appropriate to use a sum score in a unidimensional or single factor solution. Both the Pre ($\alpha = .89$) and Post ($\alpha = .90$) scales show a high degree of reliability when used in a unidimensional or single factor solution. In other words, all of the items for both the Pre- and the Post- scales, respectively, are internally consistent with one another. Likewise, the Internal Consistency estimates for each of the three factors at Pre and Post were also in the acceptable range ($\alpha = .725 - .843$). The NCOBSCIS is Internally Reliable at the level of a total/sum score, and for each of the 3 factors.

Discussion

The NCOBSCIS is an internally consistent measure with good Test Retest Reliability. The items on the NCOBSCIS are highly Inter-Correlated, which supports the significant underlying relationships amongst all of the items. The underlying factor structure of the NCOBSCIS supports using this instrument to generate a total or sum score, in addition to 3 separate factors scores for Character Development, Leadership, and Environmental Awareness. Finally, the validity of the NCOBSCIS is established through 1) content agreement amongst experts in this field, 2) the internal consistency and test retest reliability calculated in this investigation, and 3) the congruence present between the theoretical factor structure indicated in the OBOI Guidelines and the factor structure produced by the Confirmatory Factor Analysis calculated in this investigation. The NCOBSCIS is a valid, reliable measure that may be used in both single factor and 3-factor solutions. These results indicate that NCOBS should continue to implement the NCOBSCIS and adapt the timing of the pre-course data collection allowing participants to complete the survey prior to participation thus removing the less reliable retrospective data. Furthermore, it is recommended that a small panel of experts be assembled to review the NCOBSCIS at the level of item content to further inform the Factor Analysis. Finally, this instrument and these analyses may be beneficial to other Outward Bound schools and wilderness experience programs as they develop their own robust outcomes-based assessment tools.

OLRS 2012 ABSTRACT

Environmentally Responsible Behavior and the Application of Leave No Trace beyond the Backcountry

Janene Giuseffi, Bruce Martin, Howard T. Welser & Michele Morrone

Background

The extension of Leave No Trace outdoor ethics to everyday life is a topic of interest in current research and scholarship (Andre, 2012; Hutson, 2012; Simon & Alagona, 2009). As attention turns from parks and protected areas to the greater world, a host of broad environmental problems loom. As Van Horn wrote: “We work hard to ‘leave no trace’ on the trail. Isn’t it about time we give the same attention to the larger world?” (2009). While Leave No Trace (LNT) owes much of its success to its well-defined goal of minimizing environmental impacts from recreational use of backcountry and front country areas, the underlying ethics and values of its curriculum seem to provide a useful framework for Environmentally Responsible Behavior in everyday life. Environmentally Responsible Behavior (ERB) is a specific phrase referring to “any action, individual or group, directed toward remediation of environmental issues/problems” (Sivek & Hungerford, 1990). While a number of scales have been produced to measure ERB (e.g., Smith-Sebasto & D’Acosta, 1995; Vaske & Donnelly, 1999), this study combined aspects of Ajzen’s (1991) Theory of Planned Behavior (TPB) and the ERB model developed by Hines, Hungerford, and Tomera (1986) to create a new scale called the Environmentally Responsible Behavior Predictor Scale (ERB Predictor Scale). Key variables in the scale included *behavioral attributes, normative attributes, control attributes, and intention*. The researchers attempted to answer questions related to the application of LNT to everyday environmental behavior using the ERB Predictor Scale. Specifically, the following were addressed:

1. Do higher levels of LNT training correspond with higher levels of ERB?
2. To what extent do the principles of LNT apply to environmentally responsible decision making in everyday life?

Methods

The study sample consisted of individuals with varying levels of formal LNT training. The survey was sent via Survey Monkey to approximately 10,500 LNT Awareness workshop, Trainer course, and Master Educator course participants by the Leave No Trace Center for Outdoor Ethics. The researchers received 555 valid responses for a valid response rate of 5.3%. Respondents who did not indicate their level of LNT training were not included in the study. A control group of individuals with no prior LNT training was also included in the study.

All data were entered into SPSS 17.0 for Windows. Reliability analyses and Exploratory Factor Analyses (EFA) were conducted to assess the reliability and validity of the scale. Analysis of Variance (ANOVA) was used to determine the relationship between the ERB Predictor Scale scores and the level of LNT training (research question 2). Linear regression was also used to examine the relationship between level of LNT training and ERB Predictor Scale scores as well as to elucidate the amount of variation that can be explained by level of LNT training.

Additionally, descriptive statistics characterizing age, sex, and education level provided summary of demographic variables. Significance was set at .05 for all statistical analyses.

Results

Cronbach's alpha for the ERB Predictor Scale was .719, suggesting that the scale is reliable (Cortina, 1993; Cronbach, 1951; Zinbarg, Yovel, Revelle & McDonald, 2006). Analysis of the indices of each sub-domain (behavioral, normative, and control attributes) indicated that the scale is internally consistent and measured intended latent constructs. EFA extracted five initial factors. In accordance with Kaiser's criterion, all factors with Eigenvalues over 1 were retained. These 5 factors, before rotation, explained 63.34% of the variance within the scale. Following best practices for EFA (Costello & Osborne, 2005), these 5 factors were then organized into a pattern matrix, with values under .32 suppressed and listed in order of greatest to least for ease of interpretation. From this pattern matrix, all values over .32 were accepted (Tabachnick & Fidell, 2001).

The sample included 186 individuals (33.6%) with no LNT training, 23 (4.2%) who had completed the LNT awareness workshop, 180 (32.5%) who had completed a Trainer course, and 165 (29.8%) who had completed a Master Educator course. The ERB Predictor Scale scores were calculated by adding the values for each item. Scores ranged from 18 to 108, with a score of 18 indicating that the respondent was extremely unlikely to engage in ERB and a score of 108 indicating an individual is highly likely to engage in ERB. The mean score was 80.5 for respondents with no LNT training, 89.3 for LNT Workshop participants, 89.1 for LNT Trainer course participants, and 90.7 for LNT Master Educator course participants. ANOVA results show a *p*-value of .000, indicating significant differences in ERB Predictor Scale scores between those with no LNT training and all other levels of training. However, there was no statistically significant difference among workshop participants, Trainers, and Master Educators in terms of overall ERB Predictor Scale scores. However, when ANOVA was conducted on each section separately, interesting and more detailed relationships were illuminated.

The simple linear regression analysis showed that there was a moderate positive correlation between ERB Predictor Scale scores and level of LNT training. In fact, according to the coefficient of determination ($r^2 = .188$), 18.8% of the variation in ERB Predictor Scale scores can be attributed to varying levels of LNT training. With 95% confidence, one can expect the ERB Predictor Scale score to increase by 2.85 to 4.05 points with each level of LNT training. This indicates that other factors were at play. However, LNT does have an impact on scores and presumably the likelihood that someone will engage in ERB.

Discussion

Results of ANOVA analyses indicate that although the difference in score between those with no LNT training and those with some level of LNT trainings was statistically significant, the differences in scores among the various levels were not statistically significant. Even though there was no significant difference associated with varying levels of training, there was a significant difference in the overall scores of those with LNT training and those without, with LNT participants exhibiting higher ERB Predictor Scale scores as predicted. Linear regression

analysis showed that level of LNT training accounted for a rather large amount of the variability in ERB Predictor Scale scores. This indicates that there are certainly other factors at play, but also that LNT may indeed have a measurable impact on ERB.

With respect to the extent to which LNT influences ERB beyond the backcountry, while ANOVA results showed that there were statistically significant differences between those with training and those without in terms of ERB Predictor Scores, linear regression uncovered a negative correlation between LNT training and behavioral intentions. This is a troubling outcome that deserves fuller exploration. Possibly, this is due to confusion about the survey, or it could be indicative of a sense of realism (and perhaps pessimism) on the part of older, more educated Trainers and Master Educators. In either case, further research is merited to more fully explore the relationship between LNT and ERB.

While alpha scores were high when analyzing the reliability of the scale, the EFA suggested a need to revise some of the survey items before future administration of the survey. While EFA extracted five initial factors, upon closer examination of the pattern matrix, two items did not load on any of the factors and one item load on multiple factors. These should be reconsidered before the next implementation of the survey.

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