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A four-year follow-up of means-end outcomes from outdoor adventure programs

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Means-end theory was used to analyze differences in outcomes from original interviews and follow-up interviews occurring four years after Outward Bound (OB) and National Outdoor Leadership School (NOLS) 2006 course participation. In 2006, a semi-structured, in-person interview was conducted after participants ($N = 510$) completed their course. In 2010, semi-structured telephone interviews were conducted from a convenience sample of the original participants ($N = 200$). Results of this study show how OB and NOLS programs continued to increase participant self-respect/esteem/confidence, impart transferable lessons and skills, and provide a sense of self-awareness four years after course participation. Understanding such participant outcomes allows program managers to effectively market programs, comprehend relationships between program attributes and participant outcomes, and design programs for specific outcomes.

Keywords: means-end theory; outdoor adventure program; Outward Bound; National Outdoor Leadership School

Introduction

Outdoor adventure education programs are an increasingly popular educational forum. These programs incorporate environmental, adventure and experiential education methods to increase students' learning and outcome attainment. While there are numerous programs throughout the world, two of the most well-known programs are Outward Bound (OB) and National Outdoor Leadership Schools (NOLS). While a plethora of studies have examined the benefits of participating in an outdoor adventure education program (Hattie, Marsh, Neill, & Richards, 1997), some researchers have cited the need for research that connects programming elements to specific outcomes (Ewert, 1983; Ewert & McAvoy, 2000; Hattie et al., 1997; McKenzie, 2000, 2003; Priest, 1999; Sibthorp, Paisley, & Gookin, 2007).

Wilderness adventure programs

Participation in wilderness adventure programs positively impacts individual participants and promotes strong group relationships. Paisley, Furman, Sibthorp, and Gookin (2008) found that NOLS students obtain learning outcomes through structure-oriented, instructor-oriented, student-oriented, student- and instructor-oriented, and environmental learning mechanisms. Ewert and McAvoy (2000) researched how participants' self-concept, self-esteem and self-confidence were affected by wilderness adventure program participation and found that there was positive and beneficial change. OB program participation effectively augments participants' internal locus of control and multiple aspects of

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self-concept (Marsh, Richards, & Barnes, 1986). Additionally, OB programs have positive effects on participants' interpersonal skills, leadership skills, sense of empowerment, self-control, independence, assertiveness, decision-making skills and self-esteem (Hattie et al., 1997). NOLS program participants experience improved self-efficacy immediately following the program and one year later (Propst & Koesler, 1998). Participants of OB, NOLS and Student Conservation Association programs have an increased interest in learning, improved physical and mental fitness, positive behavioral changes and a stronger commitment to conservation (Kellert, 1999).

Wilderness adventure programs have positive effects on group dynamics and development (Ewert & Heywood, 1991; Ewert & McAvoy, 2000; Fielding & Hogg, 1997). Oakes, Haslam, Morrison, and Grace (1995) found that OB participants, who were strangers before the course, perceived each other to be more alike than different as they progressed through their course. Group characteristics such as reciprocity, cohesion and trust contributed to overall group effectiveness in an OB program (McKenzie, 2003). Sibthorp, Paisley, and Furman (2008) found that NOLS participants transferred lessons of group dynamics, group leadership and an ability to function as a team from their course experience to other areas of their lives.

In a number of studies, researchers recommended further research to provide insight into the relationship between specific program elements and participant outcomes (Ewert, 1983; Ewert & McAvoy, 2000; Hattie et al., 1997; McKenzie, 2000, 2003; Priest, 1999; Sibthorp et al., 2007). Sibthorp et al. state that, 'many adventure programs continue to rely on anecdotal evidence and the assumption that simple participation leads to participant development without the ability to articulate the specific mechanisms through which change may occur' (2007, p. 1). More specifically, Priest (1999, p. 315) indicated that future studies should investigate 'what transfers, how much of it, for how long, and because of what program elements or barriers' to establish credibility in larger academic disciplines.

Means-end studies

Early means-end studies investigated brand management and advertising strategy development (Gutman, 1982; Olson & Reynolds, 1983; Reynolds & Gutman, 1988). The first application of means-end theory to wilderness adventure programs occurred when Goldenberg, Klenosky, O'Leary, and Templin (2000) investigated rope course program participant outcomes. They found that participants worked together to complete tasks, which increased their sense of fulfillment and led them to feel happy about themselves. Haras (2003) investigated differences in participation in Challenge by Choice and Inviting Optimum Participation rope course programs and concluded that program design and delivery affected benefit attainment and participant experiences. Means-end theory was utilized to examine OB participant outcomes in five program elements: rock climbing, interactions with others, expeditioning, camp craft skills and the solo experience (Goldenberg, McAvoy, & Klenosky, 2005). In this study, participation reinforced personal values and positively impacted participants' lives.

More recently, means-end theory continues to be utilized to research outcomes of participation in outdoor recreation. Utilizing means-end theory, McAvoy, Holman, Goldenberg, and Klenosky (2006) found that wilderness experience program participants with disabilities transferred course benefits, such as areas of personal growth, to other areas of their lives. Goldenberg, McAvoy, and Klenosky (2005) used means-end theory to study OB program participants' responses through self-administered questionnaires. They found that participants most frequently reported the following values: transference,

self-awareness/improvement/fulfillment, achievement of a personal goal/value and self-confidence/esteem. Goldenberg, Cummings, and Pronsolino (2008) compared means-end outcomes between male and female participants of outdoor adventure education programs. While there were slight variations in the results, outcomes for males and female participants were more similar than different.

Theoretical framework

Gutman (1982) developed means-end theory to analyze the factors that drive consumer purchasing behavior and to better understand how consumers feel about a particular product. In this theory, consumers are goal-oriented decision-makers who choose behaviors that will lead to specific desirable outcomes (Costa, Dekker, & Jongen, 2004). According to Reynolds and Gutman (1988), the theory focused on the interrelationship among product and meaning at three hierarchical levels of abstraction: attributes, consequences and values.

Attributes (the means) can be physical objects, services or experiences. Examples of wilderness adventure program attributes include rock climbing, camp craft and instructors. Consequences are direct results of an attribute and may be perceived as positive or negative. Some examples of positive consequences from wilderness adventure programs include participants developing technical skills or interpersonal skills. Possible negative consequences include injury or feeling homesick. Values (the ends) are participants' desired end-state of mind, which result from attributes and consequences. Examples of values from a wilderness adventure program include self-awareness and transference of lessons to other areas of one's life.

Relationships that link attributes to consequences to values are called means-end chains. Each link in the means-end chain identifies subjects' thoughts as they progress from attributes to consequences to values. For example, a means-end chain for a participant of a wilderness adventure program includes the attribute 'hiking.' The participant links hiking with the consequence of 'being challenged.' For this participant, being challenged is linked to the value 'sense of accomplishment.' In other words, this participant has indicated that hiking caused him to feel that he was being challenged and meeting this challenge led him to experience a sense of accomplishment.

Purpose statement

The purpose of this study was to gain a better understanding of the outcomes (attributes, consequences and values) that individuals experienced from participation in a wilderness adventure program and the effects these outcomes have on participants' lives. The following two objectives were addressed by this study:

- (1) What are the attributes, consequences and values associated with participation in OB and NOLS adventure education courses?
- (2) How do outcomes associated with participation in OB and NOLS courses change between the initial end-of-course collection and the final data collection four years later?

Methods

Original data collection occurred during the summer of 2006, and follow-up interviews were conducted in 2010. The sampling frame was limited to a convenience sample of participants

who completed OB courses in Colorado's Rocky Mountains or NOLS courses in Wyoming's Wind River Mountains. In all, 510 students participated in the study (OB, $n = 162$; NOLS, $n = 348$). OB participants came from 15 courses: eight from Leadville, CO, three from Silverton, CO, and four from Marble, CO. NOLS participants came from a collection of 40 courses that gathered at a program site near Lander, WY. All courses sampled were 14 days or longer and were made up of male and female participants, who were aged 14 years and older.

For the original data collection, subjects were selected using a convenience sampling method. Semi-structured interviews were conducted with participants on a voluntary basis during the last two days of their course. Researchers wrote participant responses on a pre-printed interview script. The first section of the script identified participant descriptive statistics, including age, gender, ethnicity and previous OB or NOLS involvement. The next section asked for information about the subject's experiences on the course, including duration of the course and course activities. The last section of the interview focused on collection of means-end data. Subjects were asked to identify three or four of their favorite course components. Once subjects assembled their list of components, they were asked a series of questions for each stated component using the laddering technique.

Laddering involves asking a series of open-ended questions that first asked the respondent to identify the attributes of a product. Each ladder represents a participant's thought progression from the attribute (course component) to its associated consequences and values. The respondent was then asked why that attribute is important. After the participants responded, interviewers again asked 'Why is that important?' This process of asking 'Why is that important?' continued for each response given until the respondent could no longer provide a meaningful answer (e.g. the response is 'I don't know,' or 'It just is . . .'). The process forced respondents up the 'ladder of abstraction,' to link concrete attributes with more abstract values (Reynolds & Gutman, 1988). Laddering was repeated for each of the components a subject identified in an interview.

During the follow-up data collection, subjects participated in telephone interviews that were completed based on the convenience of the participants. All participants were called but some participants were unreachable. In 2010, 200 interviews were completed: 65 from OB and 135 from NOLS participants. The follow-up data collection utilized an interview script similar to the one used in the initial data collection. The first section of the script asked participants to remember three or four of the most meaningful components or experiences from their course. Once the participants assembled their short list of meaningful components or experiences, they were asked a series of questions using the laddering technique for each stated component or experience. The last section of the script identified current participant descriptive statistics, including age, email, occupation and whether they would recommend an OB or NOLS program to people they know.

Collected data were transcribed into LadderMap, a software package used to analyze means-end data (Gengler & Reynolds, 1995). Researchers reviewed data and developed content codes for attributes, consequences and values based on key words and phrases that emerged from the data. The content codes were then tested in a blind review by an independent coder to determine intercoder reliability. In 2006, there was 87.3% agreement between researchers and the independent coder. In 2010, there was 81% agreement. Coded data were used to develop an implication matrix, which summarized the number of times a concept was associated with another concept to identify dominant connections between attributes, consequences and values. These connections were then used to create hierarchical value maps (HVMs), which illustrate the relationships and links between the attributes, consequences and values (Reynolds & Gutman, 1988).

Results

The objectives of this study were to determine the attributes, consequences and values associated with participation in outdoor adventure programs (OB and NOLS) and to compare outcomes associated with participation in OB and NOLS courses between initial end-of-course collection and the final data collection four years later. Forty content codes were developed from the data, including 16 attributes, 16 consequences and 8 values. These codes are presented in alphabetical order in [Table 1](#).

Implication matrixes, presented in [Figures 1 and 2](#), were developed to determine the number of times a concept was associated with another concept and to identify the dominant connections between attributes, consequences and values.

From each implication matrix, an HVM was created to illustrate the associations between the attributes, consequences and values. Means-end theory considers these three elements to be fundamentally interrelated. When creating an HVM, a specific cut-off value (the number of times concepts were associated together) was chosen so that only frequently occurring links are displayed. While the HVM contains the most meaningful connections, outcomes made by a few (or individual) participant(s) are not represented by these results.

Gengler and Reynolds (1995) assert that an HVM should contain enough data to display the majority of the means-end chains but not so much data that they are difficult to understand. Attributes are positioned at the bottom of the HVM and are illustrated as white circles. Consequences are positioned near the middle of the map and are represented by grey circles. Values are positioned at the top of the map and are represented by black circles. Circle size is proportional to the number of times a concept was mentioned by participants. The larger the circle, the more frequently it was mentioned. Line thickness is proportional to the number of times that a link appeared in the data. The thicker the line, the more often participants linked those concepts.

The HVM generated from all participants ($N = 510$) in the original 2006 data is shown in [Figure 3](#). A cut-off value of eight (77.4% of the data) was used to create this HVM. The most frequently mentioned attributes included: expeditioning ($n = 252$), group ($n = 231$) and climbing ($n = 151$). The most frequently mentioned consequences included:

Table 1. Content codes.

Attribute	Consequence	Value
Away From Home	Being Challenged	Fun and Enjoyment of Life
Camp Craft	Environmental Appreciation	Self-Awareness
Climbing	Fear/Anxiety	Self-Fulfillment
Expeditioning	Fun/Excitement	Self-Respect/Esteem/Confidence
First Aid	Hard Skill Development	Sense of Accomplishment
Fishing	Independence	Sense of Belonging
Group	Interactions	Transference
Illness/Injury	Leadership	Warm Relationships with Others
Independent Activities	Motivation/Inspiration	
Instruction	New Experience/Opportunity	
Leadership Activities	New Perspective	
Overall Course	Perseverance	
Small Group Expedition	Personal Growth	
Solo	Reflection	
Water Activities	Resourcefulness	
Wilderness	Stress Relief/Relaxation	

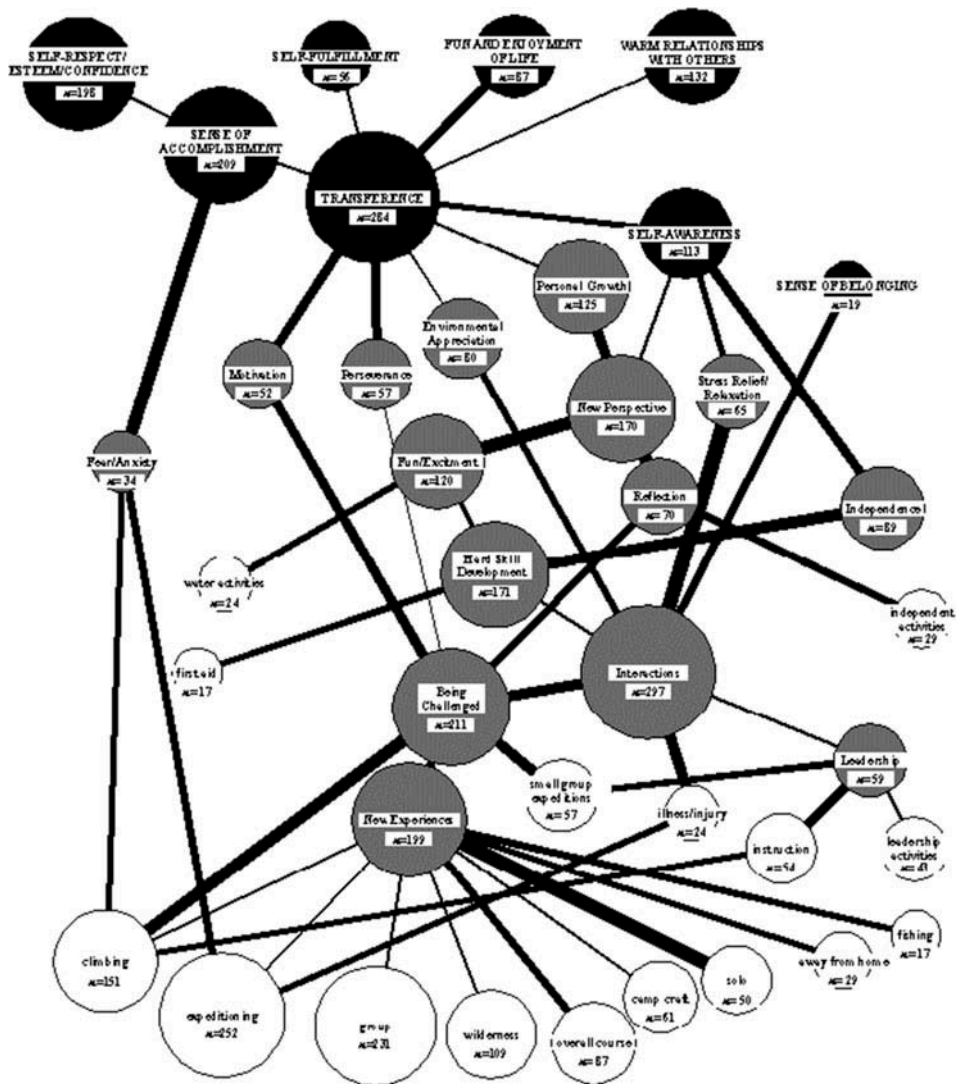


Figure 3. Hierarchical value map for 2006 ($N = 510$), cut-off value of eight (77.44% of data).

expeditioning ($n = 84$). The most frequently mentioned consequences included: interactions ($n = 142$), new experience/opportunity ($n = 102$) and being challenged ($n = 87$). The most frequently mentioned values included: transference ($n = 154$), self-respect/esteem/confidence ($n = 55$) and self-awareness ($n = 55$).

Summary

Two research questions directed the course of this study. Combined data and results from the first and final years of data collection provide answers to these research questions.

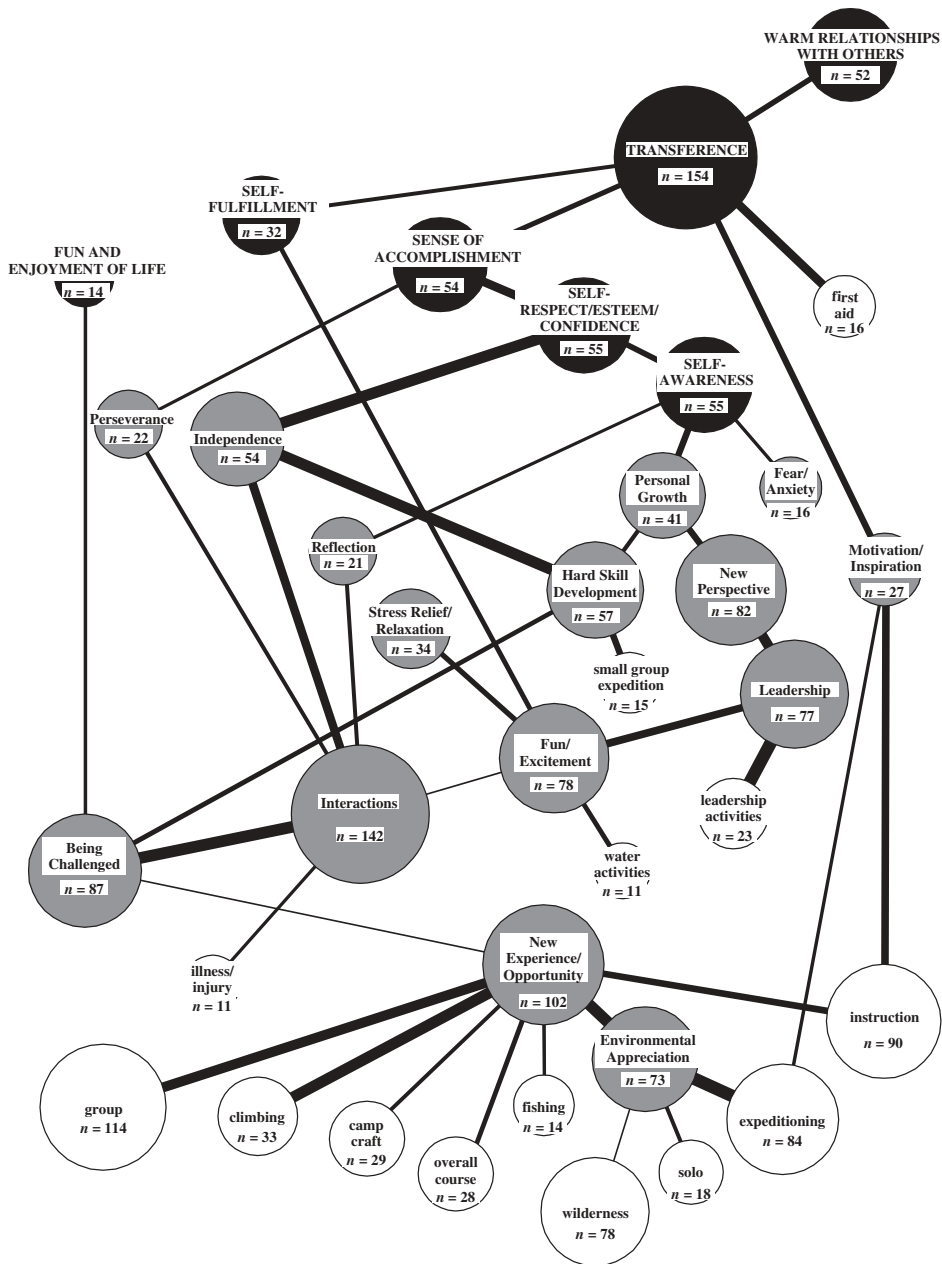


Figure 4. Hierarchical value map for 2010 ($N = 200$), cut-off value of six (81.1% of data).

Question 1

What are the attributes, consequences and values associated with participation in OB and NOLS adventure education courses?

Identification of the most frequently cited attributes, consequences and values associated with participation in OB and NOLS courses provides insight into the benefits and outcomes of course participation. Both immediately after course completion and four

years after course completion, the most frequently mentioned attributes were group and expeditioning. The most frequently mentioned consequences were interactions, new experience/opportunity and being challenged. Participants often reported transferring the consequences and benefits of course participation to their lives outside OB and NOLS. The majority of participants indicated that they gained self-respect, self-esteem and self-confidence.

Question 2

How do outcomes associated with participation in OB and NOLS courses change over time between the initial end-of-course collection and final data collection four years later?

The consistency of the most frequently mentioned attributes, consequences and values between the original data-set and the four-year follow-up data-set validates previous findings that OB and NOLS courses promote participants' personal development and improve self-efficacy.

Discussion

This study researched long-term outcomes of participation in OB and NOLS courses, fulfilling a need documented by a number of prior studies (Ewert & McAvoy, 2000; Sibthorp, 2003; Sibthorp, Furman, Paisley, & Gookin, 2008). As the first application of means-end theory in a longitudinal study, this study contributes to the body of knowledge by examining personal outcomes of participation in wilderness adventure programs. Priest (1999) documented a need to investigate 'what transfers, how much of it, for how long, and because of what program elements or barriers' (p. 315). This study found that participants continue, four years after course completion, to transfer numerous course elements, including group experiences, instruction, expeditioning, being challenged, new experiences/opportunities and interactions.

A number of prior researchers found that wilderness adventure course participation positively impacts group effectiveness and interactions (Ewert & Heywood, 1991; Fielding & Hogg, 1997; McKenzie, 2003; Sibthorp et al., 2008). The results from this study confirm these findings and further reveal that participants transfer group experiences and interactions into other areas of their lives.

Hattie et al. (1997) determined that OB courses positively impact participants' interpersonal skills, leadership skills, assertiveness, decision-making skills and self-esteem. Many of these same skills were frequently mentioned by participants and coded as consequences (interactions, personal growth and new experiences/opportunities) that led to transference of these skills into other areas of their life, as well as improved self-respect/esteem/confidence, even four years after course completion.

Ewert and McAvoy (2000) found that participation in wilderness adventure programs resulted in positive and beneficial changes in participants' self-confidence and self-esteem. This study corroborates those findings by identifying the value of self-respect/esteem/confidence as lasting outcomes of participation in OB and NOLS courses. Goldenberg et al. (2005) examined OB participation outcomes and found that rock climbing, interactions with others and expeditioning led to strengthening personal values and positively impacted participants' lives. This study also confirmed that those results such as climbing, expeditioning and group led to improvements in participants' self-respect/esteem/confidence, as well as transference of benefits and skills to other areas of their lives.

Limitations

The limitations of this study include sampling based on a convenience sample, interviews conducted with note-taking and the data being condensed when entered into LadderMap. Several participants were unreachable four years after the initial data collection due to moving, conflicting schedules or change of contact information. While NOLS and OB were selected for similarities in program philosophy, course attributes, course length and geographical locations, the fact that they are two different programs is a limitation of the study. A final limitation of the study was the lack of consideration for other factors that could affect participant outcomes, such as program philosophy, weather factors or course instructors. While program philosophy has an effect on participant outcomes, the study was not designed to measure this.

Research implications

This study fulfilled the significant need identified in the literature review to provide insight into the relationship between specific program elements and participant outcomes. In the future, in-depth follow-up questions with the same participants could provide further insight into those relationships. This research could include focused journaling, annual interviews and focus groups that emphasize specific attributes and outcomes. Additionally, this data-set presents numerous opportunities for further data analysis that focuses on how specific attributes and consequences lead to specific values. While the research in this study focused on the top attributes, consequences and values, the data-set contains numerous relationships that have not been studied. By comparing specific attributes and the values associated with them, researchers can determine whether certain attributes of a program provide more meaningful values.

Managerial implications

Wilderness adventure programmers can apply the knowledge about participation outcomes provided by this research when developing programs, creating marketing materials and obtaining outside funding. Sibthorp et al. (2007) found that adventure program managers assume that participation leads to growth without being able to explain how this growth occurs. Understanding the relationships between course components, the consequences of these components and specific values can assist managers in designing programs that will provide participants with the opportunity to obtain specific values. For example, this study shows that self-respect/esteem/confidence was a value mentioned by a majority of participants sampled. Programmers aware of these resulting values can design future programs with attributes that facilitate the acquisition of this value.

Conclusions

Participation in group activities and expeditioning during OB and NOLS adventure education courses promote participants' personal development and improve self-efficacy through interacting with others, having new experiences and opportunities, and undergoing challenge. Program managers may utilize these findings to design programs that promote specific value attainment. Further research into the relationships between these course components and outcomes may provide insight into how specific components led to desired value attainment.

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