Fostering Leadership Through a Three-Week Experience: Does Outdoor Education Make a Difference?

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Leadership is one of the principal goals and desired outcomes from participation for many outdoor education programs. This study examines the effectiveness of a short-term expedition-based outdoor experience on the leadership skill level of program participants. Results demonstrate a significant increase in self-reported leadership skills over time for the treatment group, $p < .001$, as well as a significant difference in leadership skill levels between the treatment group and the control group, $p < .05$. It is argued that outdoor education settings offer the types of hands-on and diverse experiential leadership development opportunities that are often lacking in other leadership development realms. Building on current leadership theory, implications for outdoor leadership training programs are discussed and several models of outdoor leadership skill development are presented.

Keywords: outdoor leadership, skill acquisition, leadership training

Introduction
"Public and private organizations continue to embrace the myth that they can develop effective leaders by investing millions of dollars and many hours in leadership training programs." (Allio, 2005)

Few would disagree that leaders can have a tremendous impact upon organizations and individual clients. In response to this impact, many organizations have developed training programs intended to enhance leader performance (Mumford, Zaccaro, Connelly, & Marks, 2000). Relative to leadership training, these programs generally reflect one of two strategies. First, organizations often attempt to develop effective assessment and selection criteria through which effective leaders are hired. A second strategy takes a more developmental approach whereby factors such as training, monitoring, and practicing are used to develop effective leadership skills. Many outdoor education programs utilize this second, skills-development approach, as a way to enhance the leadership capacities of their participants and/or staff. The purpose of this study was to examine the effectiveness of a short-term expedition-based outdoor experience on changes in the levels of leadership skills among program participants. For this study, leadership is defined as a complex mix of behavioral, cognitive, and social skills that may develop at different rates and require different learning experiences (Day & Halpin, 2004).

Leadership Training
Leadership training is inherently a practical venture typically involving the goal of developing leaders that can make good decisions in a timely fashion and under a variety of environmental and organizational pressures. The leadership training literature is replete with theories on leadership development including trait theories, behavioral theories, situational theories, and humanistic theories (Lord & Hall, 2005; Rilling & Jordan, 2007). Other theories posit that leadership entails humility and credibility (Kouzes & Posner, 2002). Still others suggest that leadership requires character, creativity, and emotional intelligence (Allio, 2004; Goleman, Boyatzis, & McKee, 2002).

Concomitant with these theories has been the development of a substantial research base of leadership training from which a number of salient findings have emerged. Leadership skill development often occurs in a sequence, such as that identified by Ackerman (1991), where leaders begin by understanding task requirements, followed by the development of performance capabilities, and finally, performance becoming instinctual and routine. The same types of training that contribute to leadership skill development in the early stage of a

leader's development, however, may not be ideal for later stages of development (Mumford, Marks, Connelly, Zaccaro, & Reiter-Palmon, 2000). For example, using medical simulations may be appropriate for a novice leader in outdoor education, but may have limited application for a more experienced leader assigned to a non-field administrative position.

Broadly speaking, leadership experience develops slowly over a period of years with expert leaders being able to access a greater number of concepts, better organize information on the basis of principles and patterns, and apply concepts in a more flexible manner, than their less experienced counterparts (Lord & Hall, 2005; Mumford, Marks, et al., 2000). Ericsson and Charness (1994) suggest that it may take as many as 10,000 hours of experience and deliberate practice to achieve an expert level of leadership performance. Mumford, Zacarro, et al. (2000) also suggest that leadership skill development is progressive, in that it moves from simple knowledge acquisition and straightforward technical and social skills, to more complex integrated systems that require creative problem-solving and flexible situational assessments.

It is this last statement that forms the basis of a model proposed by the authors that depicts the sequencing of leadership skill development within an outdoor education framework. Adapted from a model developed by Mumford and his colleagues (2000), the Outdoor Leadership Skill Acquisition Model (OLSAM) depicts how skill development progresses within an outdoor education program (see Figure 1).
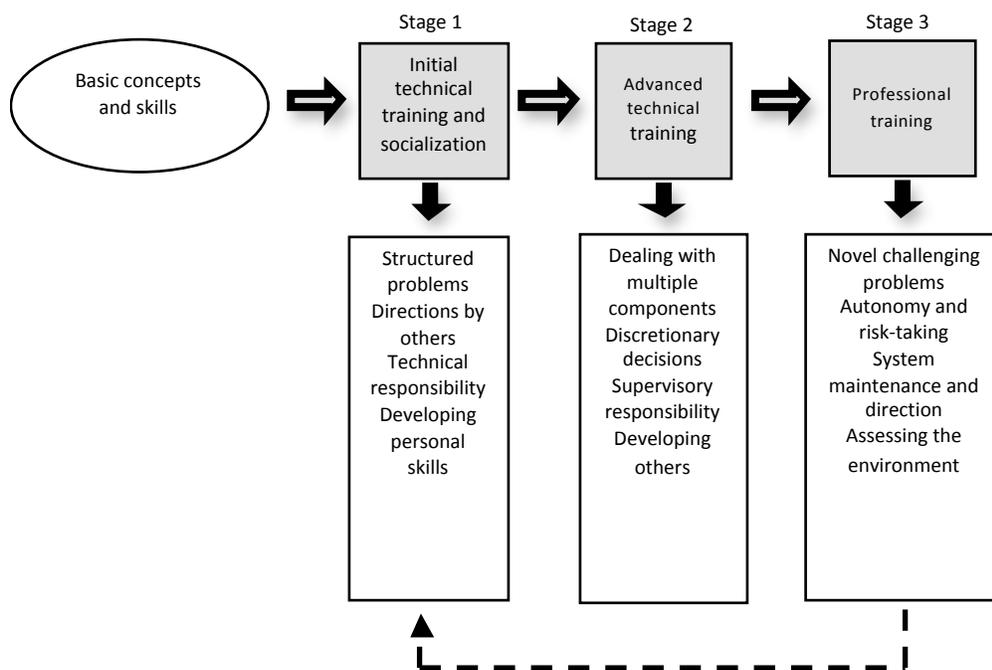

Figure 1. Outdoor leadership skill acquisition model (OLSAM)

This model depicts three different stages of training during a leadership progression, each followed by programmatic components that allow for the application of leadership skills. Prior to these three stages, students are usually introduced to basic concepts and skills such as the importance of managing a group in the outdoors. This leads to the first stage of initial technical training and socialization, which often occurs as participants are developing their leadership skills during a course or program. Individuals begin to implement these skills during structured leadership opportunities that may involve technical skills such as navigation or logistical planning, as well as group management aspects such as giving and receiving directions. In Stage 2, advanced technical training builds on the leadership skills developed during the first level. Examples of where this occurs include higher level technical skills courses and certification courses, such as Wilderness First Responder (WFR) or Top-Rope Management training.

At this point, leaders are often faced with more complex skill combinations involving multiple components, discretionary decisions, and responsibilities of supervising and developing other students or instructors. In Stage 3, outdoor leaders may receive specific professional training in leadership, such as exposure to other organizations or different types of leadership requirements, such as administrative responsibilities instead of student-teaching duties.

However, in outdoor education, the linearity of the training as depicted in Figure 1 is often not the case. That is, novice leaders are often faced with Stage 3 types of situations, such as novel and challenging situations, situations involving risk, and autonomous decision-making situations. This "jump" from Stage 1 types of situations to Stage 3 types of situations is depicted in the model through a dotted line.

Outdoor leadership programs often strive to create environments that help move participants through the OLSAM process of leadership development. Initially, this process begins with course participants who are given skill training in certain areas and then afforded the opportunity to take on positions of peer leadership, such as the role of Leader of the Day (LOD), peer teaching, and other leadership and decision-making opportunities. On longer courses, students often have multiple opportunities to serve in these roles, and the challenges of the trip, both in terms of technical skills and the social environment, get progressively more difficult. Based on feedback from peers and instructors, the student leader can thus continue to develop leadership skills and behaviors.

Other examples of student leadership training include scenarios and mock rescue situations, peer teaching opportunities, and independent group travel. Each of these situations affords opportunities for hands-on leadership experience with real consequences, often followed by formal debriefings as well as informal feedback from peers and instructors. Following the conclusion of the course or program, the participant may continue to practice these new skills in other arenas, may take a more advanced outdoor leadership course, or move into a novice outdoor leadership role. Whatever the case, the leader will be once again given some training and faced with progressively more challenging tasks, thus furthering the leadership development process. Bennis and Thomas (2002) suggest that all potential leaders must pass through a crucible that provides for a transforming experience as they move from being a *student* of leadership to becoming an actual *leader*. Outdoor education courses often provide such an experience for developing leadership.

Leadership Training and Outdoor Education

For many outdoor education programs, leadership development can be a principal goal and desired outcome of the program. While much of the literature supports the notion that leadership is a critically important characteristic for outdoor education programming (see Blanchard, Strong, & Ford, 2007; Martin, Cashel, Wagstaff, & Breunig, 2006; Priest & Gass, 2005), much less information is known as to whether leadership skills are actually improved through participation in outdoor education programs. The opening quote in this paper, by Allio (2005), suggests that leadership programs often provide a cognitive experience based on leadership theory and leadership virtues but do not actually teach people how to lead. As he poignantly states, *"Taking a course on wise men may help you learn about them, but it seems unlikely to make you wiser! Leadership is no different." (p. 1072).*

We disagree with Allio's assertion as it pertains to outdoor education and would argue that outdoor leadership training involves active and direct experiences with many of the components associated with leadership such as decision-making, assessment, motivation, and goal-setting. A growing body of literature in the adventure-education field points to the positive relationship between leadership development and course participation (Hattie, Marsh, Neill, & Richards, 1997; Raynolds, Lodato, Gordon, & Blair-Smith, 2007; Sibthorp, Paisley, & Gookin, 2007). Moreover, it is the direct experience of practicing leadership that serves as the applied underpinning for the acquisition of leadership skills (Quay, 2008).

Thus, the principal research question studied was whether or not participants would report enhanced levels of leadership skills and abilities following completion of a three-week outdoor leadership experience. As identified in the discussion of Figure 1, we expected this to be the case based on the numerous leadership

opportunities afforded the participants involving direct experience, feedback, mentoring, and multiple learning challenges (Bennis & Thomas, 2002). In addition, although not a focal point of this particular study, the OLSAM concept presented in Figure 1 offers one potential explanation of the sequence of situations, such as having supervisory responsibilities in addition to technical responsibilities that lead to leadership development.

Methods

Two instruments were used to measure changes in leadership skills: a modified version of the Empowering Leadership Questionnaire (ELQ) (Arnold, Arad, Rhoades, & Drasgow, 2000) and the leadership section of the Outward Bound Outcomes Instrument (OBOI) (Frankel & Ewert, 2009). The modified ELQ is a 15-item questionnaire using a 100 mm line anchored by *Strongly Disagree* and *Strongly Agree*, capturing five overriding factors: (a) Leading by Example, (b) Participative Decision-Making, (c) Coaching, (d) Informing, and (e) Interacting with the Team. The Cronbach's alpha of the ELQ used in this study was .85. The OBOI consists of 24 items using a 100 mm line anchored by *Strongly Disagree* and *Strongly Agree*. Ten of the items relate to the leadership function and resulted in a Cronbach's alpha of .73.

Study participants were college students who were either enrolled in a semester-long outdoor leadership program or enrolled in a required class offered through the same academic department. In addition to several shorter field experiences, the outdoor leadership program involves a three-week expedition, which served as the focal point of this study. Data were collected from 89 participants, 18 of whom were engaged in the outdoor leadership program (11 male, 7 female). The other 71 individuals served as the comparison group (36 males, 47 females. For both groups, data were collected two days before, and three days after the expedition component of the outdoor leadership program (21 days duration). Two weeks following the return from expedition (i.e., end of the semester), data were collected a third time for the treatment group only. The third data collection was not performed on the comparison group since there was no theoretical reason to expect any change in this group as opposed to the group that had received the treatment.

Results

Data were examined for accuracy, missing values, and the assumptions of multivariate analysis. Due to small sample sizes, data were cleaned based on individual variables rather than single cases, resulting in different sample sizes for each of the two leadership instruments. If data belonging to an individual case contained univariate and/or multivariate outliers, or if most data in a variable were missing, then all of the data for that variable were deleted. A single missing value on the outcome variables was replaced by the mean for the other values of the case. There were no univariate outliers recognized, but a total of ten values were identified as multivariate outliers using *Mahalanobis* distances with $p < .001$ and were deleted from further analysis (Tabachnick & Fidell, 2001). Although four outcome variables were measured including *leadership, resilience, service, and character*, this paper only reports on the *leadership* variable measured by the ELQ and OBOI. Data cleaning for the leadership section of the OBOI resulted in 46 usable matched questionnaires—31 from the comparison group (10 male/20 female), and 16 from the treatment group (10 male/6female). Data cleaning for the modified ELQ resulted in 47 usable matched questionnaires—32 from the comparison group (9 male/23 female), and 15 from the treatment group (9 male/6 female). A one-way analysis of covariance (ANCOVA) was employed in order to examine mean differences between females and males as well as treatment and comparison groups. In both analyses, the pretest served as the covariate. Levene's test detected no inequality of error variance between the groups.

Results using ANCOVA indicated a significant group effect on both leadership measures after controlling for their pretest scores, ELQ, $F(1, 46) = 12.75, p < .05, ;$ OBOI, $F(1, 44) = 7.14, p < .05,$ (see Tables 1 and 2). In both measures, individuals in the treatment group reported developing higher leadership skills than the comparison group after adjusting for the pre-test scores. The leadership measures between male and female participants were not significantly different; ELQ, $F(1, 44) = .04, p > .05$; OBOI, $F(1, 43) = 1.39, p > .05$.

Table 1

ANCOVA results for comparison of treatment and control groups for Empowering Leadership Questionnaire

Source	SS	df	MS	F
Intercept	1823.52	1	1823.52	29.00***
Covariate	1322.76	1	1322.76	21.04***
Group	801.85	1	801.85	12.75*
Error	2892.68	46	62.88	

Note: *p<.05, **p<.01, ***p<.001

Table 2

ANCOVA results for comparison of treatment and control groups for Outward Bound Outcomes Instrument

Source	SS	df	MS	F
Intercept	1509.85	1	1509.85	1.836
Covariate	29013.86	1	29013.86	35.273***
Group	5869.98	1	5869.98	7.136*
Error	36192.30	44	822.55	

Note: *p<.05, **p<.01, ***p<.001

In addition, repeated measures of leadership skills as a function of time (pre, post, post-post) for the treatment group, indicated a significant difference for both the ELQ, $F(1.34, 17.41) = 22.42$, $p < .001$, = .633 and the OBOI, $F (2, 28) = 14.71$, $p < .001$, =.512 (see Tables 3 and 4).

Table 3

Treatment group change over time for Empowering Leadership Questionnaire

	SS	df	MS	F
Time	1132.68	1.34	845.78	22.42***
	656.67	17.41	37.72	

Note: ***p<.001

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Table 4
Treatment group change over time for Outward Bound
Outcomes Instrument

	SS	df	MS	F
Time	7272.00	2	3636.00	14.71***
	6920.44	28	247.15	

Note: ***p<.001

The results indicated that leadership skills collected from both instruments increased in a relative linear fashion across the three time observations, $p < .001$ (see Figure 2). Further examination using paired sample t tests revealed significant differences between the pre and post-post (p .001) and post and post-post scores ($p < .01$) for the OBOI instrument and significant differences for the pre and post-post ($p < .001$) and post and post-post ($p < .01$) for the ELQ measurement.
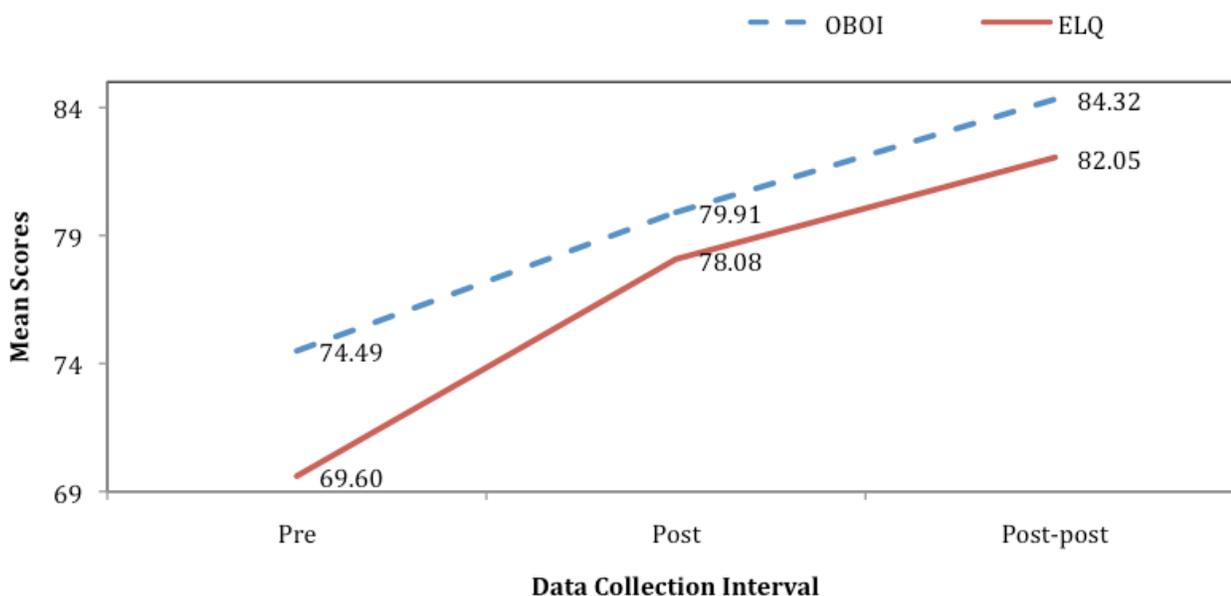

Figure 2. Mean scores of the OBOI and ELQ instruments at pre, post and post-post data collection intervals for the treatment group, depicting leadership acquisition over time.

Discussion and Theoretical Implications

Although the small sample sizes preclude broad generalization, the data from this study suggest that participants of this particular three-week outdoor leadership experience reported greater increases in their leadership skill development than did their non-treatment counterparts. Although somewhat expected, this result could simply be an artifact of self-selection or a reactive effect such as the Hawthorne Effect (Shadish, Cook, & Campbell, 2002). Despite this possibility, the strong linear function exhibited in the treatment group suggests that leadership skill was a variable that continued to increase throughout the pre, post and post/post timeframes. This finding could point to a connection to the theory of competence/effectance first described by White (1959) and later integrated into Deci and Ryan's (1985, 2008) Self-Determination Theory (SDT). That is, within an SDT framework, students learn about leadership through an outdoor education program and then continue to practice it because it satisfies the three motives underlying SDT, namely, the need for competence, autonomy, and relatedness. Thus, following the initial learning period, leadership increases, probably as a result of practice, and this increased skill reinforces a sense of competence and effectance and results in continued skill development and practice.

Beyond a possible connection to SDT, what are some other potential reasons for this change and what implications to the broader area of outdoor leadership could be inferred from this study? First, there are a number of training techniques used in this program that are also present in many outdoor education leadership programs, and some of these techniques have been described in the OLSAM process. A sampling of these would include (a) leader of the day (LOD), (b) periodic group feedback to the leader in training regarding their performance, (c) formal and informal feedback from instructors, (d) leadership simulations and mock experiences, and (e) exposing the leader in training to progressively more complex situations involving multi-tasking, time criticality, and social as well as physical environmental pressure.

In addition and related to the question of how students develop leadership skills through outdoor education experiences, Lord and Hall (2005) suggest that leadership skill development varies by level of experience and can be categorized as *surface*, *intermediate*, and *deep knowledge* structures. Surface knowledge structures are considered immediately observable components of leadership such as behavior of leaders *vis a vis* subordinates (or what leaders do when they lead). Intermediate knowledge structures refer to pattern recognition and information retrieval that allow the leader to make decisions based on past knowledge rather than "making it up as you go;" a situation often faced by the novice leader. Deep knowledge structures involve issues such as emotion regulation skills, identification of core values, and self-identity (Lord & Brown, 2004). Within the outdoor education context, an example using leadership with deep knowledge would involve the outdoor leader having comprehensive information regarding a specific medical emergency and also knowing how to interact with his or her students after an accident or student injury to reduce their emotional trauma.

This particular study suggests that this specific outdoor leadership program (albeit one that uses a number of common practices utilized in the field of outdoor education, such as the LOD process) can be effective in developing outdoor leadership skills. Moreover, the OLSAM and Lord and Hall's (2005) work may be useful in helping describe *how* these types of programs can be effective. Using the short-term experience examined in this study as an example, Table 5 illustrates a progression in level of knowledge that outdoor leaders may go through as they develop their leadership skills. Once again, suggesting that outdoor leadership programs *can* be effective in developing leadership skills because they often offer sequentially-based experiences and training opportunities to develop skills and knowledge.

Table 5

Surface, Intermediate and Deep Knowledge Structures of Outdoor Leadership

Expedition Components	Surface	Intermediate	Deep
Solo	Ability set up a solo experience based on past experiences and observations of other leaders.	Constructing experiences that are tailored to the group and current situational demands.	Understanding and utilizing the deeper meanings of solitude and reflection to bring about personal growth and change.
Summit climb	Providing leadership in technical skills such as anchors, route finding, climbing skills, rope management, etc.	Leadership and decision-making based on increased knowledge of situation, weather, group dynamics, and past experience.	Utilization of self-identity and values to assess situation, provide leadership and facilitate meaning.
Final expedition	Setting up a student leadership opportunity that takes place away from direct supervision of instructors.	Applying knowledge gained from student leadership to other role.	Drawing on past experiences to inform decision making and facilitation of course components.
Long walk (or other component designed to push students physically and emotionally)	Leadership opportunity during stressful time for group, resulting in personal growth and leadership development	Drawing on experience to construct similar opportunities for students and process the outcomes as appropriate for each group member.	Helping students understand how they deal with physical stress and uncertainty.

Thus, a particular strength of outdoor education may lie in providing a broad spectrum of learning opportunities within numerous dimensions. For example, and as depicted in Table 5, the expedition in this study offered a variety of settings for learning leadership skills including a summit climb, solo and reflection, a physically demanding "long walk," and a final expedition. Beyond these, however, were opportunities to be exposed to consequential decision-making, performance-based assessments, and working within a team. This latter example is particularly important given the current emphasis on building project-based teams that are granted more autonomy, self-direction, and control over their work environment (Arnold, Arad, Rhoades, & Drasgow, 2000; Linden & Arad, 1996).

Finally, this study was exposed to a number of limitations. First, with a small and uneven sample size, generalizing to other programs and situations is problematic. However, many of the training techniques used in this outdoor leadership program are common to many other programs involved in outdoor leadership.

Nevertheless, while the leadership training techniques used in this program are similar to others, the sample is not. For this study the sample was composed of college students, and as such, were generally a self-selected group. They came into this program willing and anxious to learn and experience the many facets of outdoor leadership. This is definitely not always the case in many other settings, such as in business, where the client is often instructed to attend, whether they wish to or not. Thus, the question becomes whether the program is effective or are the students just more willing to learn.

From the perspective of the field of outdoor leadership, one obvious approach to this problem will be to study the development of leadership skills using different populations and different formats. In these future efforts, the concepts of OLSAM, SDT, and Knowledge Structures may offer some further explanatory power in describing not just *that* it happens, but *why* and *how* these programs are and can be effective in developing leadership skills.

Conclusion

In conclusion, Allio (2005) may have a point relative to leadership training programs in the business world, but not in the outdoor education setting. Outdoor education settings offer the types of hands-on and diverse experiential leadership development that is often lacking in other leadership development realms. This study was able to demonstrate a significant increase in self-reported leadership skills for the treatment group, and a significant difference in changes in leadership skills between the treatment group and the control group as a function of time (pre/post). This study did not, however, measure actual leadership behaviors, which may be an important area of focus for future studies. The existing literature on leadership is rich with studies and examples from the corporate world, but less so with studies in experiential and outdoor-based leadership program settings. This study attempts to fill this void, but a greater depth of research is needed in this area. For in the final analysis, good leadership is primarily about what leaders *do,* not just about their traits and background.

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