

An exploratory study of student development in an outdoor higher education program

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Research on the impact of outdoor education mostly consists of assessments of self-esteem and social skills in adventure programs outside of academia. The present exploratory study assessed personal and academic development in undergraduate participants of an interdisciplinary, semester-long, study away learning community in higher education. We assessed development using a multi-method approach employing qualitative and quantitative methodologies. Concerning quantitative data, outdoor participants' life satisfaction significantly increased from the beginning to the end of the semester, whereas a matched control sample taking traditional courses did not experience this benefit. The outdoor program buffered participants from the decreases in attributional complexity and existential well-being experienced by the control group. Qualitatively, outdoor education students reported learning across a wide variety of intelligences and believed that these achievements could not be experienced in the traditional classroom. Implications and limitations of the study are discussed.

Keywords: study away, outdoor education, learning, multiple intelligence

Outdoor education is one form of applied learning, providing students an opportunity to apply abstract concepts to a relevant context. However, most outdoor education research focuses on adventure programs that teach intra- and interpersonal skills outside of the college setting (Hattie, Marsh, Neill, & Richards, 1997; Neill, 2003). The present study involved a multi-method assessment across a broad range of student development in an outdoor higher education program. We collected quantitative data to examine whether the program would improve critical thinking abilities, life satisfaction, and existential well-being beyond that of a matched control group taking similar courses (without an outdoor component). We also collected qualitative data exploring outdoor participants' perspectives of how the program enhanced student development and whether the applied component of the trip uniquely contributed to learning.

ACADEMIC LEARNING IN OUTDOOR EDUCATION

Outdoor education is one form of study away experience, in which students take trips into nature to learn various skills and acquire knowledge (Cooper, 1994). Study away is a type of applied learning that allows students to integrate subject areas with learning experiences in new contexts (Schwartzman & Henry, 2009). The outdoor setting is one relevant context, as it provides an opportunity to apply knowledge learned in the classroom, requires attention given the multitude of novel and complex stimuli in the natural environment, and allows time and space for reflection (Beard & Wilson, 2002; Bennion & Olsen, 2002; Daubert & Ream, 1980).

The evaluation of outdoor education has mostly focused on the enhancement of soft skills such as building self-esteem and social capacities (Hattie et al., 1997; Neill, 2003). Some programs have attempted to address academic content in such areas as ecology, geography,

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reading, writing, and math (Bennion & Olsen, 2002; Daubert & Ream, 1980; Fuller, Gaskin, & Scott, 2003; Marsh, Richards, & Barnes, 1986; O'Neil & Skelton, 1992; Van Noy, 1994). However, most of these publications do not empirically assess academic development, and fewer still examine learning in undergraduate outdoor education.

We wished to assess an aspect of academic learning rarely explored in outdoor education – critical thinking. Critical thinking is an important goal within a liberal arts higher education (King, Brown, Lindsay, & Van Hecke, 2007). More specifically, we wanted to address attributional complexity (AC) — the ability to take different perspectives concerning a problem and recognize the multiple causes of an event (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). We were presented with a unique opportunity in the mid 2000's in the Midwest. Situated along the Missouri river, our local community was celebrating the bicentennial of Lewis and Clark's historic exploration of the territories later to become the United States. We retraced their steps in our outdoor curriculum, exploring history from the "white person perspective" (i.e., Lewis and Clark) and the Native American standpoint. We revisited the path taken by Lewis and Clark — investigating interpretive centers, canoeing the Missouri river, and reading their journals. We also read Native American literature and spoke with indigenous persons to better understand the values and worldview in each culture. We expected this curriculum would increase AC more than that of a typical undergraduate classroom.

LIFE SATISFACTION AND WELL-BEING IN OUTDOOR EDUCATION

Outdoor education might provide benefits beyond the learning of academic information and life skills. Theorists (Cooper, 1994; Kaplan & Kaplan, 1989; Ulrich, Simons, Losito, Fiorito, Miles & Zelson, 1991) suggest that being in nature can enhance satisfaction with life (LS) and existential well-being (EWB — defined as meaning and purpose in life). For example, attention restoration theory states that natural environments contain characteristics (an organized setting, fascinating stimuli that are different from urban life) that lead to effortless attention, rebuilding a person's cognitive resources (Kaplan & Kaplan, 1989). Further, the stress-reduction theory purports that the natural environment provides a non-threatening, aesthetically pleasing setting that reduces emotional, cognitive, and physical stress (Ulrich et al., 1991).

We believe that increasing LS and EWB are important goals within higher education, providing students an opportunity "to construct lives of substance" (King et al., 2007, p. 2), as well as enabling "individuals to live richer, more interesting...lives" (Glenn & Weaver, 1981, p. 23). A recent national research program included increasing LS and purpose in life as major goals within a liberal arts education (King et al., 2007).

A few studies have assessed well-being in outdoor education (Kaplan & Talbot, 1983; Lambert, Segger, Staley, Spencer, & Nelson,

1978). Kaplan and Talbot analyzed high school student journals in a survival course and discovered a gradual increase in participants' sense of awe, wonder, and closeness to God. Lambert and colleagues found an increase in college students' relationship with God after a nonacademic adventure course, but did not find a similar increase in a more academically-based outdoor course or two traditional college psychology classes. We would like to assess well-being in a more secular fashion, exploring meaning and purpose, as well as satisfaction with life. Given the theorized benefits of being in nature, we expected greater increases in these variables for participants in our outdoor higher education program compared to those taking regular college classes.

THE OUTDOOR SEMESTER PROGRAM

The program assessed in the present study is known as the Outdoor Semester. It is a multi-disciplinary, theme-based, semester-long, applied learning community at a moderate-sized institution in the Midwest. The program theme of Lewis and Clark's expedition was offered during the fall semesters of 2006 and 2007. Students were provided an integrated curriculum examining America's relationship with the natural world in a historical and cultural context. The program included courses in literature, composition, psychology, geography, and outdoor education. The curriculum emphasized critical thinking (looking at information from various perspectives, acknowledging multiple causes of events) and applying information learned in the classroom to experiences on the trips. For instance, in geography, students learned about the earth's physical systems and compared how Native-Americans and other Americans historically utilized the earth's resources and the resultant effects. In literature courses, students read Native-American books set in the Midwest in the 1800s and a history of the Lewis and Clark expedition. Outdoor education courses taught them how to prepare their bodies for the trips and maintain their health long-term, along with learning outdoor survival skills. Students were also required to make an oral presentation to the local community about their experiences. In psychology, students were taught systematic desensitization and cognitive restructuring to overcome anticipatory fears of canoeing, rock climbing, or sharing a tent or a room with a peer. For composition, students were challenged to write 1,000 words each day while on the trips, describing experiences and relating events to coursework. Students were also required to write a research paper over a topic within the program curriculum.

Students and faculty took two 14-day excursions to the Great Plains and Rocky Mountains. The first trip took place in late September, including travels to the Badlands and Black Hills in South Dakota, through the Big Horn Mountains in Wyoming and the upper Missouri River in Montana. The second trip occurred in mid-November and traveled the Santa Fe Trail through the Sangre de Cristo Mountains to Taos, Santa Fe, and Chaco Canyon, New Mexico. Activities included

canoeing, white-water rafting, horseback riding, hiking, and camping. Students immersed themselves in frontier culture, visiting many interpretive centers, museums, forts, and battle sites. Students met Native Americans from several tribes, participated in hand games and sweat lodges, and listened to elders tell stories.

To review, the goal of the present study was to assess student development in the Outdoor Semester. We hypothesized significantly greater increases in AC, LS, and EWB in students taking Outdoor Semester than those taking similar classes without an outdoor component. We also used qualitative analyses to further explicate what was learned in the program — from the point of view of the students — and to assess how the study away portion of the program uniquely contributed to their education. We did not create *a priori* hypotheses for the qualitative findings since these were exploratory and an attempt to obtain the students' perspective.

METHODS

SAMPLE

Nineteen students participated in Outdoor Semester between 2006 (nine participants) and 2007 (ten participants). We obtained a matched control group of nine students in 2006 and ten in 2007 who took a section of English composition that did not have an outdoor component and was not taught by an Outdoor Semester instructor. The students were matched on age, gender, race, and marital status. Outdoor participants' average age was 22.6 ($SD = 8.3$), and the comparison sample's average age was 22.7 ($SD = 7.4$). Each group contained six males, eighteen Euro-Americans, and one Hispanic-American. Each group also contained thirteen persons who were single, two who were cohabiting, three who were married, and one divorced individual.

MEASURES AND PROCEDURE

The comparison sample consisted of students who matched the Outdoor Semester sample on four demographic variables — age, gender, race/ethnicity, and marital status. These demographic variables correlate with the constructs assessed in the current study, as women and older individuals report greater levels of EWB and AC than men and younger persons, and Caucasians and married persons report higher LS than Hispanic-Americans and single or divorced individuals (Barger, Donoho, & Wayment, 2009; Fletcher et al., 1986; Hendricks-Ferguson, 2006; Hess, Osowski, & Leclerc, 2005; White, 1992).

Participants were given extra credit in both Outdoor Semester and the comparison classes to complete a survey containing demographic information and measures of AC, LS, and EWB. The surveys were completed the first (pretest/Time 1) and last weeks (post-test/Time 2) of the semester.

Of 201 students across 9 comparison classes, 105 students were deemed appropriate matches — of the same gender, race, and marital status and generally within one year of the same age. Five outdoor students had unique qualities (26 or older, cohabiting or married, Hispanic-American) that made it difficult to find a single-year age difference. For these individuals, we looked for potential matches with less than five years age difference. To choose the comparison sample, we randomly selected (through use of a numbers table) a match for each participant. Our final matches included 14 student pairs with less than a year's difference in age, two pairs with a 1-2 year age difference, two pairs with a four-year age gap, and one pair — our only nonwhite participants — had a five-year age difference. We believe this age difference is minimal, given the fact that the oldest students share a similar generational cohort and a similar marital status, gender, and ethnicity. One-way ANOVAs revealed no significant difference between the 19 students selected as matched participants and the other 86 students not chosen to be in the comparison sample, in terms of Time 1 AC ($F(1,103) = 2.37, p = .13$), Time 2 AC ($F(1,103) = 0.13, p = .72$), Time 1 LS ($F(1,103) = 0.33, p = .57$), Time 2 LS ($F(1,103) = 0.06, p = .81$), Time 1 EWB ($F(1,103) = 0.76, p = .39$), and Time 2 EWB ($F(1,103) = 0.49, p = .48$).

To measure AC, we utilized the 28-item Attributional Complexity scale (Fletcher et al., 1986), which assesses students' ability and interest in considering multiple causes of an event. Items are rated on a -3 ("Strongly Disagree") to +3 ("Strongly Agree") scale. Internal reliability of the measure is high (coefficient alpha of .85), as is temporal reliability (18-day test-retest correlation of .80). The scale has strong construct validity — as theorized, the items loaded on one factor, were moderately associated with need for cognition, and psychology majors scored higher on AC than natural science majors (Fletcher et al., 1986).

We used the five-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) to assess LS. It measures overall quality of life. Items are rated on a 1 ("Strongly Disagree") to 7 ("Strongly Agree") scale. The scale has strong internal (coefficient alpha of .87) and temporal reliability (a two-month test-retest correlation coefficient of .82 — Diener et al., 1985). Demonstrating validity, the five items loaded together on one factor, as hypothesized, and the total score has a moderate positive correlation with self-esteem and moderate inverse associations with neuroticism and mental distress (Diener et al., 1985).

To measure EWB, we used the 10-item Existential Well-Being Subscale of the Spiritual Well-Being Scale (Paloutzian & Ellison, 1991). This subscale assesses purpose and meaning in life. Test-retest and internal reliability are consistently above .80 for this subscale (Paloutzian & Ellison, 1991). As hypothesized, EWB is associated with positive self-concept, purpose in life, physical, and emotional health (Paloutzian & Ellison, 1991). Items are rated on a 1 ("Strongly Disagree") to 6 ("Strongly Agree") scale.

In terms of a qualitative assessment, participants completed a two-page, open-ended survey six weeks into the semester, immediately

after the first trip. Questions included what surprised students about the trip; what they valued about the experience; what they disliked/thought could be improved; what they learned about themselves, what they learned about others, whether they could have learned the same things by staying in the classroom, and why/why not. Responses were qualitatively analyzed using grounded theory (Smith, Harre, & Langenhove, 2001), a technique that allows for an inductive exploration of participant responses, using their answers as a catalyst for data analysis. Three coders (the lead author and two undergraduate assistants) individually read through each participant's responses twice, noting major themes and subthemes. Inter-rater reliability was 79.6%, a figure comparable to analyses in prior studies (Smith et al., 2001). Discrepancies were discussed until a unanimous decision was reached, and categories/subcategories were verified with the participants for validity purposes.

Two weeks after the trip (eight weeks into the semester), participants anonymously completed a survey containing closed-ended questions based on the qualitative analyses (see Tables 3 and 4). Participants rated the items on a 1 ("Strongly Disagree") to 7 ("Strongly Agree") scale. The purpose of this survey was to assess the prevalence of the main ideas presented in the qualitative data, without requiring spontaneous reports from participants (as the open-ended questions necessitated).¹

RESULTS

INFERENTIAL STATISTICS: BENEFITS OF OUTDOOR HIGHER EDUCATION

When comparing mean scores on variables for which two samples share variance (e.g., gender, age, race, and marital status), it is appropriate to run a paired-samples t-test (Ha & Ha, 2012). As suggested by statisticians (Ha & Ha, 2012), we first subtracted students' pretest scores from their post-test scores on each variable (e.g., subtracting Time 1 LS scores from Time 2 LS scores). We then ran a paired-sample t-test on the difference scores for each matched pair (e.g., an Outdoor Semester participant's LS difference score paired with the matched participant's LS difference score). Table 1 lists the descriptive statistics for the outdoor education students and the matched comparison sample on AC, LS, and EWB. Given the small sample size, we used a significance level of $p < .05$ and also assessed for marginal significance ($.10 < p < .05$).

Surprisingly, AC decreased slightly (-0.03 mean points-per-item) in the Outdoor sample. However, the decrease in AC was significantly greater ($t(18)=2.03, p = .03$) in the comparison sample (-0.39 mean points-per-item). As hypothesized, Outdoor Semester students reported a net increase (+0.38 points-per-item) in LS, whereas the matched comparison group reported a net decrease of 0.19 points-per-item. The difference between these change scores (0.57 points-per-item)

Table 1. Descriptive Statistics (Mean-per-Item) for Quantitative Measures

		Pretest			Post-Test				Possible
Sample	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (18)	<i>p</i>		Range
Attributional Complexity									
Outdoor Participants	19	1.43	0.70	1.40	1.02	-0.24	.81		-3.00 – +3.00
Comparison Sample	19	1.10	0.80	0.71	0.89	-2.24	.04		-3.00 – +3.00
Normative Sample (Fletcher et al., 1986)	289	1.34	1.47						-3.00 – +3.00
Life Satisfaction									
Outdoor Participants	19	4.54	1.45	4.92	1.32	2.50	.02		1.00 – 7.00
Comparison Sample	19	5.39	1.31	5.20	1.26	-0.73	.48		1.00 – 7.00
Normative Sample (Diener et al., 1985)	176	4.70	1.29						1.00 – 7.00
Existential Well-Being									
Outdoor Participants	19	4.67	0.76	4.76	0.75	0.82	.42		1.00 – 6.00
Comparison Sample	19	5.21	0.78	4.86	1.23	-1.74	.10		1.00 – 6.00
Normative Sample (Paloutzian & Ellison, 1991)	197	4.89	0.72						1.00 – 6.00

was marginally significant ($t(18)=1.73, p = .05$). Outdoor Semester students reported a small net increase (+ 0.09 points-per-item) in EWB between pretest and post-test, whereas the matched comparison group reported a net decrease of 0.35 points-per-item. The difference between these change scores (0.44 points-per-item) was statistically significant ($t(18)=1.81, p = .04$).

As a point of reference, we contrasted the means of the outdoor and comparison samples with previous normative samples on each construct (Diener et al., 1985; Fletcher et al., 1986; Paloutzian & Ellison, 1991). We used One-Way ANOVAs to compare the means of the three groups on each construct, given that the normative samples did not share variance from common background traits with the groups used in the current study (Ha & Ha, 2012). Table 1 includes the descriptive statistics for the normative data as well as the samples in the present study. There were no significant differences in AC between the normative sample and the outdoor and comparison sample means at Time 1 ($F(2,324) = 0.31, p = .74$) and Time 2 ($F(2,324) = 1.78, p = .17$). There was a marginally significant difference ($F(2, 211) = 2.66, p = .07$) between the outdoor and comparison groups' pretest LS scores and the

normative sample's LS mean (Diener et al., 1985). Post-hoc Bonferroni comparisons revealed that the comparison sample had significantly higher LS than the normative sample ($t(211) = 4.96, p < .01$). There was also a marginally significant difference ($F(2, 232) = 2.69, p = .07$) between the EWB pretest scores in the current study and the normative sample (Paloutzian & Ellison, 1991). The comparison sample had slightly higher EWB at pretest than the Outdoor Semester sample ($t(232) = 2.29, p = .07$). Nonetheless, these differences disappeared by post-test for both LS ($F(2, 211) = 1.44, p = .24$) and EWB ($F(2, 232) = 0.25, p = .78$).

Finally, we explored whether the changes from pretest to post-test were significant within each group (see Table 1 for paired-sample t-test results). The matched comparison group had marginally significant decreases in AC and EWB, and the Outdoor Semester sample had a significant increase in LS.

OUTDOOR EDUCATION ADDRESSES MULTIPLE INTELLIGENCES: QUALITATIVE AND DESCRIPTIVE DATA

The first pattern discovered in participant responses to the open-ended survey was that students were reporting the program addressed multiple intelligences (Gardner, 1999), with five of the major categories referencing a different type of intelligence — interpersonal, intrapersonal, naturalistic, kinesthetic, and logical. Four of the five themes had subcategories. Table 2 lists the subcategories within each theme and provides example quotes.

Table 2: Qualitative Data Concerning Learning Outcomes from the Outdoor Semester Program (N = 19)

Category/Subcategory	<i>N</i>
1. Interpersonal intelligence	19 ¹
1a. Social knowledge	13
“People — who in the classroom appeared shallow and self-centered — are really much deeper and more caring than I realized.”	
“We all have different personalities and we all think different.”	
1b. Social connection	12
“[I value] the bonds I formed with everyone... We truly became friends on the trip. It has been the best trip of my life.”	
“Everyone is nice to each other and became a family.”	
“[What surprised me was] the comradeship and sense of community we developed as a group.”	

Table 2 (continued)

1c. Social conflict	9
“It reinforced my idea of not liking to rely on others to get something done.”	
“Everyone’s personalities...meshed or conflicted...after living together...We all got frustrated with each other but reconciled.”	
2. Intrapersonal intelligence	19 ²
¹ 16 students mentioned interpersonal intelligence before the survey question on this topic.	
² 9 students mentioned intrapersonal intelligence before the survey question on this topic.	
2a. Self-esteem	8
“I’m stronger than I thought...[I value] getting over my fear to canoe.”	
“[What surprised me was] how I had the courage to climb Hole-in-the-Wall.”	
2b. Self-awareness regarding social interactions	8
“People like me more than I thought [which] led me to reevaluate some conclusions I had. I’m too young to be tied down and I need to be free to go and do and express myself.”	
“I have a gift for helping others and I would make a good medicine man.”	
2c. Self-awareness concerning the natural world	6
“I am a worrywart...in the peace of the river, I discovered a place in myself where I can put worries aside.”	
“I like alone time in nature. Nature is far more important to me than I ever thought.”	
3. Naturalistic intelligence	17
3a. Appreciation/connection with nature	15
“[I value] the wonderful things nature allowed us to witness.”	
“[I value] the overall peace of canoeing down the river.”	
“Making a connection with the natural world was extremely valuable.”	
3b. Learning about the outdoors	9
“[What surprised me was] the devastation caused by the pine bark beetle.”	
“I learned about the stars.”	
4. Logical intelligence	9
4a. Native American culture	8
“I was able to put myself in the Indians’ shoes.”	
“I learned I should think out of the box more. I have always gone on trips that have white people history. I need to get both sides.”	

Table 2 (continued)

4b. U.S. history	7
“I learned so much about our history that I never learned before.”	
“[I value] learning about the [battle of] Little Bighorn...I was surprised how hard it hit me.”	
5. Kinesthetic intelligence	8
“[I value that I] learned how to camp and canoe/kayak.”	
“[I learned] that I can climb and canoe really well. I like being challenged physically.”	
“[I valued] learning to whitewater raft.”	

A number of students mentioned that the program helped them gain knowledge or skill in a particular intelligence. For instance, within the theme of intrapersonal intelligence, two subcategories dealt with enhanced learning — gaining self-awareness concerning the natural world and increased self-awareness regarding social interactions. Some of the benefits reported in these subcategories include learning how nature provides a sense of calm during stressful times and discovering the skills one has to help others.

Another common subcategory was a sense of connection, whether with nature (within the naturalistic intelligence theme), or with others (interpersonal intelligence theme). At least half of the participants mentioned this bond with the outdoors or with their peers. Certainly these benefits were not without challenges — almost half the participants mentioned social conflict (a subcategory within the interpersonal intelligence theme). Yet many reported working through these conflicts, as noted in the quantitative items described next.

Students agreed with the Likert-scale items created from the qualitative responses, describing how they had grown in terms of interpersonal, intrapersonal, naturalistic, kinesthetic, and logical intelligences (see Table 3). Participants agreed with questions concerning connection with nature, building a sense of community, and working through challenges that they had with others on the trip

Table 3: Descriptive Statistics for Outdoor Experience Items (N = 19)

Item	<i>M</i> ¹	<i>SD</i>
Interpersonal Intelligence		
1. I made friends and formed deep connections with others while on the trips.	6.05	1.02
2. I was touched by how we helped each other out when we needed it.	5.95	0.97
3. I gained an appreciation for others’ talents while on the trip.	5.53	1.57
4. I was able to work out the challenges I had with other people on the trip.	4.78	1.27
Intrapersonal Development		
1. I learned some new things about myself while on the trip.	5.58	1.43

Table 3 (continued)

2. Through Outdoor Semester, I learned how important it is to reflect within.	5.37	1.77
3. On the trips, I learned that modern day luxuries (e.g., cell phone, TV, iPods) can be a distraction from living fully.	5.47	1.61
4. I was able to work out some psychological struggles I had while on the trip.	4.79	1.55
Naturalistic Intelligence		
1. I learned new things about nature.	6.47	0.84
2. My desire to engage in outdoor activities increased after going on the trip.	6.05	1.43
3. I have a deeper appreciation of nature after going on the outdoor trip.	5.79	1.47
4. While on the trips, I was surprised by how easily I adapted to life outdoors.	5.72	1.23
¹ Participants rated the items on a 1 ("Strongly Disagree") to 7 ("Strongly Agree") scale.		
Academic Knowledge/Logical Intelligence/Critical Thinking		
1. Through Outdoor Semester, I learned that there are at least two sides to every story.	6.26	0.87
2. I learned about the history and culture of Westward expansion.	6.05	1.27
3. On the trip, I was able to put myself in other's shoes and see things from their perspective.	5.84	1.34
4. Through Outdoor Semester, I learned that I can generate more than one solution to a problem.	5.95	1.03
Kinesthetic Intelligence		
1. I enjoyed the opportunity to challenge myself physically.	6.47	0.70
2. I was proud of how I adapted to the physical challenges on the trip.	6.05	0.85
3. I learned some new physical skills on this trip.	5.74	1.59

ADDED VALUE FROM OUTDOOR EXCURSIONS: QUALITATIVE AND DESCRIPTIVE DATA

Within the qualitative data, three themes were dedicated to the unique benefits of the study away component of Outdoor Semester. These included the distinctive social opportunities afforded by the trip, the experiential nature of the outdoor excursion, and the sense that nature provided a "retreat" from everyday reality.

In terms of the unique social nature of the trip, 9 of 19 students reported that the study away experience required them to spend more

time with their peers and was more similar to "real-life" than what is experienced in the classroom, resulting in greater social connection and social skills. They reported that they had to work together and resolve conflicts, more than what is needed in the classroom. The following quotes illustrate these principles:

"On campus we see each other just two or three hours a day. We don't take the time to get to know each other. Being together 24/7 brings a lot of revelations."

"I learned a lot about a few of the girls. At first my impression was wrong and I am glad I got to know them better."

The second major theme, in terms of the "added value" of the Outdoor Semester, was the various forms of experiential learning that the trip(s) afforded. Nine of 19 students mentioned this theme, noting that the trips provided opportunities to observe firsthand and practice what they learned in the classroom:

"I value the experience itself. The things we saw and were able to do. It was a once in a lifetime experience."

"I learn more by looking and traveling to the place...[I]t's easier to learn by action. I don't focus as well in fluorescent lights and windowless rooms. I like hands-on approaches, and being outside."

"I never recall ever seeing anything as beautiful as the Badlands in any books, nothing like seeing it in person."

The third and final unique benefit to the Outdoor Semester was that the experience in nature afforded 6 of the 19 students a type of "retreat" from everyday life. This "getaway" helped them to obtain important realizations about life and an opportunity to rediscover oneself:

"I would have never felt so free and realized I needed space if I hadn't gotten that space [on the trip]."

"It helps to discover yourself when you're not in your normal environment. You're taken into a different reality that can help you express easier who you are without the pressures of everyday life."

"It took me...not being in close proximity [to my family] to realize I don't have to do everything for my family."

We created items representing the three themes concerning the unique benefits of the Outdoor Semester program. Students agreed with these items, as can be seen in Table 4.

In terms of suggestions for future excursions, two themes emerged. Seven students suggested more time spent in reclusive natural environments (instead of staying in a hotel or riding in a van), and four students suggested that the 1,000-word-a-day writing requirement on the trip be lowered, believing it took away from experiencing nature.

Table 4: Descriptive Statistics for Added-Value Items (N=19)

Item	<i>M</i> ¹	<i>SD</i>
Unique Social Opportunities		
1. I liked that we had the opportunity to learn from teachers in a more casual way on the trips than in the classroom.	6.68	0.58
2. I made friends with people I would have never gotten to know on campus.	6.00	1.60
3. Going on the trip helped me learn how to interact with people better than I would have just from taking a class with them.	5.89	1.59
4. By traveling and living with each other for this extended period of time, I came to understand people as I hadn't before.	5.84	1.26
5. I was surprised how completely different people are outside of class.	5.68	1.73
Experiential Learning		
1. There is something about seeing the places we read about that adds to our learning.	6.79	0.54
2. I learned more by walking around and actually touching the things we studied in the classroom.	6.58	1.02
3. Going on the trip helped me learn because I was doing things.	6.53	0.70
4. The trips made classroom learning deeper.	6.53	0.70
¹ Participants rated the items on a 1 ("Strongly Disagree") to 7 ("Strongly Agree") scale.		
5. Classroom learning made the trips more meaningful.	6.42	1.02
A Retreat		
1. There are more opportunities for self-reflection by going on the trip than there are in the classroom.	6.68	0.58
2. I was able to learn about the things we studied in a different way by going on the trips.	6.70	0.42
3. The things we saw and were able to do were a once-in-a-lifetime experience.	6.74	0.45
4. Being in nature left me feeling peaceful.	6.47	1.02
5. There are more opportunities to grow psychologically by going on the trip than there are in the classroom.	6.26	0.99

DISCUSSION

The goal of the present exploratory study was to assess student development in a study away applied learning experience, the Outdoor Semester, by quantitatively examining if attributional complexity, life satisfaction, and existential well-being increased in the program and more generally exploring qualitative responses of student growth. We also hoped to obtain student feedback on the unique contributions of the study away portion of the curriculum.

Our *a priori* hypotheses were partially supported. As expected, the outdoor participants benefited more than the matched comparison sample across all three quantitative measures – attributional complexity, life satisfaction, and existential well-being. Although both outdoor and traditional student participants generally scored in the average range on these variables, there was a half-a-point mean-per-item difference between the outdoor and comparison groups. Given the five-to-six point range on the Likert scales, this is a meaningful figure — an 8-10% benefit for the outdoor participants. As hypothesized, outdoor participants had a significant increase in life satisfaction. Counter to our hypotheses, outdoor participants' attributional complexity and existential well-being did not significantly increase. However, the outdoor students did not experience as great a decline in these variables as the comparison group. Research has revealed an increased cognitive load and level of stress experienced by students at the end of the semester (Glenn & Weaver, 1981; Nisbet, Zelenski, & Murphy, 2011). Perhaps students are less able (or less interested) in thinking critically and finding meaning and purpose in life when experiencing stress during final exams. Perhaps after the semester is completed — and stress levels return to normal — participants' existential well-being and attributional complexity return to earlier levels (or even increase). At the very least, the outdoor program appeared to buffer students from experiencing these losses. Future research should conduct a long-term follow-up to assess if, after final exams, attributional complexity and existential well-being increase more in outdoor education students than comparison samples.

Qualitatively, students reported that the program increased a wide array of intelligences – interpersonal, intrapersonal, kinesthetic, naturalistic, and logical — in alignment with Gardner's (1999) theory of multiple intelligences. The descriptive data for the items created from the qualitative findings further establish the prevalence of these forms of learning. We had not initially considered this potential benefit. In hindsight, we are surprised that students did not report gains in linguistic and musical intelligence, as students learned to play the Native-American flute in our program, and the curriculum included a multitude of writing assignments. Perhaps the lack of reporting of linguistic benefits was because students felt slightly overwhelmed with the 1,000-word-a-day journal requirement on the trips. If educators wish for a more well-rounded experience, they might include a smaller

writing requirement during the study away excursion and include a music course in the curriculum. To fully address all aspects of Gardner's (1999) intelligences, future outdoor programs might involve spatial intelligence through techniques such as requiring students to use maps and track their progress on the trips.

The qualitative data also provide three reasons why the study away portion of the curriculum may uniquely contribute to student development. Almost half the students reported experiential learning, involving an emotional as well as cognitive component (e.g., "I was surprised how hard it hit me at Little Bighorn"). When emotions accompany academic learning, memories may be longer-lasting (Beard & Wilson, 2002). For instance, one night while camping along the Missouri River, we observed the Aurora Borealis. One student explained to the lead author the scientific mechanisms behind this phenomenon, something he had learned in geography the week prior. It is one thing to see a picture of the Northern Lights, but quite another to see them first-hand. Study away is a form of applied learning that allows an individual to experience and form a deep emotional connection with what they learn, which may have a lasting impact.

Another "added value" from the applied learning experience was the unique social opportunity the trip provided. Participants spent 24 hours a day together for two weeks at a time. This intense encounter led to experiencing and working through difficulties, forming bonds and building social skills. For example, sitting around the campfire one night, the lead author observed a young female describing her frustrations with her boyfriend. She found herself perpetuating her boyfriend's jealousy by hinting at interests in other young men. She talked about trust, and one of the trip leaders, a retired male professor, explained that sometimes trust is not always about sexual fidelity, but knowing that your partner will be there for you during difficult times. A few years later, the first author saw this student, who reported that the professor's advice profoundly impacted her. She was engaged to a new man and happy in her relationship. We argue that such experiences are rare in the classroom.

The final benefit to the study away experience is that it provided a "retreat" that allowed some students to extract insights they might not have learned on campus. This finding confirms theories on the benefits provided by nature — the outdoors is a setting different from one's typical environment and affords time for reflection (Kaplan & Kaplan, 1989; Ulrich et al., 1991). Perhaps various rules and pedagogies within the program aided this process. Students were told not to bring cell-phones, iPods, or laptops, in order to "fully immerse" themselves in the outdoor experience. Students were also given time on the trip each day to reflect and write. Theories such as the cycle of learning (Kolb, 1984) note that for experiential education to work, time is needed for reflection. Perhaps personal and academic growth were enhanced because the curriculum and the natural setting provided opportunities for reflection and created a retreat-like atmosphere.

Other pedagogies and rules within the program may have aided student development and contributed to the benefits of the trips. Students learned mindfulness skills in the outdoor recreation class while on campus. They were taught to quietly observe the environment with all five senses, notice when they became distracted, and return their attention to the setting around them. The first author (who facilitates mindfulness programs) observed that while on the trips, students frequently sighted animals and interesting scenery before he did. Perhaps the mindfulness training helped students connect with and appreciate nature, and this in turn enhanced their life satisfaction. A second beneficial pedagogy may have been the emphasis by the program leaders to think "group first" and work as a team. Students seemed to internalize this rule. For instance, in 2006, when the group arrived at the hotel, the student contingent spontaneously formed a "human chain" from the van to the hotel hallway, passing luggage in an effort to unload supplies. On the same trip, one student twisted her ankle. Another student, a registered nurse, bandaged her ankle, while three male students carried the injured party back to camp. This type of teamwork is a poignant example of the students' self-reported gains in social connections, knowledge and skills, which may have been influenced by the "group first" rule implemented on the trips.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Although the results of the current study are interesting, certain limitations should be noted. The current study contained a small sample size. Future studies with larger sample sizes could demonstrate the generalizability of the current findings and utilize more stringent significance levels to lower the possibility of a Type I error.

Objective measures of learning are needed to demonstrate how outdoor programs in post-secondary education increase academic knowledge. For example, researchers could compare test scores in outdoor classes versus similar classes that do not have an outdoor component. Although we did not find an increase in attributional complexity in outdoor participants, qualitative analyses revealed that students thought they learned American history and recognized the cultural differences between Native Americans and the U.S. majority. An assessment of Native-American culture and 19th century American history might have revealed a significant improvement in this area for the outdoor participants as compared to the control sample.

There is a possibility of participant bias in the results. The present study was unable to randomly assign participants to groups, as all students interested in the program were needed in order to fulfill minimum class size requirements. Thus, the results could be due to selection bias, in that students who participated had more money and time than comparison students. The results could also be due to cognitive dissonance — given what Outdoor Semester participants invested, they might feel compelled to report benefits in order for their efforts to seem worth-

while. The outdoor participants might report benefits simply to please the researcher or ensure the program continued. Ideally, future research would randomly assign participants to either the study away program or the comparison group to control for some of these biases.

Finally, having different instructors and pedagogical styles in the outdoor and comparison classes might account for the differences in attributional complexity, life satisfaction, and well-being across groups. We were unable to control for this variable because of administrative issues (the outdoor teachers had other responsibilities that prevented them from teaching another section of composition). Ideally, future studies would allow for the same teacher and pedagogies in both the outdoor and comparison classes.

SUMMARY AND IMPLICATIONS

Despite these limitations, the current study provides initial evidence that an outdoor study away program in higher education enhances student development and in some cases, more than what is experienced in the typical classroom. Outdoor Semester helped students broaden many aspects of themselves — the academic, the physical, the intrapersonal, and the interpersonal, leading to higher life satisfaction and buffering them from the decreases in well-being and attributional complexity experienced by students in standard classes. Outdoor Semester is an experience in becoming a well-rounded *person*. We believe our program addresses the goal of a liberal arts education — through individual effort and group collaboration, a person becomes a responsible, informed citizen who understands and acts on his or her own values. Knowledge is not poured into a student's head through rote memorization of lecture, nor even through classroom exercises. Students learn as they experience nature, engage in small group dynamics around the clock, and apply what they learned in the classroom. It is a unique and powerful form of learning. business and international relations students might be encouraged to share their experiences from their study abroad, particularly if faculty in those disciplines believed in the importance of service-learning. The goal would be to keep the program in an academic home which is discipline-based and academically governed, as indicated in Butin's (2010) book, *Service Learning in Theory and Practice*. The room for creativity and flexibility by connecting to other disciplines would likely benefit the overall health and sustainability of this program. We hope to see this program continue to flourish to the benefit of both the youth it serves and the emerging student leaders involved.