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Abstract

This study implemented the new North Carolina Outward Bound School Course Impression Survey (NCOBSCIS) using a mixed method, retrospective pre-post design. The NCOBSCIS measures character development, leadership, and environmental service. Previous analysis has found the NCOBSCIS to be a valid and reliable survey tool. The purpose of this study was to investigate program outcomes using this new instrument, including potential moderators (e.g., age, gender, and course length). Paired sample *t*-tests and a series of ANCOVA models were generated along with thematic qualitative analyses. The results suggest that there is change evident among the participants following program participation and that this change is different dependent on various factors. Future research utilizing the NCOBSCIS should collect the pre data prior to the course, allowing true pre-post questions to be asked about change over time.

Keywords: Outward Bound, wilderness experience program, wilderness program outcomes, program assessment

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The field of outdoor and adventure programming continues to focus efforts toward evidence-based research and evaluation (Ewert & Sibthorp, 2014). Many programs are faced with developing their own evaluation instruments, utilizing existing tools or partnering with researchers to demonstrate the efficacy of their programs (Bobilya, Holman, Lindley, & McAvoy, 2010). Various outdoor and adventure programs have recently undertaken this work including Outward Bound (OB), who tasked each regional school with designing its own outcomes instrument or adapting an existing OB outcomes measure linked to its educational framework. In 2007, Outward Bound committed to a long-term process of research and evaluation (Faircloth, Bobilya & Ewert, in press). Under the guidance of OB's Research and Development Manager, the OB Research Advisory Committee was charged by OB administration to develop a comprehensive questionnaire to assess the outcomes of Character Development, Leadership, and Environmental Service. These three outcomes have been central to Outward Bound's intended participant outcomes over the years. The Outward Bound Outcomes Instrument (OBOI) was developed and initially field-tested in 2008 and included all or most of Outward Bound's course areas and student populations (Ewert & Frankel, 2009). This effort utilized a pre (course start) and post (last day of course) format. Luo (2011) then established construct validity and outcome model validation for the original OBOI instrument.

The North Carolina Outward Bound School (NCOBS) has conducted various outcomes studies including a means-end analysis of course outcomes (Goldenberg, McAvoy, & Klenosky, 2005), investigations focused on specific course components like the solo (Kalisch, Bobilya, & Daniel, 2011), independent student travel and the influence of the instructor (Bobilya, Kalisch, & Daniel, 2014). A recent qualitative, retrospective study focused on investigating the lessons that students intended to transfer and actually reported transferring home two years after their NCOBS course (Bobilya, Kalisch, Daniel, & Coulson, 2015). However, quantitative questions related to participant change attributed to completion of a NCOBS course remain. As a result, NCOBS adapted the previously developed OBOI to match its educational framework and created the NCOBS Course Impression Survey (NCOBSCIS). Faircloth and Bobilya (2013) conducted a psychometric evaluation of the NCOBSCIS and later published a full report on this new instrument (Faircloth et al., 2016). The results of this psychometric work validated the 3-factor structure originally developed in the OBOI including Character Development, Leadership, and Environmental Service.

The next step in understanding the usefulness of the NCOBSCIS was to

assess the outcome data that was collected using the tool, including both quantitative and qualitative questions, and following a mixed method analysis of these data (Creswell & Plano Clark, 2007). This present study is a follow-up to the complete psychometric analysis of this new instrument (Faircloth et al., 2016) and was not intended to test any theoretical framework a priori.

Method

The study used a mixed method, dominant-less dominant design (Creswell & Plano Clark, 2011) whereby the quantitative components were the dominant data collection method. Open-ended survey questions were also included to provide additional information regarding the participants' perception of their NCOBS course experience. The quantitative portion of the study was guided by one primary research question: What are the differences in participant's perception of their own Character Development, Leadership, and Environmental Service qualities as they report them to have been prior to (retrospective pre) and immediately following participation in a NCOBS course? However, only retrospective pre data were collected in the current study. Also of interest in this investigation were the secondary questions regarding moderating effects:

1. Are there differences in the ways women and men experienced their NCOBS course?
2. Are there differences in the ways students of different course lengths experienced their NCOBS course?
3. Are there differences in the ways older and younger students experienced their NCOBS course?

Retrospective pretests are often used to reduce the potential for response-shift bias that can result from self-report measures (Howard, Ralph, Gulanick, Maxwell, Nance, & Gerber, 1979; Sibthorp, Paisley, Gookin, & Ward, 2007). However, there is evidence that retrospective pretests can produce inflated effect sizes when compared to true pre/post methods (Taylor, Russ, & Taylor, 2009). The question of how to most appropriately assess change is one that cannot be answered *apriori*, but rather it must be empirically tested in light of the context and variables of interests by collecting and comparing pre, post, and retrospective pre data (Howard, Millham, Slaten, & O'Donnell, 1981).

The qualitative aspects of the study followed a modified grounded

theory approach in which patterns and themes emerged from the data (Creswell, 2014). Qualitative methods were useful for exploring and identifying the factors that give the Outward Bound expedition significance since they provide rich information drawn from the participant's own experiences.

Program and Sample

NCOBS offers multi-day wilderness experience programs with courses representing various age groups, course lengths, modes of travel, and program locations. A typical course may include various modes of travel (backpacking, sea kayaking, canoeing, etc.), a service project, rock climbing, solo experience and personal challenge event. The sample for this study was drawn from all NCOBS participants (N = 622) who completed an open-enrollment wilderness course of four days or longer during June–August, 2011 located in the mountains of western North Carolina or Outer Banks National Seashore (also in North Carolina). The sample included those participants who provided consent, completed their respective NCOBS course and completed the NCOBSCIS (n = 266). Two individuals were removed from the analyses due to missing data. The sample consisted of more males (n=172) than females (n=94), and an age range of 12–54, with a mean age of 18.

Data Collection

The quantitative component of the NCOBSCIS is a 20-item measure using a 7-point Likert scale to rate the degree of agreement with each statement (1 = strongly disagree to 7 = strongly agree). The measure can be scored to generate a total or sum score, in addition to 3 separate factor scores for Character Development, Leadership, and Environmental Service (Faircloth et al., 2016). Higher scores indicate stronger agreement with the survey outcomes (Faircloth & Bobilya, 2013). In addition, the measure included various open-ended questions. Similar versions of these questions have been included in various earlier forms of the course impression survey used by NCOBS and are intended to help the participant describe their overall experience and its potential impact on their life as they transition to home. The open-ended questions continue to focus on the importance of one's intention to transfer learning from one experience to another and revealed the *intended* transfer of learning as expressed in the participants' own words. Some scholars have noted that the intention to transfer learning is a first step in the actual transfer of learning (Axtell, Maitlis, & Yearta, 1997). The open-ended survey questions included (a) Describe your proudest accom-

plishment or greatest challenge on course, (b) What did you learn about yourself (or about life) as a result of your course, (c) How will your course impact you at school or in your career/life goals, and (d) How did your instructors affect your experience? Participants completed the entire retrospective pre- and post survey (including the aforementioned qualitative components) on the last day of their NCOBS course.

Quantitative Analysis

The quantitative analysis included paired sample *t*-tests to compare pre- and post- means of the Character Development, Leadership, and Environmental Service factors. In addition, a series of ANCOVA models were generated to assess gender, course length, and age as potential moderators.

Paired sample t-test. Paired sample *t*-tests were calculated for the pre- and post-scores on the Character Development, Leadership, and Environmental Service factors as a way to test the differences in student's perceptions of these qualities prior to and immediately following participation in an NCOBS course. The paired sample *t*-test accounts for correlations that are inherently present in repeated measures data.

ANCOVA. The secondary research questions were addressed using a series of Analysis of Covariance (ANCOVA) models. ANCOVA models allowed for testing differences between distinct groups of participants (i.e., age, gender, course length, etc.), while controlling for pre scores (Rausch, Maxwell, & Kelly, 2003). Thus, main effects for gender, age, and course length were assessed, in addition to pair-wise comparisons for any significant course length main effect. That is, if significant differences were found for course length, pair-wise comparisons were made to further determine the source of those differences.

Qualitative Analysis

Throughout the qualitative data analysis, elements of the constant comparative method (Glasser & Strauss, 1967) and naturalistic inquiry (Lincoln & Guba, 1985) served as a guide where emerging themes were constantly compared with new data until theoretical saturation was reached. The qualitative survey responses were typewritten, entered into an Excel file, coded, and categorized using a combination of open and axial coding processes (Strauss & Corbin, 2008). Emergent themes were then constructed and refined (Glasser & Strauss, 1967). The process of collecting, coding, and reporting the data allowed for themes to be categorized (Strauss & Corbin,

2008). One researcher initially coded all of the data and a second researcher coded 20% of the responses by question to establish inter-coder reliability (see results for inter-coder reliability rates reported by question in the results section). The themes were then refined until consensus was reached. Finally, representative participant comments were selected to illustrate each theme.

Specifically, the data analysis process followed the steps outlined in part by Tesch (1990) and assisted the researchers in the *reduction* and *interpretation* of the text (Marshall & Rossman, 1989). The following steps outline the qualitative data analysis. Initially, three individual researchers read the survey transcripts. The big ideas that emerged were named and individual codes were developed. Specific data units were identified that consisted of the most discrete piece of information that answered the research question. Next, similar data units were coded by one researcher and checked for consistency. A second researcher checked 20% of the of the responses by question in order to establish inter-coder reliability (reported by question in the results section). Finally, the researchers revisited the big ideas identified and established thematic categories. Participant comments were selected as direct quotations to support each theme. Triangulation of researchers and expert panel debriefing were used to establish trustworthiness of the results as outlined by Patton (2002). Specifically, the final thematic categories were reviewed by staff members involved in the program who served on an expert panel. Lastly, these results were compared to those of previous waves of data analysis with attention to similarities and differences related to the specific research questions.

Results

Quantitative Results

Descriptive statistics. Table 1 displays the descriptive statistics for the 3 factor scores (i.e., Character Development, Leadership, and Environmental Service). The post scores were higher than the pre scores for all three factors. The primary research question of this study was to test the statistical significance of these apparent differences.

Table 1. Descriptive Statistics for NCOBSCIS

	M	*n*	*SD*
Character Development Pre	41.90	259	7.25
Character Development Post	49.22	259	4.96
Leadership Pre	50.00	246	7.42
Leadership Post	55.52	246	5.67
Environmental Awareness Pre	15.61	260	2.92
Environmental Awareness Post	17.84	260	2.45

Differences in Participant's Perceptions of Performance

Table 2 displays the results of paired samples *t*-tests which were conducted to compare pre and post means of the Character Development, Leadership, and Environmental Awareness factors scores. There were significant differences in the Character Development, $t(258) = 20.29$, $p < .001$; Leadership, $t(245) = 17.84$, $p < .001$; and Environmental Service, $t(259) = 17.29$, $p < .001$ scores.

Gender Differences in Performance Outcomes

A series of ANCOVA models were tested to compare post means on the 3 factors using pre scores as covariates, while also examining group differences by gender, course length, and age. For example, ANCOVA addresses the question: "Are there differences in the ways that men and women report their pre and post outcomes?"

Table 3 displays the post means and standard deviations for male and female participants. Table 4 displays the results of the ANCOVA examining differences in reporting of the NCOBSCIS subscale scores by men and women. An ANCOVA model examining gender differences in Character Development post scores, controlling for pre scores, was found to

Table 2. Paired Samples *t*-tests of Pre and Post Means Character Development, Leadership, and Environmental Service

	M	*SD*	*Std. Error*	*t*	*df*	*Sig.*
CharDevPre - CharDevPost	–7.32	5.81	.36075	–20.29	258	$p < .001$
LeadershipPre - LeadershipPost	–5.52	4.86	.30955	–17.84	245	$p < .001$
EnvServPre - EnvServPost	–2.23	2.08	.12915	–17.29	259	$p < .001$

Table 3. Post Means and Standard Deviations for NCOBSCIS Subscales by Men and Women

	Post		
	M	*SD*	*n*
Character Development			
Female	49.95	3.90	93
Male	48.80	5.46	164
Environmental Service			
Female	18.86	1.79	94
Male	17.28	2.60	163
Leadership			
Female	56.74	4.82	90
Male	54.77	6.04	153

have a statistically significant main effect for gender, $F(2,257) = 3.20$, $p = .04$. The results suggest that female participants reported significantly higher mean scores (See Table 3) on Character Development ($\mu_{female} = 49.94$, $SD = 3.90$) than did male participants ($\mu_{male} = 48.80$, $SD = 5.46$) following participation in a NCOBS course, after controlling for their pre-scores. There were no significant gender differences in Environmental Service scores, $F(2,258) = 2.88$, $p = .06$ or for Leadership, $F(2,244) = .72$, $p = .49$.

Table 4. Results of ANCOVA Models Examining NCOBSCIS Subscales Reported by Men and Women

Source	*Type III Sum of Squares*	*df*	*F*	*p*
Character Development				
Character Development Pre	2338.73	1	151.74	<.001
Gender	98.63	2	3.20	.042
Environmental Service				
Environmental Service Pre	648.48	1	221.36	<.001
Gender	16.85	2	2.88	.058
Leadership				
Leadership Pre	4305.22	1	310.41	<.001
Gender	20.01	2	.72	.487

Table 5. Differences in Performance Outcomes by Course Length

	M	*SD*	*n*
Character Development			
14-day	48.95	6.03	79
21-day	49.32	4.84	56
28 day	49.55	7.75	11
4-day	49.76	4.13	21
8-day	49.23	3.72	92
Environmental Service			
14-day	17.75	2.58	78
21-day	17.84	2.62	56
28-day	19.00	1.95	12
4-day	17.52	2.36	21
8-day	17.84	2.30	93
Leadership			
14-day	55.62	5.58	75
21-day	54.52	6.19	52
28-day	57.42	4.46	12
4-day	55.50	6.44	20
8-day	55.78	5.41	87

Table 5 displays the means and standard deviations for participants of different course lengths. Table 6 displays the results of the ANCOVA analysis examining differences in reporting of Character Development by participants of different course lengths. "Course length" is an independent variable with 5 levels corresponding to the 5 course length options. The ANCOVA comparing course lengths on Character Development post scores, controlling for pre scores, was found to have a statistically significant main effect for course length, $F(4,257) = 2.45$, $p = .05$. The results suggest (See Table 5) that there are differences in the ways participants from various course lengths reported on Character Development following participation in a NCOBS course, after controlling for pre scores.

All pair-wise comparisons were initially conducted without correction for multiple comparisons. However, the *F*-statistics and *p*-values were later corrected by making comparisons to *p*-value adjustments for both the Bonferroni adjustment and Tukey's WSD (Maxwell & Delaney, 2003). The results of pair-wise comparisons of Character Development by participants of different course lengths reveals a significant difference ($p = .01$) between 14-day ($M = 48.95$, $SD = 6.03$) and 28-day ($M = 49.55$, $SD = 7.75$) courses.

Table 6. ANCOVA Results for NCOBSCIS by Participants of Different Course Lengths

Source	*Type III Sum of Squares*	*df*	*F*	*p*
Character Development				
Character Development Pre	2455.80	1	160.18	<.001
Course Length	150.04	4	2.45	.049
Environmental Service				
Environmental Service Pre	785.75	1	266.11	<.001
Course Length	16.79	4	1.42	.227
Leadership				
Leadership Pre	4545.34	1	336.61	<.001
Course Length	135.56	4	2.51	.043

Note: Environmental Service scores were found to have no significant main effect for course length, $F(4,260) = 1.42$, $p = .22$.

The ANCOVA model comparing participants of different course lengths on their Leadership post scores, controlling for their pre scores, revealed a significant main effect for course length, $F(4,244) = 2.51$, $p = .04$. The results (See Table 5) suggest that there are differences in the ways participants from various course lengths reported on Leadership following participation in a NCOBS course, controlling for pre scores. The results of pair-wise comparisons of Leadership scores by participants of different course lengths reveal significant differences between 4-day ($M = 55.50$, $SD = 6.44$) and 28-day ($M = 57.42$, $SD = 4.46$) courses, $p = .01$; and the 4-day ($M = 55.50$, $SD = 6.44$) and 8-day ($M = 55.78$, $SD = 5.41$) courses; $p = .01$. There were no significant differences found for any outcome variable when comparing responses from older and younger participants (i.e., age).

Qualitative Results

Analysis of the qualitative data revealed several themes. The results have been organized by question beginning with a description of the themes and the inter-coder reliability rate. Tables display the results for each question including dominant themes represented in descending order by frequency. Finally, representative quotes are included in each table, further describing the theme in the student's words.

Proudest accomplishment or greatest challenge on course. Table 7 presents the major themes that emerged from the participant responses. Inter-coder reliability for Question 1 was 93%. When asked to describe their

Table 7. Proudest Accomplishment or Greatest Challenge on Course

Major Themes	*Representative Participant Quote*
Completing Course Components (n = 129)	*My proudest accomplishment was climbing to the top of Mt. Mitchell. When I reached the top of Mt. Mitchell I felt that I could accomplish any goal I set my mind to.* (Female, 16 yrs., 8-day)
Skill Development (n = 101)	*I had never rock climbed before, and finishing a multi-pitch climb while singing and smiling but also sweating and feeling my whole body work together with my mind was absolutely amazing.* (Female, 16 yrs., 14-day)
Personal Growth (n = 71)	*I pushed myself physically and mentally farther than I thought I could ever accomplish.* (Male, 13 yrs., 14-day)
Overcoming the Challenge (n = 50)	*I climbed a tough route in Chimney Rocks while blindfolded. Honestly, I couldn't believe what I had just done.* (Male, 16 yrs., 8-day)
Perseverance (n = 37)	*My greatest challenge on the course was making it to the campsite at Johnson's Creek at 3 a.m. I wanted to give up so badly but the option just wasn't there. Now when I go home I won't quit so easily because I know I can do it if I set my mind to it.* (Female, 16 yrs., 14-day)
Group Dynamics & Interpersonal Skills (n = 32)	*My proudest accomplishment is that we were able to become a family while on course.* (Male, 18 yrs., 8-day)

proudest accomplishment or greatest challenge on course, many participants discussed *completing specific course components* (e.g., ropes course, final expedition, summiting, solo, running). Other students mentioned that their proudest accomplishment or greatest challenge was specifically related to learning and/or demonstrating specific skills. Many of the participant comments within the *overcoming the challenge* theme spoke specifically about the physical challenge that they faced and often discussed their sense of accomplishment in overcoming this challenge. In addition, some students commented on challenges related to living in the natural environment and other general challenges.

The theme of *perseverance* included comments about pushing oneself despite fatigue and a noticeable determination. These participants spoke specifically about their ability to "push through" and the sense of accomplishment they had. Finally, a number of students discussed their increased ability to work with others, learn how to give and ask for help and show

Table 8. What Participants Learned about Themselves

Major Themes	*Representative Participant Quote*
General Self Awareness (*n* = 180)	*I actually have the potential to go somewhere in my life and I do have the grit to stick with something and not back down.* (Female, 17 yrs., 8-day)
Self Confidence (*n* = 70)	*I learned that I can be self-reliant if I am patient enough to persevere. If giving up is not an option, I will see through a task to the end.* (Female, 18 yrs., 8-day)
Edgework ("I can do more than I thought") (*n* = 50)	*That my capabilities are greater than I thought, that if I set my mind to something and really focus on a task then I can do many things that I originally thought I couldn't* (Male, 19 yrs., 14-day)
Group Dynamics & Interpersonal Skills (*n* = 35)	*I am proud of myself for living in a compassionate manner, bonding with all types of people and being sensitive to their needs and feelings.* (Female, 18 yrs., 8-day)
Perseverance (*n* = 30)	*That way I was raised was to always keep pushing, motivating myself to do better. Some people misinterpret that push, but I learned that no matter what, I pushed myself harder than ever before. I never gave up, never stopped, and tried to smile whenever possible, especially at times when we were getting tired and angry, basically near the end of the final day. I have learned even more that I can always push myself further, there is nothing stopping me.* (Female, 14 yrs., 14-day)
Goal Setting (*n* = 24)	*Be friendly. Have patience for others. Push yourself, you're getting developed.* (Male, 17 yrs., 14-day)
Appreciation (*n* = 16)	*I realized that I need to live in the moment and live a more simple life.* (Female, 19 yrs., 14-day)
Environmental Awareness and Appreciation (*n* = 16)	*I was 110% sure I was a city girl before I came on NCOBS. However, I've discovered the beauty of nature and surprisingly I found a sense of connection with the wilderness. . . .* (Female, 16 yrs., 21-day)

compassion for their group. These and other similar comments were categorized as *group dynamics and interpersonal skills.*

Participant's learning about themselves. Table 8 presents the major themes that emerged from the participant responses. Inter-coder reliability for this question was 98%.

When asked what they learned about themselves or about life as a result of their NCOBS course, many students commented about both general and specific areas of *self-awareness*. These comments ranged from realizing their

potential, who they are, and the importance of confidence. This theme was harder to separate out into more specific sub-themes, thus the larger category representing general self-awareness remained. The researchers suspect that the difficulty in identifying more descriptive sub-themes was due in large part to the broad nature of the survey question. The theme with the second highest frequency of responses was *self-confidence*. Many students talked about their experience on the expedition contributing to an increase in confidence that they were hoping to take back to their everyday life. Students also talked about "being able to do more than they thought" which often led to a reported increase in self-confidence but the frequency and clarity of these comments warranted their own category. The adventure education literature uses the term "edgework" (Nadler, 1995) to describe this phenomenon and we have adopted it here as the theme to describe these comments.

Students also commented about how they learned to work better in a group and develop relationships with others which was categorized as *group dynamics and interpersonal skills*. The participants also shared how they learned to "keep going" and "stick with it" even when it was hard. Some students commented about their interest in setting specific goals for their life and/or gave specific example of goals that they wanted to take home with them. It is not surprising that students who complete a wilderness expedition and live without many of their personal conveniences and regular contact with family and friends find themselves expressing newfound appreciation for these things and people. In addition, students talked about a greater ability to discern their needs from wants. Finally, some students spoke specifically about an increased awareness of the natural world and their appreciation for it and its role in their life.

Course impact on school/career/life goals. Table 9 presents the major themes that emerged from the participant responses. Inter-coder reliability for question 3 was 92%. When asked how the course will impact them at school or in their career/life goals many students talked about their ability to *make decisions and set goals*. Others gave specific examples of goals that they hoped to accomplish. Students also commented on the impact of their increased self-confidence after attending the NCOBS course, the awareness that they can do more than they thought (edgework), and an increased sense of self-reliance.

In addition, students also shared about how their experience had impacted their ability to work hard and complete tasks which was categorized as *work ethic*. Others also shared about a change in perspective and how this *new perspective* might impact their school/work life. This cate-

Table 9. Course Impact on School/Career/Life Goals

Major Themes	*Representative Participant Quote*
Ability to Make Decisions & Set Goals (*n* = 67)	*[The course will] make me think about things more before I make a decision on something and think about getting along with others and having fun.* (Female, 15 yrs., 14-day)
Increased Self Confidence (*n* = 58)	*I have faced some strong challenges on this and if I can face them I can do anything.* (no gender indicated, 27 yrs., 14-day)
Increased Work Ethic (*n* = 57)	*. . . I set things to a new level and try my hardest on everything.* (Male, 15 yrs., 8-day)
Desired Lifestyle Changes (*n* = 38)	*It will help to reset my perspective of the world and what are truly priorities in life.* (Male, 45 yrs., 4-day)
New Perspective (*n* = 36)	*I found an incredible sense of peace and bliss on this trip that I am going to try and bring back to my life and I am going to stay less stressed.* (Female, 16 yrs., 8-day)
Group Dynamics & Interpersonal Skills (*n* = 33)	*Outward Bound has taught me how to meet new people and make new friends. This ability will translate to my first year in high school and the rest of my life.* (Male, 14 yrs., 14-day)
Increased Perseverance (*n* = 28)	*I feel that I can push through hardships to reach my goals. No matter how low I am feeling I know that I can keep going.* (Female, 17 yrs., 8-day)
Personal Growth (*n* = 23)	*I know exactly what I want in life and I'll use my newfound leadership skills and determination to reach my goals through all obstacles.* (Male, 17 yrs., 8-day)

gory also included students who commented on their increased awareness and appreciation for the natural environment, other people and things in their life. Some participants also commented on changes that they wanted to make in their lifestyle when they returned home including increased physical fitness, better diet, work/life balance and more. A number of students shared about how their experience has contributed to increased learning and their ability to contribute positively to group dynamics and their own interpersonal skill development. Some participants also shared about their NCOBS experience helping them develop perseverance that they hoped to take back to their school and/or work at home. Finally, other students talked about various areas of personal growth that they hoped to take back with them as they considered the impact of their NCOBS course.

Table 10. How Instructors Affected Participants' Experiences

Major Themes	*Representative Participant Quote*
They Had a Positive Impact (*n* = 98)	*The instructors had a huge impact on this trip. They made it very fun and helped us use knowledge we never knew we could have, and learned it. They were very nice and made it great and funny.* (Female, 15 yrs., 8-day)
Through Their Personal Traits (*n* = 75)	*They had an effect on our experience by all the hard work, compassion and dedication that they put forth. Without them it wouldn't have made my experience memorable.* (Male, 18 yrs., 8-day)
Provided Support (*n* = 63)	*. . . . They helped keep morale high but they also were able to push our group and help everyone realize their potential on course.* (Female, 17 yrs., 8-day)
Through Their Teaching (*n* = 50)	*By example - actually living a life/ having a lifestyle that incorporates the principles of OB and not just put on a 4-day show.* (Male, 44 yrs., 4-day)
Promoted Personal Growth & Self Awareness (*n* = 36)	*My instructors made me dig deeper in my thoughts about who I am.* (Female, 16 yrs., 8-day)
Challenged Us (*n* = 35)	*I think our instructors did a fantastic job challenging us and supporting us throughout our course.* (Male, 17 yrs., 21-day)
Modeled & Encouraged Positive Relationships (*n* = 28)	*They created a positive atmosphere in which the crew could grow. I personally felt very close to Shelby and that she helped me develop as a person.* (Female, 16 yrs., 21-day)
Helped Provide a Safe Environment (*n* = 24)	*My instructors made me feel safe throughout the whole course. I never felt in danger. They were so supportive and helpful and were always positive.* (Female, 17 yrs., 8-day)

Instructor influence. Table 10 presents the major themes that emerged from the participant responses. Inter-coder Reliability for question 4 was 98%. When students were asked to describe how their instructors affected their experience, many talked about the positive impact that they had. Other students shared about specific traits that their instructors exhibited which enhanced their course experience. Some participants also talked about how their instructors provided support that allowed the students to reach their potential during their course. Some participants commented

about either the way their instructors taught and/or the content they covered as having an impact on their experience. The impact of their teaching was noticed by students in both formal and informal teaching settings. Students commented about how their instructors created an environment that promoted their own personal growth and self-awareness during the course. Their comments clearly speak to the impact of the instructors on this growth.

In addition, students shared about the role of their instructors in creating a challenging environment that resulted in a positive experience. Some students talked about the influence of their relationship with their instructors and also the positive impact of the instructor team's relationship. When considering the role of their instructors, some students talked about how their instructors provided a physically and/or emotionally safe environment that they appreciated and which led to their own growth during the expedition.

Discussion

The research questions guiding this investigation all dealt with differences in participant's perceptions of retrospective pre and post levels of Character Development, Leadership, and Environmental Service. A main goal of the current study was to determine what, if any, effect NCOBS course participation has on participants, and whether or not that effect can be measured using the new NCOBSCIS instrument. Based on the results of the paired sample *t*-tests, there is evidence that the ways that participants think about their functioning prior to and immediately following an Outward Bound course is different. Participants reported significantly higher scores for the post measure than they did the pre measure for all 3 factors. While the current NCOBSCIS does not allow for a true pre-post comparison, it does provide evidence that the way participants think about their experience indicates that they feel they are functioning better in these outcome areas after having completed the Outward Bound course.

The secondary research questions were focused on teasing apart any differences that may exist between males and females, participants of different course lengths, and younger and older participants to better understand participant and course characteristics that might impact the effects NCOBS courses have on their participants. The results of ANCOVA tests suggest that female participants reported significantly higher mean scores on Character Development following participation in a NCOBS course than did

male participants. This result may be particularly interesting given that participant's pre scores were included in the model as a covariate. In other words, any differences that may have been present on the pre score were accounted for, prior to testing difference on the post score. Females also reported marginally higher mean scores on the Environmental Service post score than did males, indicating that female participants reported slightly more Environmental Service after completing an OB course. There were no differences in the ways that males and females reported Leadership post scores.

When it comes to differences in the ways that participants from different course lengths responded to the NCOBSCIS, there is some evidence that longer courses (e.g., 21 and 28-day) differed significantly from shorter courses (e.g., 4 and 8-day). The pattern of effects indicates that there are differences in the ways that participants report their Character Development and Leadership, and those differences depend on the length of the course. Course length, however, did not moderate improvements in Environmental Service. In general, participants who completed courses of longer lengths (e.g., 21 and 28-day) reported higher mean scores for Character Development and Leadership than did participants who completed shorter courses (e.g., 4 and 8-day). To date, little is documented in the literature regarding the differing effects of various course lengths—a potential moderator in need of further study.

There were no differences found for any outcome variable when examining younger and older participants (i.e., age). That is, younger and older participants reported similar scores for each of the 3 factors. It appears that participants of all ages perceived that they improved in the areas of Character Development, Environmental Service, and Leadership after completing an Outward Bound course. Consistent with Luo's (2011) investigation of the Outward Bound Outcomes Instrument (OBOI), the current investigation of the NCOBSCIS also provides evidence of the significance of individual level variables and their impact on course level outcomes (e.g., course length and gender).

The qualitative results from the NCOBSCIS were intentionally analyzed by survey question and yet there is considerable overlap in the way that participants describe the meaning of their NCOBS course across questions. More specifically, it is clear that participant's perceptions of their own Perseverance, Group Dynamics and Interpersonal Skills, Edgework ("I can do more than I thought") and Self-Confidence grew as a result of participation in the NCOBS course. These themes emerged across various questions—further highlighting the impact of such programming. The

findings also seem to confirm what other studies have shown regarding the development of interpersonal skills as a result of participation in outdoor and adventure programs. McKenzie (2003) reported that "working as a group, interacting with other group members, relying on other group members, and taking care of others" (p. 14) influenced overall OB course outcomes. Goldenberg and colleagues (2005) investigated OB learning outcomes and found that "developing relationships with others and working as a team emerged as one of the most commonly mentioned consequences" (p. 138) of participation in outdoor adventure activities. In addition, when the qualitative and quantitative findings of this present study are considered together, it appears the language that participants used (e.g., "I set things to a new level and try my hardest on everything") to describe their own growth is similar to the NCOBSCIS items that comprise the Character Development factor (e.g., "I can accomplish most things I set my mind to").

In general, these primarily youth participants describe their experience positively and indicate how they hope it will influence their life at home. Many of the themes that emerged are consistent with the characteristics of positive youth development (competence, confidence, character, connection and caring; Lerner, Lerner, & Benson, 2011) and are the areas of participant growth that outdoor adventure programs like Outward Bound intend to promote. The results of this retrospective pre/post study also support findings from studies conducted at the National Outdoor Leadership School (NOLS) (Sibthorp, Furman, Paisley, Gookin, & Shumann 2011) and a previous NCOBS study (Bobilya et al., 2015). In particular, the following lessons emerged in both this current study and the previous NOLS and NCOBS studies: (a) changes in life perspective, (b) self-confidence and (c) ability to work as a team member (Bobilya et al., 2015; Sibthorp et al., 2011). While the present study only utilized retrospective pre data, it affirms the importance of collecting true pre, retrospective pre, and post data in the same study (Howard, et al., 1981; Howard, et al., 1979) to empirically evaluate any biases that may be present in participants' ratings of their personal characteristics and traits. Both methods of collecting pre data have their strengths and weaknesses and require further investigation to determine which method is most appropriate for evaluating specific programs.

Limitations

The primary limitation of this study could be the method used for data collection. Participants were asked to make retrospective reports in addition to current reports on each of the outcomes, immediately following completion of a NCOBS course. It is not clear that participants are able to make such distinctions between their level of functioning at that time (i.e., after completing the course) and how they would have rated those same outcomes prior to starting the course. While other researchers might suggest that the retrospective pre design allows participants to more accurately evaluate where they were prior to program participation and now upon completion (Sibthorp, et al., 2007), only by comparing pre, post and retrospective pre data can researchers make informed decisions about how to measure change in their programs (Howard, et al., 1981). In addition, the Environmental Service factor consisted of three items on a twenty-item measure. The majority of the items on the NCOBSCIS load on the other two factors. More questions should be developed and psychometrically tested to assess the Environmental Service factor.

The qualitative portion of this study and its findings are to be considered in light of the following limitations. The first limitation involved the number of variables that affected the participant's perceptions of their NCOBS experience across expedition groups. These variables included such things as group dynamics, weather, and route locations. It is hard to know how the nuances of each specific expedition group affected their perceptions of the course in general. The second, and more significant limitation that presented challenges to the qualitative analysis were the "double barreled" questions included in the survey. For example, Q1 asked the students to "*Describe your proudest accomplishment or greatest challenge on course.*" The fact that there were two distinctly different questions imbedded together presents a challenge for the participants completing the survey and the researchers attempting to analyze the findings.

Recommendations

Several recommendations have emerged as a result this study. First, based on the effect sizes estimated in the current study, it is recommended that NCOBS or any other program using the instrument continue to collect outcome data from more participants using the NCOBSCIS in a pre-post design. This will allow for testing true differences in pre and post data, and

to detect treatment effects that are statistically small. This approach would also allow for an empirical evaluation of the most effective methodological design to measure change in the context of a North Carolina Outward Bound course. Second, as mentioned in the limitations, the qualitative data collection, analysis and interpretation would be improved by amending the questions so that participants are only asked to respond to one question at a time. In other words, future versions of the NCOBSCIS should remove any double-barreled questions. Third, there were fewer participants who completed longer courses. Thus, future research will need to further investigate this finding to determine if sample sizes for each course length influenced the findings of this current study. Fourth, while it seems interpersonal relationships are an influential and consequential factor in the overall quality of the OB experience, it would be beneficial to gain a better understanding of additional factors including: course components, sequencing, environmental conditions, instructor influence, participant demographics and others. Fifth, it would be helpful to establish a clearer connection between what students intend to transfer home (i.e., lessons learned) and what they actually do transfer by following up months or years post course. Finally, this study continues to confirm the value of a mixed-methods approach, including both quantitative and qualitative survey components, to help understand more completely the various aspects of a wilderness program experience.

The following recommendations for practice emerged from this study. First, wilderness experience programs seeking similar outcomes should be overtly promoted as contributors to positive youth development. The findings in this study have shown that these kinds of programs can foster lasting lessons in areas that youth development professionals are targeting and which the NCOBSCIS measured (character development and leadership). Second, program managers and instructors should consider strategies to help students transfer the meaning of their experience from the backcountry to the front-country. Related to this second recommendation, the role of the instructor remains a critical course component and increased attention should be given to instructor development as they play a critical role in the outcomes identified on the NCOBSCIS. Finally, outdoor and adventure programs should give attention to their role in fostering an increased Environmental Service among their participants. The results of this study indicate that Environmental Service increased among participants despite program length. This may suggest that programs employing similar curricula can have a significant effect on one's Environmental Service even on courses as short as four days.

Conclusions

The findings of this mixed method study suggest that the NCOBS course experience made a positive difference in the lives of many participants as reported via the new retrospective pre/post NCOBSCIS instrument. This study contributes to the literature that seeks to understand the benefits and outcomes of outdoor adventure programming and the appropriateness of new survey instruments designed to measure change in character development, leadership and environmental service. These results indicate that NCOBS should continue to implement the NCOBSCIS and adapt the timing of the pre-course data collection allowing participants to complete the survey prior to participation, thus removing the potentially less reliable retrospective data. The NCOBSCIS and these analyses may be beneficial to other Outward Bound schools and wilderness experience programs as they develop their own outcomes-based assessment tools. Lastly, these findings help to further understand the interaction between Outward Bound course characteristics (e.g., course length) and participant characteristics (e.g., age, gender). Furthermore, this information can inform both the marketing and informational materials used to promote Outward Bound programs.

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