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INVESTIGATING THE LONG-TERM IMPACT OF ADVENTURE EDUCATION: A RETROSPECTIVE STUDY OF OUTWARD BOUND SINGAPORE'S CLASSIC 21-DAY CHALLENGE COURSE

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Background

This study was conducted to further our understanding of the impact an outdoor adventure education experience has on participants' personal and professional life. Outdoor adventure education follows an experiential philosophy of learning and takes place primarily through sensory involvement with the natural world (Priest and Gass, 1997). Ewert and McAvoy (2000) have mentioned that the transfer of benefits of adventure programs and their components to work and everyday life have often been neglected in research.

A retrospective approach was used in this study since some researchers have suggested that behavior changes may take such a long time to occur that they are out of the time frame of most studies (Burton, 1981). There has been some research done in the United States which examined long-term impacts of outdoor adventure education experiences using a retrospective approach (Daniel, 2003; Kellert and Derr, 1998). However, no retrospective studies about the long-term impact of an outdoor adventure education experience have been done in Asia.

Daniel (2003) examined long-term benefits of 227 individuals who took part in a specific course between 1976 and 2000. "The findings revealed that 90% of the participants believed the experience had made a difference in their lives" (Daniel, p. iii). The aforementioned course did have a long-term impact on many participants.

Kellert and Derr (1998) studied the effects of outdoor education courses in both a retrospective and longitudinal manner. In the retrospective part of the study, alumni of the National Outdoor Leadership School (NOLS), the Student Conservation Association (SCA), and Outward Bound (OB) were surveyed up to twenty years after their course was completed. One of the conclusions of the study by Kellert and Derr was that "some perceived long-term influence on knowledge, attitudes, and behaviors persists over time" (Everson, 2000, p. 31). Kellert and Derr also summarized results of many outdoor education studies and concluded that the "findings generally indicate the outdoor experience can have a considerable impact on participants, particularly a wide range of physical, intellectual, emotional, or even moral and spiritual benefits" (p. 8). There is some evidence from the aforementioned study of transfer of benefits to the personal and professional sides of participants' lives.

Hattie, J., Marsh, H., Neill, J., and Richards (1997) state that early research on outdoor adventure programs was centered on descriptions of Outward Bound programs in the United States. Examples include one book by Miner and Boldt (1981), and testimonials from former participants such as James (1957). One of the earliest hints at long-term benefits was made by Fletcher (1971) who wrote that "after I had talked to some 500 students, I was obliged to accept

their nearly unanimous view that attendance at a course would influence them for *many years*" (p. 98, emphasis added). Fletcher began to study the work at Outward Bound Schools in the United Kingdom in 1967. These early explorations were very important since they stimulated interest and formed a base for further inquiry. In Asia, systematic research on outdoor adventure education programs such as Outward Bound have not developed at the same pace as they have in the United States, the United Kingdom, Canada, Australia, New Zealand, and other countries.

Subsequent research in the field shifted its focus to the impact of adventure programs on development of the person and self (Klint, 1999). The principle areas of focus became aspects of self-concept (Ewert, 1983; Godfrey, 1974; Shore, 1977; Stremba, 1977), motivation, achievement, and self-perceptions (as cited in Hattie et al., 1997). One explanation for the emphasis on self-concept studies was that at the time there was a readily available research instrument to measure self-concept which utilized a pre and post experience questionnaire of some type (McAvoy, 2004). "Hundreds of empirical evaluation studies have utilized the basic pre-post design or variations of it" (Neill, 2002, p. 3). These studies examined the effect of an entire course, not necessarily specific components of a course or their link to specific outcomes.

Gradually researchers became aware of other aspects of the outdoor adventure education experience that warranted further inquiry and also began to utilize and argue for different methods of inquiry. Hattie et al. (1997) utilized a meta-analysis technique to summarize the effects of outdoor adventure programs (mainly Outward Bound programs) in America, Australia, New Zealand, and Australasia. They found, in general, that there were effects for such diverse areas as self-concept, locus of control, academic performance, adventurousness, well-being, social skills, gender, leadership, and duration of program. One specific conclusion drawn was that alternative research designs should be considered (Hattie et al.). There have been no meta-analyses of outdoor adventure education research in Asia, partly due to a paucity of research in the region.

Neill (2002) reviewed other meta-analyses (Bunting & Donley, 2002; Cason & Gillis, 1994; Hans, 2000; Marsh, 1999) that have been done on outdoor adventure education programs. He stated that the aforementioned meta-analyses showed that "the effects appeared to be retained over time" (p. 1). Neill (2002) also noted that the most effective programs (measured in terms of effect size) were longer ones (although Neill does not specify what this length is) and those that involved adult participants. In their meta-analysis Hattie et al. (1997) considered long-term impact to be impact still present in some form 18 months after completion of the program.

Early on, Ewert (1987) called on researchers to examine why an outcome happens and "how it can be made to happen again" (p. 5). More recently, Ewert and McAvoy (2000) urged researchers to design studies that examine the program components, the transference of benefits to everyday life, long-term benefits, how the benefits come about, why they are important to participants, and to use multi-dimensional approaches that are non-intrusive to participants. In his retrospective study of a spiritually orientated Outward Bound-type program, Daniel (2003) examined long-term benefits of 227 individuals who took part in a specific course between 1976 and 2000. "The findings revealed that 90% of the participants believed the experience had made a difference in their lives" (Daniel, p. iii). Further study of long-term benefits of outdoor adventure programs is warranted.

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Statement of Problem

Few studies have examined the long-term impact of outdoor adventure education experiences or what influences various course components have on possible long-term impact (Ewert & McAvoy, 2000). Furthermore, even less research has been done in Asia along these lines of inquiry. "As a field, we have not begun the inquiry into the practice and study of experiential education across international lines" (Galloway & Goldenberg, 2004, p. 224). One particular area of research that has received very little attention is the long-term impact of outdoor adventure education programs on the personal and professional life of participants in Asia.

Purpose of Study

The primary purpose of this study was to identify and understand the long-term impact that Outward Bound Singapore's (OBS) Classic 21-day Challenge course has had on the personal and professional life of past participants who attended the course between 1997 and 2005. These individuals came from three distinct groups: Singapore Airlines pilot cadets, Singapore Police Academy cadets, and State Scholars offered an Outward Bound course by the Public Service Commission. A secondary purpose was to determine if there was a significant difference in long-term impact levels among the three distinct groups that participated in the course, the different ethnic groups, and between participants of different genders. A third purpose was to determine the meaningfulness of various course components to the personal and professional life of past participants.

Theoretical Framework

The theoretical framework that guided this study was transformative learning theory. The theory was not tested empirically but was used as a theoretical lens through which to view the study. Transformative learning theory is a theory of adult learning that seeks to examine and explain how adults learn and make meaning of their experiences. The theory asserts that if an experience is significant enough and contains certain elements it can affect the learner by changing their mindset or perspective (Mezirow & Associates, 1990). The use of transformative learning theory provided a lens through which to examine whether participants' perceived long-term impact was partly a result of a transformative learning process during their outdoor adventure education experience. Specifically, the theory informed the development of some questions on the questionnaire. These questions sought to understand if and how the outdoor adventure education experience might have been a transformative experience for some participants. Elements of transformative learning theory also aided the development and analysis of interview questions which will be the topic of a forthcoming article.

Methods

This study was a portion of a larger study that looked at an outdoor adventure education experience in Southeast Asia. The larger study utilized a dominant-less dominant design (Creswell, 1994) by combining quantitative and qualitative methods. The quantitative features of the study remained as the dominant method and the qualitative features the less dominant (Creswell, 2003). This portion of the study focused primarily on quantitative data from a questionnaire that participants filled out either on paper or an equivalent Internet based version. The mail/Internet questionnaire comprised the first phase of the larger study.

The qualitative data from the larger study came from one-to-one semi-structured interviews

($n = 25$). The one-to-one interviews were the second phase and were meant to illustrate and support quantitative data. It is not within the scope of this paper to include the qualitative data. Qualitative results will be discussed in a future article.

Program

Outward Bound Singapore's Classic 21-Day Challenge course was selected for this study for two primary reasons. Since the study looked into possible long-term impact on personal and professional life, a course which was relatively long and had many course components was sought. The 21-day course was selected over shorter courses because it contains many components such as a solo and final expedition. Research has shown that longer adventure programs with adults appear to be more effective than shorter programs, but no optimal length has been determined (Cason & Gillis, 1994; Neill & Richards, 1998). Research by Hattie et al. (1997) has also indicated courses that are 20 days or longer have greater effects.

Secondly, OBS runs this program for three distinct adult groups, which enabled the researcher to make certain comparisons. Singapore Airlines pilot cadets and Police Academy cadets take the course as part of their overall, longer training scheme. State Scholars are sponsored to go on the course by the Public Service Commission.

Participants

The sample ($n = 1029$) for this research were adults who participated in OBS's Classic 21-day Challenge course from 1997 through 2005. Outward Bound Singapore does not have a database for participants prior to 1997. As previously mentioned these individuals came from three distinct groups: Singapore Airlines pilot cadets, Singapore Police Academy cadets, and State Scholars offered an Outward Bound course by the Public Service Commission.

For Singapore Airline pilot cadets the first three weeks of their official two year pilot training is the 21-day OBS course. Police Academy cadets participated in the 21-day OBS course as part of their National Service commitment. Every able bodied male in Singapore must participate in two to two and a half years of National Service. After approximately four to five months of police cadet training, police cadets participated in the 21-day OBS course. After the course they served for approximately one and a half years in various capacities within the police force. For the police cadets the 21-day course was meant to be the capstone of their initial police cadet training before they actually worked as police officers in some capacity in Singapore. State Scholars normally took the 21-day OBS course in the summer months after one year of university study.

Data Collection

A mixed mode survey was used to obtain a quicker response and give participants an option to respond to the survey in a way that they were most comfortable. Dillman (2000) suggests the use of one mode to prompt completion by another mode if the researcher is attempting to improve coverage error, reduce non-response, and subsequently increase response rate. An Internet based survey can increase the reach, reduce the cost, and increase the percentage of the target population sampled (Dillman). However, in some instances potential for sampling bias does exist since not everyone in a target population may have ready Internet access or may need certain skills to fill out the survey (Aldridge & Levine, 2001). The researcher was encouraged by a long serving senior staff of OBS to utilize a mixed mode survey since most, if not all, of the

participants for this study must be computer literate for their work (Abdul Kahlid, personal communication, November 18, 2004). In addition, a recent governmental survey showed that “almost two thirds (64.6%) of the households in Singapore reported having access to the internet in 2003” and over “half (51.0%) of the total population in Singapore used the Internet in 2003” (Information Development Authority, 2005). For the aforementioned reasons a mixed mode survey was utilized.

A self-administered questionnaire containing both dichotomous and Likert-type scaled questions that could be used in paper format or on the Internet was designed and developed following survey protocols put forward by Dillman (2000) and content based on Kellert & Derr (1998), Daniel (2003), and Bobilya (2004). The questionnaire asked specific questions about the perceived long-term impact of the overall course and course components on the personal and professional life of past participants.

A self-administered questionnaire was used, since it allowed participants to answer questions within their own time constraints. There is also evidence suggesting that people are more likely to give honest answers to self-administered questionnaires versus being asked the same things solely in interviews (de Leeuw, 1992). The questions were designed to explore what participants remember about their experience and what long-term impact specific to their personal and professional life they perceive they gained or did not gain from their experience.

The questionnaire was divided into three parts. Part one contained questions concerning the perceived long-term impact resulting from the course overall on the personal and professional life of participants. It also contained questions asking participants if they experienced certain aspects of the phases of a transformative learning experience as identified by Mezirow and Associates (1990), such as whether the course was responsible for changing their perspective on anything in their life. Questions such as this gave the researcher clues as to whether to interview a respondent or not. Part two contained questions concerning the perceived long-term impact of individual components of the course, such as the solo and final expedition, on the personal and professional life of the participants. Parts one and two also contained Likert-type scaled questions asking participants to rate their perceptions of the long-term impact of the course and parts of the course on their personal and professional life. Specific Likert-type questions were adapted from Kellert & Derr (1998). An eight point scale ranging from 0 to 7 was used to avoid middle ground answers. Part three contained questions about participant background and demographic information such as gender, age at the time of the course, nationality, and previous outdoor experience.

The initial questionnaire for a pilot study was reviewed and approved by a faculty member of the department of Educational Psychology at the University of Minnesota in November 2004. This faculty member has expertise in survey design and implementation and has authority through the Institutional Review Board to approve pilot studies done through the University of Minnesota. An expert panel also reviewed this instrument ($n = 7$). These experts were from the outdoor education field in the U.S. and in Singapore, experts in education from the faculty of the University of Minnesota, and long serving senior staff at Outward Bound Singapore. After review, revisions were made.

A pilot study of the questionnaire was then conducted in March of 2005 in Singapore to determine if the wording of questions was clear and comprehended in the local context as intended and to estimate the response rate. The questionnaire was administered to individuals ($n = 44$) who were randomly selected from the entire OBS Classic 21-day Challenge course database from 1997 to 2005.

A minimal amount of statistical analysis was done on the pilot study. Of the 44 questionnaires that were sent out, eight were returned due to bad addresses, ten were returned by mail, and one was returned via the Internet. This resulted in an overall response rate of 30.55%. The pilot results were then reviewed by the researcher and faculty at the University of Minnesota. As a result of the pilot test unclear directions were improved, language was simplified, and the format was further improved.

The revised pilot questionnaire was again submitted for review of content and format numerous times to an expert panel. This expert panel consisted of several of the researcher's dissertation committee members, other faculty at the University of Minnesota, and individuals working for OBS and the People's Association (PA) in Singapore ($n = 7$). The PA is the parent organization of OBS. The faculty members were chosen based on their experience working with wilderness and outdoor education programs, expertise in the area of survey design and implementation, and international education. After receiving feedback from each faculty member the pilot questionnaire was again amended in content and format. Specific recommendations were to modify the scale of certain questions and change the format to make it more readable and presentable. The revised questionnaire was then reviewed again by experts in the fields of outdoor adventure education and statistics who worked at OBS and the PA ($n = 3$). This revised questionnaire was then used for the main study.

Participants were asked in the cover letter of the survey sent to them by mail if they would prefer to fill out an Internet based version of the survey. An Internet link along with a password was provided on the cover letter if they chose to fill out the Internet version. The Internet based survey contained the identical questions as the paper based survey.

If the participants decided to complete the Internet version of the survey they entered the link provided to them in any computer. This then directed them to a welcome page for the survey. They then needed to enter their password in order to access the survey. The password was the same for all participants and was not meant to identify each participant. The purpose of the password was to exclude individuals, such as internet surfers, who had not participated in the OBS course from accessing the questionnaire.

Data collection for the quantitative aspect of this study followed the four step contact process protocols for survey research suggested by Dillman (2000). Past participants were first mailed a pre-notice letter letting them know that they had been selected to participate in a survey. Approximately 2-5 business days later past participants were sent a cover letter, letter of support written by Outward Bound Singapore, the questionnaire, a small token of appreciation (a small OBS sticker), and a note to return if they would be willing to be interviewed. Approximately one week after the survey was sent out a reminder postcard was sent. The survey was closed approximately two weeks after the reminder card was sent.

Data Analysis

This study investigated the perceived long-term impact on personal life and perceived long-term impact on professional life of an outdoor adventure education experience in Southeast Asia. Differences to long-term impact were also analyzed with regards to three groups, respondent ethnic identity, and gender. The study also investigated which course components were perceived most meaningful to the personal and professional lives of participants. The data were analyzed using descriptive statistics and univariate analysis of variance (ANOVA) utilizing SPSS.

In step one, the demographic data of group, identity, and gender from part three of the surveys was tabulated. The sample ($n = 318$) consisted of a relatively equivalent number of respondents in each group, Singapore Airline cadet pilots, Police Academy cadets, and State Scholars. There was also an Other category ($n = 14$) but this was excluded from the analysis due to a small frequency in this category (see Table 1). Participants primarily self-identified their ethnic identity as Chinese 76.1% ($n = 242$). The other categories of ethnic identity were a very small percentage. Those who identified themselves as Malay for example made up only 5.3% ($n = 17$) of the total sample (see Table 2). Because the categories of ethnic identities aside from Chinese were very small, the variable identity was not included along with the variables of group and gender in statistical analysis. Nearly all the female respondents came from the State Scholars group which is consistent with the small percentage of females in both cadets groups in the entire survey population (see Table 3). In summary, the survey population was predominantly male Chinese.

TABLE 1
Group of Respondents

	Frequency ($n = 318$)	Percentage (100.0%)
Singapore Airline Cadet	106	33.3
State Scholar	105	33.0
Police Academy Cadet	93	29.2
Other	14	4.4

Step two examined two questions on the questionnaire that were identical except for the words personal life or professional life. These two questions asked to what extent the course had influence on participants' personal or professional life. A paired sample t-test was then run across all respondents to see if there was a significant difference between the perceived long-term impact on their personal versus professional life.

In step three, in order to determine if long-term impact on personal life and long-term impact on professional life were indeed two distinct constructs, a Pearson correlation coefficient was computed on these two possible dependent variables. In addition, a scatter plot was produced to visually depict the results. This initial step assisted in the direction of further analysis.

TABLE 2
Identity of Respondents

	Frequency (<i>n</i> = 318)	Percentage (100.0%)
Chinese	242	76.1%
Malay	17	5.3%
Hokkien	15	4.7%
Cantonese	9	2.8%
Indian	8	2.5%
Other	8	2.5%
Eurasian	5	1.6%
Chiuchow/Teochiu	5	1.6%
Hakka	4	1.3%
Tamil	3	.9%
Hainanese	2	.6%

Note: Identities were self-described on a self-administered questionnaire

TABLE 3
Gender of Respondents

Gender	Frequency (<i>n</i> = 318)	Percentage (100.0%)
Male	273	85.8%
Female	45	14.2%

In step four, long-term impact on personal life and professional life were transformed into one dependent variable from the averages of long-term impact on personal life and long-term impact on professional life attained from scaled questions on the survey. This then formed an average long-term impact (LTI) index. The LTI index represented the average perceived long-term impact the OBS course had on participants and was subsequently used as the dependent variable.

Step five consisted of running a univariate analysis of variance (ANOVA) to determine if there was a significant difference in the LTI index as the dependent variable across the two independent variables group and gender. As previously mentioned, the independent variable identity was not utilized since the number of responses other than Chinese was very small.

Finally, step six analyzed which course components were perceived most meaningful to the personal and professional life of participants. Mean scores were determined by running descriptive statistics of Likert-type questionnaire items.

Results

Perceived Long-term Impact of Course Overall

Question number 7 on the questionnaire asked respondents how much influence their overall course has had on their personal life. Table 4 shows that over 90% of respondents indicated the course had a positive influence on their personal life, while only 9% indicated the course had a lot of influence. Just over 9.0% indicated the course had a lot of influence. No respondents indicated that the course had a negative influence on their personal life.

TABLE 4
Long-term Impact on Personal Life

	Frequency (<i>n</i> = 318)	Percentage (100.0%)
Had a lot of influence on my personal life	30	9.4%
Had some influence on my personal life	259	81.4%
Had no influence on my personal life	29	9.1%
Had a negative influence on my personal life	0	0

Another item on the questionnaire asked respondents how much influence their overall course has had on their professional life. Over 83% indicated the course had a positive influence on their professional life (see Table 5). Approximately 75% indicated the course has had some influence on their professional life, and over 8% indicated the course had a lot of influence. No respondents indicated that the course has had a negative influence on their professional life.

TABLE 5
Long-term Impact on Professional Life

	Frequency (<i>n</i> = 318)	Percentage (100.0%)
Had a lot of influence on my professional life	26	8.2%
Had some influence on my professional life	240	75.5%
Had no influence on my professional life	52	16.4%
Had a negative influence on my professional life	0	0

A paired samples *t*-test was run to determine whether or not there was a significant difference across all respondents between their perceived long-term impact to personal life and their perceived long-term impact to professional life (see Table 6). The results indicated that the mean score for influence on personal life ($M = 4.45$, $SD = 1.20$) was significantly greater than the mean score for influence on professional life ($M = 4.17$, $SD = 1.42$), $t_{(317)} = 6.85$, $p < .001$. The 95% confidence interval for the mean difference between the two scales was .19 to .35. In general, the aforementioned two broad questions together with the paired sample *t*-test showed that participants perceived their 21-day OBS course influenced their personal life significantly more than their professional life.

TABLE 6
Paired Samples Statistics

		Mean	n	S.D.	Std. Error Mean
Pair 1	Persimpactave	4.45	318	1.20	.06756
	Profimpactave	4.17	318	1.42	.07990

Personal and Professional Long-term impact Correlation

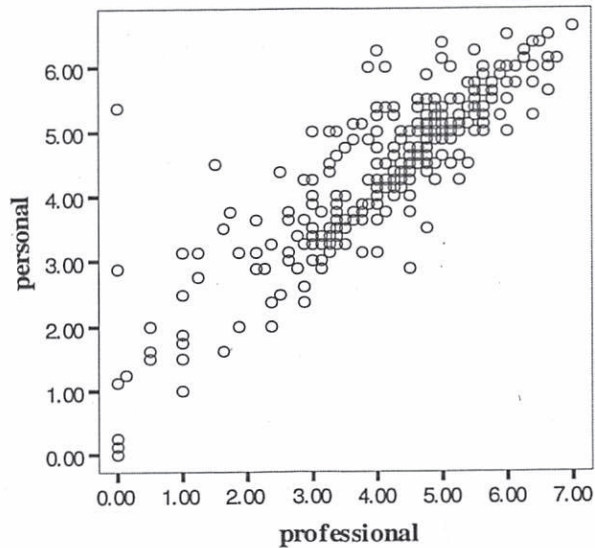
A bivariate correlation coefficient was then computed between long-term impact on personal life and long-term impact on professional life. A *p*-value of less than .01 was required for significance. The results of the correlational analysis presented in Table 7 show that the conceptual constructs of personal and professional long-term impact are highly correlated (.86). The results strongly suggest that in this study, personal and professional life were statistically significantly correlated and not two separate constructs. Figure 1 also visually depicts this same highly correlated relationship. This finding contradicts the previously mentioned findings that individuals were able to distinguish between impact on personal and professional life. This result will be further explored in the discussion.

TABLE 7
Correlations among Long-term Impact on Personal and Professional Life

	Professional life
Personal life	.862*

* correlation is significant at $p < .001$ (two-tailed)

FIGURE 1
Scatter-plot of Personal vs. Professional Construct



How Groups Differed in their Perceived Long-term Impact

A 3 X 2 analysis of variance (ANOVA) was conducted to evaluate the effects of three different groups and gender on the long-term impact index (LTI). The means and standard deviations for the LTI index as a function of the two factors group and gender are presented in Table 8. The ANOVA indicated no significant interaction between group and gender $F_{(3, 310)} = .680, p = .56$, but significant main effects for group, $F_{(3, 310)} = 2.90, p = .03$. No significant main effect was found for gender, $F_{(1, 310)} = .04, p = .84$.

TABLE 8
Means and Standard Deviations for Long-term Impact

Gender	Group	Mean	SD	<i>n</i>
Female	Singapore Airline Cadet	5.0	.	1
	Police Academy Cadet	4.3	.	1
	State Scholar	3.6	1.5	37
	Other	4.8	1.3	6
	Total	3.7	1.5	45
Male	Singapore Airline Cadet	4.2	1.3	105
	Police Academy Cadet	4.8	1.0	92
	State Scholar	4.2	1.2	68
	Other	4.8	1.7	8
	Total	4.4	1.2	273
Total	Singapore Airline Cadet	4.2	1.2	106
	Police Academy Cadet	4.7	1.1	93
	State Scholar	4.0	1.3	105
	Other	4.9	1.5	14
	Total	4.3	1.3	318

Source	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Gender	1	.064	.043	.836
Group	3	4.33	2.89	.035*
Gender x Group	3	1.01	.680	.565

* $p < .05$

Post hoc analysis to the main effect for group examined which groups differed significantly on the LTI index. The follow up tests consisted of all pairwise comparisons among the three groups that participated in the OBS course. Since Levene's test of homogeneity of variance was non significant ($>.05$) homogeneity of variances was assumed and a Tukey post hoc test was utilized and conducted at the .05 level of significance.

The results of the post hoc test show the Singapore Airline pilot cadet group differed significantly on the LTI index when compared to the Police Academy cadet group, $p = .008$. The Police Academy cadet group also showed a significant difference on the LTI index compared to the State Scholar group, $p < .001$. These results indicate the Police Academy cadet group had a

higher LTI index mean score than the Singapore Airline cadet pilots and that the Police Academy cadet group also had a higher LTI index mean score than the State Scholar group. The 21-day OBS course had the most perceived long-term impact on the LTI index for the Police Academy cadets, the second most for the Singapore Airline cadet pilots, and third most for the State Scholar group.

Most Meaningful Course Components to Personal Life and Professional Life

Participants were asked in the later part of the questionnaire to rate which course components were the most meaningful to their personal life. Respondents rated the final expedition as the most meaningful course component to their personal life ($M = 5.48$ on an 8 point Likert-type scale). This final expedition is usually a sea kayak trip circumnavigating the island of Singapore (see Table 9).

TABLE 9

<i>Most Meaningful Course Component to Personal Life</i>		
Course Component	Mean	Standard Deviation
Final Expedition	5.48	1.58
Natural Environment	5.24	1.54
Outdoor Activities	4.86	1.58
Solo	4.83	2.05
Personal Reflection Time	4.53	1.79
Community Service	4.52	1.74
Watch (group)	4.39	1.66
Instructor		
Group Debriefing Time	4.38	1.63

Respondents indicated that the most meaningful course component to their professional life was also the final expedition ($M = 4.90$ on an 8 point Likert scale, see Table 10). The final expedition was also rated most meaningful to personal life as mentioned previously. The mean rating was higher for meaning to personal life ($M = 4.77$) than professional life ($M = 4.14$) over all the course components.

TABLE 10

<i>Most Meaningful Course Component to Professional Life</i>		
Course Component	Mean	Standard Deviation
Final Expedition	4.90	1.81
Outdoor Activities	4.23	1.76
Group Debriefing Time	4.19	1.80
Natural Environment	4.07	1.88
Personal Reflection Time	4.06	1.85
Community Service	3.98	1.81
Solo	3.95	2.13
Watch (group)	3.81	1.85
Instructor		

Discussion and Implications

How long does an outcome last in outdoor adventure education programs? Do participants of these types of programs still draw from their experience many years after having participated? What parts of the course do they draw the most meaning from that is applicable to their personal or professional life? As previously noted in the background section of this paper, these questions informed the rationale for this study. Contemplation of questions such as these is appropriate for the beginning of this section. Research in outdoor adventure education is just beginning to answer a small portion of some of them. This study started a line of inquiry, based in the context of Southeast Asia, on the long-term impacts of outdoor adventure education programs and the meaningfulness of course components to those impacts.

Analysis of data collected in this study found differences between perceived long-term impact to personal and professional life for the course overall over all respondents but not statistically significant ones. The study also found statistically significant differences between long-term impact for group but not for gender. In addition, the most meaningful course components to participants' personal and professional life were determined.

The first research objective was to determine what the overall perceived long-term impact of Outward Bound Singapore's Classic 21-Day Challenge Course was on the personal and professional life of past participants who attended the course between 1997 and 2005. A number of findings suggest that overall the Classic 21-day Challenge course had more long-term impact on participants' personal life than professional life. Thirty eight percent of respondents indicated the course was an extremely valuable experience, 60% indicated the course was somewhat valuable, 2% indicated the course was somewhat not valuable, and zero respondents indicated the course was not at all valuable. In total, 98% of participants thought the course was in some way valuable. This was a starting point for further findings which hinted at distinctions between impact on personal and professional life.

Second, the results of a paired sample *t*-test previously mentioned indicated that mean scores for influence on personal life were significantly greater than mean scores on influence on professional life over all respondents. This *t*-test showed that overall participants perceive the Classic 21-day course to indeed have more influence on their personal life than professional life as a whole.

Third, on two separate questions on the questionnaire the participants were asked to indicate how much influence the course has had on their personal life and professional life. Eighty-one percent of respondents indicated on the questionnaire that the course had *some* influence on their personal life while only seventy five percent of respondents indicated that the course had *some* influence on their professional life. Nearly the same percentage of respondents indicated the course had a *lot* of influence on their personal life (9%) and professional life (8%). Interestingly, 16% of respondents indicated the course had *no* influence on their professional life while only 9% indicated the course had *no* influence on their personal life. This finding further supports the evidence suggesting the course has had more influence on participants' personal life than professional life. In some sense these findings are surprising, as many individuals might view the Classic 21-day course as a professional development type of program, which should have more influence on professional life than personal life.

After the previously mentioned data were analyzed, however, results showed the two constructs of personal life and professional life to be highly correlated on the LTI index. The finding is important because it points to the need for further development and refinement of questionnaire items that may be able to differentiate personal and professional constructs. Quantitative results have given only one view to the long-term impact of adventure education. Qualitative results that will be presented in a future article may have the ability to shed some light on how participants think the course has specifically impacted their personal or professional lives by offering concise, context relevant, oral descriptions. These descriptions may aid in the future development of questionnaire items that try to differentiate the two constructs.

The second research objective of this study was to determine if there was a significant difference in perceived long-term impact levels for the factors of group and gender. Significant differences were found for group but not for gender.

For group, significant differences on the LTI index were found between Singapore Airline pilot cadets vs. Police Academy cadets. Significant differences were also found between Police Academy cadets vs. State Scholars on the LTI index. A review of the mean scores for the Singapore Airline pilot cadet group and the Police Academy cadet group show higher mean scores for the Police Academy cadets than the Singapore Airline cadet pilots. In general one might expect differences between these two groups since the timing of the course in their overall training scheme comes at different times (the sequence of their OBS course in their entire training process), and the two organizations and occupations are very different. As mentioned previously the pilot cadets' first three weeks of a two year training program is their OBS course, whereas the police cadets spend approximately three to five months training before attending their course. And when they attend it is often with colleagues they have trained with. In essence, the pilot cadet group's mean scores may be higher because they have had a more novel experience than the police cadets, due to the timing of the course and lack of previous experiences with colleagues.

Significant differences were also found for Police Academy cadets vs. State Scholar on the LTI index. State Scholars mean scores were significantly lower. Reasons for this difference are speculative, since there is no prior literature with which to compare it. One of the reasons for the difference may be that the State Scholars are more academically inclined as a group than the Police cadets as a group and view the OBS experience in more of a practical, thus possibly not as useful, light versus some sort of training that is more academically oriented. Another possible explanation is, again, the timing of the OBS course. State Scholars usually take the course after a year of study, Police Academy cadets after approximately 4 to 5 months of training. Yet another possible explanation is the long-term impact scale itself. Most of the items on the scale could be perceived to be of a more practical versus academic nature. In light of this, State Scholars may have rated items on the scale lower than the Police cadets.

Gender was the other factor that was investigated on the LTI index. An ANOVA found no significant differences in gender on the LTI index. However, mean scores for females were slightly lower than males on the LTI index. At first these findings of lower mean scores for women were a bit surprising. In the context of Singapore, men have a higher chance of attending

the Classic 21-day Challenge course than women due to the predominately male make up of the Singapore Airline cadets and Police Academy cadets. One might have thought then that since women have less of a chance to go on the 21-day course, the experience might have stood out more in their minds because of its novelty. This was not the case.

Two things should be noted about the male to female ratio of respondents that may have influenced the results. First, the total number of female respondents was 45 while the number of males was 273. In terms of percentage, females made up 14.2% of respondents, whereas males made up 85.8%. Second, 37 of the 45 female respondents came from the State Scholars group, and the State Scholars group tended to have lower scores. In general, the sample was predominantly male except for the State Scholar group.

The final expedition was rated as most meaningful to the personal life of participants with a mean score of 5.48 on an 8 point Likert-type scale. It was also the most meaningful course component to participant's professional life with a mean score of 4.90 on the same scale. This finding shows that the final expedition was the most meaningful course component to both the personal and professional life of participants, but overall it was more meaningful to participants' personal life than professional.

The final expedition is usually a two to four day sea kayak trip around Singapore Island or a sea kayak trip of similar duration elsewhere if season and/or weather does not permit the circumnavigation of Singapore. Interview data suggests that kayaking around Singapore itself may play a large role in the final expedition having so much perceived meaning. One cannot help to think that the specific context and nature of this expedition leaves a lasting impression on participants. Imagine if an Outward Bound School in New Zealand, for example undertook a sea kayaking trip around either the entire North or South Island. The feasibility of this is very remote due to distance, but this example highlights the unique nature of Outward Bound Singapore's final sea kayaking expedition. To circumnavigate one's own country must inevitably instill a great deal of pride and accomplishment.

Implications for Practice

The current study has a number of useful implications for practice. First, the findings show that outdoor adventure education programs do have a lasting impact on the lives of participants. Second and more specifically, this study showed that some participants still draw on their OBS experience, or from components of their experience, up to 7 years after the course. Third, the study also showed that different course components hold different levels of meaning to participants. Fourth, some findings also suggest that participants perceived a difference in how the course has influenced their personal and professional life in the long-term; they perceived the course has influenced the personal side of their life more than the professional. Fifth, correlational analysis showed that even though participants apparently perceived a difference in how the course impacted them personally and professionally, the constructs of personal and professional were statistically highly correlated and statistically difficult to separate. Sixth, this research produced information about sub-groups of participants, namely group differences and gender. Specifically it showed how these subgroups differed in their perception of long-term impact.

These findings are useful in a number of ways. Knowledge about the course can be used by Outward Bound Singapore in terms of marketing, staff training, and program content and evaluation. In general the study has increased the credibility of its 21-day program which is constantly under pressure to be shortened in duration (Abdul Kahlid, personal communication, August 3, 2005).

Implications for Research

The findings of this study support previous research by Goldenberg, McAvoy, and Klenosky (2005) which stated that certain personal values associated with outdoor adventure experiences “are believed to positively impact participants’ lives long after the outdoor adventure experience is over” (p. 144). Many individuals in the current study thought the 21-day OBS course still has an influence on them many years after participating in the course.

The current study showed that the 21-day OBS course had a long-term impact on both the personal and professional life of participants, although this distinction was not statistically significant. An implication for research is to refine methods that enable researchers and participants of outdoor adventure education courses to differentiate between how a course has influenced their personal and/or professional lives. It is admittedly problematic to determine if a course has had more long-term impact on participants’ personal or professional lives, however, this study has shown that it may be possible. Thus, refinement of possible domains/constructs of impact in both personal and professional life may be needed.

Transformative learning theory was useful as a lens to view the experience of individuals in this study, especially those participants who thought they had a change in mindset. At the same time however, to actually test the theory would have necessitated repeated interviews with the same participants over an extended period of time. This is something that the current study did not have the time or economic means to achieve.

The current study, however, is a new addition to the use of transformative learning theory applied to outdoor adventure education programs. Previous research utilizing transformative learning theory has occurred in a number of different fields, such as education and health care, but not in outdoor adventure education. There are currently no other studies the researcher is aware of in this field that have used transformative learning theory as a theoretical lens or tried to test the theory.

One underlying focus of using transformative learning theory as a lens was to ponder the question, “could going through an OBS experience result in a transformative learning experience whereby someone’s mindset or perspective changed?” If an experience is transformative it may result in a change in way of thinking (frame of reference or mindset) and subsequent actions of the individual. The process of transformation does not necessarily follow or contain all the ten phases previously discussed that Mezirow (1975) initially theorized (Taylor, 2000).

Important aspects of the theory that have been identified in different types of studies are dissonance (Saavedra, 1995), experiential learning activities, solitude, and self-dialogue (Gallagher, 1997). Insights into transformative learning theory as a process were more feasible during the qualitative phase of this study, although quantitative information did help assist in

identifying certain individuals to be interviewed. For example, it became clear after reviewing many questionnaires that personal reflection time (the time for reflection with self) and group debriefing time (reflective discussion with others) were important elements of the OBS 21-day course that are also important theoretical elements of transformative learning theory. Transformative learning theory has been helpful as a lens through which to view the possible transformative experience resulting from an outdoor adventure education experience and subsequent long-term impact on participants of such experiences.

Conclusion

As mentioned early in this paper, Fletcher (1971) was convinced that participation in an Outward Bound course in the United Kingdom would influence participants for many years. This study has shown that participation in a 21-day Outward Bound Singapore course has had a lasting influence on participants' lives and that many participants still draw from their experience and/or specific components of their experience many years after the course. This study has also started to build a much needed research base on outdoor adventure education in Southeast Asia, which has been neglected over the years.

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