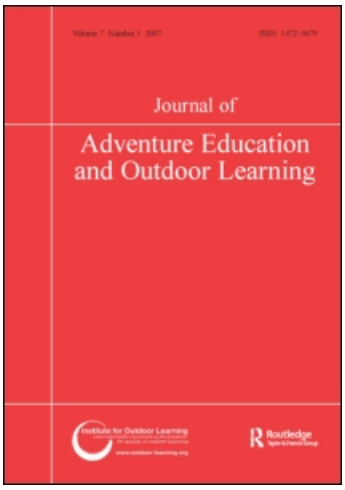

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END PIECE

Relative impact of course components at Outward Bound Singapore: a retrospective study of long-term outcomes

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This study examined the long-term impact of specific course components on participants who attended a 21-day Outward Bound Singapore course between 1997 and 2005. In total, 1029 questionnaires were sent out by mail. Participants were given a choice to complete the questionnaire on paper or online. A total of 318 questionnaires were successfully completed (209 by mail and 109 by the Internet) which resulted in an overall response rate of 34.29%. A series of hierarchical regressions was utilized to explore how course components contributed to participant perceptions of course long-term impact. The results assert there is long-term impact on past participants' lives, even if they participated in the course as far back as 1997. Specific course components that contributed to long-term impact were personal reflection time, group debriefing time, and outdoor activities. The course instructor was not a significant contributor to long-term impact.

Background

In large meta-analyses as well as other studies, the context of outdoor adventure education research has primarily been North America, Europe, the United Kingdom, Australia, and New Zealand. Nearly all of the 96 studies examined in an often cited meta-analysis by Hattie et al. (1997) were conducted in America, Australia, and New Zealand. None of the studies reviewed in the meta-analysis were conducted in Asia. This is ironic considering the first outdoor adventure education school (Outward Bound) in Asia was founded in 1952 in Lumut, West Malaysia before the establishment of Outward Bound in Australia in 1956, America in 1961,

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New Zealand in 1962, and Canada in 1969. The limited attention given to Asia is troubling, especially since the two most populated countries in the world (China and India) are located there (Infoplease, 2007).

In addition to a lack of research attention on Asia, past research has also called for a more thorough examination of program *process*, to more definitively examine the 'black box' of programs like Outward Bound, to better understand *how* specific program outcomes are realized (see Sibthorp, 2003). To address these critical issues, this study proposes an investigation of a 21-day Classic Challenge course run by Outward Bound Singapore (OBS) between 1997 and 2005. Specifically, the study sought to better understand the long-term impacts of an OB course for participants, but moreover, to understand which course components contributed significantly to perceptions of this long-term impact.

A post-test only approach using a retrospective questionnaire was used in this study to examine long-term impacts. In doing so, course participants were surveyed after the completion of their course and were asked to describe, in retrospect, how impactful they thought the course was in their lives and which specific course components were most impactful. 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). A participant in a recent study by Gassner (2006) spoke about the relationship between an OBS course and long-term impact simply but astutely when he said 'people need a collection of experiences in which, or to which, their OBS experience may be applied before realizing the impact it has or has not had.' It may be all too simple. Individuals need the time and opportunity to apply skills or knowledge that may or may not have been gained and to realize through reflection where the skill and knowledge that they have applied came from. Participants 'may not need anything more than adequate time for reflection and informal discussion' (Beames, 2004, p. 198). Roberts (2002) has also stated that 'it may take time for the significance of an experience to become clear' (p. 52). Individuals need time to make meaning of their experience and then place it in the context of place and usefulness. At times 'the learner must relive the experience, making connections between information and feelings produced by the experience and their own lived experience' (Leberman & Martin, 2004, p. 174). 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 & Derr, 1998). However, there has only been one retrospective study which investigated the long-term impact of an outdoor adventure education experience in Asia (Gassner, 2006).

Outdoor adventure education programs generally have certain common elements or characteristics. The programs often feature a wilderness or backcountry setting, group sizes normally less than 16 people, different levels of mentally and/or physically challenging tasks, individual and group decision making tasks, group problem solving, a leader who facilitates the process rather than directs it, and a duration of two to four weeks (Hattie et al., 1997).

The number of outdoor adventure education programs has been increasing in the last 40 years (Hattie et al., 1997). In 1975 there were over 200 Outward Bound adventure based programs operating in the United States (Ewert, 1983). Ten years later there were 542 wilderness-related courses offered by universities in the United States (Hendee & Roggenbuck, 1984). More recently Friese et al. (1998) estimated over 700 organizations that offer wilderness experience programs in the United States, and this number is increasing. Statistics on the number of outdoor adventure education programs that exist in Europe, Africa, Asia, and Australia are not yet available since these geographic areas have not been studied to the same degree as programs in the United States.

Outward Bound Singapore

Outward Bound is a non-profit international educational organization with over 50 schools throughout the world. The mission of Outward Bound International is 'to help people discover and develop their potential to care for themselves, others and the world around them through challenging experiences in unfamiliar settings' (Outward Bound International, 2008). Outward Bound International's mission is achieved by asking individuals to step out of their familiar environments and set new challenges for themselves in a safe but demanding adventure program. The organization's operating principles are

> (1) character development, (2) adventure and challenge, (3) learning through experience, (4) compassion and service, and (5) social and environmental responsibility (Outward Bound International, 2008).

It is up to each school throughout the world whether to adopt the Outward Bound International mission statement, their own specific mission statement, or both. The trend appears to be that most schools are adopting the international mission. Outward Bound schools throughout the world operate independently and take on their own distinct characteristics with regards to the country, culture, and region they are in. A school's geographic location influences to some degree by what means the educational product is delivered. It is, however, the aforementioned mission that serves as a broad philosophical and educational umbrella over all the schools worldwide.

In Southeast Asia, Outward Bound Schools have in some cases been the institutional beginnings of outdoor adventure education in their respective countries and the region. After the first Outward Bound School was founded in Malaysia, schools were started in Singapore, Sabah, (East Malaysia), Indonesia, and Brunei Darussalam. Malaysia, partly due to its unique geography, has two schools. The total number of Outward Bound Schools in the region is now five. It is interesting to note that all the countries in Southeast Asia that have Outward Bound schools are former British colonies.

OBS, founded in 1967, is an important educational organization within the island nation of Singapore. It operates year-round and is based on Pulau Ubin (Granite Island), off the northeast coast of Singapore. The organization is viewed by Singaporeans as the leader in experientially based outdoor adventure education (Jeremy Tay, personal

communication, 26 July 2005). OBS offers a wide range of programs from courses for children to corporate programs for professional executives.

Outdoor adventure education has contributed an important infusion of educational pedagogies in Singapore. Former Prime Minister Go Chok Tong has referred to Singaporean students as 'not strong on creative and innovative thinking and in dealing with problems that are not well-defined' (Hiebert, 1996, p. 29). In the context of Singapore, outdoor adventure education arguably has the potential to positively complement other curricula. Goh Chok Tong (1997) expanded on this idea at the opening of a new center at OBS by saying Outward Bound 'supplements our effort to provide Singaporeans with a quality education in schools and tertiary institutions' (p. 1). By its very nature the Outward Bound process fosters and requires what apparently may not be instilled or practiced in mainstream Singaporean education, innovative and creative thinking to solve problems that are not well defined.

It is important to note here that OBS falls under the jurisdiction of a Singaporean quasi governmental body, the People's Association. The government helps support the school from an organizational and philosophical perspective. For a country in Southeast Asia, this governmental support of education is not an oddity and not peculiar to Outward Bound. 'Many East and Southeast Asian countries have shown a strong commitment to schooling, investing a larger share of public resources in education than all the Western industrialised [sic] nations in the 19th century and almost all of the contemporary developing countries in Latin America and Africa' (Jones, 1999, p. 217). No Outward Bound School in the United States, the United Kingdom, Australia, New Zealand, Hong Kong, or Malaysia is supported as directly by its government. Only the Outward Bound School in Brunei Darussalam has similar governmental support. By its actions, both past and present, the government of Singapore believes the educational process and method practiced by Outward Bound is worthwhile in the short and long term.

Many OBS courses are designed in a way to allow for integration of the different races and ethnic groups. In most public courses that OBS runs, a conscious effort is made to ensure that each OBS group have a representation of the various races and ethnicities that is proportional to the population. Racial integration is becoming more of an underlying theme in many OBS courses although it was not considered a major theme in the Classic 21-day Challenge course between 1997 and 2005 (Abdul Kahlid, personal communication, 3 August 2005).

The mission statement of OBS is 'to develop character, leadership skills and team spirit through direct and purposeful experience in the outdoors' (OBS, 2007). This mission statement originates and still resonates with the original objectives of the school. These original objectives were 'to provide education, leadership and character training; developing the physical, mental and spiritual faculties of boys, girls, young men and women of all races of Singapore' (OBS, 2007). These original objectives combined with the current mission statement show that OBS is concerned with the education, training, and development of its citizens through Outward Bound experiences run primarily in the out of doors.

Specific parts of the aforementioned mission statement and original objectives hint at OBS's role in uniting individuals towards a common purpose which Chew (1996) eluded to when he wrote that in Singapore 'with its very deliberate and structured social system, one central goal of the educational system is to have all citizens working toward a common purpose' (Chew, as cited in Bailey, 1999). OBS provides a role in unifying the citizens of Singapore.

The key learning outcomes stated for OBS's Classic 21-Day Challenge Course are

> (1) learn to deal with unfamiliar tasks and challenges, (2) develop self-confidence, commitment, resilience and determination under adversity, (3) understand how an effective leader inspires and motivates others to achieve team goals, (4) understand key factors that contribute to effective teamwork, (5), recognise [sic] the need for compassion towards others and, (6) develop physical and mental robustness (OBS, 2004).

OBS has grown considerably since 1991 and today 'Outward Bound Singapore is the largest Outward Bound operation in the world' (OBS, 2004). 'OBS has trained more than 150,000 participants since People's Association took over in 1991' (OBS, 2007). Many courses are subsidized by OBS and the Singapore Ministry of Education.

Outdoor adventure education research

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. There have been no meta-analyses of outdoor adventure education research in Asia, partly due to a paucity of actual research in the region. 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.

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). Daniel (2003) also found that the group expedition without instructors was the most significant part of the course for 11% of participants and that solo outranked all other course components 2:1 in importance to long-term course impacts. Solo was the only component mentioned as most significant by participants in all 25 years that the study covered.

Gass et al. (2003) examined the long-term impact of a first-year student wilderness orientation program retrospectively many years after the course had been run. Although this program was not identical to the program of the current study, the retrospective nature was similar. According to Gass et al., 'positive changes were found

17 years after participants' experiences in a wilderness orientation program' (p. 34). Gass et al. reported that three common themes emerged through the data analysis:

> (1) challenging assumptions of self and others, (2) strong effects of peer relationships, and (3) long-term positive effects of the orientation program during students' undergraduate education, as well as after graduation (p. 34).

The solo is an adventure education course component that has received recent attention in the literature. Bobilya et al. (2005) investigated participants' expectations, experience, and what influenced their experience during solo during a wilderness experience program in the United States. The findings 'indicated that the solo not only impacts the participants physically and mentally, but spiritually' (p. 15). Within the United States researchers have found the solo experience to be a course component that is more influential than other components (Daniel, 2003; Fredrickson & Anderson, 1999; McAvoy, 2000; McFee, 1993; Meier, 2000; Roberts & Galloway, 2000; Sibthorp, 2000; Stringer & McAvoy, 1992, Williams & Kalisch, 1995).

Goldenberg et al. (2005) specifically examined course components together with the outcomes and values participants' associated with certain components. Interestingly Goldenberg et al. found that 'transference was the most frequently mentioned value' (p. 136) associated with the course component expeditioning. Certain aspects of outdoor adventure education expeditions appear to transfer to the personal and professional life of participants. Although not a retrospective or long-term study, the information on course components in Goldenberg et al. was a much needed addition to the literature.

A more recent review of research on outdoor learning (Rickinson et al., 2004) critically examined 150 studies published internationally in English between 1993 and 2003. This study examined the impact of three main types of outdoor learning on individuals from primary school age up to college undergraduate age. The three main types of learning were: (1) fieldwork and outdoor visits, (2) outdoor adventure education, and (3) school grounds/community projects. The authors concluded that the research reviewed suggests outdoor adventure education can make a positive impact on a person's attitudes, beliefs, self-perceptions, interpersonal and social skills, and provide cognitive and physical/behavioral benefits, as well as provide affective and interpersonal/social outcomes. The authors also concluded there is more value in programs that are longer, have well thought out preparatory and follow up work, emphasize the role of facilitation, and link program aims to program practices (Rickinson et al., 2004). Recommendations that were made included: learning more about how and why programs work, the nature of learning, and the historical and political aspects of outdoor education.

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) have stated that the transfer of benefits of adventure programs and their components to work and everyday life have often been neglected in research. Specifically Ewert and McAvoy 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 Asia, research on outdoor adventure education programs such as Outward Bound has not developed at the same pace as in other parts of the world. There have been very few studies in Southeast Asia and Singapore specifically. Tan (2005) examined the impact of a five day OBS program on the life effectiveness of adolescents. The study utilized the life effectiveness questionnaire Version I (LEQ) in a pre, post, 3-month and 9-month quasi-experimental design. The study concluded the program had a positive impact on the life effectiveness of adolescents who participated in the course.

Wang et al. (2004) investigated the motivational predictors of young adolescents' participation in an outdoor adventure course in Singapore utilizing a post-course survey. Results indicated 'that external regulation negatively predicted self-reported satisfaction whereas intrinsic motivation positively predicted participants' satisfaction levels of the course' (Wang et al., p. 5). This study, like most other research in Southeast Asia, did not examine long-term benefits. More recently, Wang et al. (2006) measured the effects of a five-day OBS course on female secondary school students. The study utilized a pre-post questionnaire and found 'the five-day adventure course had positive impacts on the social skills, interpersonal skills, leadership, and self-esteem of its female participants' (p. 26). One of the limitations of the study as noted by the authors was it was based on immediate program effects.

Gassner (2006) investigated the long-term impact of an OBS course on three distinct groups of participants from 1997 to 2005. Results from the study indicated there is long-term impact on past participants' personal and/or professional life, even if they participated in the course as far back as 1997. Some participants in the study still draw upon their Outward Bound experience many years after the course. The study found that 38% of respondents thought the OBS course to be extremely valuable while 60% found it to be somewhat valuable. Ninety-eight percent of respondents found the course to have some value in the long-term. The study, which utilized both quantitative and qualitative methods, found that participants did perceive the course influenced them many years after the course and it continues to do so.

With the exception of the studies by Daniel (2003), Gass et al. (2003), and Gassner (2006) the aforementioned ways of looking at outdoor adventure education did not examine the experience from a long-term perspective. Only the studies by Daniel, Gassner, and Bobilya et al. (2005) also examine course components. Until recently there have been few studies examining the long-term impacts of the adventure experience or what impact various course components have on 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 and Goldenberg, 2004, p. 224). In summary, research is lacking on long-term benefits of outdoor adventure education programs, the individual components of these programs, international programs, and research on Southeast Asia outdoor adventure programs.

The focus of this study and paper is on long-term impacts of an outdoor adventure program. The main theoretical concept that relates to these long-term impacts is the concept of transference. Transference refers to how and to what extent learning gained from an experience can be, or is later utilized in life (Gass, 1999). Transference can be specific or non-specific or, metaphoric. Specific transfer is when skills or habits performed in the present are 'highly similar to those we originally learned to perform' (Bruner, 1960, p. 17). An example of specific transfer would be if a participant learned kayaking skills on a course and later applied those same skills on a new kayaking trip. Non-specific transfer is when a participant applies attitudes or principles learned during an experience to future situations. In other words concepts learned on a course are generalized to new situations. Or as Bruner (1960) stated

> in essence, it consists of learning, initially, not a skill but a general idea which can then be used as a basis of recognizing subsequent problems as special cases of the idea originally mastered (p. 17).

An example of this would be an increased level of self-awareness that a participant developed on the 21-day OBS course that her or she now carries and applies to his or her personal or professional life.

Metaphoric transfer is similar to non-specific transfer.

> The principles being transferred are not common or the same in structure, but are similar, analogous, or metaphorical (Gass, 1999, p. 228).

Participants are able to make an analogy of the outdoor adventure education experience or a part of it to a future situation. An example of this metaphoric transfer would be learning to facilitate a debriefing session of an activity during the OBS course to leading a project review at one's place of work. The importance of effective group facilitation is analogous to effectively leading a team at work. In summary, this study focused on the influence of OBS course components and the transference of outcomes to participants' lives in the long-term.

Methods

This paper reports results of a more thorough and detailed analysis of quantitative data gathered in a previous study by Gassner (2006) that examined in detail the nuances of an outdoor adventure education experience in Singapore using qualitative and quantitative data sources. Analysis and results reported here focused specifically on the data gathered from a self-administered questionnaire that participants completed either on paper or through an online self-administered survey. Adult participants of an OBS 21-day course were asked on a self-administered questionnaire to rate how impactful various OB course components were to their personal and professional lives. For example, one of the questions asked respondents to state how impactful the Solo experience had been to their personal and professional lives. All responses were recorded on an 8-point Likert-scale: 1 being 'Not at All Impactful' to 8 'Very Impactful'.

Setting

Singapore was chosen as the setting for this study for a number of reasons. There has been little outdoor adventure education research done in Southeast Asia. OBS is the largest Outward Bound School in Southeast Asia. It runs many different programs with a large number of individuals attending their courses every year. In 2004 approximately 18,000 individuals (children through adults) participated in some kind of OBS course (Abdul Kahlid, personal communication, July, 2005). Because of the number of participants there was a relatively large population to work with in this study. The researcher is also very familiar with Singapore and the region, having lived and worked in Asia for many years. Singapore is also relatively small and has an efficient transportation network which made it relatively easy to contact participants for interviews.

OBS'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 main 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. A small number of Institute of Technical Education (ITE) students were also interspersed in some of the courses. 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 a police officer in some capacity in Singapore. State Scholars normally took the 21-day OBS course in the summer months after one year of university study.

Participants

The sample ($n = 1029$) for this research were adults who participated in OBS's Classic 21-day Challenge course from 1997 through 2005. Of the 1029 OBS participants from 1997 to 2005 courses, 318 survey responses were obtained, yielding a

response rate of 36%, similar to those reported by Sheehan (2001) for internet-based academic research over a 15-year period.

A self-administered questionnaire containing Likert-type scaled questions that could be delivered in paper format or through the Internet was designed, developed, pilot tested, and implemented following survey protocols put forward by Dillman (2000) and content based on previous long-term impact and course component research by Kellert & Derr (1998), Daniel (2003), and Bobilya (2004). The survey was mailed to each potential respondent, where they could then either mail back the completed questionnaire, or go online and complete the questionnaire. Past participants were not contacted by email since OBS did not keep email records of past participants.

Data analysis

Data analysis was completed in several steps, with the goal being a series of hierarchical regressions to explore how course components contributed to respondent perceptions of course long-term impact. The first step was to tabulate demographics of respondents, including group, nationality, and the course year in which they participated.

The second step combined responses to three questions to generate a course impact variable (CIV) that included average responses from the following three questions:

1. Overall, how was your experience on Outward Bound Singapore's Classic 21-day Challenge course?
2. How would you rate the influence of your experience on Outward Bound Singapore's Classic 21-day Challenge course on your *personal life*?
3. How would you rate the influence of your experience on Outward Bound Singapore's Classic 21-day Challenge course on your *professional life*?

The CIV variable was the resulting average score of these questions rated on a 4-point Likert-type scale from 1 'Negative Influence' to 4 'A Lot of Influence'.

The third step was to combine the set of questions that asked respondents to indicate how each course component variable separately impacted their *personal* and *professional* lives. Respondent personal and professional responses were combined because no differences were found when comparing their relative impacts on any course component variables using ANOVA procedures. The difficulty in respondents' being able to distinguish how course components differentially impacted their professional and personal lives was also corroborated through analysis of qualitative data asking respondents to elaborate on this distinction (Gassner, 2007).

The final step in data analysis used the scores of various course components (treated as independent variables) and their contribution to long term impact average score (CIV, treated as the dependent variable), to conduct three hierarchical regressions (Mertler & Venatta, 2005). In this manner, a determined set of variables is reasoned to be more influential than another variable or set of variables. When

subsequent variables are then added to the regression equation, it is possible to determine the specific amount of variance they could account for, above and beyond, what had been explained by the variables entered in the previous set (Tabachnik & Fiddell, 1996). The first regression examined the relative contribution of the *Final Expedition* (FE) and the *Solo* (S) to long term impact. This was done because the relative importance each of these variables played in determining course impact was evidenced by the fact they had the highest rated average scores when compared with the other course components. A second regression was performed that added an additional set of variables above and beyond the FE and S variables reasoned to be theoretically and practically linked based on previous research and personal experiences leading adventure education programs. The variables Outdoor Activities, Group Debriefs, and Instructor were added because the core aspect of an adventure education program is participation in outdoor activities which are then 'debriefed' through facilitation by the instructor (Priest & Gass, 1997). Included in this justification, is the now well documented impact that the course instructor has on participant experiences, including modeling appropriate behavior and providing feedback to students (e.g. Paisley et al., 2008). The third regression also included FE and S as the first set of variables, but added the Natural Environment, Personal Reflection Time, and Instructor variables because of the reasoned association that the natural environment and personal reflection constructs have with the solo experience, and the power that solos have in facilitating reflection on participant's lives. This grouping of variables is largely supported by the work of Bobilya and others (2005a, 2005b) who have studied the contribution of the solo experience to outcomes in adventure education including associated factors that facilitate meaning for participants.

Non-response bias and limitations

Non-response error occurs 'when a significant number of people in the survey sample do not respond to the questionnaire *and* have different characteristics from those who do respond, when these characteristics are important to the study' (Dillman, 2000, p. 9). To address the issue of non-response a number of *a priori* techniques were utilized. First, the four step approach to survey respondent contact as outlined by Dillman (2000) was used. This approach has been shown to increase response rates among survey respondents. Second, the instrument to be used was critically reviewed for content, language, and other items that may have made the questions confusing to respondents. Third, the survey took approximately 10–30 minutes to fill out thus it reduced the respondent's time burden. Fourth, research suggests that making questions respondent friendly improves response rates for people who are actually least likely to respond to surveys (Dillman, 2000). Questions were made respondent friendly with regards to language, content, and format. Lastly, a pilot study was done in order to assess how and to what extent respondents would fill out the questionnaire.

The survey design was completely anonymous. This was primarily done because Outward Bound Singapore's parent body is the People's Association, which is a statutory board of the government. Because of this governmental link, the researcher wanted respondents to feel completely at ease in answering questions knowing that there was no way that their answers could get back to any governmental entity. This idea aligns itself well with the idea of developing trust with survey participants put forth by Dillman (2000) in a discussion of social exchange theory. After the survey was completed, an attempt was made to contact as many non-respondents as possible by telephone. Since the survey was completely anonymous it was impossible to differentiate the respondents from the non-respondents. Because of this the researcher attempted to call every other name on the database. Calls were made to approximately 60 numbers listed on the database. After making these initial 60 calls it became readily apparent that it would be exceedingly difficult to contact respondents or non-respondents for the following reasons:

1. The questionnaires were anonymous so it was impossible to tell who responded or not.
2. Many of the phone numbers given to the researcher on the database turned out to be inaccurate (wrong number, invalid number, or number no longer in service).
3. Most of the telephone numbers on the database were home numbers and it proved very difficult to catch non-respondents at home.

For example, Singapore Airline pilots are very often away from Singapore for over a week at a time, then home again for a few days before leaving again. The police cadets now are working in various fields and, like most Singaporeans have a very busy, hectic schedule.

In order to address the possibility of non-response bias brought on by an anonymous survey, another measure was undertaken after all the questionnaires were returned. A chi square analysis was done to compare observed counts of all possible respondents to expected counts of actual respondents based on gender, group, year of course, and nationality.

The chi square test was non-significant for course year and for nationality but significant for gender and for group. Results indicated that the respondent and non-respondent counts were similar with respect to course year and nationality but not necessarily with respect to gender chi-square (1) = 6.11, $p < 0.05$ and group (chi-square (3) = 29.00, $p < 0.05$). These potential biases will be addressed in the discussion section when interpreting results.

Results

Of the 318 respondents, approximately one third (106) of respondents were Singapore Airline cadets at the time of the course, one third (105) were State Scholars, slightly less than one third (93) were Police Academy cadets, and the

remaining percentage was comprised mainly of Institute of Technical Education (ITE) students that were offered a place on a 21-day course (4.4%). These ITE students participated in their OBS course in a group with other State Scholars.

Participants primarily self-identified their nationality as Singaporean 95.6% (n = 304). Those who identified themselves as Malaysian made up 3.8% (n = 12) of the total sample. Because the other categories of nationality were a very small percentage (one Bruneian and one Maldivian) they were categorized as 'other.' Nationality as a variable was not utilized beyond descriptive statistics since the majority of respondents identified themselves as Singaporean.

The bulk of respondents participated in their course in either 2000 or 2002 (42.8% combined percentage). Since there were only two respondents from 2005, the years 2004 and 2005 were combined into one category. It should also be noted that nearly all the female respondents (14.2%) came from the State Scholars group which is consistent with the small percentage of females in both cadets groups in the entire survey population. In summary, the survey population was predominantly male Singaporean Chinese.

An analysis of variance (ANOVA) was conducted to evaluate the effects of group on the CIV. The ANOVA indicated significant differences across groups on the CIV($F_{(3, 314)}$ =16.67, $p < 0.001$), and a Tukey post-hoc test showed significant differences between the Singapore Airline cadet pilots and the three other groups, including:

(a) Singapore Police Academy cadets ($p < 0.001$),
(b) the State Scholar group, $p = 0.003$, and
(c) the Other group, $p < 0.001$.

The State Scholar group also differed from the Other group, $p = 0.006$. Descriptive statistics are shown in Table 1. The police cadets score on the CIV was significantly higher (m = 6.68, SD =1.05) than the state scholars (m = 6.29, SD = 0.99) and the pilot cadets (m = 5.77, SD = 1.05).

Finally, an ANOVA was also conducted to evaluate the effects of course year on the CIV. Participants' perception of course long-term impact did not differ significantly as measured by the CIV across course year ($F_{(8, 308)} = 0.79$, $p > 0.05$).

Table 1. Descriptive statistics

	Mean	Standard deviation	n
Singapore Airline cadet	5.77	1.050	106
Police Academy cadet	6.69	1.050	93
State Scholar	6.29	0.997	105
Other	7.29	1.640	14
Total	6.28	1.140	318

Hierarchical regression: relative contribution of the Final Expedition and the Solo

The linear combination of the Final Expedition and the Solo was significantly related to the CIV, $F_{(2, 315)}=59.5$, $p < 0.001$. The multiple correlation coefficient was 0.52, indicating that approximately 27% of the variance of the course impact variable can be accounted for by the linear combination of the Final Expedition and the Solo. Table 2 shows the indices to indicate the relative strength of the predictors to course impact.

Hierarchical regression: exploring contribution of course components

Results of the second hierarchical regression indicated that the three course components of Outdoor Activities, Group Debriefs, and Instructor as a set accounted for a significant proportion of the course impact variance after controlling for the effects of the Final Expedition and the Solo, R^2 change = 0.095, $F_{(3, 312)} = 14.81$, $p < 0.01$. There were moderate correlations between the three variables (ranging from 0.421 to 0.487). None of the condition indices reached the collinearity diagnostics threshold of 15 that was proposed by Belsley et al. (1980) and later incorporated into SPSS. Table 3 and Table 4 show the results of the second regression.

Outdoor Activities, $p = 0.01$ and group debriefing time, $p < 0.001$ were two significant predictors of long-term course impact. The course instructor as a course component was not significant, $p = 0.37$. All of the bivariate correlations between

Table 2. Bivariate and partial correlations of the predictors with course long-term impact

Course component	Correlation between each predictor and influence on course impact	Correlation between each predictor and influence on course impact controlling for all other predictors
Solo	0.418*	0.209*
Final Expedition	0.480*	0.316*

*$p < 0.001$.

Table 3. Reduced regression model for course long-term impact

Variable	B	SE B	β
Outdoor Activities	0.124	0.050	0.166
Group Debriefing time	0.173*	0.049*	0.245*
Instructor	0.018	0.048	0.026

*$p < 0.001$.

Table 4. Bivariate and partial correlations of the predictors with course long-term impact

Course component	Correlation between each predictor and influence on long-term impact	Correlation between each predictor and long-term impact controlling for all other predictors
Outdoor Activities	0.473	0.113
Group Debriefing time	0.487*	0.164*
Instructor	0.421	0.017

*$p < 0.001$.

the three course components and long-term impact were positive. Group Debriefs accounted for the highest amount of variance (48.7%) of the three course component predictors to course long-term impact. Group Debriefs also accounted for 16.4% of the unique variance of course long-term impact while partialing out the effects of the other predictors (components).

Results of the third regression indicated that the three course components of Natural Environment, Personal Reflection time, and Instructor as a set accounted for a significant proportion of the course impact variance after controlling for the effects of the Final Expedition and the Solo, R^2 change = 0.11, $F_{(3, 312)} = 17.09$, $p < 0.01$. There were moderate correlations between the three variables (ranging from 0.421 to 0.532). None of the condition indexes reached the collinearity diagnostics threshold of 15 that was proposed by Belsely et al. (1980) and later incorporated into SPSS. Tables 5 and 6 show the results of the second regression.

Personal Reflection time, $p = 0.01$ was the only significant predictor of long-term course impact. Natural Environment was not significant, $p = 0.45$. Instructor was not significant, $p = 0.06$. All of the bivariate correlations between the three course components and long-term impact were positive. Personal Reflection time accounted for the highest amount of variance (53.2%) of the three course component predictors to course long-term impact. Personal Reflection time also accounted for 43.4% of the unique variance of course long-term impact while partialing out the effects of the other predictors (components).

Table 5. Reduced regression model for course long-term impact

Variable	B	SE B	β
Natural Environment	0.036	0.048	0.049
Personal Reflection time	0.244*	0.047*	0.364*
Instructor	0.078	0.042	0.017

*$p < 0.001$.

Table 6. Bivariate and partial correlations of the predictors with course long-term impact

Course component	Correlation between each predictor and influence on long-term impact	Correlation between each predictor and long-term impact controlling for all other predictors
Natural Environment	0.422	0.034
Personal Reflection time	0.532*	0.434*
Instructor	0.421	0.086

*$p < 0.001$.

Summary and discussion

The overall aim of this study was to better understand which course components of a 21-day adventure education program in Singapore contributed significantly to participant perceptions of long-term impact. Five important implications from the results were found, including:

1. The importance of geographical context.
2. The Final Expedition and the Solo are important contributors to long-term impact when considered together.
3. Course components that included reflection, either personally or in a group situation significantly contributed to long-term course impact.
4. Challenging physical activities in the out of doors are very meaningful to participants in the long-term.
5. The instructor as a course component was not a significant predictor to long-term impact.

The geographical context of the outdoor adventure education experience played an important role in the findings of this study. Singapore is a relatively small country, densely populated, very busy, and very urban. On average individuals have very little time to spend reflecting on their experiences, especially outdoors, unless it is part of their profession. For participants of the 21-day course (pilot cadets, police cadets, and state scholars) much of their time is spent indoors or in an airplane cockpit by necessity. The contrast of attending an OBS course where most activity is undertaken outdoors verses spending a majority of one's time in a busy urban environment may have contributed to participant's responses indicating the importance of outdoor activities to long-term impact.

The Final Expedition and the Solo were important course components to participants in the long-term. The length of these course components relative to other components in a 21-day course may have played a role in their significance to participants.

Interestingly there is often pressure to shorten these components due to their length. It could be conjectured that if one or the other components were shortened the same long-term impact might not occur. It is not clear from the results of this study whether this would be the case. The ideal length of the Final Expedition and the Solo is in area that may warrant further research.

In a previous study by Gassner (2006), the Solo as a component in and of itself was found not to be one of the most meaningful components to participants in the long-term and not as meaningful a course component as research has shown in the United States (Daniel, 2003; Bobilya, 2004; Bobilya et al., 2005). One possible explanation for the difference in perceived meaningfulness of the Solo across countries is that Asian culture in general, and Singapore specifically, is more collectivist by nature than the culture in the United States, Canada, the United Kingdom, or Australia (Hofestede, 1997). Individuals may not have the same desire to be alone for two to three days as in other countries. Another interesting point to note is that participants may not have been as comfortable with the uncertainty that is inherent in the Solo experience as participants of solo experiences in other countries. Previous research has shown that certain cultures are more comfortable with uncertainty than others (Hofstede, 1997). In addition, individuals living in Singapore are hardly ever far from someone else due to the country's population density, which may make solo somewhat intimidating. If Solo as an individual course component is possibly to carry more meaning in the long-term for Singaporeans, attention may be given to how individuals are prepared for their solo experience. A question of interest is should more or less structure be given? Bobilya et al. (2005) have suggested the instructor can play a large role in this preparation through attention to such items such as:

1. Understanding participant expectations before the Solo.
2. Providing a clear rationale for the Solo.
3. Possibly offering an optional instructor visit during the Solo.
4. Providing one-to-one discussions with other participants after the Solo prior to a group debriefing.
5. Considering how group dynamics and other program elements may affect participants before and after the Solo.

If Solo was given more structure by course instructors both the Solo and instructors as course components may have taken on additional long-term importance to participants.

Group Debriefing time and Personal Reflection time were components that significantly contributed to long-term impact above and beyond the Final Expedition and the Solo. The data suggest that individual reflection time and structured group reflection time were important to long-term impact, more important than time alone for two to three days (solo). Reflection in some form was an important contributor to long-term impact.

The long-term educative impact of reflection, either individually or in a group setting, is not to be underestimated. For program content this means Reflection Time should not be decreased at the expense of other aspects of the program and should

enable participants to 'explore their experiences in order to lead to new understandings and appreciations' (Boud et al., 1985, p. 19). For program evaluation this suggests evaluating whether or not participants thought there was adequate personal and or group reflection time built into the course.

A great deal of importance has been attributed to reflection in the educational process and its importance for learning to occur (Dewey, 1933, 1938; Freire, 1984; Schön, 1983). Results of this study suggest that an element of self reflection and/or reflection in a group setting was important to the courses' long-term impact. This study supports previous claims that reflection, either on an individual basis or in a group, is an important element that contributes to learning and specifically in this study, to long-term impact.

Time is also an element that needs to be considered. As previously stated by Roberts (2002) in the background section of this paper, time may be needed for the importance of an experience to be realized by participants. Wang et al. (2006) also stated that one of the limitations of their study was that it only examined immediate program effects. This study suggests that individuals themselves are capable of making meaning out of their experience as time goes on, without the assistance of ongoing facilitation.

Outdoor activities as a course component played a significant role in participants' perception of long-term impact. The importance of outdoor activities in this study may have been accentuated by and tied to the geographical context. In a very urban, heavily business-oriented environment and country the ability of individuals to be active outdoors may provide a welcome relief and much needed contrast to day-to-day life. The study highlighted the importance of the combination of being outdoors and being active, not just one or the other. This finding speaks to current research in the United States by Louv (2008) which highlights the decreased amount of time individuals are spending out of doors and by ironic contrast the importance of doing so.

The course instructor did not contribute significantly to participant perceptions of long-term impact. There is a certain amount of contention within the field of experiential education with the words 'outcome' and more specifically 'intentional.' Both of these words appear to presuppose that we, as experiential educators, know what is best for every individual and should design programs intentionally with pre-determined outcomes in mind for the participants who we, more than likely, do not know very well. Is this really experiential learning at its philosophical core? Is this actually giving ownership of the experience to participants? At times, overly structured or controlled review (debriefing) sessions may not be necessary. As Hovelynck (2001) stated:

> if the lessons to be learned from an experience can be listed before the experience has taken place, and thus independently of the learner's experience, it seems misleading to call the learning 'experiential' (p. 8).

Instructors may contemplate and give credit to human nature and its ability in the long-term to reflect upon experiences that are novel and profound enough to not necessarily require a formal review session but allow time for reflection.

Recommendations

Negative impact on participants' personal and professional life was not discussed in detail in this study. There were a few areas where impact was thought to be slightly negative but these were so few they did not show up in the statistical analysis. Future studies could devise ways to address the issue of negative impact. Another area of further research would be to examine long-term impact across different courses and lengths of courses. For example, a study could examine long-term impact of courses of different lengths to determine if shorter courses have the same, more, or less influence on participants in the long-term.

Yet another area for future research is to further investigate the meaning and importance of various course components across different cultures from a qualitative perspective. The final expedition as a course component is an area of study that has attracted very little research in any country. In this study the Solo, although meaningful, was not as meaningful relative to other course components as in other studies done in the United States or other countries outside of Asia. Solitude may carry different meaning across different cultures and in different contexts.

Results of this study indicated that the police cadets had highest mean scores on long-term impact. From a group perspective, is the OBS course more adept at developing perceived long-term impact for the police cadets than other groups? Why did this happen? As mentioned previously the police cadets took the course at a different time in their training than the Singapore Airline cadets. This timing of the OBS course in the larger training scheme may be an important aspect to examine. Another area for potential future research is to further examine differing perceptions of outdoor adventure experiences and their component parts across different distinct groups and when the experience happens in terms of a broader training scheme.

This study has also highlighted the need to undertake more and/or similar studies elsewhere in Asia. Asia is a geographic region that lags behind in outdoor adventure education research yet the programs there have been in existence for as many years as other regions. Also needed are more mixed methods and qualitative studies. Another suggestion for future research is to revisit respondents five years later to analyze course impact over a longer term (5–12 years). This would allow further investigation of long-term benefits.

In practice, Singapore has proven to be a good place to undertake research for a number of reasons. First, it has a very diverse population made up of many different racial and ethnic groups, which lends itself to making comparisons. Second, the entire country is readily accessible by modern, fast, efficient, and inexpensive transport systems. Third, the country has a large, long standing, well respected Outward Bound School with many participants. Fourth, throughout this study and many other visits to Singapore the populace has been very welcoming and pragmatic. Fifth, even though the country is made up of people from many walks of life, English is a language spoken by everyone and thus even though one interacts with many different racial and ethnic groups; English offers a common medium of communication.

This study has shown that reflection, either individually or in a group setting or, over the long-term by participants themselves, significantly contributes to participants' long-term course impact. It has also shown that in the context of the course examined, instructors did not play as vital a role as other aspects of a course. This is an important finding. Instructors in some cultures and contexts may want to consider allowing the 'mountains to speak for themselves' both during a course and many years after. This thinking aligns itself with the Generative Paradigm (Loynes, 2002) which asserts that 'meaning and value emerge within the experience rather than being represented or defined by the programme [sic] structure or facilitator' (p. 122). However, within the context of Singapore, Solo is a course component that may benefit from more input and structure from instructors. Overall, this study has shown that it is participants' ability to reflect upon experiences that contributes most to long-term impact.

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