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Introduction

In the field of outdoor education, the belief that outdoor adventure programs have the ability to increase the participants' self-efficacy has long been used to defend program existence and to give more credibility to the discipline (Berman & Berman, 1994; Cockrell, 1991; Ewert, 1989; Miles & Priest, 1990). Although outdoor adventure programs are based on the assumption that a positive effect on individuals' self-efficacy will carry over into the participants' lives after the course, there is little empirical research on this topic. In Hattie, Marsh, Neill, & Richards' (1997) meta-analysis of research on adventure programs, they point out the need to study the development of self-efficacy and to test specifically for efficacy (rather than self-concept in general or self-esteem). They suggest using alternative research designs to enhance the standard pre-test, post-test design so commonly used in our field. In this paper, we address the theoretical and methodological issues raised by Hattie et al. (1997), as well as the question of the transference of self-efficacy gained on an outdoor adventure course to individuals' everyday lives. The paper reports on a study of self-efficacy in adult Outward Bound participants, and the level of transference of self-efficacy gains to everyday life.

Background

Self-efficacy, as defined by social psychologists, is "the perception or experience of oneself as a causal agent in one's environment" (Gecas & Burke, 1995, p. 47). Scholars in the field of sociology, psychology, and recreation and leisure have suggested that self-efficacy is an individual's general sense of her/his ability to accomplish a given task (Gass, 1994; Shanahan & Mortimer, 1996; Rosenberg, 1986). This is not the same as self-esteem, which is how favorably one views oneself or one's actions (Gecas,1986). Self-concept is a broader construct under which both self-efficacy and self-esteem fall (Gecas, 1986).

Self-efficacy is the person's beliefs about their ability to execute control over their own level of functioning and the events that affect their lives. Self-efficacy is a very important part of the individual coping system. We depend on our self-efficacy for task accomplishment, from the mundane to the complex. A resilient sense of efficacy is needed to sustain a continual effort, which is needed for success in any situation (Bandura 1986, 1991; Dzewaltowski 1989; Gass, 1993).

The efficacy that the individual develops can be derived from past failures and/or accomplishment(s) (Bandura 1982, 1986, 1989; Ewert, 1983; Gass, 1987, 1990). However, the past accomplishment and/or failures do not have to be specific to the particular situation in a later situa-

tion in order for an individual's efficacy to increase (Bandura 1977, 1982, 1986; Gecas 1986, 1989). Self-efficacy is learned from our prior experience and then used by the self and incorporated into the self belief system to help achieve future tasks.

A person's knowledge of their own judgment skills and perceived capability to influence their own thought patterns and emotional reactions depend greatly on their self-efficacy (Bandura 1991). People's thoughts and emotional reactions to their actual and perceived environments are influenced by their judgments. If one perceives his/herself as inefficacious, s/he perceives potential problems and difficulties as more formidable then they really are (Beck, 1976; Lazarus & Launier, 1978; Meichenbaum 1977; Sarason, 1975). People with a strong sense of self-efficacy organize their attentions and efforts toward the task and, when provoked by obstacles, muster even greater effort to overcome the stressor (Csikszentmihalyi, 1975, 1991; Bandura, 1982, 1991a; Dunning, Leuenberger, Sherman, 1995). These concepts are reflected in Bandura's Social Cognitive Theory and in the Shananhan and Mortimer theory of using stress to promote a positive change in the self.

Shananhan and Mortimer (1996) have used the construct of stress to create a model that shows how stress can lead to an increase in self-efficacy. This model shows how efficacious experience increases the person's sense of competence, escalating the probability of future competence-driven conduct (Bandura 1977, 1986a, 1986b, 1992). A sense of self-efficacy increases peoples motivation to take risks to confront and manage stressors (challenges), giving them a higher threshold of reactivity and a stronger self motivational structure. This increases the individual's motivation to engage in future challenges and to look at challenges that are perceived to be more difficult than the past accomplishments (Bandura, 1977, 1986, 1992; Gecas, 1989). The efficacious individual is less apt to perceive minor challenges as threats to self-efficacy.

The Shananhan and Mortimer model also defines how stressors that have been viewed in the past as negative to an individual's self-efficacy can provide positive outcomes. Further, the model demonstrates how stressors generate a greater sense of self-efficacy and how this increased sense of efficacy applies to future and different challenges in a person's life.

Past research has examined the effects of wilderness adventure programs on self-concept, self-esteem, and locus of control (Clifford and Clifford, 1967; Ewert, 1982; George 1978; Marsh, 1986). Very few studies have considered whether participants are able to transfer positive feelings developed as a result of their outdoor adventure participation back to their lives at home and work. To ensure that the participants are able to use what they have acquired on the outdoor adventure program, we need to know if they incorporate the benefits of the program into their daily lives.

The purpose of this study was to determine the effect of adventure programs on the participants' self-efficacy (general, interpersonal, and socio-political) immediately following an adventure program experience; and whether there was a transfer (carry-over) of increased self-efficacy after the adventure experience to the participants' daily lives.

For this paper, self-efficacy will be defined as "a person's beliefs about his/her ability to execute control over his/her own level of functioning and the events that affect his/her life" (Ewert, 1989, p 93). We also studied specific ar-

eas of participants' self-efficacy, including interpersonal efficacy and socio- political efficacy. Interpersonal efficacy is the perceived ability to interact with others in a manner that benefits the participant (Paulhus, 1983). This includes defending one's point of view during group decisions, developing working relationships, and developing personal relationships. Socio-political efficacy is the perceived ability to move feelings and beliefs into action, for example acting on a socio-political belief about such issues as environmental protection or social injustice.

Methods

A series of 21-day courses at Voyageur Outward Bound in the summer of 1996 were used as the treatment in this study. Much has been written about outdoor adventure programs (Ewert, 1989; Gass, 1994 , 1990; Petzoldt, 1974; Wilson, 1981). The Outward Bound Schools are considered leaders in outdoor adventure programming; their model for adventure education has been adopted as the standard for many outdoor adventure programs (Ewert, 1989).

The study was conducted in four different geographical areas (Boundary Waters, Minnesota; Rocky Mountains of the United States; the Rio Grande River in Texas; and the Bloodvine River in Canada). The courses included one of four forms of adventure activities: flat water canoeing, mountaineering, white water rafting or kayaking.

The sample size for this study was n=68. The participants in this study were 18 to 29 years old and all completed a 21-day adventure course offered by Outward Bound. The participants of the study consisted of 54% male 46% female; the majority of the sample was Caucasian (96%) and between the ages of 18-19 years old (64%). The majority of the sample were college students (81%) at the time of the study; only 20% of the sample worked full time; and 80% were unemployed or worked only part-time. There were a total of 68 participants in the study, of a possible 152 students who participated in 21-day adventure courses in the summer of 1996. Out of a total of 152 possible participants, 41 were too young (below the age of 18 at the start of the course), 38 were not given the second questionnaire as the result of an instructor's death on a course, and 5 were not given the post test 2 instrument because they were unavailable after their Outward Bound course. The usable number of subjects was 68 persons, an appropriate number of subjects considering the research design. A control group of n=50 was also used in this research, consisting of students in a third year university course. This group demographically matched the experimental group.

The design model used for this study was a variation of the quasi-experimental, multiple time series design using a nonequivalent (non-random) pre-test, post-test control group, as defined by Campbell and Stanley (1963). The research was conducted over a six month time period. This design consisted of a pre-test on the first day of the course, a post-test on the last day of the course, and a second post-test six months after the last day of the course (by mail). The control group was given the same test at time intervals equal to those used with the experimental group.

The instrument used in this research was developed out of three independent survey tools. The first section of the instrument was the self-efficacy scale, modeled after Bandura's format for measuring self-efficacy (1977). The scale reflected judgments that measured both magnitude and strength of self-efficacy. The self-efficacy scale included 16 items.

These assess perceived skills with regard to judgment, leadership, and self-reliance.

The second section of the instrument consisted of the Sphere-Specific Measures of Perceived Control (SOC). This survey was created to investigate the "domains" of self-efficacy: interpersonal control and socio-political control (Paulhus, 1983). These three components of a subject's life can be viewed as three concentric spheres, with the individual in the center. These are the same components of self-development that the Outward Bound program targets. The three components measured by the SOC used ten questions each; the questions were answered on a seven point Likert scale. The SOC was used in this study because one of its purposes is to indicate how a person would integrate increased self-efficacy into everyday life.

The Multidimensional-Multiattributional Causality Scale (MMA) was the fourth section of the survey, and consisted of 42 questions. This instrument evaluated achievement and affiliation based on ability, effort, luck, and context. There are various scores that can be derived from this instrument, including assessment of one's beliefs about control and ability (Lefcourt, Von Baeyer, Ware, & Cox, 1979). The initial intended population for this instrument was university students. This scale was dropped from the analysis due to the small response it received. The scale was on the last page of the instrument and was overlooked by the majority of the respondents.

There was a set of open ended questions on the last instrument (post test 2). These questions asked the participants what from their Outward Bound course they have used in their lives at home. There were three questions asked of the participants, one of which will be discussed in this article: "What aspects of Outward Bound have you found most useful now that you are back home?"

Results

Positive changes in the subjects' efficacy were found in all three areas of the Sphere-Specific Measures of Perceived Control (SOC) and in the self-efficacy scale. Table 1 below summarizes the significance of change in efficacy. Increases in the subjects' efficacy were found in all three areas of the spheres of control measures.

As Table 1 illustrates, all scales show an increase from the pretest to the posttest 1. The self-efficacy, as well as the general efficacy measured by the SOC, show an increase significant at the .01. As speculated in other research in the field of outdoor adventure, this phenomena is expected. The results of all the scales tested demonstrated an increase in efficacy significant at the .01 level for the posttest 1 to posttest 2 interval, illustrating a continued growth in the participants self-efficacy six months after the end of their outdoor adventure course. Particular aspects of the instruments demonstrated a great increase in six months. These were the areas of work-efficacy and judgment.

The general efficacy, interpersonal efficacy, and socio-political efficacy that were tested using the S.O.C. all showed areas of increase in the subjects' lives from posttest 1 to posttest 2, six months after the course. Increases in efficacy were shown in all instruments between the pretest and the last day of the course (posttest 1). Six months after the last day of the course, again there was a significant increase in all the scales, showing a carryover to the post-course life. The control group had no significant change between the pretest and posttest 1, posttest 1 and posttest 2, or between the pretest and the posttest 2. When the experimental group was compared to the control group, the

control group scores were constant, while experimental groups scores increased at various rates.

Table 1

Significance of the comparisons of scales to each other

Instrument	Pretest to Posttest 1	Posttest 1 to Posttest 2	Pretest to Posttest 2
S.O.C.			
General	**	**	**
Inter-personal	**	*	**
Socio-political	*	**	**
Self-Efficacy Scale	**	***	***

* = .05 level ** = .01 level *** = .001 level

The SOC showed a significant increase at the .01 level in the socio-political battery between the first and second posttests which were not exhibited between the pretest and the first posttest. One possible reason for this change is that the participants' did not have the time to act and or think about political concerns during the adventure program. The participants were in an environment that provided the opportunity to contemplate the socio-political issues referenced in the four questions during the six months following the course, which gave them the time to think and act.

There was an increase in scores in the interpersonal efficacy portion of the instrument; this increase was the greatest at posttest 1, but also increased at posttest 2 . There were some questions in this section of the instrument that showed a significant change from posttest 1 to posttest 2 in a negative direction. These questions centered on romantic relationships. This is not considered unusual due to the timing of the third instrument administration and the demographics of the study population (the majority were college students, in school at the time of the third instrument). In this same section there was an increase from posttest 1 to posttest 2 in questions that asked about group involvement and group communications.

The increase in efficacy is demonstrated with the responses to the open-ended question asked of the participants on the last instrument. These statements also give us insight into what the subjects have taken from their adventure courses and applied to their everyday lives. The question posed: "What aspects of Outward Bound have you found most useful now that you are back home?" The question was left open so the subjects could answer in any way they felt appropriate. Those qualitative responses supported the quantitative claim of transference in gained self-efficacy from the outdoor adventure to the participants' everyday lives.

One participant answered the question with the following statement: "I believe in my own abilities, I learned to listen to myself." This concept of believing in their own abilities is the very essence of efficacy. Listening to oneself is the understanding of personal control, demonstrating a strong sense of internal control. The following responses from other participants also demonstrate the transference of efficacy and an increased feeling of control:

> "I take things that come before me as I would a mountain. It can be done and the rewards--strength of character and soul, satisfaction--are endless."
>
> "I learned how to interact with others, how to be myself. I use these skills daily, and have learned more as I grow each day."
>
> "I have learned to do things on my own without depending on someone else to do it for me."
>
> "Climbing mountains is the same as climbing life. I know I can do it, by trying more than one path sometimes, but I know I can do it!"
>
> "O.B. really helped in enabling me to stick with it and stick it out and give it all I can in whatever I do; the belief in myself."

All of the comments above demonstrate the transference of efficacy into the participants' everyday lives. From these statements emerge a pattern of efficacy in decision making, and the belief in succeeding at the onset. There is also a sense of internal strength demonstrated in the "I know I can do it" statements.

Conclusion

This research has shown that there is an increase in efficacy after an adventure course and then a transference of that gained efficacy into the participants' everyday lives. By using different methods of research that reached beyond the standard pretest-posttest methodology the researchers were able to gain better insight into the effects of an outdoor adventure course on the participants' self-efficacy.

Using the model discussed earlier in the paper, we can understand that feelings of efficacy will increase even more as the participant continues to encounter challenges (stressors) in life. These increases would be unlikely to occur at one time, but could be expected to come in increments and would be dependent on what further challenges are presented to the subject. To further understand the relationship between self-efficacy and adventure course experience, broadened research will be required.

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