

## Integrated Wilderness Adventure: Effects on Personal and Lifestyle Traits of Persons With and Without Disabilities

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### **Abstract:**

This research studies the effects of participation in an integrated wilderness adventure program on the personal and lifestyle traits of persons with and without disabilities. Participants in a national wilderness trip program, Wilderness Inquiry, were studied using both quantitative (trait anxiety scale) and qualitative (in-depth interview) methods. Results indicated that participation in an integrated wilderness adventure program can lead to positive attitude and lifestyle changes for those with and without disabilities. Positive changes included: attitudes toward persons of varying abilities, interpersonal relationships, confidence levels, willingness to take risks, feelings about self, goal-setting abilities, development of leisure skills, tolerance of stress, and an increased ability to approach new situations.

**KEY WORDS:** Integration, Disabled, Wilderness, Camping, Outdoor Education

### **Article:**

Wilderness adventure programs are organized excursions into a wilderness or semi-wilderness environment where the participants are led through a series of activities intended to result in personal growth and fulfillment. For decades, these programs have been operating in an array of leisure and educational agencies in the United States (McAvoy, 1987). Therapeutic outdoor adventure programs designed for persons with disabilities are usually targeted for a specific client group (e.g., persons with physical or mental disabilities, chemical dependency, adjudicated youth), have therapeutic goals, and usually include persons without disabilities as staff or volunteers only. Integrated wilderness adventure programs, where persons with and without disabilities participate on an equal level, are based on the concepts of normalization, peer social interactions, peer acceptance, and cooperative goal attainment (Lais, 1987; Wolfensberger, 1972). Although these programs have been supported philosophically, a review of the literature indicates that outcomes of integrated wilderness adventure programs have not been well-documented.

### **Self-Concept and Anxiety**

Many scholars, researchers, and social service professionals view self-concept as a central construct for understanding people and their behavior (Fitts, 1971). Developed from the theoretical positions of Allport (1937), Combs & Snygg (1949), James (1890), Maslow (1954), Rodgers (1951) and others, self-concept is the frame of reference through which an individual interacts with the world. It is the sum total of the view which an individual has of himself/herself. The better the self-concept, the more able one is to cope with the demands of life and realize self-fulfillment (Fitts, 1971). Enhancing levels of self-concept has long been a major goal of social institutions (Ewert, 1983).

Several authors have reported the positive impacts of wilderness programs on self-concept and its components of self-confidence, self-esteem, and attitude toward self (Ewert, 1983; Fletcher, 1970; Mathias, 1977; Nye, 1976; Thorstenson and Heaps, 1973; Wetmore, 1972). However, some research shows contradictory and inconclusive results about the effects of wilderness programs on self-concept and further study is suggested

using more appropriate research designs and instruments (Ewert, 1983; Gibson, 1979). Recent research studying the impacts of wilderness program participation has turned toward the issue of anxiety reduction to enhance self-concept (Ewert, 1987, 1988).

The critical role of anxiety in the personality was first proposed by Freud (1936). Anxiety is an unpleasurable subjective state of tension indicating the presence of some danger, the source of which is largely unknown or unrecognized (Branch, 1968). Anxiety as one of the factors in self-concept, is connected with the mechanisms which maintain a negative or positive self-concept, and influences the manner in which individuals will respond to situations (particularly those involving achievement or evaluation). A substantial inverse relationship between self-concept and anxiety has been found (Felker, 1972; Glass, Merluzzi, Biever & Larson, 1982; Miller, 1971; Ornes, 1970; Thompson, 1972). If anxiety is lowered, there is usually a corresponding increase in self-concept and self-esteem.

The anxiety self-concept relationship has been explored by wilderness adventure researchers using the State-Trait Anxiety Inventory developed by Spielberger and his colleagues (1983). Studies such as those of Drebing, Willis, and Genet (1987), and more specifically, Ewert (1988), have indicated that participation in wilderness adventure programs can positively influence anxiety levels. If anxiety levels could be lowered through participation in a wilderness program, then the corresponding increase in self-esteem and self-concept could help prepare a person to successfully cope with life situations. This seems especially important for a person who is disabled.

### **Personal and Lifestyle Impacts**

In addition to the improvement of self-concept and the reduction of anxiety, other personal and lifestyle traits can be enhanced by wilderness programs. The positive effects of participation in wilderness adventure programs for persons without disabilities have been well documented in the literature (Bunting, 1982; Ewert, 1983; Kaplan, 1984; McAvoy, 1987; Miles, 1978). These effects include: emotional release, positive social interaction, expanded perspective, heightened personal limits, total involvement of emotional/mental/physical capabilities, elements of uncertainty, respect for the natural environment, personal growth, feelings of self-fulfillment, and a positive view of life.

A strong rationale has been developed for wilderness adventure programs for persons with disabilities (Dattilo & Murphy, 1987; Peterson, 1978; Robb & Ewert, 1987; Roland, 1982; Smith, 1982). In a comprehensive review of research on therapeutic wilderness adventure programs, Gibson (1979) found effects on participants included increased self-concept, self-esteem, and self-fulfillment; personal growth; increased leisure skills; increased social adjustment, integration, and cooperation; decreased recidivism; enhanced body image; and positive behavior changes. Subsequent research by Mobley, Deinema, Rowell and Bradley (1985) reinforced the position that persons with disabilities can experience increased self-confidence; respect for their personal and social identities; and reduced feelings of confusion, alienation, and defensiveness through participation in therapeutic adventure programs. While such personal growth can be achieved in a traditional therapeutic recreation setting, some advocate the use of outdoor adventure programs in the wilderness as being even more effective for client groups such as persons with physical disabilities, emotional disturbances, chronic psychiatric patients, and juvenile delinquents (McAvoy, 1982).

Much of the research on therapeutic wilderness adventure programs has been conducted with segregated, "handicapped-only," groups or with persons without disabilities only. A growing trend in therapeutic recreation and community leisure services is the social integration of persons with disabilities. The goal is to ensure that persons with disabilities are accepted as members of the community, are permitted to participate in the activities enjoyed by others, and are able to participate in community services alongside their nondisabled peers (Schleien & Ray, 1988). The philosophy and technology of social integration have been applied to community leisure settings (Schleien & Ray, 1988); outdoor education (McAvoy & Schleien, 1988); and camp programs (Braaten, 1977). Integrated wilderness programs have been operating for about the past decade. Through time and experience, organizations have informally determined that integrated wilderness programs for persons with and

without disabilities do provide a beneficial experience for participants (Lais, 1987; Schurke and Lais, 1982). However, except for a study by Plourde (1979), few systematic studies have been reported that document the specific effects of this participation.

The purpose of this study was to use the theoretical framework of anxiety and self-concept to determine the effects that participation in an integrated wilderness adventure program had on the personal and lifestyle traits of persons with and without disabilities. The researchers chose to measure anxiety (rather than self-concept) because recent research has shown the appropriateness of this approach in studying the impacts of wilderness program participation. Also, this approach has not been used before on participants of integrated programs. The study also was intended to explore other personal and lifestyle traits (in addition to anxiety) that may be influenced by integrated wilderness program participation.

## **Methods**

Both quantitative and qualitative methods were used to study the effects that participation in an integrated wilderness program has on personal and life-style traits of participants. The programs evaluated were administered by Wilderness Inquiry, Inc. (WI) of Minneapolis, Minnesota, in the summer and fall of 1987. Trip destinations included wilderness areas in Minnesota, Maine, Montana, and Ontario, Canada. The activities were usually canoe trips that lasted from 4 to 12 days in length. Subjects (N = 180) included adults with and without disabilities; ranging in age from 20-70 years; including both male and female participants with the following disabilities: head injuries, cerebral palsy, multiple sclerosis, osteoporosis, blindness, paraplegia, cataplexy, amputation, narcolepsy, and Parkinson Disease. A typical group included two leaders, two participants with sensory impairments, two persons using wheelchairs, two persons with some other disability (e.g., physical disabilities), and three to five persons without disabilities. A summary of the goals of WI can be found in Schurke and Lais (1982) and in Lais (1987). But, in brief, the primary purpose of WI is to provide active outdoor adventure opportunities that integrate people with and without disabilities in experiences that inspire personal growth, develop peer relationships, and enhance awareness of the natural environment.

## **Instrumentation**

Two instruments were used to evaluate the effects of these programs. One was a standardized, self-evaluation questionnaire investigating trait anxiety levels. The other was a qualitative structured interview instrument developed specifically for this study. The self-evaluation questionnaire was the State-Trait Anxiety Inventory (STAI) (Form Y), Trait Anxiety Scale, developed by Spielberger (1983). The STAI is comprised of two separate questionnaires: the State Anxiety Scale and the Trait Anxiety Scale. This study used only the Trait Anxiety Scale, a 20-statement scale that assesses how people "generally" feel. The STAI has been used extensively in psychological research and has proven to have high reliability and validity (Spielberger, 1983). The test-retest coefficient for the STAI Scale used in this study was .81 and internal consistency as measured by alpha coefficients was .90. The test validity has been well established in a number of studies comparing the test scores of normal groups with neuropsychiatric patient groups, by correlations between the STAI and other anxiety scales, and by correlations of the STAI with other personality tests. The STAI is particularly well suited for wilderness trip programs because it is relatively short (compared to other standardized tests) and takes about 10 minutes to complete. The times immediately before and after a wilderness trip are usually quite busy with travel arrangements, packing, and other logistical issues. It is often impossible to properly administer a longer measurement instrument.

Trait anxiety is defined by Spielberger (1975) as the relatively stable individual differences in anxiety proneness (i.e., differences among people in the disposition or tendency to perceive a wide range of situations as threatening and to respond to these situations with different elevations in their state anxiety reactions). State anxiety refers to the complex emotional reactions evoked in individuals interpreting specific situations as threatening. A state anxiety scale would measure how an individual reacts to a specific situation (e.g., facing a difficult set of rapids in a canoe), while a trait anxiety scale would measure a person's general level of anxiety facing a wide range of life situations.

The researchers also wanted to explore the effects of participation using a more qualitative approach. A qualitative structured interview instrument (Howe, 1988; Lofland, 1971) was designed to encourage the participants to express the full range of impacts that an integrated trip program might have on their lifestyles (leisure, education, employment, mobility level, independent living and interpersonal relationships), attitudes (toward those with and without disabilities, approaching new situations, tolerance of others), and feelings about integration and wilderness experiences. The interview format was designed using guidelines from Howe (1988), Lofland (1971) and Patton (1980) for a qualitative structured interview. It consisted of 50 questions based on the work of Ewert (1983), Lais (1987), Plourde (1979), and Schleien & Ray (1988). The questions were carefully worded and arranged with the intention of taking each respondent through the same sequence, with essentially the same wording, and using probe techniques to elicit responses. The interview instrument was closely reviewed by a panel of five researchers in education, therapeutic recreation, integration, and outdoor adventure. It was also pilot tested on 10 wilderness program participants (persons with and without disabilities) who were not included in the study. The interview instrument was subsequently modified prior to the start of the study.

### *Instrument Administration*

The STAI Trait Anxiety Scale was administered to four groups in a pre/post test with a control group design. One group (N = 26) was a randomly selected control group of persons with and without disabilities who participated in a 4 hour, non-wilderness, outdoor recreation activity (i.e., an activity in a city park). The scale was also completed by three experimental groups, participants in randomly selected WI integrated wilderness trips of 1 day (N = 29); 3 to 5 days (N = 57); and, 7 to 12 days (N = 68). All subjects were asked to complete the 20-item scale immediately before the trip (pre), immediately following the trip (post), and 3 to 4 weeks after the trip (follow-up). The qualitative structured interviews were conducted with 40 randomly selected wilderness trip participants who had completed the STAI on all three occasions (pre, post, and follow-up). These telephone interviews were conducted about 6 months after the trips, each interview taking about 40 minutes, and responses were recorded in writing. Subjects were first contacted by letter, then by phone, for the actual interview. They were informed that they could take as much time as needed to respond to the questions and that they could refuse to respond to any question.

### *Data Analysis*

Data from the STAI were processed and analyzed through a computer analysis package. Descriptive statistics (i.e., mean, standard deviation) were determined for each cell of the sample and compared graphically. The graphs illustrated the general trends in changes in STAI scores from pre-test to post-test 1, to post-test 2. A series of repeated measures analyses of variance were used to test for statistically significant differences between variable means.

Because the study examined both the immediate effect of the wilderness program (treatment) and the maintenance of that effect, most of these analyses included only those participants who completed all three applications of the instrument (N = 121) rather than the full sample (N = 180). The interview data were first analyzed quantitatively and response categories were reported as percentages. Data were additionally analyzed by triangulating the qualitative analysis techniques of typological analysis (Goetz & LeCompte, 1984), enumeration, contrast and comparisons, and clustering (Miles & Huberman, 1984). Data reduction transformed the raw data from the interviews and helped select, focus, sharpen, and organize the data. Data displays organized the data into matrices and subsequently into graphs. Conclusions were drawn by enumerating response types, noting patterns and themes, and by clustering responses. Conclusions were verified using comparison content analysis techniques comparing responses between persons with and without disabilities. Quoted responses were used to support conclusions (Miles & Huberman, 1984). The qualitative data were analyzed by two researchers separately to determine reliability of interpretation. There was 90-95% agreement between the two data analyzers.

### **Results**

Results of the anxiety scale are presented along with the implications and recommendations for future research.

Also results of the interviews are presented and discussed. A total of 230 persons were asked to participate in the study. Of those, 180 persons returned pre-test and post-test anxiety scale questionnaires for a 78% return rate. This constituted the full sample used in the data analysis to investigate the direct effects of treatment (as measured by the anxiety scale). Those who completed the pre-test and the post-test 1 anxiety scales were mailed the post-test 2 scale. Of these 180 persons, 121 returned post-test 2 (i.e., 67% return) constituting the reduced sample used in the analysis for investigating maintenance of the treatment effect. From the 121 persons who completed the anxiety scale on all three occasions (pre, post 1 and post 2), 40 individuals were randomly selected for the qualitative structured interviews. All 40 persons selected consented to be interviewed.

### *Trait Anxiety Reduction Through an Integrated Wilderness Adventure Program*

During analysis, participants were divided into a number of groups according to control vs. treatment, trip length, and ability level. These groups comprised the cells for data analysis. The number of respondents completing all three applications of the instruction (N = 121), as described in Table 1, was not sufficient for extensive analysis since some cells were as small as seven participants.

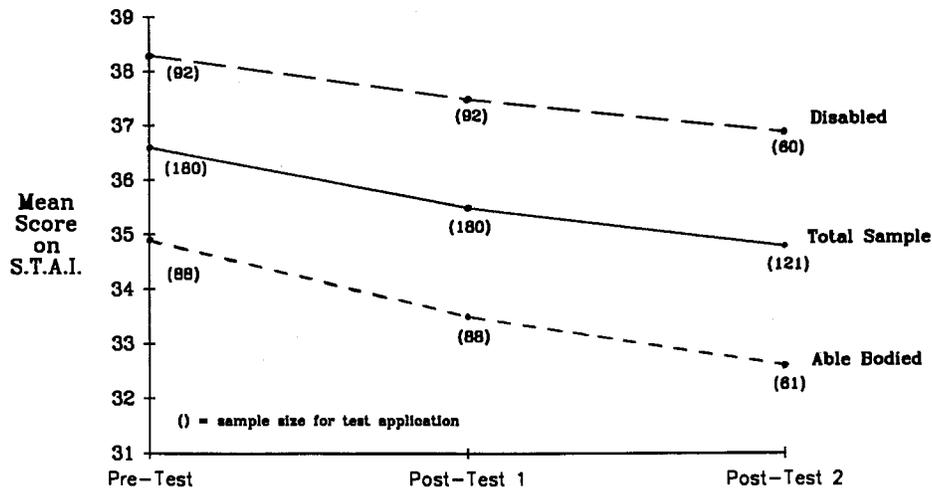
**Table 1.**  
**Anxiety Scale Means by Ability and Treatment**

	Grouped by Ability Level					
	Pretest		Posttest 1		Posttest 2	
Overall	<i>N</i> = 121		<i>N</i> = 121		<i>N</i> = 121	
	<i>M</i> = 35.96		<i>M</i> = 34.69		<i>M</i> = 34.75	
	<i>SD</i> = 9.64		<i>SD</i> = 9.92		<i>SD</i> = 10.11	
Able-bodied (AB)	<i>n</i> = 61		<i>n</i> = 61		<i>n</i> = 61	
	<i>M</i> = 34.56		<i>M</i> = 32.92		<i>M</i> = 32.61	
	<i>SD</i> = 7.05		<i>SD</i> = 7.87		<i>SD</i> = 7.70	
Disabled (DA)	<i>n</i> = 60		<i>n</i> = 60		<i>n</i> = 60	
	<i>M</i> = 37.38		<i>M</i> = 36.48		<i>M</i> = 36.93	
	<i>SD</i> = 11.59		<i>SD</i> = 11.43		<i>SD</i> = 11.74	
	Grouped by Treatment and Ability Level					
	Pretest		Posttest 1		Posttest 2	
	AB	DA	AB	DA	AB	DA
Control	<i>n</i> = 12	<i>n</i> = 14	<i>n</i> = 12	<i>n</i> = 14	<i>n</i> = 12	<i>n</i> = 14
	<i>M</i> = 36.25	<i>M</i> = 40.00	<i>M</i> = 35.75	<i>M</i> = 40.14	<i>M</i> = 35.25	<i>M</i> = 39.79
	<i>SD</i> = 7.53	<i>SD</i> = 15.06	<i>SD</i> = 8.57	<i>SD</i> = 15.88	<i>SD</i> = 8.61	<i>SD</i> = 13.92
1 Day	<i>n</i> = 9	<i>n</i> = 7	<i>n</i> = 9	<i>n</i> = 7	<i>n</i> = 9	<i>n</i> = 7
	<i>M</i> = 33.89	<i>M</i> = 35.86	<i>M</i> = 34.11	<i>M</i> = 34.29	<i>M</i> = 33.89	<i>M</i> = 34.00
	<i>SD</i> = 6.15	<i>SD</i> = 8.01	<i>SD</i> = 8.15	<i>SD</i> = 10.66	<i>SD</i> = 7.32	<i>SD</i> = 7.46
3-5 Day	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 19	<i>n</i> = 19
	<i>M</i> = 33.42	<i>M</i> = 36.37	<i>M</i> = 32.63	<i>M</i> = 33.63	<i>M</i> = 33.58	<i>M</i> = 35.95
	<i>SD</i> = 8.08	<i>SD</i> = 10.53	<i>SD</i> = 8.30	<i>SD</i> = 8.82	<i>SD</i> = 7.44	<i>SD</i> = 11.02
7-12 Day	<i>n</i> = 21	<i>n</i> = 20	<i>n</i> = 21	<i>n</i> = 20	<i>n</i> = 21	<i>n</i> = 20
	<i>M</i> = 34.91	<i>M</i> = 37.05	<i>M</i> = 31.05	<i>M</i> = 37.40	<i>M</i> = 29.67	<i>M</i> = 36.90
	<i>SD</i> = 6.40	<i>SD</i> = 11.39	<i>SD</i> = 6.91	<i>SD</i> = 10.17	<i>SD</i> = 7.14	<i>SD</i> = 12.37

The cells were, however, large enough to make the data amenable to some analyses, and it was possible as well to use the data as indicators of trends and for the generation of future research directions. Two sets of statistical analyses were performed on test scores. The first analysis, to ascertain the effect of the treatment and maintenance of effect, was conducted on the participants who completed all three applications of the instrument (N = 121). The second analysis, to ascertain any immediate effect of the treatment, and to confirm findings in the first analysis, were conducted on the sample of respondents to completed only the pretest and post-test 1 (N = 180).

Visual inspection of the data (in Figure 1) supports the general concept that persons will exhibit a reduction in

trait anxiety levels following participation in a wilderness adventure program and that the effect will be maintained one month following the termination of the program. Figure 1 indicates that differences in measured change for able-bodied participants and participants with disabilities did not differ substantially. Participants with disabilities did tend to score higher on the scale than able-bodied participants, indicating a higher level of trait anxiety. However, scores of all groups were fairly close to the norms established for the S.T.A.I. Trait Anxiety Scale.



**FIGURE 1. ANXIETY SCALE SCORES FOR PERSONS WITH AND WITHOUT DISABILITIES.**

A repeated measures analysis of variance that compared treatment and ability (i.e., able-bodied vs. disabled) across all three applications of the test (N = 121) showed a significant between-subject effect for ability (df = 1, F = 2.86, p = .094) and a significant within-subjects effect for the treatment (df = 2, F = 2.82, p = .062) at alpha = .10. This tenuous level of significance is of interest considering the small sample cell sizes and the rather insensitive nature of the testing instrument when used under these circumstances.

A second and more powerful repeated measures ANOVA was conducted excluding the one-day treatment subjects due to small cell sizes (7 and 9 subjects) in that group. The significant between-subject effect for ability (df = 1, F = 4.05, p = .047) and significant within-subjects effect for the treatment (df = 2, F = 3.60, p = .029) were confirmed at a more rigorous level of alpha = .05. Because of the small cell sizes throughout the study, no simple effect analyses were run to separate the interactions of these main effects.

Figure 2 offers a probable explanation for the ability effect in the ANOVA. Participants with disabilities tend to have higher mean scores on the anxiety scale than do the able-bodied participants. This was supported by a series of one-way ANOVA examining the effect of ability on mean test scores for each application of the instrument. On these analyses, ability showed a significant difference between participants with and without disabilities on pre-test scores (df = 1, F = 6.30, p = .013), on posttest 1 scores (df = 1, F = 8.47, p = .004) and on post-test 2 scores (df = 1, F = 5.34, p = .023). While the able-bodied and participants with disabilities displayed different levels of trait anxiety both before and after the treatment, there exists no real indication that the change in trait anxiety levels molting from the treatment is significantly different. Visual inspection of the data suggests a possible difference in these changes. In the control group, and in the 7-12 day trip group, able-bodied participants showed a more marked reduction in scores from pre-test to post-test 2 in comparison to participants with disabilities, while in the short to medium duration trips, participants with disabilities exhibited an apparently greater reduction than able-bodied participants.

The significant treatment effect from the omnibus ANOVA is probably explained by the general reduction in scores from pre-test to post-test 2. A series of one way ANOVA, though, showed significant reductions only for the long trip participants (df = 2, F = 4.51, p = .014). A third ANOVA tested all of the treatment levels (control, 1 day, 2-5 day, and 7+ day) and both ability levels (able-bodied and disabled) across the first two applications of the test. At alpha = .05, both ability (df = 1, F = 4.82, p = .029) and treatment (df = 1, F = 4.01, p = .047)

showed significant effects. This test, using 180 rather than 121 participants, confirms both the effect of the long trip, and the difference between able-bodied and disabled participants.

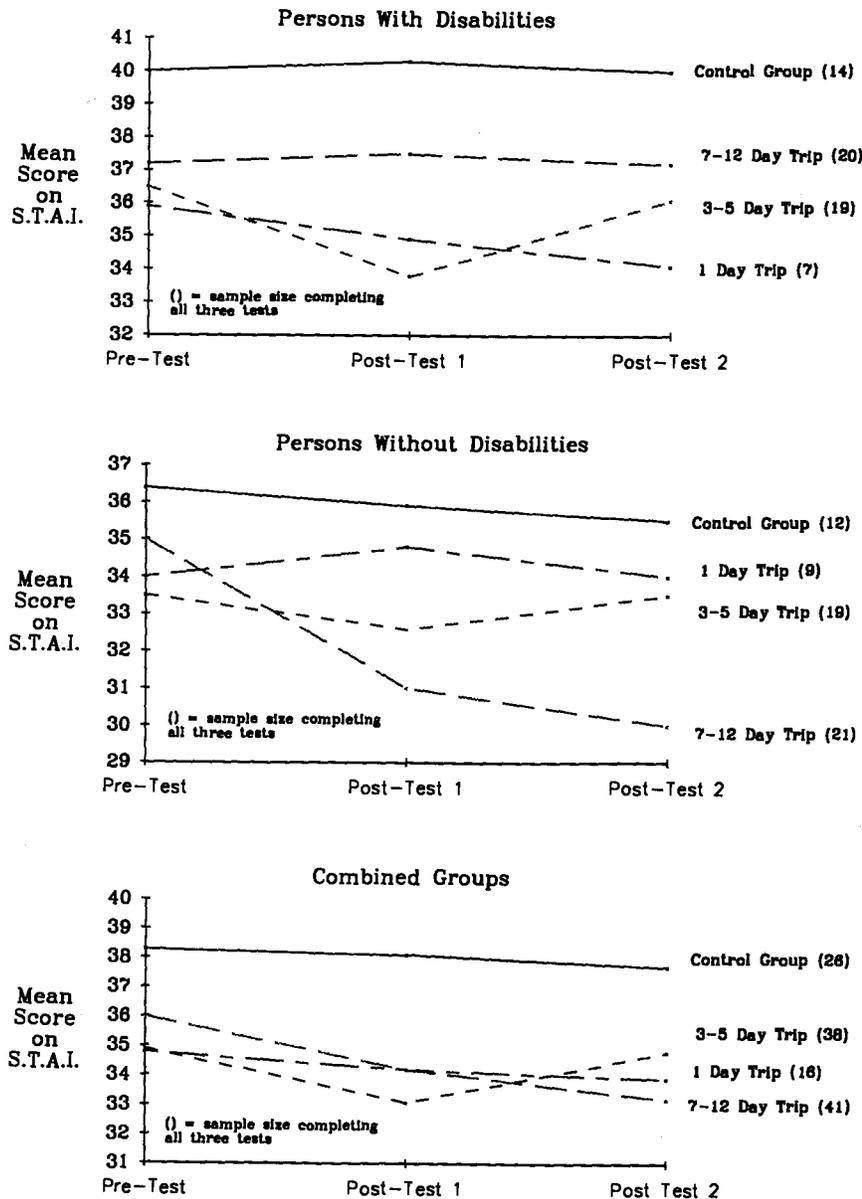


FIGURE 2. ANXIETY SCALE SCORES BY ABILITY LEVEL AND TRIP LENGTH.

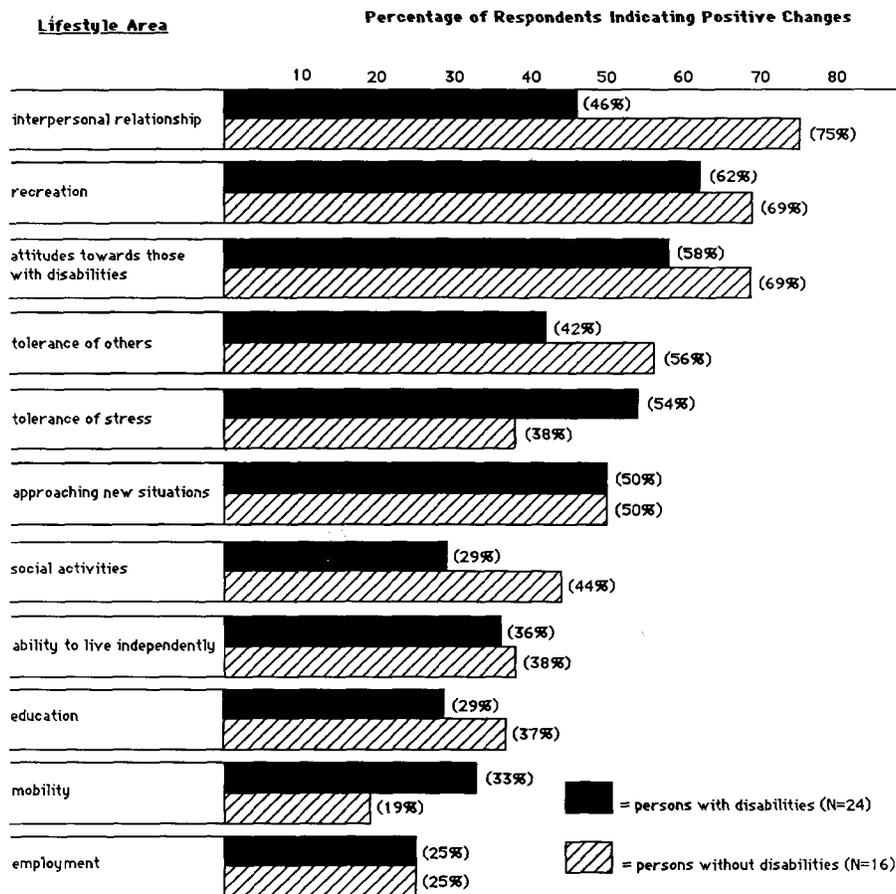
It is interesting to note that in Figure 2, participants with disabilities in the longer trips showed a slight increase in anxiety levels from pre-test to post-test 1, and a decrease in scores from post-test 1 to post-test 2. Other researchers have noted this tendency of therapeutic camping trip participants to have difficulty facing the reality of going back to a lifestyle they regard as less desirable than the acceptance, comraderie, and opportunities for participation offered on a camping trip (Ryan & Johnson, 1972).

### Interview Data

The interview procedure elicited responses on the effect of a wilderness adventure program on the lifestyles, attitudes, and feelings of participants. The telephone interviews were conducted 6 to 7 months after participation with 40 randomly selected participants, 24 with disabilities and 16 without disabilities. The demographics (age, sex, place of residence) of those interviewed paralleled the population of WI participants. Forty percent of the total group interviewed had little or no wilderness experience (one trip or less). A majority of those interviewed (N = 33) had participated in 7 to 12 day trips while the remaining (N = 7) were from trips of 3 to 6 days. There were no substantial difference in responses according to place of residence, sex, or length of wilderness trip.

The results of the interviews indicated that integrated wilderness adventure programs can be powerful experiences that can have substantial positive effects on personal traits and lifestyles. All respondents (100%) stated that they would participate in another integrated leisure program in the future, and that they would recommend integrated programs to friends. Statements such as: "It opened my eyes to understanding able bodied and disabled people," and "It helps us learn to live in a more inclusive world," illustrate the general tenor of the interviews.

Respondents in this study reported substantial personal lifestyle changes which they directly attributed to participation in the integrated wilderness trip program. Seventy-eight percent (78%) of the respondents reported they could see long-term lifestyle changes as a result of the trip. Those with disabilities reported changes in added confidence in what they can do at home after what was accomplished on the trip, more willingness to take risks, a better understanding of their disability, a heightened environmental concern, a sense of physical strength, and a better knowledge of how to pace themselves. One participant with a disability summed these up by saying, "I feel normal and I didn't before." Able-bodied participants learned to think more positively and less judgmentally about themselves and others, developed a heightened sense of abilities in others, developed a higher level of self-confidence, and gained a greater appreciation for the natural environment.



**FIGURE 3. LIFESTYLE CHANGES AS RESULT OF PARTICIPATION IN AN INTEGRATED WILDERNESS ADVENTURE PROGRAM.**

Specific lifestyle changes that were attributed to participation in the integrated wilderness program are summarized in Figure 3. The six primary areas of positive lifestyle impacts of participation are: interpersonal relationships; recreation skills and patterns; attitudes toward persons with disabilities; tolerance of others; tolerance of stress; and skills in approaching new situations. Other positive lifestyle changes included changes in social activities; the ability to live independently; education; mobility level; and employment. Figure 3 indicates the percentage of respondents with disabilities and those without disabilities who indicated positive changes in each lifestyle area.

It is not surprising that an intensive group experience such as an organized wilderness trip would have a major

impact on a participant's interpersonal relationships. Impacts reported included getting to know other group members as people, learning to work together in a group, and receiving motivation from seeing what others can accomplish. Participants reported that they had an opportunity to learn that all people have something to contribute to the group and that people are all the same on the inside with similar goals, desires, and needs. The added confidence noted by participants with disabilities carried over into their lifestyles following the trip as they reported increased interpersonal relationships. Over 80% of the participants with disabilities made new friends on the trips and 60% of both groups kept in touch with other participants after the trip.

A majority of the respondents (62% of those with disabilities and 69% of those without disabilities) indicated lifestyle changes in their recreation skills and patterns as a result of participation. Respondents said they plan to or had already participated in new recreation activities such as dogsledding, wheelchair sports, skiing, kayaking, bicycling, snowshoeing, bird watching, wildflower study, winter camping, volleyball, rollerskating on crutches, and more canoe tripping. Eighty-five percent of the respondents reported that they had learned new outdoor skills on the trip (e.g., canoeing, camping and environmentally sensitive use of wilderness).

A positive change in attitudes toward persons with disabilities was noted both by those with disabilities (58%) and those without (69%). Persons with disabilities developed more patience and understanding of the disabilities of others. They learned that most people learn to cope with their disabilities, that they can set and make goals, and that stereotyping of persons due to a disability is a mistake. They developed friendships and became closer to other persons with disabilities. One participant with a disability stated: "I was angry that there was going to be a quad on the trip. I thought he or she would be very demanding but it wasn't that way. I caught myself doing the same stereotyping I hate."

The change in attitudes toward those with disabilities was more pronounced with the able-bodied participants (69%). They learned that all people have abilities and disabilities, all people have something to learn from others, and everyone has something positive to share. They learned that persons with disabilities are full human beings with feelings and love of play, and that they do not necessarily like to be taken care of all the time. They have a fuller understanding of the challenges faced by persons with disabilities and a better understanding of their capabilities. Some able-bodied persons also changed the roles they played on the trip with those with disabilities: away from the role of caretaker and toward a peer relationship. Prior to the trips 37% of the able-bodied participants felt they would play the role of peer with those who were disabled. After the trip 63% of the We-bodied had played the role of peer and friend with those who were disabled. A typical comment was: "Disabled people are no different than others, except for a disability. I learned not to be afraid of them. I don't pity them because I know they can do a lot."

The lifestyle areas of tolerance of others, tolerance of stress, social activities, and approach to new situations all relate to the issue of self-confidence and how people relate to the social milieu within which they must exist. Approximately one half of the participants cited positive changes in these lifestyle areas. They reported becoming more tolerant of the viewpoints, lifestyles, and life situations of others; increased ability to cope with group situations; an increased understanding of the importance of each individual to the success of a group; and the importance of being aware of personal behavior and its affect on others. This was aptly stated by a participant with a disability as, "We learned to live and work together." A number of participants with disabilities reported having more confidence in approaching new experiences after the trips. They were more open to trying new things and more willing to look for ways to cope with new situations. Able-bodied participants reported they were, "More understanding of a disabled person's perspective," and, "Much more aware of issues of accessibility and the potential of people, more team spirit, more emphasis on group skills." A person with disabilities stated, "I have a more positive outlook about facing new experiences. If I can do things in the wilderness, I can do things here, too."

About 25 to 33% of the participants indicated that participation in the integrated wilderness trip had some positive influence on their ability to live independently or their plans in the general areas of education, mobility and employment. These areas were not deeply probed in this study and would be obvious topics for future

research. Even though only 25% to 33% of participants reported lifestyle changes in these areas, this still represents a powerful influence of the wilderness program. Not everyone desires changes in these areas, including persons with disabilities. If a person has a satisfying job or has already attained their desired educational level or independent living arrangement, then that person would not need a wilderness trip to stimulate them to change. The fact that over 25% of the participants noted change in these areas is significant in and of itself. Comments of participants with disabilities indicated that participation in the integrated program helped them better face the challenges of independent living. They had noted improvement in problem solving, and gained the confidence to live independently. One person with a disability stated, "My confidence level has increased. I felt like a new person after the first Wilderness Inquiry trip because I had mastered the trip. If I really want to do something, there are ways to do it and I can do it." Over 60% of the participants stated that their short or long-term goals had changed as a result of the program. Many of these changes related to re-thinking goals and potentials in education, employment, and independent living.

Over 50% of the participants with disabilities noted a change in the way they manage and evaluate their disability as a result of the integrated wilderness trip. They had a more realistic opinion of their capabilities as well as their limitations. By observing other persons handle their various disabilities, participants realized that they may have more capabilities than they originally believed. Trip leaders with disabilities also served as mentors and examples of successfully dealing with a disability. One participant said, "After seeing what John (a staff member in a wheelchair) can do, I can put up with more and have hope." Participants reported being more confident, more willing to take risks, willing to deal with a disability more directly, and being better at gauging limitations and adjusting accordingly. A typical response by a person with a disability was, "I have the courage to do things I had never done before."

## Conclusions

This study indicated that integrated wilderness adventure programs can result in positive attitude and lifestyle changes including: attitudes toward persons of varying abilities; interpersonal relationships; confidence levels; willingness to take risks; feelings about self; goal-setting abilities; leisure skills; tolerance of stress; and, in some participants, an increased ability to live independently. Major differences were noted between persons with and without disabilities, but both groups reported positive benefits to integrated wilderness programs. A standardized anxiety level measurement indicated that there was not a statistically significant change in anxiety level as a result of participation in any but the long (7-12 day) trip treatment groups. However, the results do point to some noticeable lowering of anxiety levels. A future study could be more fruitful in documenting the influences of integrated wilderness adventure programs on anxiety levels and corresponding levels of self-concept and self-esteem. Future research directions point to a need to generate a larger sample size (often difficult to do in these types of studies); to consider using instruments more sensitive than the trait anxiety scale used here; and a detailed concentration on the effects that participation has on longitudinal changes in: the ability to live independently, educational plans, employment, and mobility levels.

The therapeutic benefits of wilderness adventure trips have been cited here and in the professional literature. But, those providing such experiences should heed Richardson's (1986) position that persons with disabilities participate in wilderness adventure programs not for therapeutic benefits, but for the same reasons as do able-bodied persons. Those reasons include enjoyment, feelings of self accomplishment, a connection with the natural world, opportunities to improve leisure outdoor skills, to overcome natural obstacles, and to test their own limits.

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