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## ENVIRONMENTAL SENSITIVITY AND EXPERIENCE PREFERENCES IN OUTDOOR RECREATION PARTICIPATION

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### Introduction

In the past 30 years, a number of researchers have attempted to understand what makes people care about the environment or what underlies "environmental sensitivity." Most of this research is rooted in the theory that environmental sensitivity (ES) is the first step in a developmental process that leads persons in the direction of feeling what Chawla (1998) calls "ownership" and "empowerment" (p. 11) regarding protection of the environment. Some early researchers focused on individuals' self-claimed influences on environmental sensitivity based on "significant life experiences" (Peterson, 1982; Tanner, 1980), while others attempted to find an association between outdoor participation and environmental concern (Dunlap & Heffernan, 1975; Geisler, Martinson, & Wilkening, 1977; Theodori, Luloff, & Willits, 1998; Van Liere & Noe, 1981). Results from both approaches have often suggested a relationship between outdoor experiences and environmental sensitivity, but not consistently or strongly. Recognizing that "outdoor recreation" can be or mean many things, this study sought to determine if people with different levels of environmental sensitivity differ in the character of the outdoor experiences they prefer.

### Related Research

#### *Significant Life Experiences*

Early research on significant life experiences of environmental activists suggested that such appreciation began at a young age and in outdoor settings (Peterson, 1982; Tanner, 1980). Tanner's research on "Significant Life Experiences" was a pioneer study in the area of influential factors on the development of environmental concern. He stressed the importance of knowing the kinds of experiences that produce an active and informed citizenry, working to achieve the ultimate aim of environmental education, which is to maintain a resource-rich planet for future generations. Tanner selected his sample from multiple conservation groups. He chose groups he thought were representative of individuals who were active and informed citizen conservationists. His participants reported influences on their environmental sensitivity. The "outdoors" was the most frequently claimed influential life experience on environmental sensitivity, followed by "habitat" and "parental" influence. For many of the respondents, there was a continuous growth in environmental sensitivity from childhood through adult life.

Following Tanner's lead, Peterson (1982) conducted interviews of 22 environmental educators in an attempt to isolate variables perceived by professional environmental educators as being of prime importance in developing environmental sensitivity. Like Tanner (1980), Peterson found "interaction with the outdoors" as well as "parental influence and other role models" to be important influences in the development of environmental sensitivity. Besides revealing that the major influences in the development of environmental sensitivity were on going and long-term, her study also documented that these environmental influences began at an early age (on average, 12 years old).

Recent studies of this kind, which tended to select subjects who, by their title or affiliation, are regarded as being or acting in pro-environmental ways, have lent additional support to the notion that outdoor recreation is somehow one, among other influences on subjects' environmental outlook. Corcoran (1999) studied environmental educators and found outdoor experiences, family, and media most influential. Looking at professional environmentalists from El Salvador, Sward (1999) found outdoor experiences during youth and witnessing environmental destruction to be the most formative. Yet these studies, which focus on self-reported influences on the environmental attitudes of environmentalists, beg the question of if (or why) other persons, perhaps even those with similar experiences, hold the environment in less regard.

#### *Outdoor Recreation and Environmental Concern*

Another group of researchers have pursued the correlates of environmental regard by studying people who are not "declared" environmentalists. In these studies, the finding of a relationship between outdoor recreation and ES is less conclusive, but more relevant by virtue of their sampling (Dunlap & Heffernan, 1975; Geisler, Martinson, & Wilkening, 1977; Pinhey & Grimes, 1979; Theodori, Luloff, & Willits, 1998; Van Liere & Noe, 1981).

Dunlap and Heffernan (1975) hypothesized that outdoor involvement was positively associated with environmental concern in a Washington State survey. In an attempt to measure "public values," the authors presented a list of governmental expenditures focusing on protecting natural resources and controlling pollution to their respondents and asked them to assign priorities. Forcing respondents to assign priorities to competing expenditure areas was intended to provide a good indicator of environmental concern as respondents had to decide how much emphasis should be placed on environmental quality relative to other societal goals. By presenting respondents with a list of leisure activities and asking them to indicate their rate of participation, Dunlap and Heffernan measured the independent variable, participation in outdoor recreation activities. Dunlap and Heffernan's results indicated weak support for their hypothesis, yet they noted the association between outdoor recreation participation and environmental concern needed further investigation.

In a survey of Wisconsin residents, Geisler et al. (1977) further investigated Dunlap and Heffernan's (1975) hypothesis. To measure environmental concern, the authors interviewed their respondents, asking them to classify the level of seriousness of environmental problems such as pollution and wildlife reduction. As in Dunlap and Heffernan's study, respondents were also asked whether public expenditures should be expanded, kept at current levels, or cut back for water pollution control, public forestlands, public parks, and areas for wildlife protection. The measures of recreation in both the Washington and the Wisconsin data were quite similar as respondents were presented with a list of outdoor activities and asked their rate of participation. Unlike Dunlap and Heffernan, Geisler et al. found considerable support for their hypothesis. The authors maintained that the support for their hypothesis is more consistent than that found by Dunlap and Heffernan, but the associations in both studies were low.

In their sample of Louisiana residents, Pinhey and Grimes (1979) reexamined the Dunlap and Heffernan association of outdoor recreation and environmental concern, using similar measures of recreation participation and slightly different measures of environmental concern. Dunlap and Heffernan used pollution and natural resources as indicators of environmental concern, as

measured by support for the allocation of tax funds to environmental programs (relative to other governmental programs); Pinhey and Grimes used only natural resources as measures of environmental concern. Pinhey and Grimes found less support for the Dunlap and Heffernan hypothesis linking participation in outdoor recreation and environmental concern. They found recreationally active respondents more likely than inactive respondents to suggest environmentally conscious answers to one measure of their dependent variable and no difference in the other measure, leaving their findings inconsistent.

Van Liere and Noe (1981) further examined the hypothesis presented by Dunlap and Heffernan (1975). Using survey data collected from visitors to Cape Hattaras National Seashore, Van Liere and Noe assessed environmental concern, measured by Dunlap and Van Liere's (1978) 12-item "New Environmental Paradigm" (NEP) scale. Involvement in outdoor recreation was measured slightly differently than in past studies. Van Liere and Noe presented respondents with a list of activities and asked them to indicate the number of hours spent per day in each activity. Respondents were also asked to indicate the number of days during their visit in which they engaged in the activity. Improvements on both measurements of environmental concern and recreation participation were expected to produce stronger findings than in previous studies. Van Liere and Noe's findings failed to support their expectations. The results of this study showed low association between outdoor recreation participation and environmental concern, providing weak support for their hypothesis.

Theodori et al. (1998) surveyed residents of Pennsylvania to test the hypothesized association between outdoor recreation participation and pro-environmental behavior. To measure pro-environmental behavior, participants responded to a list of environmentally conscious behaviors (e.g., contributed money or time to an environmental or wildlife conservation group; stopped buying a product because it caused environmental problems). Outdoor recreation participation was measured using a list of outdoor recreation activities and having respondents to identify those in which they participate. Theodori et al. found considerable support for the association between participation in outdoor recreation activities and pro-environmental behavior. In comparing previous studies of outdoor recreation and environmental issues with this one, the authors suggested pro-environmental behavior may be a better measure than environmental attitudes when considering environmental concern.

More recently, Place and Ewert (2004) sampled 537 university students, measuring environmental attitudes with the New Environmental Paradigm (NEP) and performed discriminant analysis on 17 independent variables having to do with possibly formative early-life experiences. While finding several types of early-life outdoor experiences effective in discriminating between eco-centric and anthropocentric individuals, they also found that collectively all 17 independent variables explained only 7.62% of the variance. In an unexpected finding, this study raised questions about the validity of the NEP. Only 27 of 537 (5%) respondents were measured as anthropocentric. Speculating about this improbable result, Place and Ewert wondered if respondents were trying to give socially acceptable answers.

While studies of "significant life experiences" and other formative influences on the ES of environmentalists suggested a relationship between outdoor experiences, especially during youth, and ES, studies investigating the relationship of outdoor recreation and the environmental

attitudes of more diverse samples had mixed results. In those latter studies that did find a positive relationship, the association was weak.

#### *Characteristics of Outdoor Recreation*

Before abandoning this line of research, remaining issues may be worth investigating. First, recognizing that most Americans have had outdoor recreation experiences as youths or as adults, researchers might consider the quantity and the character of that involvement. While some studies (e.g., Van Liere & Noe, 1981) have considered quantity, they have tended to measure number of days or durations of park visits, but not amount of outdoor recreation engagement compared to other types of recreation. One recent study did that.. Bustam (2004) and Bustam, Young, and Todd (in press) compared groups of college-age students representing three levels of environmental sensitivity. They found that the groups did not differ in the likelihood to attribute their environmental sensitivity to outdoor recreation experiences nor did they differ in their preference for outdoor recreation over other forms of recreation as adults. They did, however, differ in their preferences for outdoor recreation over other recreation as youths. When asked to list their three most preferred recreation activities during their youth, groups with higher levels of environmental sensitivity were more likely to list activities that would be classified as *outdoor recreation*, versus *sports and athletics* or *arts/crafts/hobbies*. Although limited by its sample, this study is suggestive in its measurement of involvement in outdoor recreation and its comparative design.

Beyond better or different measures of the quantity of involvement in outdoor recreation, ES researchers might also consider the character of the outdoor recreation experiences. Outdoor recreation is a broad category, sometimes simply being any recreation activity taking place outdoors, but often invoking distinctions by some between consumptive, mechanized, and motorized (Jackson, 1986; Tarrant & Green, 1999) by others (e.g., Driver & Knopf, 1977), regarding the desired consequences, and by others still, according to the settings in which the experiences takes place (e.g. Virden & Knopf, 1989). These and other aspects of outdoor recreation are much a part of the research in that field, but not yet of many explorations of environmental sensitivity.

#### *Experience Preferences*

Of interest for the present study is research that found outdoor recreationists have different experience preferences or desired consequences when participating in outdoor recreation. Although not dealing with the question of environmental sensitivity, these studies might inform or frame efforts to understand if there are characteristics of outdoor recreation experiences that do influence ES and that may later help to explain the mixed findings about the more general association of outdoor recreation and ES. Several examples of these studies are mentioned here partly to confirm the relevance of considering desired consequences or experience preferences and primarily to support the measurement approach selected for the present study.

Driver and Knopf (1977) studied the relationship between personality characteristics of outdoor recreationists and choice of activity, frequency of participation, and desired experiences. Data were collected in Michigan from questionnaires administered to approximately 50 recreationists per activity, for nine activities. Their study included "desired consequences scales" to measure the degree to which various "consequences" were sought by recreation participants. Example

consequences include *experiencing nature, affiliation with similar people, family togetherness, exercise, exploration, achievement, dominance, temporary escape, tension release, and avoid excessive social regulation*. From their results, Driver and Knopf found these scales to be reliable over time and location and across different types of users. Aspects of their instrument were incorporated into the one used in the present study.

Hawes (1979) examined the experience preferences that participants derive from leisure-time participation. A questionnaire administered to 1100 households in Ohio asked respondents their frequency of participation in leisure-time pursuits (from a fixed list) and their favorite leisure activity (from a fixed list). Subjects also responded to experience preference statements that included items such as *it brings me peace of mind, it gives me a chance to develop a skill, and it brings our family closer together*. Finding low intercorrelations among experience preference items used in this study, Hawes concluded that these statements explain or differentiate a large number of essentially independent aspects of leisure-time experiences. Along with Driver and Knopf, Hawes's study provided a model for measuring recreation experience preferences and affirmed the usefulness of studying these preferences.

In a study on social groups and the meanings of outdoor recreation activities, Buchanan, Christensen, and Burdge (1981) examined experiences desired by 1500 participants in three different water-based activities at a multiple use reservoir in Illinois. Recreation experience preference scales were used to define the meanings and satisfactions of participating in the activities. Respondents were asked to rate the relative importance that each experience preference item added to or detracted from their level of satisfaction with a specific activity. Examples of the experience preference scale items include *achievement, risk-taking, relation with nature, and escape*. Buchanan et al. found *escaping personal and social pressures* strongly added to the experience as did *being with friends*. For some activities, social groups differed in their preferences.

Virden and Knopf (1989) examined the relationships among recreation activities, desired experiences, and desired environmental settings in a survey of nearly 1600 summer visitors to America Flats Management Area in Colorado. The first section of the questionnaire asked respondents to choose one activity, from a list of possible outdoor recreation activities, that would be most preferred. Second, respondents were asked to rate the importance of specific items as possible reasons for their participation in the activity. Examples of items include *being close to nature and getting away from the demands of life*. Third, respondents were asked to rate their preferences regarding eight dimensions of recreation settings. They found that the distributions of environmental setting preferences were contingent upon activity preference and that desired experience measures were contingent upon setting preferences.

In sum, most previous studies investigating the association between outdoor recreation and environmental concern have taken one of two approaches. One group approached the relationship directly, by correlating measures of outdoor recreation participation with measures of environmental concern or sensitivity. The other group took more of an open-ended approach, asking persons with high levels of environmental activity to identify "significant life experiences" that contributed to their environmental commitments. Although the latter group generally found outdoor experiences on the list of claimed influences on ES, the former group

had mixed findings regarding the relationship. Even those reporting a significant relationship acknowledged the relationship was not strong. In framing future studies, the importance of studying persons with higher and lower levels of ES was noted as was the need to recognize that outdoor recreationists often differ in the character of the experiences they seek. Hence the review of literature highlighted a few examples of studies not on ES, but dealing with the measurement of experience preferences or desired outcomes of outdoor recreationists. These latter studies informed the purpose and measures of the present investigation.

### **Purpose**

The purpose of this study was to determine if persons with differing levels of environmental sensitivity have different experience preferences when participating in outdoor recreation activities. It was hypothesized that groups with higher ES would be more likely to prefer experiences that feature or foster aspects of one or more of the following experience preferences: *environmental connection; challenge and learning; social harmony; escape; and self-efficacy.*

### **Methods**

#### *Design*

This study employed a post hoc, causal comparative design to compare three groups with differing levels of ES on their experience preferences during outdoor recreation. This study was one component of a larger study that also compared the groups (1) on self-reported influences on their ES, (2) on their preference for outdoor recreation over other activities as youths and as adults, and (3) on their outdoor recreation setting preferences (Bustam, 2004). As reported by Bustam, Young, and Todd (in press) and mentioned above, these groups did not differ in their claimed influences on ES or their preference for outdoor recreation as adults; they did differ in their preference for outdoor recreation during their youth, with higher ES groups favoring outdoor recreation over other recreation activities. As is often the case with causal comparative designs, the apparent independent variable, level of environmental sensitivity, was actually the dependent variable of interest. In this design, differences may be found that suggest a relationship, but its casual nature is at best suggested and often unclear.

#### *Sample*

Participants were 82 upperclassmen and graduate students majoring in recreation and leisure studies at a university in the northeast. While convenient and seemingly undesirably homogeneous, this group was of interest because they were almost evenly divided among three concentrations (outdoor recreation/education, therapeutic recreation, and management). With one concentration much more environmentally focused, it was believed that the participants would more likely be dividable into ES level groupings.

#### *Instrumentation*

Participants completed an instrument that included sections measuring ES, self-claimed influences on ES, recreation activity preferences, outdoor recreation experience preferences, and outdoor recreation setting preferences. Only the sections measuring ES and experience preferences were relevant to the present study. Environmental sensitivity was measured as Peterson (1982) did, by presenting a definition of ES and then asking participants to indicate their level of ES on a nine-point scale, ranging from "very low" to "very high." Experience preferences statements were selected from past research (Buchanan, Christensen, & Burdge,

1981; Driver & Knopf, 1977; Hawes, 1979; Virden & Knopf, 1988) and measured on a five-point Likert scale. Although presented randomly on the instrument, the 28 experience preference statements were grouped into categories or classifications based on work by Driver and Knopf (1977), Hawes (1979), and Buchanan et al. (1981). The five categories were *environmental connection, challenge and learning, social harmony, escape, and self-efficacy*.

The instrument was reviewed for face validity by several professors with expertise relevant to the topic and method of the study. The internal consistency of items measuring experience preferences was measured using Cronbach's alpha ( $\alpha = .91$ ). Four of the five experience preference categories or subsections had a Cronbach's alpha above .70. The measure for *escape*, which has only three items, was .57.

Data were analyzed using SPSS-PC versions 9 and 10. In addition to the above-noted use of Cronbach's alpha, frequency distributions were generated for ES and experience preference scores. One-way analysis of variance with post-hoc Tukey (HSD) was used to compare ES groups on the basis of outdoor recreation experience preferences.

## Results

### *Demographic Findings*

Of the 82 participants, nearly two-thirds were female. Although most were 21-30 years of age, nearly 19% were between 31 and 60. As expected, they were almost evenly divided among three academic concentrations within their recreation majors: outdoor recreation/education (35.2%), therapeutic recreation (33.8%), and management (31%). Almost half were graduate students, the remainder almost all juniors and seniors.

### *Environmental Sensitivity*

As described above, participants rated their level of ES on a nine-point Likert scale. With only one response below 5, the distribution was negatively skewed (-1.32). The average score was 7.04. The design of the study called for comparison groups; the skewed distribution made their formation difficult. Dividing the Likert scale into two or three even ranges would have produced lopsided groups. The best solution was to form three groups as follows: those who rated their level of ES between 1 and 6 formed the *low-moderate ES* group (n=21); those rated 7 formed the *high ES* group (n=36); and those rated between 8 and 9 formed the *very high ES* group (n=26). (See Table 1.)

### *Outdoor Recreation Experience Preferences*

Subjects were asked to scale (1 - 5) the importance of 28 experience preferences when participating in outdoor recreation activities. Although presented randomly on the instrument, the 28 items fell thematically into five groupings or categories: (1) challenge and learning, (2) environmental connection, (3) escape, (4) social harmony, (5) self-efficacy, all based on classifications by Driver and Knopf (1977), Hawes (1979), and Buchanan, Christensen, & Burdge (1981).

TABLE 1  
*Frequency Distribution of Level of  
 Environmental Sensitivity in Formed Groups*

Level of Environmental Sensitivity (ES score)	Frequency	Valid Percent
Low-moderate (1-6)	20	24.3
High (7)	36	43.9
Very High (8-9)	26	31.7
Total	82	100.0

In Table 2, all 28 experience preferences (EP) are grouped in their respective five categories. For each EP and EP category, Table 2 provides the mean score for all subjects and the mean score for each environmental sensitivity (ES) group. Considering the preferences of all participants, two categories had mean scores in "important" range: *environmental connection* ( $\bar{x} = 4.20$ ) and *self efficacy* ( $\bar{x} = 4.08$ ). The remaining category mean scores ranged from 3.25 (*social harmony*) to 3.67 (*challenge and learning*).

Table 2 also presents the results of the one-way ANOVA, comparing the mean EP scores and EP category scores by ES grouping. In two EP categories, *social harmony* and *escape*, no differences were found between ES groups. In one EP category, *self efficacy*, differences were found for two of the seven items. Regarding *a feeling of self-confidence*, the two higher ES groups differed from the low-moderate ES group ( $F = 7.961, p = .001$ ). Regarding the *feeling of independence* statement, the very high ( $\bar{x} = 4.58$ ) differed significantly ( $F = 3.365, p = .040$ ) from the low-moderate group ( $\bar{x} = 3.95$ ). In the remaining two EP categories, ES groups differed in their category mean scores and in several EP items scores as well.

In the EP category of *environmental connection*, the category means of the very high ( $\bar{x} = 4.27$ ) and high ( $\bar{x} = 4.35$ ) environmental sensitivity groups were significantly higher than the mean of the low-moderate ( $\bar{x} = 3.83$ ) group ( $F = 4.046, p = .021$ ). Within the environmental connection category, two of the four items also yielded significant results. As shown in Table 2, high ES group ( $\bar{x} = 4.53$ ) differed from the low-moderate ES group ( $\bar{x} = 3.85$ ) on the variable *seek out and enjoy the wonders of nature* ( $F = 3.705, p = .029$ ). On the EP item *feel a relation with nature*, the difference was between the very high ES group ( $\bar{x} = 4.23$ ) and the low-moderate ES group ( $\bar{x} = 3.35$ ), ( $F = 4.551, p = .014$ ).

**TABLE 2**  
**Experience Preferences of Participation: One-way Analysis of Variance Using Mean Scores of Respondents with Different Levels of Environmental Sensitivity**

Statement	Total (N=82)	Level of Environmental Sensitivity			F	p	# of Differences Detected
		Low- Moderate (n=20)	High (n=36)	Very High (n=26)			
<b>CATEGORY 1: Environmental Connection</b>	4.20	3.83 <sup>a</sup>	4.35 <sup>b</sup>	4.27 <sup>b</sup>	4.046	.021	2
Sense of fascination that draws me to the environment	4.11	3.75	4.28	4.15	1.995	.143	n.s.
Seek out and enjoy the wonders of nature	4.29	3.85 <sup>a</sup>	4.53 <sup>b</sup>	4.31 <sup>ab</sup>	3.705	.029	1
Feel a relation with nature	3.88	3.35 <sup>a</sup>	3.91 <sup>ab</sup>	4.23 <sup>b</sup>	4.551	.014	1
Get away (to a setting, removed from everyday environment)	4.50	4.35	4.67	4.38	1.743	.182	n.s.
<b>CATEGORY 2: Challenge and Learning</b>	3.67	3.17 <sup>a</sup>	3.85 <sup>b</sup>	3.82 <sup>b</sup>	4.733	.011	2
A mental challenge; intellectual stimulation	3.60	2.95 <sup>a</sup>	3.86 <sup>b</sup>	3.73 <sup>ab</sup>	4.295	.017	1
Learn new things	3.84	3.20 <sup>a</sup>	3.94 <sup>ab</sup>	4.19 <sup>b</sup>	4.524	.014	1
Try new things	3.99	3.40 <sup>a</sup>	4.17 <sup>b</sup>	4.19 <sup>b</sup>	3.851	.025	2
Develop my physical fitness	3.88	3.80	3.97	3.81	.255	.775	n.s.
A physical challenge or intense physical activity	3.79	3.40	4.06	3.73	2.078	.132	n.s.
Use different skills and abilities	3.88	3.25 <sup>a</sup>	4.11 <sup>b</sup>	4.04 <sup>b</sup>	4.928	.010	2
Develop a new skill	3.67	3.05 <sup>a</sup>	3.97 <sup>b</sup>	3.73 <sup>ab</sup>	4.329	.016	1
Enjoy using and talking about my equipment	2.76	2.50	2.81	2.88	.491	.614	n.s.
Take a risk/an adventure	3.77	3.10 <sup>a</sup>	3.89 <sup>ab</sup>	4.12 <sup>b</sup>	3.656	.030	1

TABLE 2 (continued)  
 Experience Preferences of Participation: One-way Analysis of Variance Using Mean Scores of  
 Respondents with Different Levels of Environmental Sensitivity

Statement	Level of Environmental Sensitivity				F	p	# of Differences Detected
	Total (N=82)	Low-Moderate (n=20)	High (n=36)	Very High (n=26)			
<b>CATEGORY 3: Social Harmony</b>	3.25	3.15	3.41	3.11	1.066	.349	n.s.
Social interaction with others	3.60	3.70	3.53	3.62	.122	.885	n.s.
Meet new people	3.12	2.90	3.28	3.08	.501	.608	n.s.
Develop close relationships with others	3.43	3.30	3.58	3.31	.499	.609	n.s.
Bring my family closer together	2.84	2.68	3.24	2.42	2.782	.068	n.s.
<b>CATEGORY 4: Escape</b>	3.45	3.19	3.53	3.52	1.268	.287	n.s.
Escape from home or family pressures	2.77	2.37	2.83	2.96	1.108	.335	n.s.
Escape from social pressures	4.22	4.20	4.31	4.12	.357	.701	n.s.
Escape from physical pressures	3.35	3.00	3.44	3.48	1.011	.369	n.s.
<b>CATEGORY 5: Self-Efficacy</b>	4.08	3.67	4.18	4.26	5.373	.606	n.s.
A sense of accomplishment	4.00	3.50	4.14	4.19	3.010	.055	n.s.
A feeling of self-confidence	4.00	3.21 <sup>a</sup>	4.08 <sup>b</sup>	4.46 <sup>b</sup>	7.961	.001	2
A feeling of independence	4.34	3.95 <sup>a</sup>	4.39 <sup>ab</sup>	4.58 <sup>b</sup>	3.365	.040	1
Restore my spirituality	3.51	3.40	3.61	3.44	.191	.827	n.s.
Contribute to my emotional well-being	4.44	4.05	4.53	4.62	2.802	.067	n.s.
Understand myself better	3.74	3.30	3.92	3.85	2.041	.137	n.s.
Relieve stress	4.52	4.25	4.56	4.69	2.033	.138	n.s.

In the EP category of *challenge and learning*, ES groups differed in their category mean scores and in seven of 10 individual item scores. In the category mean score, the low-moderate group ( $\bar{x} = 3.17$ ) differed significantly ( $F = 4.733, p = .011$ ) from the high group ( $\bar{x} = 3.85$ ) and the very high group ( $\bar{x} = 3.82$ ). Comparing groups on the individual category items, three types of differences were found. One type was where the low-moderate ES group differed only from the very high ES group. This pattern held for *learn new things* and *take a risk/an adventure*. The second type of difference was between the low-moderate ES group and the high ES group (but not the very high ES group). The pattern held for three experience preferences: *mental challenge/intellectual stimulation*, *develop a new skill*, and *reveal my thoughts, feelings, ideas, or physical skills*. In the third pattern, the low-moderate group differed from both the high ES and the very high ES groups. This describes the findings for EP items *try new things* and *use difference skills and abilities*.

### Summary and Discussion

This study was undertaken as one new step of a long-standing quest by researchers and others to understand what underlies environmental sensitivity (ES). Earlier research often suggested that outdoor experiences or outdoor recreation was related to the development of ES. Yet the findings were inconsistent, and the established relationships were weak. Recognizing that "outdoor recreation" can be or mean many things, this study sought to determine if people with different levels of environmental sensitivity differ in the character of the outdoor experiences they prefer. From the leisure studies literature, 28 "experience preferences" (fitting into five experience preference categories) were selected as instrument items. Three groups with differing levels of environmental sensitivity were formed. The experience preferences of the three ES groups were compared. On 11 of the 28 EP items and two of the five EP category scores, ES groups differed significantly.

In all EP categories and EP items where differences were found between ES groups, the low-moderate ES group had lower EP scores than the higher ES group(s) with which it differed. Although sometimes the differences were only between the low-moderate and the high ES group, and not the very high ES group, the high ES and very high ES group never differed. Hence the findings support the conclusion that persons with higher levels of ES more strongly favor outdoor recreation experiences that feature or foster *environmental connection* and *challenge and learning* (and half or more of the items associated with the EP categories). They also preferred experiences featuring *self confidence* and *independence*, two of seven items from the *self efficacy* EP category.

Although using a causal comparative, not a correlational approach, this study is another in the long line of studies finding a relationship between outdoor recreation participation and environmental sensitivity (Dunlap & Heffernan, 1975; Geisler, Martinson, & Wilkening, 1977; Pinhey & Grimes, 1979; Theodori, Luloff, & Willits, 1998; Van Liere & Noe, 1981). But this study differs from the others by not simply quantifying outdoor recreation participation. Indeed, on that level, ES groups in this study had been previously shown *not to differ* in their adult preference for outdoor recreation activities over other forms of recreation activities (Bustam, Young, & Todd, in press). Yet significant differences were found in the character of their outdoor recreation experiences. In this case, the differences were in the experience preferences

or desired outcomes associated with their participation. Bright and Porter (2001) were correct in suggesting that ES studies investigate the meanings attached to outdoor recreation participation.

These findings are limited by the small sample size and by the narrow sample of graduate and upper-level undergraduate students majoring in recreation. Nevertheless, they suggest some directions for further research in this area. First, as suggested by Place and Ewert (2004), better measures of ES are needed. Although using Peterson's (1982) measure and not the New Environmental Paradigm, this study, like Place and Ewert's, had a remarkably high percentage of participants scoring in the upper range pro-environment spectrum. Theodori et al. (1998) once suggested more of a behavioral approach, and their idea has merit. Second, other characteristics of outdoor recreation participation should be investigated. Most specifically, setting preferences, following the measurement model of Virden and Knopf (1988). Third, when looking at the relationship of adult outdoor recreation experience preferences (or setting preferences) and ES, it is difficult by research design or theory to know if one contributed to the other (or vice versa) or if both are the product of some other formative influences. Given that many engage in this research to improve outdoor/environmental education practice, answers to those questions are important. Fourth, more studies of this kind are needed with other and larger samples. Because students concentrating in outdoor recreation/education were part of this study, their experience preferences may have been shaped by their major and may not be typical of others with the same levels of ES.

Understanding formative or sustaining influences on environmental sensitivity is an important topic. To the general consensus that outdoor experiences, especially during youth, are related to ES, however weakly, this study suggested looking more closely at the character of that recreation. In this study, groups with higher levels of ES differed from the lower ES group in the kind of experiences they seek during outdoor recreation participation. Further research of this kind might strengthen our understanding of the relationship between ES and outdoor experiences.

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