ENVIRONMENTAL SENSITIVITY AND YOUTHFUL PARTICIPATION IN OUTDOOR RECREATION

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Abstract: The purposes of this study were to determine the relationships between level of environmental sensitivity and outdoor recreation experiences, specifically activity preferences as a youth and adult, as well as claimed influences on environmental sensitivity. Based on existing literature and experts in the field, an instrument was developed to accurately measure these variables. The instrument was administered to 84 students in the recreation program at a university in the northeast. Based on responses to an environmental sensitivity (ES) item, subjects were grouped or classified as having "very high", "high" or "low-moderate" ES. Influences of variables were studied using a one-way ANOVA and Chi square with Cramer's V. ES groups differed significantly in how involved in outdoor recreation they had been as youths. They did not differ in adult involvement in outdoor recreation or in what they thought contributed to their level of ES.

Introduction

Over the last 25 years, a number of researchers have attempted to understand what makes people care about the environment or what underlies "environmental sensitivity." Some early researchers focused on individuals' claimed influences on environmental sensitivity based on "significant life experiences," while others attempted to find an association between outdoor participation and environmental concern. These studies were inconclusive.

Early research on significant life experiences of environmental activists suggested that such appreciation began at a young age and in outdoor settings (Tanner, 1980; Peterson, 1982). Tanner's research on "Significant Life Experiences" was the 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: to maintain a resource-rich planet for future generations. Tanner selected his sample from multiple citizen groups, those he thought to be representative of active and informed citizen conservationists. Subjects self-claimed influences on their environmental sensitivity. The respondents revealed "outdoors" to be the most influential life experience on environmental sensitivity, followed by "habitat" and "parental" influence. For many of the respondents there was a continuous growth from childhood through adult life.

Following Tanner's lead, Peterson (1982) expanded the topic of life experiences significant to the development of environmental sensitivity. Peterson 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" 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 they began at an early age (on average, 12 years old).

Few studies have been as informative as the Tanner (1980) and Peterson (1982) studies regarding influences on environmental sensitivity (e.g., Palmer, 1993; Peters-Grant, 1986; Scholl-Wilder, 1983; Sward, 1996). Of those that have researched this topic, findings remain inconclusive.

It has been suggested in theory and research that involvement in outdoor recreation activities can create an awareness of environmental problems. Multiple studies have attempted to link involvement in outdoor recreation activities with increased environmental concern (Dunlap & Heffernan, 1975; Geisler, Martinson, & Wilkening, 1977; Pinhey & Grimes, 1979, Theodori, Luloff, & Willits, 1998; and Van Liere & Noe (1981)).

Dunlap and Heffernan (1975) researched the association between participation in nature-based recreation and environmental concern. In an attempt to measure "public values," the authors presented a list of governmental expenditures focused on protecting natural resources and controlling pollution and asked respondents to assign priorities. Participation in outdoor recreation activities was measured by presenting respondents with a list of leisure activities and asking them to indicate their rate of participation. Dunlap and Heffernan's results indicated weak support for their hypothesis, but they noted the association between outdoor recreation participation and environmental concern needed further investigation. They maintained that "strong personal attachment to an outdoor recreation activity can lead to an equally strong commitment to protect those features of the environment which contribute directly to enjoyment of the activity" (Dunlap & Heffernan, 1975, p. 26).

Other studies researching the association between outdoor participation and environmental concern have found no relationship (Geisler, Martinson, & Wilkening, 1977) or only weak to moderate relationships between outdoor activity and environmental concern (Jackson, 1987; Theodori, Luloff, & Willits, 1998; Van Liere & Noe, 1981). More recently, Bright and Porter (in press) examined whether the "meaning" attached to outdoor recreation participation would help clarify what it is about outdoor recreation that appears to affect people's environmental sensitivity.

This study sought to clarify the factors influencing environmental sensitivity (ES) by comparing three groups with different levels of ES on several variables: (a) claimed influences on their level of ES (b) involvement in outdoor recreation as youths, and (c) involvement in outdoor recreation as adults. In keeping with previous research, it was hypothesized that groups with higher ES would be more likely to cite outdoor recreation experiences as influencing their level of ES and that higher ES groups would report being more involved in outdoor recreation as youths and as adults.

Methods

Because this study intended to identify the possible influences of activity preferences and claimed influences on levels of environmental sensitivity (ES), a causal-comparative design was chosen. Subjects were 83 upperclassmen and graduate students majoring in recreation and leisure studies. Of these, 35% were concentrating in environmental and outdoor education and the remainders were pursuing concentrations less related to the environment (i.e., management or therapeutic recreation). Nearly two-thirds were female. Although most were 21-30 years of age, nearly 19% were between 31 and 60.

Subjects completed an instrument that included sections measuring ES, subject-claimed influences on ES, and preferred outdoor recreation activities. ES and environmental concern were measured by five Likert scaled items selected from the New Environmental Paradigm (Dunlap & Van Liere (1978) and a nine point ES self rating, ranging from "very low" to "very high," taken from Peterson (1982). Subject-claimed influences on ES were taken from Tanner (1980). Youth and adult activity preferences were open-ended and later assigned to activity categories used by Rossman and Schlatter (2000).

The instrument was reviewed for face validity by professors with expertise relevant to the topic and method of the study. The reliability of the instrument was assessed in two ways. One method was the test-retest reliability assessed through a pilot study. For the environmental sensitivity variable, the Pearson correlation coefficient was .67, $p = .003$. The remaining variables (claimed influences on ES and recreation preferences) were measured at the nominal level. Rather than ignore the issue of reliability, a test-retest analysis of nominal data was performed by determining the number of times subjects gave the same answer to the same question when completing the instrument for the second time. For each

respondent, researchers compared "test" and "retest" entries to determine the number of "agreements" and "disagreements." A test-retest reliability percentage was calculated by adapting the formula used for "inter-rater reliability" or "inter-observer agreement" in behavioral research, i.e., number of agreements ÷ (number of agreements + number of disagreements) x 100 = reliability percentage. The results were acceptable or better for all three variables: "claimed influences on ES" (64.7%), "activity preferences as a youth" (80.4%), and "activity preferences as an adult" (88.2%).

The second reliability analysis of the instrument measured the internal consistency of subscale items of the instrument. Using data from the 83 subjects of the principal study, Cronbach's alpha was calculated for ES variable (alpha = .62).

Three comparison groups were formed based on subjects' self-rating of their level of environmental sensitivity on a 1 to 9 Likert-type scale. Reflecting a negatively skewed distribution, groups were named as follows: low/medium ES (n=21), high ES (n=36), and very high ES (n=26). The responses of these three groups to questions about formative influences on their environmental sensitivity were analyzed using Chi Square and described with Cramer's *V*; the comparisons of recreation participation were made using one-way analysis of variance and Tukey's HSD post hoc test..

Results

When subjects ranked the three most important influences on their level of environmental sensitivity, the most frequently selected was "outdoor experiences as a youth" (50.0%, see Table 1) followed by "outdoor experiences as an adult," (see Table 2) "parental influence," and "solitude found in nature," which were each ranked by 42.0% of subjects. Among the less frequently cited were "other adults" (14.5%), "peer/friends" (15.8%), and "books, magazines, movies, TV" (21.1%). Cross-tabulating "claimed influences" by ES groupings yielded only one significant relationship. "Books, magazines, etc.," which was selected by 8% of very high ES, 18.8% of high ES, and 42.1% of low-moderate ES, had a Cramer's *V* of .319 (X^2 [2] = 7.732, p = .021). In sum, the inclination to claim "outdoor experiences as a youth" or "as an adult" as an influence on environmental sensitivity was not found to be related to level of environmental sensitivity. Rival influences were likewise not found to be related to level of environmental sensitivity.

Subjects were asked to list their three most preferred recreation activities as a youth and their three most preferred activities as an adult, which were recoded into Rossman & Schlatter's (2000) activity taxonomy categories of (1) sports and athletics, (2) arts, crafts, and hobbies, and (3) outdoor recreation. For youth and adult recreation preferences, regardless of environmental sensitivity grouping, outdoor recreation activities were most often preferred, followed by sports and athletics, and then arts, crafts, and hobbies. Comparing the ES groups, they differed only in their preference for outdoor recreation activities as youths (F [3, 80] = 3.16, p = .048), as seen in Table 3. Post-hoc analysis revealed that the "very high" group differed significantly from the "low-moderate" ES group.

Discussion and Implications

This study sheds some light on the relationship between outdoor recreation and environmental sensitivity. Past studies on this subject have shown weak support for the association between [adult] outdoor recreation and environmental sensitivity (Dunlap & Heffernan, 1975). Furthermore, none of the past studies even considered age as imperative to understanding the relationship between outdoor recreation participation and environmental sensitivity. This study provides support for the need for further research on these relationships.

In earlier descriptive and correlational studies, "outdoors" and "parental" influence, sometimes emerges as a factor worth noting. Unlike Tanner (1980) and Peterson (1982), who both found "outdoors", followed by "parents" to be the most frequently claimed influences on environmental sensitivity, this study descriptively found "youthful outdoor experiences" followed by equal responses for "outdoor experiences as an adult," "parental influence," and "solitude found in nature." Although subjects self-claimed these influences on ES, higher and lower ES subjects did not differ in the influences they claimed. Both Tanner (1980) and Peterson (1982) distinguished "outdoors" strictly as an interaction with natural areas and the like. While this study, defined "outdoors" as an interaction with natural areas at a particular time in life (i.e., as a youth, as an adult). Peterson also

Table 1. — Claimed Influences on Environmental Sensitivity as Youths

Influence on Environmental Sensitivity (Column %)	Level of Environmental Sensitivity Frequency (Valid Percent) Low (n=19)	High (n=31)	Very High (n=24)	Total (N=74)
Claimed "Outdoor experiences as a youth"	6 (31.6)	16 (51.6)	15 (62.5)	37 (50.0)
Did not claim "Outdoor experiences as a youth"	13 (68.4)	15 (48.4)	9 (37.5)	37 (50.0)

Chi Square (2, N = 74) = 4.615, p = .10;
Cramer's *V* = .246

Table 2. — Claimed Influences on Environmental Sensitivity as Adults

Influence on Environmental Sensitivity (Column %)	Level of Environmental Sensitivity Frequency (Valid Percent) Low (n=19)	High (n=31)	Very High (n=24)	Total (N=74)
Claimed "Outdoor experiences as an adult"	7 (36.8)	14 (45.2)	10 (41.7)	31 (42.0)
Did not claim "Outdoor experiences as an adult"	12 (63.2)	17 (54.8)	14 (58.3)	43 (58.0)

Chi Square (2, N= 74) = .560, p = .756;
Cramer's *V* = .086

Table 3. — Activity Class Preferences as Youths: ANOVA Using Mean Scores of Respondents with Different Levels of Environmental Sensitivity

Activity Class	Total (n=83)	Level of Environmental Sensitivity Low- Moderate (n=21)	High (n=36)	Very High (n=26)	F	p	# of Differences Detected
SPORTS AND ATHLETICS	.8554	1.0476	.8611	.6923	1.373	.259	n.s.
ARTS, CRAFTS, AND HOBBIES	.4699	.5238	.4444	.4615	.081	.922	n.s.
OUTDOOR RECREATION	1.6024	1.1905a	1.6667ab	1.8462b	3.156	.048	1

NOTE: For each activity category, subjects had a score ranging from 0 to 3 and reflecting the number of their three most preferred activities that fit the category.

Table 4. — Activity Class Preferences as Adults: ANOVA Using Mean Scores of Respondents with Different Levels of Environmental Sensitivity

Activity Class	Total (n=83)	Level of Environmental Sensitivity Low- Moderate (n=21)	High (n=36)	Very High (n=26)	F	p	# of Differences Detected
SPORTS AND ATHLETICS	.6024	7143	.6389	.4615	.806	.450	n.s.
ARTS, CRAFTS, AND HOBBIES	.1687	.2857	.1111	.1538	1.470	.236	n.s.
OUTDOOR RECREATION	2.1928	1.8571	2.2500	2.3846	2.899	.061	n.s.

NOTE: For each activity category, subjects had a score ranging from 0 to 3 and reflecting the number of their three most preferred activities that fit the category.

found that major influences to the development of environmental sensitivity were on-going and long term and began at an early age.

Considering these distinctions and findings of outdoor experiences, the importance of influences on environmental sensitivity is not necessarily what individuals claim to be influential, but more importantly, what the individual actually did in the past. This causal comparative study found that people with high ES and lower ES both attribute their ES level to outdoor recreation as a youth, but they differed significantly in their preference for participation in outdoor recreation as youths. While descriptively higher ES subjects remained more involved in outdoor recreation as adults, the differences were not significant. In continuing this line of inquiry, researchers may need to focus less on what people attribute their ES to and more on how higher and lower ES subjects differ in their past experiences. In addition, further research is needed to determine more about the character of outdoor recreation experiences that appear more strongly related to higher levels of environmental sensitivity. This would include such variables as setting preference, experience preferences, and activity preferences. These findings would have important implications for educators and recreation practitioners who seek to foster environmental sensitivity, indicating the importance of getting youngsters to regard outdoor recreation activities among their favorites.

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