

Nature-based outdoor recreation and environmental connectedness

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This study explores the question of whether a relationship exists between the constructs of friluftsliv and environmental connectedness. A deeper understanding of these ideas is an important starting point. The Nordic term friluftsliv is difficult to translate, the revised Swedish Outdoor Recreation in Change Program Plan (Friluftsliv i förändring, 2006) notes, “In this application even though we use the English phrase ‘outdoor recreation’ our focus is friluftsliv; we believe these terms overlap to a large degree, but that they are not entirely equivalent concepts” (p. 5). Henderson (2001) distinguished the ideas of friluftsliv and outdoor recreation by defining friluftsliv as “outdoor recreation with its heart within the land and linked to a tradition of being and learning with the land” (p. 32). This richness in definition is captured repeatedly in the literature of friluftsliv; consider the definition used by Öhman (2010), “Friluftsliv is an upbringing that in the first hand is about developing a personal relationship to nature from one’s own experiences” (p. 5). These descriptive definitions illustrate the challenge for native English speakers in understanding the cultural distinction between outdoor recreation and friluftsliv. Another example of the complexity in translating this cultural idea is in regard to access, or specifically, the universal access traditions in Sweden. Access to nature is an inescapable element of the Nordic relationship with the natural world and a fundamental part of friluftsliv (Sandell & Sörlin, 2008). Despite the noted richness and complexity, the phrase *nature-based outdoor recreation* was used as a definition for friluftsliv in this study to allow English readers access to the ideas while also allowing for operational exploration of the research questions.

Numerous terms are presented as reference to a general reference to the human relationship with nature in the literature of environmental education and conservation psychology including: connectedness, affinity, biophilia, ecological self, identity, inclusion, relatedness, sensitivity, and sense of place/place attachment. The related yet distinct terminology of environmental connectedness reflects the scholarly interest in this area of inquiry. The definition for environmental connectedness used in this study is based on the work of Mayer and Frantz (2004) who defined connectedness to nature as one’s “affective, experiential sense of oneness with the natural world” (p. 504). They noted that biospheric values and an empathetic response to the natural world are characteristics of this emotional or affective state. Following from the preceding definition, the connectedness to nature scale (CNS) was developed as a measure of an individual’s feeling in community with nature (Mayer & Frantz, 2004).

Methods

As part of a preliminary analysis for this research, three items from the Swedish national friluftsliv survey were

used to create a criterion variable of environmental connectedness. The national survey was Project A of the broader research program, Outdoor Recreation in Change: Landscapes, Experiences, Planning, and Development, an interdisciplinary approach to the investigation of nature-based outdoor recreation in Sweden. The three items comprising the environmental connectedness construct or “EC,” were initially tested for internal consistency or reliability and validity. The results of this testing, showed consistent response, indicated high intercorrelation and construct validity (Beery, 2012).

Once the preliminary testing was completed, survey questions quantifying participation in nature-based outdoor recreation and the three-item EC variable were used to explore possible relationships between nature-based outdoor recreation and environmental connectedness. Research question 1 considered whether those respondents who participated regularly in nature-based outdoor recreation had higher levels of environmental connectedness than non-regular nature-based outdoor recreation participants. Research question 2 considered whether the relationship between participation and environmental connectedness held when accounting for the other variables (nature-based outdoor recreation participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality). Research question 3 investigated if any of the predictors moderated the relationship between nature-based outdoor recreation participation and the other noted predictors. Research question 4 considered whether there was a significant relationship between frequency of participation in particular activities and environmental connectedness.

Results

Results of the data analysis indicate that there is a significant and meaningful relationship between nature-based outdoor recreation participation and environmental connectedness even when controlling for other predictor variables (see Table 1). In addition, analysis indicates that age group moderated this relationship with the exception of the youngest age group studied (18-30). This grouping of young adults did not show a significant and meaningful relationship between participation in nature-based outdoor recreation and environmental connectedness. It is also found that activity participation by respondents showed a correlation with both environmental connectedness and age group; It is found that eight items shows a positive correlation with environmental connectedness (walking in the forest and country, pleasure and exercise oriented walking, dog walking, walking with poles, garden work, nature picnic and grilling, plant animal study/bird watching, and meditation/yoga in nature). Four of the eight positively significant activity items correlated with environmental con-

Table I. Summary of Regression Analysis for Variables Predicting Respondents' Environmental Connectedness

Variable	<i>b</i>	SE	β	<i>t</i>	<i>p</i>	<i>pr</i>	<i>sr</i>	sr^{2**}
Support for access	.133	.035	.104	3.785	.000*	.110	.103	.01
Nationality	-.040	.090	-.012	-.439	.661	-.013	-.012	.0001
Income	-.019	.021	-.026	-.914	.361	-.027	-.025	.0006
Sex	.179	.047	.108	3.849	.000*	.111	.105	.01
Participation as child/youth	.135	.034	.123	3.928	.000*	.114	.107	.01
Participation	.133	.030	.135	4.369	.000*	.126	.119	.02
Education	-.056	.036	-.047	-1.561	.119	-.045	-.043	.002
Age-group	.155	.024	.189	6.432	.000*	.184	.176	.03
Residence current	.014	.015	.027	.898	.369	.026	.025	.0006
Residence Child	.027	.015	.057	1.835	.067	.053	.050	.003

* $p < .001$ ** sr^2 = squared semi-partial correlation

nectedness are also positively and significantly correlated with age group (walking in the forest and country, walking with poles, garden work, and plant and animal study/bird watching).

Implications

The most important implication of this study is support for cultural understanding of the human relationship with nature. The literature of friluftsliv reminds us that a significant part of the human relationship with nature is embedded in cultural understanding. Further, another important implication is a special consideration of the generational differences in the results. The relationship between the regular nature-based outdoor recreational participation and environmental connectedness does not appear to apply to the youngest age group in this study. Do these non-significant results indicate a generational shift in attitudes? Or are the results a function of a long-term developmental process of environmental connectedness based on multiple factors

such as activity preference or experience in nature and not evident until well into mid-adulthood? Further research is needed to explore this outcome more fully. One possible explanation is that the historically recent intensification of urbanization in Sweden has contributed to this potential generational shift. An additional correlational analysis of the relationship between respondents' current residence and environmental connectedness ($r = -.06$, $p < .05$) shows a significant and negative relationship. This finding indicates a more densely populated residential setting correlates with a lower level of environmental connectedness. Does this example, or other possible generational factors, indicate a reduced experience of nature for young adults? And if urbanization is playing a role in a reduced connectedness to nature, can support for simple, walking-based and accessible activity participation be a method to promote environmental connectedness in urban settings?

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