

Adolescents' Connectedness with Nature



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Background

Research has shown connectedness with nature (CN) to be associated with environmental concern, environmental identity and time spent in nature. Recent studies identified CN as a varying trait among adolescents and indicated applications for environmental education. The development of CN in children and adolescents has been under discussion. Enjoyable experiences in nature may increase CN. Parents and peers strongly connected should foster children or friend's affiliation to nature through spending time in nature and nature related activities.

Aim

The study investigated CN in adolescents. Furthermore, influences of parents and peers on adolescents' CN were studied.

Method

The study was conducted at Viennese high schools using a survey with a set of connectedness-measures (CNS, CN-SI, INS), the Environmental Identity Scale (EID), the New Environmental Paradigm Scale (NEP), and the subscale "Experiential" of the Nature Relatedness Scale (NR). Nature contact was assessed with several items used in recent studies.

Study Sample

178 high school students (16-19 years) participated in the survey. 122 girls (68.5%) and 56 boys (31.5%) completed the questionnaire. Parents filled in an adapted questionnaire. A total of 116 (33%) parents responded.

Results

CNS was significantly correlated with EID ($r=.78, p<.001$) and NEP, ($r=.35, p<.001$) (see figure 2). INS and CN-SI correlated with the CNS ($r=.56, p<.01$ and $r=.67, p<.001$). On average, parents showed higher CN-scores than adolescents (see figure 1). Girls ($M=3.00, SD=0.68$) did not score higher on CN than boys ($M=2.90, SD=0.78$), $t(176)=0.90, p>.05$.

The influence of time spent in nature on CN was investigated using multiple regression analysis (see table 1). Nature experience was correlated with CN, $R^2=.38, F(2,175)=13.51, p<.001, \beta=.49, t(175)=7.57, p<.001$. The actual time spent in nature was another significant predictor of CN, $\beta=.27, t(175)=3.68, p<.01$. Time spent in nature during childhood had no influence on reported CN.

Parental and adolescent CN was found uncorrelated by means of regression analysis, $R^2=0.02, F(2,40)=0.50, p>.05$. Adolescents with at least one parent high on CN (median split) did not differ significantly from adolescents with parents low on CNS, $t(63)=-1.62, p>.05$. But there was found a relation between CN and the importance of spending time in nature with family members, $r=.33, p<.001$. When peers appreciate spending time outdoors, adolescents reported stronger CN, $r=.36, p<.001$.

Discussion

In line with previous results for adults, adolescents showed a high overlap between CN and related constructs. Further, findings support the link between CN and proenvironmental orientation. CN of parents and their children did not correlate. The significance of social context while being in nature was clearly shown. We believe findings to have implications for environmental education, indicating the importance of emotional connections with nature in adolescence. We suggest to foster nature experiences in school on a regular basis.

References

Bögeholz, S. (1999). Qualitäten primärer Naturerfahrung und ihr Zusammenhang mit Umweltwissen und Umwelthandeln. Opladen: Leske + Budrich.
 Cervinka, R. & Karlegger, A. (2009). Grünräume als Ressource für die persönliche Entwicklung von Kindern und Jugendlichen. *Wissenschaft und Umwelt Interdisziplinär*, 12, 242-248.
 Cervinka, R. & Helfer E. (submitted). Connectedness with nature, well-being, and time spent in nature for recreational purposes.
 Cervinka, R., Helfer E. & Zeidler D. (submitted). Measuring connectedness with nature beyond borders.
 Clayton, S. (2003). Environmental identity: A conceptual and an operational definition. In Clayton, S. & Opatow, S. (Eds.), *Identity and the natural environment: The psychological significance of nature*. Cambridge, MA: MIT Press.
 Dunlap, R.E. & Van Liere, K.D., Mertig, A.G. & Jones, R.E. (2000). Measuring endorsement of the New Ecological Paradigm: A revised NEP scale. *Journal of Social Issues*, 56, 425-442.
 Nisbet, E.K.L., Zelenski, J.M. & Murphy, S.A. (2009). The Nature Relatedness Scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*, 41, 715 - 740.
 Hinds, J. & Sparks, P. (2008). Engaging with the natural environment: The role of affective connection and identity. *Journal of Environmental Psychology*, 28, 109-120.
 Kahn, P.H. & Kellert, R. (Eds.). *Children and nature: Psychological, sociocultural and evolutionary investigations*. Cambridge, MA: MIT Press.
 Kals, E., Schumacher, E. & Montada, L. (1998). Naturerfahrungen, Verbundenheit mit der Natur und ökologische Verantwortung als Determinanten naturschützenden Verhaltens. *Zeitschrift für Sozialpsychologie*, 29, 5-19.
 Mayer, F.S. & Frantz, C. (2004). The connectedness to nature scale: A measure of individuals feeling in community with nature. *Journal of Environmental Psychology*, 24, 503-515.
 Müller, M.M., Kals, E. & Pansa, R. (in press). Adolescents' emotional affinity towards nature: A cross-societal study. Special issue: Children and nature. *Journal of Developmental Processes*.
 Schultz, P.W. & Tabanico, J.J. (2007). Self, identity and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology*, 37, 1219-1247.



Figure 1

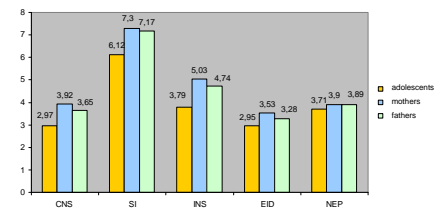


Figure 1: Parents and adolescents' CN, EID, NEP mean scores

Table 1

	B	SE B	β
Step 1			
Constant	1.42	.17	
Nature experience	.52	.06	.57*
Step 2			
Constant	1.31	.17	
Nature experience	.44	.09	.49*
Time spent in nature	.17	.04	.27*

Note: $R^2=.33$ for Step 1, $R^2=.38$ for Step 2 ($p<.001$). * $p<.001$

Table 1: Stepwise Regression Analysis, influence of NE and time spent in nature on CNS

Figure 2

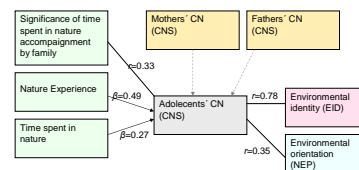


Figure 2: Correlates of CN in adolescents



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