

## **Feeling Connected Yet? Towards Short Manipulations of Connectedness to Nature**

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### 1. Introduction

The natural environment around us is in crisis and a quick intervention is more than required. But how to make people behave in a more eco-friendly way without forcing them? The present research presents an approach to this crucial issue by investigating Connectedness to Nature.

Connectedness to Nature (CN) refers to the extent to which an individual includes nature in his/her self-concept and to which degree the person feels emotionally affiliated with nature (Davies et al., 2009, Schultz, 2001). Recent studies have shown that CN is related to conservation behaviour intentions (Mayer & Frantz, 2004). Nevertheless, there is not any short manipulation that could be used in everyday life. Therefore, we examined a fantasy journey and a mindfulness task as possible short manipulations of CN.

*Fantasy Journey:* Research has shown that imagining to see, hear, move or sense something activates the same areas in the brain as the actual act does (Kreiman, Koch & Fried, 2000; Gerardin et al. 2000). Imaginative processes, especially fantasy journeys, can be used to enhance empathy, social cognition, cultural sensitivity and overcome prejudice (Kuchenbrandt et al., 2013). Through imagination, the mental distance between the imagining self and the object of the imagination can be shortened. So in order to increase CN, which could be seen as shortening the separation between humans and nature, we created a fantasy journey through nature.

*Mindfulness:* Mindfulness is used as an inner monitoring process which is “offering a bare display of what is taking place at any given moment” (Shear & Jevning, 1999). Therefore it presents an opportunity to an open, unbiased awareness of attention to inner experience and manifest action. Mindfulness might lead to a state which has been referred to as transcendence, considered to be a state of universalism and benevolence (Yoon Jin Ma & Hyun-Hwa Lee, 2011). Regarding these findings, the following question arises: May mindfully sensing and observing a totally natural object increase the connectedness to it and consequently to nature in general?

### 2. Method

#### Participants and Procedure:

$N=188$ ; (44 male, 141 female ( $M=21.98$ ,  $SD=4.10$ ), most of which were FSU students. Participants provided informed consent and were randomly assigned to one of 4 conditions (fantasy journey: nature and control, mindfulness: nature and control). They completed the manipulation task followed by a questionnaire containing the measures described below.

#### Materials:

We introduced 2 manipulation tasks (with corresponding control conditions). *Fantasy journey:* The first manipulation was an auditory fantasy journey that participants listened to on a mp3 player with headphones. In the nature condition they found themselves in a grassy meadow with trees, while in the control condition a bathing scenario was described. Both fantasy journeys were similarly structured and addressed different senses (sight, hearing, smell, touch) to mimic an actual experience.

*Mindfulness task:* The mindfulness task involved questions to focus attention and consciously perceive an object. In the nature condition participants were therefore presented with a moss-covered branch, while in the control condition they were presented with a piece of processed wood.

**Measures:**

*Connectedness to Nature: The Inclusion of Nature in Self (INS; Schultz, 2002):* single item, seven pairs of overlapping circles labelled „self“ and „nature“. Assesses interconnecting with nature.

*Connectedness to Nature Scale (CNS; Mayer & Frantz, 2004):* 12 items (5-point scale "strongly disagree"--"strongly agree",  $\alpha=.81$ ). Assesses affiliation with nature.

*Ecological Behaviour Intentions (EBI):* 11 items (7-point scale "totally disagree"--"totally agree",  $\alpha=.77$ ).

*Emotionality:* As positive emotionality could be an alternative explanation for increases in CN or EBI, we therefore assessed emotions induced by the manipulations. 3 items: how likeable, how emotional, and how relaxed participants found the task (answered on a 7-point scale), and the Positive And Negative Affect Schedule (PANAS; Watson et al., 1988) were used.

**3. Results**

*Preliminary Analyses:* Two  $\chi^2$ -tests showed that the conditions were equivalent in gender distribution (mindfulness  $\chi^2=.54, p=.46$ , listening ( $\chi^2=.32, p=.57$ )).

Participants in the nature-mindfulness task liked the task significantly more ( $M=5.19, SD=1.45$ ) than did participants in the control-mindfulness task ( $M=4.46, SD=1.5, t(93)=-2.42, p<.05$ ) and found it more emotional ( $M=4.4, SD=1.56$ ) than did participants in the control-mindfulness task ( $M=2.96, SD=1.41, t(93)=-4.74, p<.001$ ). Controlling for these variables did not change any other results.

*Main Analyses:* The nature listening task and the nature mindfulness task were both unable to produce significant differences on either CN measure (CNS, INS) or in EBI. The nature listening task produced slight differences in the expected direction for CNS ( $M=41.4, SD=7.67$ ) in comparison to the control listening task ( $M=39.79, SD=8.3, t(91)=-0.97, ns$ ). Failing to support the hypotheses, our manipulations were not successful, and further research is needed.

**4. Discussion**

Our hypotheses, to increase CN through a mindfulness task or a fantasy journey in nature, have not been supported. This might have been due to several reasons.

Mayer et al. (2008) show that connectedness to nature can be successfully manipulated with a 15 minute exposure to nature. These results may suggest that our manipulation could have been too short. Arguing in line with the findings of Mayer et al. a virtual exposure has a lesser effect than actual exposure, because it relies on the imagination and suggestibility of participants. Other than that, a long-term increase in CNS might only be possible through repeated long-term exposure.

Schultz (2000) suggested that empathizing with nature might lead to an inclusion of nature in the mental self-concept of a person. The emotional (CNS) and cognitive (INS) connectedness with nature measures have repeatedly been shown to correlate highly (Brugger et al. 2011, Horn, Pensini & Caltabiano, in press). This leads to the interesting question whether taking the perspective (and imagining the feelings) of an animal or other natural object might increase CN.

**5. Literature**

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