Visual experience of wind energy and its influence on landscape preference

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Introduction

This experimental study aims at finding environmental psychological factors of visual landscape perception and landscape preference under conditions with wind energy. Most recent studies in the field of landscape preference of wind energy mostly use paper pencil based surveys and the few experimental studies lack the psychological aspects of perception and preference. Further, we investigate if the concept of landscape preference developed by Kaplan and Kaplan (1989) is applicable on landscape conditions with wind energy generation.

Landscape preference

Humans show a strong preference for mostly untouched - natural looking landscapes. Those preferred landscapes that inspire us, which are not too simple, not too complex and also stimulate our cognitive information processes to involve and animate us to explore the landscape. Over years of research, Kaplan and Kaplan summed up all these findings in the "preference-matrix" (1989).

Methods

Wind energy power plants and their landscape perception have proven to be a decisive factor in the acceptance of renewable energies (Zoellner et al., 2008). Following these findings, we developed a computer-based experimental environment to find out if **a)** the preference of a landscape directly decreases with a rising number of windmills, **b)** a possible negative influence on preference is mitigated in more highly constructed areas, where the natural landscape has already been disturbed and **c)** a more natural, "untouched" landscape is, indeed, generally preferred by the viewer (Kaplan, 1989). A set of 127 images from 3 different wind parks was chosen and presented to the participant. The evenly distributed set of pictures included landscapes with all natural-, built up- and windmill environments. The participants were asked to rate the images into the four domains of the preference matrix. The last question was to which degree they prefer the shown landscape. In the first part of this experiment 22 participants took place. More participants will be added in the next months.

Results

The study showed a generally negative landscape preference over all images and all four predictors of the preference matrix are highly significance. Together they report a R^2 of .435 ($p<.000$) in landscape preference. In a second multiple regression we investigated the appearance of windmills in the landscape and prove it to be a significant negative factor for landscape preference but the quantity of windmills in the landscape had no impact. Nevertheless highly constructed landscape has a negative impact on the preference and correlates with the appearance of wind energy. Besides these findings is the natural landscape still one of the strongest predictors of landscape preference and the preference matrix proves to be a useful model to predict landscape preference under conditions of wind energy.

References

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