„Relax..., greentech will solve the problem!“

Optimism towards the problem solving capacity of greentech and its impact on environmental responsibility

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1. Introduction and research goal

In the media and in advertising green technologies (greentech) are often presented as a panacea for the solution of environmental problems.

However, according to qualitative research findings such optimism can lead to the belief that environmentally responsible behaviour on an individual level is not of particular importance (Lorenzoni et al. 2007; Stoll-Kleemann et al. 2001).

→ The goal of the study, that is presented here, is to model the underlying psychological mechanisms of this phenomenon on a quantitative and theoretically integrated basis.

2. Theory and hypotheses

Based on reflections on the theory of dissonance (Festinger, 1970) and the norm activation model (Schwartz, 1977) it is assumed, that feelings of guilt towards the environment urge individuals either to act in an environmentally responsible way or to justify their personal inaction. Optimism towards the problem solving capacity of greentech (greentech optimism) is further assumed to serve as a handy justification for personal inaction. Thus, the following hypotheses have been tested (see figure 1):

H1 Feelings of guilt towards the environment have a positive influence on feelings of personal responsibility to act.

H2 Greentech optimism acts as a negative moderator within this relationship: The higher the greentech optimism the weaker the relation between feelings of guilt and feelings of personal responsibility to act.

3. Methods

An online survey on energy conservation in households has been conducted in march 2011 among Swiss and Austrian residents. The overall sample consisted of 833 persons (63.1% female; 56.8% students; mean age 30.33, SD 10.16).

The constructs have been measured by three to five items per construct on 5-point Likert scales ranging from never true (1) to always true (5). Of each construct an item example is displayed below:

Greentech optimism: „It makes me feel optimistic for our environment when I think of the developments being made in the field of renewable energy sources.“

Feelings of guilt: „I feel a sense of guilt towards our environment, when I leave electronic equipment in the standby mode, instead of turning it off completely“.

Feelings of personal responsibility to act: „I feel personally responsible to always turn off electronic equipment completely, not leaving it in the standby mode.“

Structural equation modeling (MLR estimator, latent constructs) has been applied in order to estimate the (unstandardized) regression weights of the hypothesized model. (Muthén & Muthén, 1998-2010)

4. Results

Figure 1 shows the structural parameters of the hypothesized model. The regression weight of the path from feelings of guilt to feelings of personal responsibility to act is significant and in the hypothesized direction (B=0.75, p<0.001). The interaction between greentech optimism and feelings of guilt is also significant and negative, as hypothesized (B=-0.21, p<0.001).

The explained variance of the dependent variable accounts to 0.86.

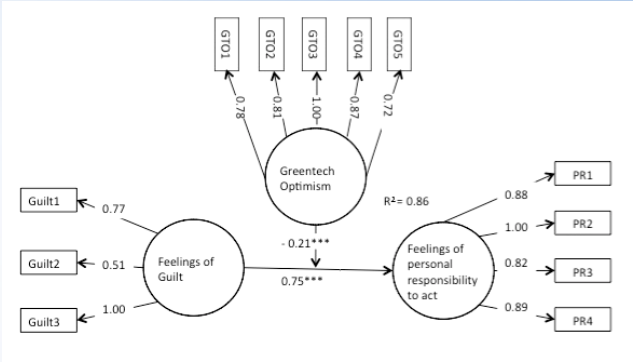

Figure 1: Results from the structural equation modeling procedure.
Unstandardized parameters. Mplus 6, MLR Estimator, N=833 (Missing FIML), ***=p<0.001

The significant interaction effect is further illustrated in figure 2. Persons with low greentech optimism show a stronger relationship between feelings of guilt and feelings of personal responsibility to act than persons with high greentech optimism. This difference in the strenght of relationship is represented by the different steepness of the two slopes.

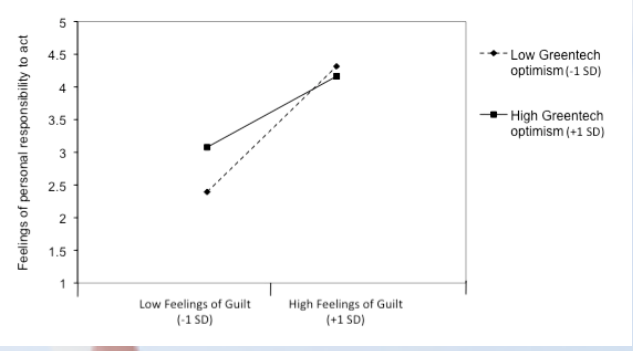

Figure 2: Interaction plot.
Regression predicting feelings of personal responsibility for low vs. high greentech optimism

5. Discussion and outlook

The results show that both the hypotheses can be confirmed. Feelings of guilt towards the environment have a positive influence on feelings of personal responsibility to act. However, the more a person is optimistic towards the problem solving capacity of greentech, the less his/her feelings of guilt urge him/her to act in an environmentally responsible way.

A shortcoming of this study is the cross-sectional design. Hence, in order to maintain evidence about the causality of the effects a second study is currently being undertaken, which comprises repeated measures as well as randomized treatment.

The model contributes to the explanation of psychological mechanisms underlying the lack of environmentally responsible behaviour and it is a promising path for further research as well as for the development of new communication strategies. The latter should take into account, that individuals tend to deny their personal responsibility if they are made to believe, that others (like engineers of green technologies) will solve the problems for them.

References

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