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Summary

Human behavior often has detrimental effects on the environment. This has contributed to effects such as climate changes and the extinction of many plants and animals.

Decisions regarding environmentally relevant behavior have similarities with decisions in a social dilemma (Mosler, 1993). In a social dilemma one is inclined to favor behavioral choices that maximize personal gains, irrespective of collective consequences (Messick & Brewer, 1983). Indeed, it seems that personal choices concerning environmentally relevant behaviors are not influenced very much by their detrimental (collective) environmental consequences.

An explanation suggested in environmental psychology is that, because of a combination of social and other dilemmas, the negative environmental consequences of our behavior easily elude our attention (Vlek & Keren, 1992). The personal advantages of environmentally unfriendly behavior are usually highly salient, whereas the harmful environmental consequences

- (a) often are somewhat uncertain,
- (b) arise in the long-term,
- (c) have the most serious effects in distant areas, and
- (d) are often only detrimental if many people act in an environmentally unfriendly manner.

It seems that, from a short-term, personal and rational viewpoint, environmentally unfriendly behavior is the optimal behavioral choice. Nevertheless, many people choose to behave pro-environmentally from time to time. In this thesis, the backgrounds or determinants of these choices were studied from a social psychological perspective. The aim of this thesis was twofold. First, it examined to what extent pro-environmental behavior could be explained by determinants described in social-psychological attitude-behavior models. Second, it provided insights into attempts to encourage pro-environmental behavior.

Explaining Pro-environmental Behavior with Social Psychological Attitude-Behavior Models

Study 1: personal norms

Study 1 was based on the notion that pro-environmental behavior might in part be motivated by other considerations than those that are personal, rational and short-term. Specifically, it determined whether an explanation of pro-environmental behavior as obtained by the Theory of Planned Behavior (Ajzen, 1991) would improve if the concept of personal norms was included.

In the Theory of Planned Behavior it is assumed that behavioral intention is the best predictor of future behavior. Summarizing, the theory states that three factors determine

the strength of a behavioral intention. These factors are

- (a) the attitude or a person's global evaluation of performing the behavior,
- (b) the subjective norm, or a person's estimation about the expectations of significant others concerning performance of the behavior, and
- (c) the perceived behavioral control, or the person's conviction about how easy or difficult performance of the behavior would be.

Personal norms are defined as internalized self-expectations that are based on internalized values. Personal norms are experienced as feelings of personal obligation to engage in a certain behavior (Schwartz, 1977).

The results of Study 1 support the hypothesis that personal norms contribute to the explanation of pro-environmental behavior. The explanation of each of five pro-environmental behavioral intentions, and their corresponding previously performed behaviors, improved when personal norms were added to the three determinants from the Theory of Planned Behavior (attitude, subjective norm, and perceived behavioral control). These findings support the notion that in addition to short-term rational motives, pro-environmental behavior is also based on personal normative considerations that are not completely covered by the Theory of Planned Behavior. The fact that the five investigated behaviors were at best weakly correlated suggests the existence of a fairly general relation between personal norms and pro-environmental behavior.

Study 2: norm-activation theory

Study 2 enlarges on the support for the importance of personal norms in the domain of pro-environmental behavior that was found in the previous study. The aim of Study 2 was to unravel the backgrounds of pro-environmental behavior by means of the Norm-Activation Theory (Schwartz, 1977) that allocates a central role to personal norms.

Translated to the subject at hand, this theory states that six activators, that is, four situational activators and two personality trait activators, motivate pro-environmental behavior via the activation of personal norms. Earlier environmental studies in which the Norm-Activation Theory was used to explain behavior included only one or two situational activators.

In Study 2, the extent to which four situational activators can explain pro-environmental personal norms and intentions regarding two pro-environmental behaviors (using forms of transportation other than the car and turning off the faucet while brushing one's teeth) was investigated. In addition, the central proposition of the Norm-Activation Theory was tested. According to this assumption behavioral influences of activators are exerted via personal norms, i.e., it suggests that personal norms mediate those influences.

The four situational activators that are described in the Norm-Activation Theory are

- (a) awareness of the existence of need (interpreted in this study as environmental harm),
- (b) acceptance of responsibility for that need,
- (c) perceived efficacy of behaviors to alleviate that need,
- (d) perceived ability to perform those behaviors.

The results from Study 2 showed that mainly perceived efficacy and perceived ability were strongly associated with personal norms and intention regarding the two pro-environmental behaviors under study. Only partial mediation by personal norms was found. That is, a direct relationship between situational activators and behavioral intention was found which was only partially exerted via personal norms.

Attempts to Encourage Pro-environmental Behavior

Study 3: influence of different activators

In Study 3, the influence of activators on pro-environmental personal norms and behavior was again studied by means of the Norm-Activation Theory. Study 3 contributed to the existing literature by studying the influence of the two personality trait activators from the Norm-Activation Theory, in addition to three situational activators. This was the first occasion that these personality trait activators – the tendency to be aware of the consequences of one's behavior for the welfare of others and the tendency to deny responsibility for those consequences – were studied in environmental research.

By means of experimental manipulation of three situational activators from the Norm-Activation Theory (awareness of need, perceived efficacy, and perceived ability) this study explored whether a pro-environmental personal norm and a pro-environmental behavioral intention could be stimulated. The focal behavior in this study was to participate as a volunteer in a campaign planned by an environmental organization.

The results of this study show that two activators – the activator that refers to awareness of need and the activator that refers to the tendency not to deny responsibility – enhanced the personal norms to volunteer. The behavioral intention to volunteer was enhanced by the three situational activators included and by both personality trait activators. Some of the activators interacted with each other.

Similar to results in Study 2, partial support regarding the mediatory role of personal norms was found. The activators enhanced pro-environmental behavioral intention via personal norms but in contrast to expectations based on the Norm-Activation Theory, they continued to have a direct effect on behavioral intention. Only the influence of the situational activator awareness of need on volunteering was entirely exerted via personal norms.

The role of personal norms in this and the previous study seems more in line with the role that was allocated to personal norms in older attitude-behavior models (Fishbein, 1967; Triandis, 1977). In those models, personal norms were treated as one behavioral determinant in addition to other determinants and not as one that dominates the influences of other determinants.

Study 4: field study

Through a field study, Study 4, it was investigated how pro-environmental behavior could be enhanced. In this study, the effectiveness of an existing behavior change intervention, the EcoTeam Program for households, was tested. The aim of the EcoTeam Program is to enhance pro-environmental household behavior. The program has been distributed since 1990 in the Netherlands by the organization Global Action Plan for the Earth. Approximately 10,000 people have participated in the Netherlands.

The program has three main elements. In a group, the EcoTeam, environmental household behavior is discussed, based on the information that is contained in the EcoTeam Workbook. The program encompasses eight monthly meetings. Besides an introduction and a closing meeting, each meeting focuses on one of the following themes: garbage, gas, electricity, water, transport and consumer behavior. After each meeting participants determine which actions they want and can take in their household. These actions may range from simple actions such as turning off the television set rather than keeping it on 'stand-by' to complex actions such as insulating the house. The third main

element of the EcoTeam Program, feedback, means that during their participation, people receive information about their (potential) savings of garbage, gas, electricity, water, and private car use.

The aim of Study 4 was to test the short-term and long-term effects of participation in the EcoTeam Program and to trace the effects of the three elements of the program.

The results showed that by means of the EcoTeam Program a large number of behaviors have changed in a pro- environmental direction and that, in contrast to many other behavior change interventions, these changes were maintained in the long-term (two years after participation). Substantial savings in the use of gas, electricity, water, and reductions in the amount of household garbage were obtained, effects that run counter to the rising use of natural resources among the Dutch population. Finally it was found that the behavioral intention of participants who experienced high social influence in their EcoTeam predicted behavior change irrespective of habits.

The conclusion from Study 4 was that the EcoTeam Program is successful in achieving durable enhancement of pro-environmental household behavior.

Main findings

In **Chapter 5** the main findings with regard to the two aims in this thesis were summarized.

With regard to the first goal, testing the viability of attitude~behavior models to identify determinants of pro-environmental behavior, it is concluded that the explanation of pro-environmental behavior improves if personal normative – or moral – considerations were included. In the environmental domain, personal norms would be a valuable extension to the usual constructs from Ajzen's (1991) Theory of Planned Behavior (attitude, subjective norms, and perceived behavioral control).

Next, it was concluded that the Norm-Activation Theory (Schwartz, 1977) can be a viable tool to explain pro-environmental behavior. This theory not only provides a theoretical background for personal norms, it also describes situational activators which contribute to the explanation of pro-environmental behavior.

With regard to the second goal of this thesis, providing insights into attempts to enhance pro-environmental behavior, the conclusion was that, in addition to the situational activators, the personality trait activators from the Norm-Activation Theory also provide clues for the enhancement of pro-environmental behavior.

Another conclusion with regard to enhancement of pro-environmental behavior that was drawn in Chapter 5 was that, in contrast to many other behavior change interventions, participation in the EcoTeam Program yields lasting decreases of the negative impact that household behavior has on the environment. The program seems to help participants to break through behavioral habits.

With regard to a central concept of this thesis, personal norms: in Chapter 5 one of the conclusions drawn was that this is an important concept, but that also other concepts from the Theory of Planned Behavior (Ajzen, 1991) and the Norm-Activation Theory (Schwartz, 1977) can contribute to enhance our understanding of pro-environmental behavior. Only partial support was found in this thesis for the central or mediatory role that is allocated to personal norms in the Norm-Activation Theory. Other environmental studies (e.g., Vining & Ebreo, 1992) found partial support for a moderational role of personal

norms. The conclusion drawn was that the role of personal norms needs additional research attention.

Research design and implications

In addition to the main findings and conclusions, choices concerning the research designs and the corresponding limitations with these choices were discussed in Chapter 5.

Finally, perspectives for applications of the presented findings and suggestions for future research were considered briefly. First, a study could be undertaken of how the concepts from the Norm-Activation Theory could be used in real-life attempts to encourage pro-environmental behavior. In addition, those attempts could benefit from insights into ways to make fuller use of the effectiveness of the EcoTeam Program. Such insights may arise from research into ways to enhance the attractiveness of participation in the EcoTeam Program when at the same time its original effectiveness is retained.