The Role of Values and Value Activation in Determining Behavioural Reactions towards Policy Measures

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Two studies examined the role of values in behavioural reactions to environmental policy measures. Respondents were 118 undergraduate students. The first study was aimed at testing a new measure of value activation. Ostensibly participating in a study concerning semantic memory, participants were presented with a list of value words to remember. They were then asked to fill in an impression formation test. As hypothesized, the value words significantly influenced the results on the test. The second study investigated the role of values in reactions to policy measures in a resource dilemma game, firstly by measuring basic value priorities, and secondly by measuring how policy measures activate values in the situation. The results showed no support for the impact of values on behaviour in the resource dilemma game.

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Environmental problems such as pollution, global warming and diminishing natural resources are primarily the outcome of actions by individuals and organizations behaving in an unsustainable manner. When facing these severe environmental threats, it is evident that good policy measures are needed to alleviate them. Foremost a good policy measure is effective, that is, it does a good job in reducing environmental problems by influencing people and organizations to behave in a less environmentally destructive way. A good policy measure should, however, do more than be effective in the short run. It should also point out that certain environmental resources are important, and thus help in shaping long-term sustainable attitudes and behaviours among people. In doing this, it is important that people react to the measure with a collective or environmental resource focus rather than an individual focus. In other words, instead of reacting to the measure with concern for the private economy, one should react against it with a concern for other human beings and the environment. This will most likely create positive attitudes towards the policy measure and generate longer lasting sustainable behaviour.

Support for this idea comes from studies investigating the relationship between values and environmentally sustainable behaviours, in which certain values are found to causally influence sustainable behaviour (Thögersen & Öhlander, 2002; Verplanken & Holland, 2002). Additional support comes from attitude research, in which attitudes used to express central values are particularly strong and resistant to change (Eagly & Chaiken, 1993). It’s important to note however, that not all values influence behaviour in a sustainable manner. Some values are tightly connected to the self, prioritising self-interest, and have been found to have a negative relationship with pro-environmental behaviour (Schultz, Gouveia, Cameron, Tankha, Schmuck, & Franek, 2005).

While people generally express pro-environmental attitudes (Franzen, 2003), they may be quite negative towards policy measures (Hammar & Jagers, 2006) at least when they have negative consequences for themselves and in particular when the consequences concern the economy (Nilsson, von Borgstede, & Biel, 2004). There have however only been a few attempts to answer the question why people hold negative attitudes towards policy measures. One way to approach this question is to investigate how people’s values and norms can explain attitudes towards policy measures (Nilsson, et al., 2004; Nilsson & Biel, 2005). In such studies, the value theory proposed by Schwartz (1992) is used, where the value system is structured in two motivational dimensions, labelled Openness to change versus Conservation and Self-enhancement versus Self-transcendence. The latter dimension has been found to influence people’s general environmental attitudes (Schultz & Zelezny, 1999; Stern, Dietz, Kalof, & Guagnano,1995) and also attitudes towards environmental policy measures (Nilsson, et al., 2004). This dimension concerns values “in terms of the extent to which they motivate people to enhance their own personal interest (even at the expense of others) versus the extent to which they motivate people to transcend selfish concerns and promote the welfare of others, close and distant, and of nature ” (Schwartz, 1992; pp. 44-45).

The general conclusion from these studies is that positive attitudes towards policy measures correlate with self-transcendent value priorities and pro-environmental norms. However, they do not tell us if these values influence behaviour. With this in mind, it is important to look both at the effectiveness and the short and long term behavioural consequences when implementing a policy measure. Since the private economy is very tightly tied to the personal sphere, it is possible that this increases the risk of people viewing the consequences of
economic measures in terms of individual rather than collective/ecological consequences. In other words, economic measures might activate self-enhancement values rather than self-transcendent values. This might not be the case with environmental regulations directly tied to the resource itself. Here, the potential for the individual to see environmental or collective consequences should increase, and a stronger connection between the measure and environmental values can thus be shaped.

In several studies, it has been found that values need to be activated, or salient, in order to have an impact on behaviour (Maio, Olson, Bernard, & Luke, 2003; Verplanken & Holland, 2002). In other words, people have to be reminded, consciously or unconsciously, that their values are relevant in the present situation. Verplanken and Holland (2002) approached this issue by examining cognitive and motivational factors as conditions for values to spontaneously influence multi-attribute choices. They demonstrated that priming a value enhanced the weight of value-related attributes, in this case environmental attributes, and thus resulted in value-congruent choices. This was however only true among participants rating environmental values as central for their self-concept.

The influence of values on behaviour can thus be viewed as consisting of personal moral predispositions, the value priorities of the individual (individual factor) and the nature of the circumstances (situational factor). In this study, policy measures (economic or regulation) are the situational factor hypothesised to activate values.

It is hypothesised that when policy measures directly affect economic concerns, self-enhancement values are activated. The situational frame here is determined by economic consequences and not by the resource. When means such as regulations are used, it changes the frame towards the resource itself, or towards other people using the resource. Either way, the frame shifts from an individual to a collective or resource focus. In the language of value research, certain policy measures activate self-transcendence values, while others activate self-enhancement values. In order to study these relationships in a reliable manner, new methods are needed to make sure that behavioural reactions are a consequence of values, and not the result of other processes. Such methods are currently lacking. Previous research simply infers value-related behaviour when a value manipulation results in value-congruent behaviour (e.g., Verplanken & Holland, 2002). When priming manipulations are used to measure behavioural reactions, manipulation checks can be argued to be redundant. However, when studying how certain variables (for instance policy measures) prime values, manipulation checks are needed. The development of a value activation test is therefore a part of the aim of the present study.

The main purpose is to investigate if certain policy measures activate values that influence behaviour. More specifically, the hypothesis is that an economic measure will activate self-enhancement values, leading to more harvesting in a resource dilemma. A regulation measure, on the other hand, is hypothesised to activate self-transcendent values leading to less harvesting. Following previous studies (Verplanken & Holland, 2002), these relationships may depend on individual value priorities in that only people with relatively strong environmental values are influenced by the activation.
Study 1

Study 1 aims at testing a new measure of value activation. This is done through a priming manipulation with three conditions (self-enhancement, self-transcendence, and control). The hypothesis is that priming values influence the ratings on an impression formation test in self-enhancing versus self-transcendent directions respectively.

Method

Participants and design

Participants were 75 (53% females) undergraduate students at Göteborg University. They were paid approximately US$ 7 for their participation. Participants mean age was 24.1 years. The study employed a one-factor (self-transcendent, self-enhancement, and control) between-subjects design.

Procedure

Participants were recruited to the laboratory in groups of four. Ostensibly participating in a study concerning semantic memory, participants were presented with a list of words, asked to study these words for 3 minutes, and informed they would later be asked to write down as many of the words they could remember. They were then asked to fill in an impression management task, which was presented as a filler task belonging to another research project.

The priming manipulation was presented as a learning task and consisted of 27 words. The total set consisted of 9 random fillers (e.g., dog, blue, tennis ball), 18 categorized filler items (9 planets in the solar system and 9 colors) and 9 value words representing the value clusters Self-enhancement versus Self-transcendence.

All three groups were presented with the random filler words and the color words. Depending on the experimental group, the additional 9 words were self-transcendence value words (ST group), self-enhancement value words (SE group) or planets (control group).

The impression formation task (value activation test) was a modified version of “Donald” (Srull & Wyer, 1979), which has previously been used in studies of prejudice (Araya, Akrami, Ekehammar, & Hedlund, 2002; Devine, 1989). In these and similar studies, stereotypes are typically primed, followed by the impression management task and a subsequent rating of the target person in terms of adjectives as sympathetic or kind.

The Donald task was modified in several ways. First and most importantly, instead of rating the target person in terms of adjectives, subjects rated the person in terms of values. Using the Portrait Values Questionnaire (PVQ) (Schwartz, Melech, Lehmann, Burgess, Harris & Owens, 2001), participants were asked to rate how similar the target person was with respect to the value types as proposed by Schwartz (1992). Second, the passage was rewritten in order to potentially incorporate elements from the Schwartz self-transcendence versus self-enhancement dimension. In other words, without explicitly mentioning any values, the story was written so that it would be possible to infer that the target person has these values. When developing the measure, it was tested to be as neutral as possible, avoiding any floor or
ceiling effects for the different values. Third, the test was prepared in a male and a female version and translated into Swedish.

The items from the self-enhancement versus Self-transcendent dimension were analysed using a principal component analysis with varimax rotation explaining 69 % of the variance. From this and the subsequent reliability analyses, a three-scale solution was found appropriate. These scales corresponded to the value types proposed by Schwartz (1992). Accordingly, the following scales were created: Self-transcendent values (Universalism, 4 items including 2 environmental items, $\alpha = .82$); Self-enhancement values (Power, 3 items, $\alpha = .77$); and Achievement (4 items, $\alpha = .89$). Since the two self-enhancement values were separated in the principal component analysis, they were analysed separately in the subsequent analyses in order to investigate differences between the two self-enhancement values.

**Results**

A one-way ANOVA was performed with a measure of Self-transcendence (Universalism) – Self-enhancement (Power and achievement) as the dependent variable and group as factor. The result showed a significant effect of the manipulation on the dependent variable, $F(2,72) = 6.12, p < .01$. Bonferroni corrected post-hoc tests revealed significant effects between the two experimental groups (SE and ST). As seen from table 1, the mean for the control is in between the experimental groups but did not differ significantly from the means for the experimental groups.

**Table 1**

Means and Standard Deviations (in brackets) for ST values – SE values

<table>
<thead>
<tr>
<th>Group</th>
<th>Values</th>
<th>ST-SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>M</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>(1.58)</td>
</tr>
<tr>
<td>SE</td>
<td>M</td>
<td>-.39</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>(1.22)</td>
</tr>
<tr>
<td>Control</td>
<td>M</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>(1.52)</td>
</tr>
</tbody>
</table>

Since the two self-enhancement values loaded on different factors in the principal component analysis, additional analyses were performed in order to investigate differences between the two self-enhancement values.

A one-way ANOVA was performed with the three values as dependent variables and group as factor variable. The main effect of group was significant for Universalism, $F(2,72) = 5.00, p < .01$, and Power, $F(2,72) = 3.26, p < .05$, but not for Achievement, $F(2,72) = .60, p = .56$. Bonferroni corrected post-hoc tests revealed significant effects between the two experimental groups for Universalism and Power. As seen in Table 2, the mean for the control
is in between the experimental groups for all three values. The control group differed significantly from the ST group only in the case of Universalism values.

Table 2
Means and Standard Deviations (in brackets) for Three Values

<table>
<thead>
<tr>
<th>Group</th>
<th>Universalism</th>
<th>Power</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>3.91</td>
<td>2.99</td>
<td>3.17</td>
</tr>
<tr>
<td></td>
<td>(.87)</td>
<td>(1.02)</td>
<td>(.89)</td>
</tr>
<tr>
<td>SE</td>
<td>3.19</td>
<td>3.71</td>
<td>3.45</td>
</tr>
<tr>
<td></td>
<td>(.75)</td>
<td>(1.03)</td>
<td>(1.03)</td>
</tr>
<tr>
<td>Control</td>
<td>3.31</td>
<td>3.29</td>
<td>3.28</td>
</tr>
<tr>
<td></td>
<td>(.96)</td>
<td>(.95)</td>
<td>(.90)</td>
</tr>
</tbody>
</table>

The results support the hypothesis that word priming influenced the rating in the impression management task. When given self-transcendent words to remember, the impression of the person is more self-transcendent as compared to the control and the self-enhancement group. The opposite is found for the self-enhancement group.

Study 2

Study 2 tests if policy measures in a simulated resource dilemma (fish 3.1; Gifford & Gifford, 2000) activate different values. The resource dilemma simulates a sea where participants choose to harvest a number of fishes. The hypotheses are that participants approached with an economic policy measure (a fee imposed on time spent out at sea) will, compared to participants approached with a regulation measure (allowed to take only 17 fishes each season): (a) harvest more fish, (b) eliminate the resource of fish more often (c) rate the importance of making money as more important and rate preserving the resource and show concern about other fishers as less important, and (d) rate the person in the impression formation test as more self-enhancing.

Method

Participants and design

Participants were 42 (60% females) undergraduate students at Göteborg University. They were paid approximately US$ 7 for their participation. Mean age of the participants was 28 years.

The study had a one-factor (economic vs. regulation policy measure) between-subjects design. Participants in the economic condition were informed that because earlier participants had been harvesting too much, a fee will be added on the time spent at sea. Participants in the
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regulation condition received identical information, except that instead of a fee, they were informed that they were only allowed to harvest 17 fish each season.

Procedure

Approximately two weeks before the experiment, participants answered a questionnaire via e-mail. They were asked to rate 16 values from the Schwartz (1992) value inventory on a scale ranging from 1 (not important) to 7 (very important) as guiding principles in their life. Next, those who answered the questionnaire were invited to the laboratory to participate in the experiment. In the laboratory they were seated in cubicles in front of a computer. Participants were introduced to the resource dilemma game and practiced the game for a few minutes. They were then instructed to change cubicles and informed that they were now going to fish with another group consisting of three other persons in another laboratory at the department. After the game, they were given the impression formation task used in Study 1, and were informed that it another study of how one forms impressions of people. Finally, participants answered questions about their motives for fishing. Both questionnaires were administered in a paper and pencil format. After the experiment participants were briefly questioned in order to evaluate if they suspected any relationship between the fish game and the impression formation test. They were also questioned to see if they suspected that the fishing game was in fact only played against the computer as opposed to with other people; one person suspected this and was removed from the analysis. Participants were then debriefed, thanked and paid.

The simulated resource dilemma used in the study was fish 3.1 (Gifford & Gifford, 2000), which is a computer programme for studying resource management decisions by individuals and small groups. The game simulates a sea where participants choose to harvest a number of fishes. After each season the fish spawn and a new season begins. Information about the number of fish in the sea, number of fish harvested, and money earned is presented on the screen. Participants make decisions whether to cooperate (harvest little, resulting in modest short-term gain but long-term conservation of the resource) or defect (harvest a large amount, resulting in large short-term gains but endangering or even depleting the common resource.)

Fish 3.1 was run in stand-alone mode, that is, although participants thought they were playing against other participants, all information about the number of fish and the behaviour of other participants was computer-simulated and identical for all players.

Apart from giving the results of the total amount of catch and earned money, the simulation delivers measures of individual restraint (IR). IR ranges from 1 (if the harvester was totally restrained, i.e. took no fish) through to 1 - N (a negative number, if the harvester took 100% of the pool), where N is the number of participants.

The follow up questionnaire consisted of four questions aimed at tapping motives for harvesting. The items ranged from 1 (not important) to 5 (very important) and the motives were to preserve the resource, show concern for other participants, earn money, and follow rules or norms. In addition, to capture the main motives, the first three questions were constructed to correspond to the three ethical priorities as proposed by Merchant (1992), namely ecocentric, anthropocentric, and egocentric.
Results

Participants approached with an economic measure were expected to fish more and eliminate the resource of fish more often. It was also expected that the measures would activate different values, self-enhancement values in the economic condition and in the regulation condition self-transcendent values. This was measured by the impression formation test.

First, one-way ANOVAs were performed with condition as a factor and three measures of harvesting as dependent variables. These measures were total catch, total profit and individual restraint (IR). The results showed significant effects for all measures. As seen in Table 3, participants in the economic condition harvested more and acted more greedily than the regulation group; total catch, $F(1, 38) = 4.39, p < .05$ total profit $F(1, 38) = 4.43, p < .05$, the mean of individual restraint $F(1, 38) = 10.84, p < .01$. To investigate differential effects on the value activation test, values were grouped together according to the opposite ends on the self-enhancement versus self-transcendent dimension (alpha ST, 4 items = .82; SE, 7 items = .86). These measures were used in an analysis of covariance (ANCOVA) with total catch as a covariate and condition as a fixed factor. This was done to control for the behavior in the resource dilemma game. For Self-transcendent values, the covariate total catch was not significantly related to ratings of self-transcendent values on the activation test, $F(1, 36) = 1.02, p = .32$. Likewise, no significant effect was found on values of type of policy measure after controlling for the effect of total catch, $F(1, 36) = .13, p = .91$. The results for self-enhancement values yielded similar results; total catch, $F(1, 36) = .66, p = .42$; policy measure, $F(1, 36) = .54, p = .54$.

Table 3
Means and Standard Deviations (in brackets) for Total Catch and Individual Restraint for the Economic and Regulation Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Economic</th>
<th>Regulation</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Catch</td>
<td></td>
<td></td>
<td>97.95</td>
<td>(29.96)</td>
<td>76.84</td>
<td>(32.92)</td>
<td>2.10*</td>
</tr>
<tr>
<td>Total profit</td>
<td></td>
<td></td>
<td>39.01</td>
<td>(11.70)</td>
<td>30.74</td>
<td>(13.17)</td>
<td>2.10*</td>
</tr>
<tr>
<td>Individual restraint$^a$</td>
<td></td>
<td></td>
<td>-.40</td>
<td>(.74)</td>
<td>.26</td>
<td>(.49)</td>
<td>-3.29**</td>
</tr>
</tbody>
</table>

Note: $^a$ Scale ranges from -3 to 1 * $p < .05$ (two tailed) ** $p < .01$
The questions tapping motives for harvesting were hypothesized to differ between the groups in that participants in the economic condition were expected to rate the importance of making money as more important, and rate preserving the resource and showing concern about other fishers as less important.

As displayed in Table 4, a one way ANOVA on the follow-up questions revealed no significant differences between the groups: Preserve the resource, $F(1, 40) = .71, \ p = .40$; concern for other participants, $F(1,40) = .48, \ p = .49$; earn money, $F(1,40) = .72 \ p = .40$; follow rules and norms, $F(1,40) = 2.18, \ p = .15$.

Table 4
Means and Standard Deviations (in brackets) for Harvesting Motives in the Economic and Regulation Condition*

<table>
<thead>
<tr>
<th>Motive</th>
<th>Economic M</th>
<th>Economic SD</th>
<th>Regulation M</th>
<th>Regulation SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earn money</td>
<td>4.09 (.87)</td>
<td>4.45 (1.32)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Show concern for other</td>
<td>2.55 (1.14)</td>
<td>2.8 (1.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preserve the resource</td>
<td>4.18 (1.10)</td>
<td>4.55 (.95)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow rules and norms</td>
<td>3.67 (.91)</td>
<td>4.1 (.97)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Scale ranges from 1 to 5

Additional analyses were performed in order to control for the effects of value priorities measured before the experiment. Among the 16 value items from the Schwartz (1992) value inventory measured, 4 items representing Self-transcendence values and 5 items representing self-enhancement values were averaged to form a measure of ST and SE values, respectively. Following Schwartz’s (1992) recommendations, the selection of values was centred to the mean for each person’s score. The values were entered in a hierarchical regression analysis in block one, followed by condition (fee or regulation). The model was tested on the three different dependent variables (total catch, total harvest and IR). The results showed no significant impact on the dependent variables. These analyses should be interpreted with caution, since there was a high proportion of missing values on the value priorities measured before the experiment.
Discussion

The main focus was to investigate the psychological processes underlying reactions to policy measures. It was argued that economic measures would elicit a higher degree of greedy behavior as a result of activating self-enhancement values. The results did not support this hypothesis. Even though the economic measure elicited more greedy behavior than the regulation measure, the hypothesis that it was caused by value priorities or activation of values was not supported. Moreover, the fact that the economic measure elicited more harvesting is a natural consequence of the experimental setting, since the regulation condition had a limit on possible harvesting.

Another important part of the study was to develop a new measure of value activation. In order to understand the process by which values play a role in the situation, it is important to develop a measure of this process. The results of Study 1 showed significant effects of the value priming on two of the three values in the impression formation test, thus providing validation for the test. However, a possible reason for these effects might be direct semantic effects of the values, since the same words were used both in the value priming and the impression formation test. Although this was not true for all values, more research is needed to further validate the use of the impression formation test as a measure of value activation.

There are at least three possible explanations for the negative results in the second study. One is that the measures were insensitive to the manipulation. The problems with the impression formation test were discussed above, and there is also reason to believe that the follow-up questionnaire was insensitive. The means were quite high for some of the motives, suggesting a possible ceiling effect.

Another reason for the lack of effects may be that the behaviors elicited in the different conditions have nothing to do with values or the motives for harvesting. There is a risk that computer-based resource dilemmas are experienced as “just a game”, resulting in lack of tapping deeper motives for playing. There is also a possibility that even in a more realistic setting, values are not very important as determinants of behavioral reactions towards policy measures. As research on attitudes has shown (Maio & Olson, 1995), attitudes serve multiple functions, of which the value-expressive function is only one. There is no reason to believe that behavior is different from attitudes in this respect. Sometimes behavior is guided by habits or making as much money as possible. In other instances, behavior is linked to more abstract ideals such as values.

By investigating psychological processes underlying reactions to policy measures and other environmental issues, important insights into the motives for such reactions are gained. This knowledge may be used to predict short and long-term behavioral and attitudinal reactions by individuals, which in turn influence the effectiveness of policy measures and in this way the environment. Future research should therefore continue to improve the methods in this area.
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References


Thögersen, J., & Öhlander, F. (2002). Human values and the emergence of a sustainable