

VALUES AND ENVIRONMENTALISM*

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Abstract. The aim of this study is to describe the links between the system of values and environmental orientations in the Estonian context. The sample consisted of 440 residents of Hiiumaa Island (representative random sample of the adult population). Value orientations were measured using the abridged version of the Schwartz value scale; composite indexes of ecological activity and various aspects of environmental awareness were constructed. The hypothesis concerning the sinusoidal pattern of relations between value types and environmental orientations was partly confirmed. Significant links were found between value dimensions and environmental attitudes. Associations of environmental attitudes and beliefs with value types confirm the assumption that individualistic (self-enhancement, autonomy) versus non-individualistic values (self-transcendence, contact with others, interdependence) form a major dimension that organizes various forms of environmentalism.

Introduction

The study aims to answer the question how various forms of environmentalism (ecological attitudes and self-reported ecological behaviors) are associated with the system of values. I will try to show how the value system functions as an organizer of different aspects of environmentalism. I intend to do it in two steps: first, presenting a critical review of a psychological theory of values and some empirical studies that relate it to environmental attitudes; and secondly, describing a specific case study and some original findings in the Estonian context.

Environment has become a widely recognized social problem since the 1970s (Brand 1997, Gardner & Stern 1996, Eder 1996, Redclift & Woodgate 1997, Rayner & Malone 1998). Since then, “social suggestions” (the term introduced by Valsiner 1998) from various sources have aspired to make certain changes in people's mentality and lifestyles in the environmentally friendly direction. These social suggestions are of two kinds: disseminating knowledge and information

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(based on the implicit model of rational agent); and propagating norms and values (based on the model of moral subject).

Environmental problems are complex, ambiguous and uncertain, ecological risks are often not directly observable, but are long-term and cumulative. Discourse of sustainability is eclectic, chaotic, biased and simplified in the media (Harre et al 1999), expert opinions are often contradictory. In such circumstances specific social regulators (norms, identities, values) may be the most feasible devices with the help of which the environment as a complicated and “invisible” phenomenon could be transformed into something subjectively meaningful. People have to rely on some consensual regulatory device in order to make sense of these problems and define their positions towards them.

In certain circumstances (e.g. information deficit, contradictory information or identities) values may become especially important. Several authors have argued that the relative importance of values in determining pro-environmental attitudes is greater than the role of objective ecological situation or knowledge about environmental issues (Nas 1995, Macnaghten & Urry 1998, Boehnke et al 1998).

This study departs from the assumption that values are one of these devices with the help of which individuals and groups regulate and organize their environment-related representations and activities, “translate” the discourse of sustainability into their everyday lives.

Values as regulative device

The concept of values is used in various social sciences and there is no consensus concerning the definition of this concept (over 180 different definitions of values have been found by van Deth & Scarbrough 1995:22).

In psychology values are traditionally conceptualized as individual (subjective) attributes, reflecting relatively stable intraindividual structures that organize behavioral and representational phenomena. In sociology values are conceptualized either as desirable social objects or as cultural level abstract regulative principles (prescriptive statements, norms, belief systems) that regulate social behavior: they are transindividual (intersubjective) phenomena that are related to the individuals belonging to groups. Values are also used as an analytical device for integrating macrosocial phenomena with individual attitudes and behavior (Van Deth & Scarbrough 1995:538).

The common feature of the great variety of different definitions is the notion of prescriptive character of values. Values function as an organizing and regulating device – either on the individual or on social level. The regulative aspect of values is predominant also in lay notion of values as revealed in public discourse. For example, some characteristics of value system (“lack of values”) is habitually used as a rhetorical device for explaining dysfunctional events in society.

In the sociological framework, van Deth & Scarbrough (1995:22) define values as “non-empirical – that is not directly observable – conceptions of the desirable,

used in moral discourse, with a particular relevance to behavior and attitudes". Values are "abstract, morally and socially imbued conceptions of the desirable which renders individual behavior "meaningful" and "comprehensible"". Values act as "a general consistency generator", forming patterns of attitudes and behavior.

In psychology, the research tradition outlined by M. Rokeach and S. H. Schwartz treats values as special kinds of beliefs – those that organize other beliefs. Rokeach (1973) defined values as guiding principles in the life of an individual or a group. Compared to attitudes, values are more general and enduring – they transcend specific situations, and may be conceptualized as attitudes towards abstract goals of human activities. Schwartz, who elaborates Rokeach's value model, has given different definitions of values: "Values are cognitive/social representations of the important goals or motivations (biological, social interaction and social institutional needs)" (Prince-Gibson & Schwartz 1998), values are "broad qualities that underlie and justify attitudes and behavior"; "Values set goals that represent individual or collective interests" (Schwartz & Sagiv 1995), values are "... socially approved verbal representations of basic motivations" (Sagiv & Schwartz 2000:178). According to Schwartz, social-level values express alternative solutions to universal social problems that any society has to solve in order to regulate human behavior. "Values are the vocabulary of socially approved goals that ... /decision-makers/ use to motivate action and to express and justify the solutions" (Smith & Schwartz 1997:95). "Value type is a particular interrelated set of values, used for expression, maintenance and justification of particular cultural strategy" (Schwartz & Bardi 1997:389).

Such definitions stress the performative role of values as rhetorical devices aimed at control and social regulation. They are legitimate means for justifying beliefs and behavior. At the same time values provide a cultural framework for sense-making in individual lives.

Schwartz has proposed a measurement instrument (Schwartz Value Survey – SVS) (Schwartz 1992) where value items are assessed on a rating scale according to their self-reported significance in a respondent's life. Subsequent structural analysis is based on similarities of these assessments on a group (aggregate) level. Single values that share the same motivational goal are positively related, both statistically and conceptually, and can be grouped into value types. The same set of values may be classified in different ways depending from which position – individual or society – the classification is made.

On the *level of individual* values Schwartz distinguishes 10 (motivational) value types which are organized with the help of two (presumably) orthogonal dimensions: *Self-transcendence* (orientation to the welfare of others) opposing *Self-enhancement* (orientation towards one's own interests) and *Openness to change* (orientation towards change, risk, unpredictability) opposing *Conservation* (orientation towards preserving the status quo).

Definitions of 10 value types, provided by S. H. Schwartz (1992):

Power: societal prestige and controlling others.

Achievement: personal success and competence according to social norms.

Hedonism: pleasure and satisfaction of sensual needs.

Stimulation: excitement, novelty and challenge in life.

Self-direction: independent action and thought, making one's own choices.

Universalism: understanding, tolerance and protection for the welfare of all people and nature.

Benevolence: protecting the welfare of close others in everyday interaction.

Tradition: respect, commitment, and acceptance of the customs and ideas that one's culture or religion impose on the individual.

Conformity: restraint of actions, inclinations and impulses likely to upset or harm others, or violate social expectations or norms.

Security: safety, harmony, and stability of society, of relationships and of self.

Irrespective of the concrete content of particular values, Schwartz's approach enables to treat values as an integrated system. Certain value types are defined as opposing because they pursue goals that are contradictory to each other. Value types that reflect complementary goals are close to each other, and function similarly. Thus it is hypothesized that values form a regulative metasystem with stable structure.

The systemic nature of values enables us to make predictions about the relationships between value types and any other variables. All we need is a hypothesis about the value types that have the most positive and the most negative relation with a particular variable. If a particular value type has significant links to an external variable, we can *a priori* predict the relationships of this variable to all other values. Values that are opposed (most distant) to this particular value, will also have significant links to that variable, but with an opposing sign. Values that are between those two "anchoring" values, will show monotonic increase or decrease of the relationship, depending on their closeness to "anchor" values. As a result, the rank order of respective correlations may be determined. Monotonic trend from the highest positive to the highest negative correlation between all 10 value types and an external variable may be depicted as a sinusoid¹.

Empirical studies have tested and confirmed this hypothesis using different variables, e.g. sex, age, profession, education, urban vs. non-urban place of residence, group identity (Sagiv & Schwartz 1995), subjective religiosity (Schwartz & Huisman 1995), social desirability (Verkasalo 1996), type of work (Pohjanheimo 1997), macrosocial and microsocial worries (Boehnke et al. 1998), emotional well-being (Sagiv & Schwartz 2000), emotional empathy (Myry & Helkama 2001), political preferences and political activism, etc. (see also overview in Smith & Schwartz 1997).

¹ "Because the whole pattern of associations is predicted, even non-significant associations provide meaningful information. The statistical significance of single correlations is no longer the critical test of theoretical arguments; rather, the whole pattern of associations reflects its viability" (Schwartz & Huisman 1995:93).

In this study I depart from the assumption that values as a culturally provided system of anchors (classification system) used for making sense of the world and justifying individual or group actions. Values are systems of constraints (cf. Valsiner 1998, Van Deth & Scarbrough 1995) that organize attitudes and behaviors. From the “bottom-upwards” perspective, values translate individual and group needs into a public form, which can be used for the negotiating of meaning. From the “top-down” perspective, values translate social regulation into individual cognitive regulation. In this sense we may define values as social representations (culture or group specific semiotic tools used for sense making, explaining, justifying, socially differentiating, collective coping, etc.) (see Moscovici 1998, Wagner 1998, Valsiner 1998). The most important aspect of values is their *motivating* potential for social agents and *organizing* capacity for other representational systems. Values reflect both an individual's needs and his social regulation. Value system provides a shared representational framework where different individual and group positioning are possible. These positionings are determined by other metaregulative systems (e.g. systems of identities).

Speculations about the relations of values with environmentalism

Relations between values and various forms of environmentalism² have been extensively analyzed on a speculative level. Environmentalism has been explicitly related to such values as balance, harmony, diversity, equity, caring, communitarianism (Clark 1995); tolerance, stability, equality, tradition, naturalness (Dobson 1995); self-restriction and self-control (Douglas 1973); equity, social justice and burden-sharing (O'Riordan 1995); egalitarianism (Grendstad & Wollebaek 1998); personal responsibility, obligations to future generations and religious tradition (Kempson et al. 1995). Sets of values that are supposed to be positively associated with environmentalism are postmaterialist values and a humanistic variety of postmodernism (Gooch 1995, Seippel 1999; Gibbins & Reimer 1995), generally speaking all values that are opposed to dominant values in the advanced industrial societies (wealth, power, control over the environment and other people) (Milbrath 1995). In recent years international efforts have been made to develop a set of ethical principles and values for sustainable development and pro-environmental way of life. The Earth Charter is intended to function like Universal Declaration of Human Rights as a motivating and goal-setting international document. In the charter several fundamental values for sustainability

² The concept of environmentalism as it is understood here is clarified in more detail elsewhere (Heidmets & Raudsepp 2001). Sometimes it seems confusing when there are many similarly sounding concepts used in social science studies on environmental questions. We use terms like *pro-environmentalism* and *environmental friendliness* as denoting a general responsible orientation towards the environment. Empirical indicators of this orientation encompass two broad classes of phenomena – environmental attitudes (including environmental concern, interest, etc.) and ecological behavior.

have been explicitly mentioned: responsibility (care, respect, reverence, gratitude, humility, compassion), tolerance, forgiveness, solidarity, freedom, justice (equity, fairness), purity, beauty, integrity, dignity, equality, diversity, wisdom, inner peace, nonviolence, balance (harmony), knowledge, love, joy, decent standard of living, development (The Earth Charter, 2000). Projecting these values on the Schwartz Value Scale, we can classify most of them as belonging to the universalism and benevolence value types, some of the Earth Charter values may (with some reservations) be classified into tradition, conformity, security and self-direction value types.

Empirical studies on values and environmentalism

The Schwartz value scale has been used in several recent studies to assess the impact of values on pro-environmental attitudes and behavior (Stern, Dietz & Kalof 1993, Stern & Dietz 1994, Karp 1996, Schultz & Zelezny 1998, Puohiniemi 1995).

Stern & Dietz (1994) proposed a model of value basis of ecological concern. They claim that pro-environmental beliefs and behavior may be based on 3 general value orientations: either on egoistic (individualistic), group-centered (socio-centric) or idealistic (biocentric) values. *Egocentric* environmentalism is motivated by the pragmatic interest of gaining personal well-being or avoiding personal harm when relating to the environment. *Sociocentric* environmentalism means caring for the welfare of close others (social altruistic motivation) or of future generations. *Biocentric* environmentalism means concern about the welfare of all living beings (related to idealistic self-transcendence values and to the belief of the intrinsic value of nature). Stern et al (1993) suppose that in a particular cultural context other value bases of environmentalism may also be actualized, for example nationalism as a basis for green movement in the ex-Soviet countries.

The authors operationalized these three basic value orientations with the help of Schwartz value types: egocentric orientation corresponds to self-enhancement value type, social altruistic orientation corresponds to self-transcendence values that are related to other people, and biocentric orientation corresponds to environmental value items in the universalism value type. Multiple regression analysis revealed that pro-environmental action intentions were predicted by self-transcendence values (positive) and egoistic values (negative). Openness to change and conservation value types were not significant predictors.

In an empirical test of this theory (Stern et al 1995), biospheric values did not form a separate factor as predicted but were included, together with social altruistic values, in the general factor of self-transcendence (idealism). Three kinds of ecological attitudes had positive correlation with self-transcendence values. Biocentric attitudes correlated negatively with self-enhancement values. Biocentric and egocentric attitudes correlated negatively also with conservation value orientation.

Stern et al (1993, 1994) found that green political activity (self-reported behavioral intentions to sign petitions, boycott the production of polluting firms, refuse to work in a polluting enterprise) is related to altruistic and biospheric values. Self-enhancement values had significant negative correlation with the readiness to engage in green political actions. Openness to change and conservation value orientations did not have any relations with green political activity.

Stern, Dietz & Kalof (1993) found that generalized environmental beliefs were predicted by ecological values (positive), egoistic and conservation value types (both negative), whereas openness to change value type did not have a significant impact.

Stern, Dietz & Guagnano (1995) found that environmental beliefs (measured by NEP scale) were predicted by biospheric values (positive) and egoistic values (negative). Again, conservation and openness to change value types did not contribute significantly to the prediction.

Stern, Dietz and Guagnano (1998) report the results of two studies with the Schwartz Value Survey. Multiple regression analysis revealed that pro-environmental behavior intentions and self-reported pro-environmental behavior had a similar pattern of predictors among the value types: positive impact had self-transcendence values, negative impact had self-enhancement values, whereas conservation and openness to change value types did not reach statistical significance.

Karp (1996) used the entire Schwartz value scale to assess the impact of values on self-reported pro-environmental behavior. He differentiated 3 types of pro-environmental behavior: normative environmental friendliness ("good citizen" behavior), environmental activism and healthy consumer behavior. Multiple regression analysis with value types as independent variables and indexes of pro-environmental behavior as dependent variables, showed significant positive relations between self-transcendence/openness to change value orientations and all pro-environmental behavior indexes, and significant negative relations between self-enhancement/conservation value orientations and indexes of pro-environmental behavior.

In a cross-cultural study, Schultz & Zelezny (1998) found that self-reported pro-environmental behavior was positively correlated with biospheric (explicitly environmental) values and general self-transcendence value type, as well as with openness to change value type and a perceived responsibility for environmental problems. Negative correlation was found with self-enhancement and conservation value types.

Puohiniemi (1995) has studied the relationship between green consumer behavior and Schwartz value types in a Finnish national sample. His findings confirm the hypothesis of negative relationship between pro-environmental attitudes and self-enhancement values (especially "power"), indicating that motivation to preserve a dominant position in society and to accumulate personal wealth is in contradiction with motivation to protect the environment. Positive links were found between the pro-environmentalism and universalism value type. He classified his subjects

according to preferred values into seven types: altruists, independents, hedonists, egoists, conservatives (all together 46% of the respondents), mixed type (45%) and undifferentiated type (9%). Altruists and conservatives were the most environmentally friendly. Less friendly towards the environment were egoists, hedonists and independents.

Neuvonen (1998) found in a study (using regression analysis) with a representative sample of Finnish adult population that environmentally friendly consumer behavior was mostly influenced by universalism (positively), hedonism and security (both negatively) value types.

In all the above referred studies a standardized value measure (Schwartz Value Survey) was used, whereas the measures of environmentalism varied (mostly NEP scale and self-assessed ecological behavior were used). Nevertheless, the results are highly convergent concerning the dimension of self-transcendence vs. self-enhancement, while relations of environmentalism with the other basic dimension (openness to change vs. conservation) vary. However, the question concerning the value base of different forms of environmentalism remains actual.

Our study

The study aims to answer the question: how are various forms of environmentalism (ecological attitudes and beliefs, self-reported ecological behaviors) associated with the system of values?

Environmentalism is operationalized through representational (environmental concern, beliefs and attitudes) and behavioral (self-reported pro-environmental behavior) aspects (see clarification of relevant concepts in Heidmets & Raudsepp 2001). Value types are understood here as symbolic contexts in which various forms of environmentalism acquire their concrete meaning. Schwartz's value scale was chosen as a measurement instrument because it enables to distinguish most general value clusters and to make comparisons across different groups and cultures. Several studies (e.g. Verkasalo et al 1994) have shown its validity in the Estonian context. By relating various forms of environmentalism with the Schwartz systemic value model, it is possible to see the logical relationships between different kinds of environmentalism. Taking into consideration the great variety of forms and content of environmentalism, we assume that their value base may also be diverse.

Several descriptive survey studies have previously dealt with environmental attitudes and beliefs in Estonia (e.g. Lauristin & Firsov 1987, Gooch 1995, Kaasik et al 1996) but they have not used standardized value measures. On the other hand, Schwartz value scale has been repeatedly used in Estonia (e.g. Verkasalo et al. 1994, Lauristin et al 1997) and it is found that the overall structure of values among Estonian students and general population corresponds well to the theoretically predicted universal structure, whereas specific biases in ascribing importance to certain value clusters are similar to other post-totalitarian East

European countries (see Schwartz & Bardi 1997). The present study is the first attempt to link these two research traditions in Estonia.

There are two main hypotheses:

A. Values function as a coherent system and therefore there are sinusoidal relationships between 10 value types and ecological orientations, key value types being universalism (max. positive correlation) and power (max. negative correlation). Other value types are positioned between these extremities. This hypothesis is based on the theoretical assumptions of Schwartz value model and theoretical value bases of environmentalism. The hypothesis concerns “prototypical” pattern of relationships.

B. Different measures of environmentalism have a different pattern of relations with the value system and it is possible to classify various types of environmentalism according to their characteristic value profile. Different forms of environmentalism have a different value base.

Context

Hiiumaa was chosen as the site for our study for practical and theoretical reasons. Firstly, our study was an extended replication of a similar survey which was carried out 4 years ago (see Uljas et al 1996). Secondly, Hiiumaa provides an interesting site for studying how global ecological concern has been contextualized in a relatively isolated rural community with strong local identity. Hiiumaa is the second largest island in Estonia, situated 22 km west of the mainland (1023 square km, 12 000 inhabitants). It is relatively isolated and differently from the rest of Estonia, ethnically homogeneous (99% of inhabitants are Estonians). Hiiumaa is characterized by the combination of isolated rural way of life (with traditionally strong relations to nature), and openness to the world. In the framework of environmental attitudes it may be of importance that Hiiumaa is linked to the international environmental protection program Man and Biosphere (MAB) and is part of the West-Estonian Archipelago Biosphere Reserve.

Sample

The representative sample was constructed from the adult population of Hiiumaa. The sample consists of 440 persons (45.9% men and 54.1% women). Age distribution: 9.1% 15–19 years, 17.8% 20–29 years, 20% 30–39 years, 25.2% 40–54 years, 12.5% 55–64 years and 15.4% 65–89 years old. The sample represents age, sex and geographical distribution of the population with the precision of 1%. Non-response rate was 5%.

Method

The structured questionnaire “Hiiuland and Hiiulanders” was constructed by the TPU environmental psychology research group (J. Uljas, M. Heidmets,

G. Tamm and the author) and comprised questions on various aspects of social life (social identity, work, family, etc.). The survey was carried out in June 1999 on Hiiumaa Island by trained interviewers in respondents' homes. In the context of this study the following blocks of questions were relevant: value preferences, ecological activities, environmental attitudes and beliefs, perceived norm of ecological behavior and perceived control over the environment.

Measures and composite indexes

Value preferences were measured with the help of Schwartz's abridged value scale (1992). 44 value items were selected so that all theoretically predicted 10 value types were represented by most salient items (Stern et al. 1993). Respondents had to assess each value item (as a guiding principle in one's life) on a Likert type scale ranging from 0 (not important) to 7 (very important). Value items that were opposed to one's life goals were coded as -1 .³

Single value items were integrated into composite value indexes according to the theoretical model by Schwartz (1992). α -reliabilities of these value types indexes ranged from 0.434 to 0.745 which are comparable to reliabilities obtained in previous studies (see overview by Smith & Schwartz, 1997). In addition, higher-order value indexes were computed in order to obtain measures that are directly comparable to previous studies. Reliabilities of higher-order value indexes (reflecting value dimensions) were higher: Self-transcendence (universalism + benevolence) $\alpha = 0.6936$; Self-enhancement (achievement + power) $\alpha = 0.757$; Openness to change (self-direction + stimulation + hedonism) $\alpha = 0.6774$; Conservation (security + traditionalism + conformity) $\alpha = 0.7417$.

Similarly to several previous studies (see Smith & Schwartz 1997) the means of self-transcendence and conservation indexes were significantly higher among women compared to men ($p < 0.001$). On the other hand, men had significantly higher mean in the openness to change index ($p < 0.001$). Self-enhancement value index did not show sex differences.

Different forms of environmentalism – everyday pro-environmental activity, personal environmental interest and concern, general beliefs about human-environment relations, personal affinity to nature and attitudes towards the forest were operationalized as follows:

Ecological activities were measured by a 15-item question battery where the frequency of self-reported pro-environmental behaviors (sorting and composting

³ The Schwartz Values Scale was translated into Estonian by T. Niit in 1991. In the present study the following modifications were done in order to make the scale more comprehensible and suitable for a questionnaire study: the instruction was simplified, and the wording of 15 items was slightly changed (based on expert opinions, language intuition of the author and comparisons with different Finnish and French versions of the same instrument). As the overall value structure obtained in this study does not depart from the results of previous studies that used the original translation, we may conclude that the modifications have not changed the meaning of value items at this level of analysis.

waste, saving water and electricity, buying second-hand clothes, etc.) was assessed. From similar measures used previously (e.g. Schultz & Zelezny 1998; Diekmann & Preisendörfer 1998; Kaiser et al 1999) we chose the activities that are relevant in Estonia and have intuitively clear pro-environmental meaning in the local context. Self-reported frequency was assessed on 4-point Likert scale. Public ecological activity was measured by the frequency of participation in ecological associations (regularly, from time to time, no). One scale measured reported pro-environmental behavioral investments (e.g. I have spent my money and time on improving environmental conditions, I have restricted my consumption and given up some habits in order to improve environmental conditions).

Index of ecological activity: summation index of 15 items, encompassing routine pro-environmental behavior at home (using composter, recycling paper, separating hazardous waste, put used glass into separate containers, buy second-hand clothes, use phosphate-free washing powder, save electric energy, save water) and environmental activism (how often do you take part in public actions related to environmental protection?) (alpha-reliability 0.776).

Several question batteries were used to measure *environmental attitudes* (21 items altogether): a) self-assessed level of general environmental concern (I am interested but not active; very interested and moderately active; very interested and investing my time and money for the sake of the environment), b) self-assessed interest in specific (locally and globally relevant) ecological problems (5-item environmental issue scale), and c) preferred form of contact with the natural environment. The following attitude indexes will be used on the subsequent analysis:

Index of environmental concern: summation scale, based on the mean response across 5 environmental issues items (alpha = 0.7946).

Personal affinity towards natural environment indexes are based on factor analysis of 9 items that reflect the preferred kind of contact with nature. Two indexes were constructed: “closeness to nature” (4 items) – items reflecting an attempt to establish close, direct and active contacts with nature (alpha = 0.6); and “Disinterested in nature” (2 items).

No differences in mean values of the environmental indexes according to sex or education were found. At the same time a systematic pattern of age differences emerged: all mean scores increased until maximum in the middle age (40–64), and declined a little again in the oldest age group (65–89). This result differs from results obtained earlier (where young and wealthier people, as well as women tend to be more environmentally friendly than older and poorer people, and men (e.g. an overview in Greenbaum 1995)).

Environmental beliefs were measured with several question batteries (selected by G. Tamm using items from the scales proposed by Grendstad & Wollebaek 1998, Dunlap & Van Liere 1978, Kellert 1996; Eckersley 1992, Minter & Manning 1999, and some self-constructed items). Indexes of *environmental beliefs* are factor-analysis based. Summation indexes were constructed on the basis of items with highest loadings on respective factors (“pro-nature beliefs”, “utilitarian

beliefs”, “ecocentric beliefs” and “radical beliefs” indexes) (see for details in Raudsepp 2001a).

Attitudes towards forest: factor scores of 3 factors (explaining 59.4% of variance of 10 forest-related items): labeled as “general positive attitude to forest”; “emotional reactions to forest” (bipolar factor) and “utilitarian attitude towards forest” (only two of them were used in the subsequent analysis).

Childhood nature experiences: factor analysis of 7 items (“to which extent can you associate your childhood home with the words forest, spaciousness, animals, fields, meadows, junipers?”), produced 1 factor (expressing 54.1% of variance), mean factor scores were used in the subsequent analysis.

Results

In order to remove the influence of possible biased use of rating scales, I employed the individual's average rating of all values as the covariate in analyses of partial correlation (similar method was used by Puohiniemi, 1995).⁴

Partial correlations between value types and environmental indexes are presented in Table 1.

As we can see, the pattern of relationship between value types and several indexes (ecological activity at home, pro-nature beliefs) follows roughly the *sinusoidal* shape, as predicted by Schwartz' value theory. At the same time some indexes did not show clear sinusoidal shape of relationship with the value types.

Index of ecological behaviors is positively correlated with universalism, benevolence, tradition, security and conformity value types, and negatively with power, achievement, hedonism, self-direction and stimulation value types. A similar pattern emerged in the index of environmental concern, pro-nature belief index, close contacts index, forest-positive factor score and childhood nature experiences factor score. An opposite pattern of relationships is observed in indexes of utilitarian beliefs, disinterested position towards the environment and forest-utilitarian factor score.

The pattern of relationships did not change when regarding the respondents' age and sex.

Higher-order value indexes (Table 2) show a similar pattern of relationships with environmental indexes: significant positive relations are with self-transcendence and conservation value orientation, significant negative relations with self-enhancement and openness to change value orientations with all indexes, except 2 utilitarian indexes, and disinterested and distant relations indexes.

⁴ Partial correlation gives an indication of how two variables are related if the effects of a third variable (or more) are removed from the relationship. Here, by partialling out average rating of all value items will show the relationships between values and other variables as if all respondents had the same mean value rating.

Table 1

Partial correlations (average rating of all values as a covariate) between 10 value types and 9 environmental indexes (* p < 0.05 ** p < 0.001)

	Concern	Activity	Pro-nature beliefs	Utilitarian beliefs	Childhood experience
Universalism	0.340**	0.231**	0.301**	-0.215**	0.110*
Benevolence	0.037	0.175**	0.252**	0.029	0.140**
Tradition	0.083	0.239**	0.113*	0.141*	0.145**
Conformity	0.013	0.178**	0.209**	0.147*	0.198**
Security	0.066	0.094	0.099*	-0.082	0.065
Power	-0.230**	-0.148*	-0.227**	0.187**	-0.131**
Achievement	-0.100*	-0.204**	-0.248**	0.044	-0.085
Hedonism	-0.248**	-0.279**	-0.229**	0.086	-0.122*
Stimulation	-0.149**	-0.225*	-0.128*	0.008	-0.136**
Self-direction	0.058	-0.063	-0.164*	-0.230**	-0.173**

	Close to nature	Disinterested	Forest-positive	Forest-utilitarian
Universalism	0.349**	-0.380**	0.279**	-0.238**
Benevolence	0.059	-0.102*	0.226**	-0.043
Tradition	0.152*	-0.129*	0.153*	0.034
Conformity	0.023	-0.042	0.190*	-0.037
Security	0.027	-0.080	0.049	-0.070
Achievement	-0.153*	0.150*	-0.152**	-0.073
Power	-0.221**	0.251**	-0.247**	0.171*
Hedonism	-0.208**	0.275**	-0.180**	0.180**
Stimulation	-0.135*	0.211**	-0.195**	0.103*
Self-direction	0.023	-0.078	-0.124*	-0.088

Table 2

Partial correlations between environmental indexes and higher order value orientations (controlled for mean rating of all value items) (**p < 0.001, *p < 0.05)

	Self-transcendence	Self-enhancement	Openness to change	Conservation
Concern	0.252**	-0.291**	-0.089	0.082
Activity	0.259**	-0.313**	-0.220**	0.265**
Pro-nature belief	0.366**	-0.266**	-0.269**	0.197**
Utilit. belief	-0.126*	0.147*	-0.089	0.132*
Close to nature	0.266**	-0.276**	-0.103*	0.122**
Disinterested	-0.320**	0.337**	0.150*	-0.129*
Forest-positive	0.336**	-0.289**	-0.222**	0.196**
Forest-utilitarian	-0.188**	0.214**	0.052	-0.032
Childhood experience	0.195**	-0.196**	-0.206**	0.224**

We see different profiles of values that are related to four types of environmental beliefs.

Pro-nature beliefs are positively related to self-transcendence and conservation meta-value types (and collectivist and mixed value groups), and negatively related to self-enhancement and openness to change meta-value types (individualistic/ agentic group of values). *Utilitarian* environmental beliefs, in contrast, correlate negatively with self-transcendence meta-value type and positively with self-enhancement values. Relations with openness to change values do not reach significance. Specific feature of utilitarian environmental belief is a strong negative correlation with universalism value type and positive correlation with power value type. Similarly to pro-nature beliefs, it correlates positively with tradition and conformity value types.

The secondary factor analysis with all environmental indexes used in the study (index of environmental concern, index of ecological behavior, 3 indexes of preferred contact with nature, 4 environmental belief indexes, 2 forest-related factor scores), employing principal component analysis with Oblimin rotation extracted 3 factors (explaining 61.4% of the total variance).

Factor I (34.6%): with highest loadings on Positive attitude to forest (0.715), Pro-nature beliefs (0.933), and Ecocentric beliefs (0.812). Label: general environmental friendliness.

Factor II (15.0%) had highest loadings on Utilitarian beliefs (0.792) and Utilitarian attitude to forest (0.722) and was labeled as utilitarian.

Factor III (11.8%) was defined by Ecological activity (0.675), Environmental concern (0.849), Close contacts with nature (0.832) and Childhood nature experiences (0.488). It was labeled as close and personal.

Environmental consciousness of our respondents is organized by 3 dimensions: general environmental friendliness, utilitarian position towards the environment, and personal contact with nature.

When comparing mean values of respective factor scores (one-way ANOVA) in different socio-demographic groups, then significant differences emerged among *age groups* (older people have higher scores on all factor dimensions compared to younger ones, $p < 0.001$, 15–29 years old have lowest scores on personal contact dimension, 30–54 years old have lowest scores on utilitarian dimension); among people with different *level of education* (less educated are more utilitarian than more educated ($p < 0.001$); among *men and women* (women have significantly higher scores on environmental friendliness factor ($p < 0.05$), men have significantly higher scores on utilitarian dimension ($p < 0.001$); and *level of income* (more wealthy people are more utilitarian and less environmentally friendly ($p < 0.001$)).

More precise differentiation of these positions is possible on the basis of correlations with value types. (Table 3)

On the level of 10 value types, environmental friendliness is positively related to universalism, benevolence, tradition, and conformity values, and it has negative relations with achievement, power, stimulation, hedonism, and self-direction value types. Utilitarian position, in contrast, has significant negative relations with

universalism value type and significant positive relations with power and hedonism value types. Similarly to environmentally friendly position, self-direction is correlated negatively. On a more general level, the *environmentally friendly orientation* is positively related to pro-social and conservation goals, and negatively related to individualistic and change-oriented goals. *Environmental-utilitarian* position, in contrast, is positively related to power and hedonism goals, and negatively with universalism and self-direction goals. Environmental-personal dimension has similar pattern of correlations with general environmental friendliness.

Table 3

Partial correlations of secondary factors of environmentalism with value types and value dimensions (controlled for mean value rating and age)

	Environment-friendly	Utilitarian	Close and personal
SELF-TRANSCENDENCE	0.372***	-0.220**	0.239**
SELF-ENHANCEMENT	-0.308**	0.264**	-0.264**
OPEN TO CHANGE	-0.229**	-0.058	-0.058
CONSERVATION	0.193**	0.069	0.069
Universalism	0.324**	-0.317**	0.304**
Benevolence	0.237**	-0.003	0.048
Tradition	0.114**	0.068	0.064
Conformity	0.174**	0.093	0.026
Security	0.083	-0.084	0.034
Achievement	-0.214**	0.095	-0.119*
Power	-0.300**	0.206**	-0.208**
Stimulation	-0.210**	0.093	-0.077
Hedonism	-0.138**	0.231**	-0.193**
Self-direction	-0.111*	-0.224*	0.017

Discussion

Returning to the research questions and hypotheses, I will first briefly summarize the findings. Thereafter more extended comments will follow.

1. The hypothesis about sinusoidal relation between the entire value system and environment-related variables was confirmed in many cases (e.g. ecological activity). For some variables the pattern of relationships was not so clearly structured (e.g. forest-related attitudes).

The hypotheses concerning specific value types that shape the sinusoidal relation, were confirmed: "prototypical" environmental friendliness has positive relations with universalism and tradition value types and with in-group-oriented collectivist values (benevolence, conformity); negative relations are with all individualistic value types (achievement, power, stimulation, hedonism). Universalism forms clear opposition to power, hedonism and stimulation value types.

2. The pattern of relations between values and various ecological variables (environmental concern, environmental beliefs, and reported ecological behavior) were not identical, although similar tendency was observed: *pro-environmental attitudes tend to have significant positive relations with non-individualistic values, and significant negative relations with individualistic ones*. Disinterested attitude to nature and utilitarian position show the reverse pattern of relations. As predicted, self-transcendence meta-value type was always a significant positive predictor, and self-enhancement value type was significant negative predictor for most ecological variables. An unexpected pattern of relations was observed for other two meta-value types: conservation value orientation correlates positively, and openness to change value orientation negatively with ecological variables. Below some interpretations of this finding will be given.

As predicted, environmental friendliness is strongly related to *universalistic* type of values (the type containing explicitly environmental (“biocentric”) value items). This value type seems to define environmentalism as abstract, “global” concern over the environment as a universal value that transcends selfish interests. Being aware of connectedness to a larger system than the individual ego and a sense of universal interdependence are often considered as necessary characteristics of developed environmental consciousness.

In addition, our study shows that there are also significant positive relationships with *tradition, conformity* and *benevolence* value types – those related to the motivation to preserve the welfare of one's in-group. These value types define environmental friendliness as a concern about the environment as a particularistic, localized resource. Such tendency is more pronounced regarding ecological behavior. This aspect of pro-environmental orientation may be related to motivation to preserve harmonious social relations within one's community, respect traditions and comply to socially approved types of activities and attitudes. In our study, pro-environmentalism manifests itself as a social norm, which is related to tradition. This result is in accordance with the assumption that pro-environmental attitudes are characteristic of local cultural tradition (Uljas et al 1996). This result is also in accordance with assertions (e.g. Brand 1997, Schultz & Zelezny 1998) that “ecological correctness” has become a social norm in the modern world. Kaiser et al (1999) differentiate conventional and moral social norms and reasons as readily manifesting themselves in ecological behavior. Contrary to prediction, the security value type that belongs to the class of non-individualistic values, did not have significant correlations with environmental indexes.

Significant negative correlation was found between environmental friendliness and *stimulation, hedonism, achievement* and *power* value types – which all belong to the individualistic (agentic) half of the value system. Emphasis on getting ahead through active self-assertion, valuing unequal distribution of power and resources, and motivation to promote individual positive experiences are in contradiction with the motivation to seek active and close contacts with nature. On the other hand, this group of values correlates positively with the utilitarian position towards the environment that emphasizes effective utilization of natural resources.

Self-direction value type has mixed relations with different indexes: emphasis on independent action and thought seems to have negative impact of some forms of environmentalism.

Both value dimensions postulated by Schwartz (self-enhancement vs. self-transcendence and conservation vs. openness to change) are significant for thinking about the environment.

The value "axis" which most powerfully organizes ecological orientations seems to be the individualistic value cluster (*self-enhancement* value orientation) opposing non-individualistic cluster (*self-transcendence* value orientation). Pro-environmental attitudes and behaviors are positively related to all those values that stress the interests of trans-individual entities (group, tradition, mankind, biosphere), and they correlate negatively with values that are related to personal gratification, domination and control. According to Wojciszke (1997) this value opposition may be seen as opposition between competence-orientation and moral orientation. Thus our results indicate the tendency that competency-based individual goals are not associated with pro-environmental goals, and the tendency to consider the environment in moral terms. At the same time this value opposition refers to preference for certain kinds of relationships among people: "universalist and benevolence values reflect a view of social relations as a cooperative enterprise, whereas power and achievement values assume a competitive relationship among people" (Boehnke et al 1998:229). This result is in accordance with the hypothesis by Geller (1995) that pro-environmental behavior is motivated by *actively caring* as a feeling of concern or sympathy for others. This result also indicates that environmental concern and ecologically responsible behavior may have mixed motivation – both macro-social concern over universally shared resources and micro-social concern over the welfare of oneself or close people (cf. Boehnke et al. 1998). It is not easy to differentiate universalistic and benevolence values on the basis of their assumed range of application (abstract social entities versus concrete in-group). Depending on a particular context, the meaning of concrete value items may be either universalistic or in-group specific. Similar difficulty in differentiating universalism and benevolence values was observed among Finnish respondents (Pohjanheimo, 1997).

The other value dimension (*conservation* versus *openness to change*) is to a lesser extent used as an organizing principle in thinking about the environment. Interestingly enough, both of the poles of this dimension may be related to greater environmental friendliness in certain circumstances. Several analogous studies carried out previously (using only student respondents) report either none or positive links between different forms of environmentalism and openness to change value dimension, and either none or negative relations to conservation value dimension. In contrast, our results consistently point to the opposite relationship: values related to honoring traditions, conformity and security (*conservation* meta-type) have all strong positive correlations with pro-environmental orientations, whereas *openness to change* value cluster is correlated negatively. Possible explanation of this result could be a wider age range of our subjects. However,

after splitting the sample into distinct age groups, the overall pattern of relationships did not change. Such discrepant results may also indicate the existence of different meanings of pro-environmentalism in different sociocultural contexts: “openness to change based environmentalism” may be actualized in the context where alienation from the environment has evolved further (big cities, highly industrialized regions), whereas “conservation based environmentalism” may be actualized in contexts where alienation from nature has not evolved too far and the traditionalist notions of man-environment mutually dependent relations are still alive (rural areas, less developed regions) – as was in our case. The specific context of Hiiumaa may have its role here as well: the traditional way of thinking (e.g. beliefs in mutual solidarity in a rural community and interrelatedness between man and natural environment) is widespread (cf. Uljas et al 1996). This could explain our unexpected result of positive relations between environmentalism and conservation value orientation.

Another possible interpretation of this overall finding is through *harmony-seeking motivation*. The notion of harmony is implicit in all value types that comprise self-transcendence and conservation value orientations. Our study clearly indicates that people act in an ecologically sound way and they are concerned about the environment if collective (group-centered) and idealistic (including biocentric) values are important to them, pointing at the motivation to preserve harmony (peaceful co-existence) in nature and in the social world. On the other hand, environmentally careless position is related to self-assertion or self-gratification motivation, as well as to readiness to “challenge” harmony with nature or within the social world.

The hypothesis concerning *sinusoidal* relations between value types and external variables was confirmed for several variables. As predicted, 10 value types acted like an integrated system and showed a sinusoidal relationship with environmental orientation indexes. Thus our study confirmed once again that values function as a metaregulative mechanism: values are related to environmentalism in a comprehensive way. This pattern was generally the same in different age groups and among men and women.

Helkama (1999) has noted that empirical associations of value types with attitudes and actions seem to require the corresponding conceptual relationship to be culturally and psychologically explicit and salient. For example, in the 1970s there was a clear relationship between values of *equality* and *liberty* and political party preferences, but by the 1980s this relationship disappeared in Finland (Helkama et al 1992). With clear social suggestions concerning the value base of a certain attitude, consensual meanings are more probable, resulting in clear pattern of positioning in relation to the value system. In this regard we can find many examples of such social suggestions where the relationships between environmental friendliness and certain values has been made explicit (e.g. Earth Charter 1999).

Another necessary condition for the emergence of sinusoidal relationships may be the absence of clear identity-related norms concerning certain beliefs and

attitudes: in this case regulation with values may become stronger (cf. Myyry & Helkama 2001). It seems intuitively that environmental friendliness is not related to gender roles or age-specific stereotypes in Estonia, therefore we may suppose that individual value profiles have a significant impact on individual level environmentalism.

The lack of sinusoidal relations may mean that other regulative systems are operative (e.g. identity related norms); there is absolute consensus in representation (so that individual differences in value priorities have no impact); or the representations are vague and not crystallized enough.

We have used various indicators of environmentalism in this study: environmental interest and concern, everyday pro-environmental activities, general ideas about man-environment relations, self-reported affinity towards nature, attitudes towards the forest, and childhood experiences of nature. These indexes emphasize different aspects of environmental mentality, the nuances of which could be distinguished by observing the differences in their motivational base (relationships with the value system). It is noteworthy that indexes of different levels of abstraction acted similarly in relation to the value system.

After having integrated various indexes into broader indicators of environmentalism, we found consistent patterns of relationships between a postulated system of values and such broad environmental orientations. This finding enables us to interpret the implicit motivational meaning of these various forms of environmentalism. We can forecast broad environmental orientations, knowing the general value profile of an individual or a group. It was shown that values function as an underlying symbolic structure that organizes attitudes and beliefs. Regular patterns of relationships with the system of values lead to the conclusion that certain attitudes, beliefs and practices form integrated wholes that are meaningful, intelligible and communicable (corresponding to the criteria of a social representation proposed by Moscovici, 1998). Certain kinds of attitudes, beliefs and everyday activity function as different expressions of the same underlying organizing principles.

We distinguished three broad organizing principles related to the environment: *general environmental friendliness* (related to idealistic and conservationist ideas); *utilitarian position towards the environment* (non-idealistic and hedonistic orientation); and *personalized position towards the environment*. We also described the positioning of various socio-demographic groups on these dimensions. On the average, women and older persons tend to be more environment-friendly, whereas men and the less educated tend to be more utilitarian in relation to the environment.

Our results indicate that dominant social representations of environmental friendliness in Estonia are related to idealism, altruism and respect for tradition. Orientation towards preserving and sustaining the existing relatively harmonious material and social conditions (relationships) is opposed to the tendency to seek novelty and stimulation or self-enhancement (power).

At the same time the general developmental trend in Estonian society is towards constant increase of individualistic orientation (cf. Lauristin et al. 1997), which seems to be in contradiction with such “soft” values. It is difficult to predict whether new forms of environmentalism will emerge that are based on individualistic values, or whether the existent sociocentric and biocentric varieties of environmentalism will modify themselves in order to adapt to environmentally “unfriendly” social context. It is also probable that other determinants of environmental friendliness beside values will become more dominant.

The present study has several limitations. First of all, the value items used in Schwartz Value Survey, pertain mostly to interpersonal goals and choices within the social world, not directly addressing the motivations related to natural environment. Further studies could include more specific ecological values to the instrument.

One of the limitations is methodological: respondents were presented with no dilemmas, they were not invited to make choices where values could be put to real action (e.g. collision of self-interest and group interests, conflict between justice and profit, negotiating different value priorities, etc.). I assume that the inherently dilemmatic nature of ideological thinking (cf. Billig et al. 1988) is also characteristic of environmentalism. The survey method of this study enables to trace only the most general tendencies in meaning construction: we get an “outcome” of the meaning-making process and general tendencies of meaning construction in a population.

This study showed that a person may be more or less environment-friendly, and (s)he can be environmentally friendly in different ways. These varieties of environmental friendliness are related to the strategies used for (re)constructing the meaning of environment and the relationships with the ecological world. Values belong to the tools with the help of which the problematic environment is provided with sense and meaning.

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References

- Billig, Michael, Condor, Susan, Edwards, Derek, Gane, Mike, Middleton, David & Radley, Alan (1988) *Ideological dilemmas: A social psychology of everyday thinking*. London: Sage.
- Boehnke, Klaus, Stromberg, Claudia, Regmi, Murari P., Richmond, Bert O. & Chandra, Subhas (1998) “Reflecting the world “out there”: A cross-cultural perspective on worries, values, and well-being”. *Journal of Social and Clinical Psychology*, 17, 2, 22–247.

- Brand, Karl-Werner (1997) "Environmental consciousness and behavior: The greening of lifestyles". In *The handbook of environmental sociology*. M. Redclift, & G. Woodgate, eds. 204–217, London: Edward Elgar.
- Clark, Mary E. (1995) "Changes in Euro-American values needed for sustainability". *Journal of Social Issues*, 51, 4, 63–82.
- Deth, Jan W. van & Scarbrough, Elinor (1995) "The concept of values". In *The impact of values*. J. W. Van Deth & E. Scarbrough, eds. 21–47, Oxford: Oxford University Press.
- Diekmann, Andreas & Preisendörfer, Peter (1998) "Environmental behavior: Discrepancies between aspirations and reality". *Rationality and Society*, 10, 1, 79–103.
- Dobson, Andrew (1995) *Green political thought* (2nd Ed.). London: Routledge.
- Douglas, Mary (1973) *Natural symbols* (Revised edition). London: Penguin.
- Dunlap, Riley, & Van Liere, Kent (1978) "The "new environmental paradigm": A proposed instrument and preliminary results". *Journal of Environmental Education*, 9, 4, 10–19.
- The Earth Charter: March 2000*. March 12–14, 2000. <http://www.earthcharter.org>.
- Eckersley, Robyn (1992) *Environmentalism and political theory*. London: UCL Press.
- Eder, Klaus (1996) *The social construction of nature*. London: Sage.
- Gardner, Gerald T. & Stern, Paul C. (1996) *Environmental problems and human behaviour*. Boston: Allyn & Bacon.
- Geller, E. Scott (1995) Actively caring for the environment: An integration of behaviorism and humanism. *Environment and Behavior*, 27, 2, 184–196.
- Gibbins, John R. & Reimer, Bo (1995) "Postmodernism". In *The impact of values*. J. W. van Deth & E. Scarbrough, eds. 301–331, Oxford: Oxford University Press.
- Gooch, Geoffrey D. (1995) *Territories of environmental concern*. Linköping: Linköping University Press.
- Greenbaum, Allan (1995) "Taking stock of two decades of research on the social bases of environmental concern". In *Environmental sociology: Theory and practice*. M. D. Mehta & E. Ouellet, eds. 125–151, North York: Captus Press.
- Grendstad, Gunnar & Wollebaek, Dag (1998) "Greener still? An examination of Eckersley's ecocentric approach". *Environment and Behavior*, 30, 5, 653–676.
- Harré, Rom, Brockmeier, Jens & Mühlhäusler, Peter (1999) *Greenspeak: A study on environmental discourse*. Thousand Oakes, CA: Sage.
- Heidmets, Mati & Raudsepp, Maaris (2001) "A conceptual framework for studying environmental mentality and behavior". *Trames*, 5(55/50), 3.
- Helkama, Klaus (1999) "Recherches récentes sur les valeurs". In *La construction sociale de la personne*. W. Doise, N. Dubois, J.-L. Beauvois & A. Boukarroum, eds. 61–73, Grenoble: Presses Universitaires de Grenoble.
- Helkama, Klaus, Uutela, Antti & Schwartz, Shalom H. (1992) "Value system and political cognition". In *Social Psychology of Political and Economic Cognition*. G. Breakwell, ed. 7–31, Surrey University Press.
- Kaasik, Tõnis, Peterson, Kaja & Kaldaru, Hella (1996) *Inimene ja keskkond: Muutused Eesti keskkonnateadvuses 1983-1994*. Tallinn: Stockholmi Keskkonnainstituudi Tallinna filiaal.
- Kaiser, Florian, Ranney, Michael, Hartig, Terry & Bowler, Peter A. (1999) "Ecological behavior, environmental attitudes, and feelings of responsibility for the environment". *European Psychologist*, 4, 2, 59–74.
- Karp, David G. (1996) "Values and their effect on pro-environmental behavior". *Environment and Behavior*, 28, 1, 111–133.
- Kellert, Steephenn R. (1996) *The value of life: Biological diversity and human society*. Washington, D. C.: Island Press.
- Kempton, Willett, Boster, James & Hartley, Jennifer (1995) *Environmental values in American culture*. Cambridge, MA: MIT Press.
- Lauristin, Marju & Firsov, Boris, eds. (1987) *Mass communication and protection of the environment: A sociological study*. Tallinn: Eesti Raamat.

- Lauristin, Marju, Vihalemm, Peeter, Rosengren, Karl Erik & Weibull, Lennart, eds. (1997) *Return to the Western world: Cultural and political perspective on the Estonian post-communist transition*. Tartu: Tartu University Press.
- Macnaghten, Phil & Urry, John (1998) *Contested natures*. London: Sage.
- Milbrath, Lester W. (1995) "Psychological, cultural and informational barriers to sustainability". *Journal of Social Issues*, 51, 4, 101–120.
- Minteer, Ben A., & Manning, Robert E. (1999) "Pragmatism in environmental ethics: Democracy, pluralism, and the management of nature". *Environmental Ethics*, 21, 191–207.
- Moscovici, Serge & Markova, Ivana (1998) "Presenting social representations: A conversation". *Culture and Psychology*, 4, 3, 371–410.
- Myyry, Liisa & Helkama, Klaus (2001) University students' value priorities and emotional empathy. To appear in *Educational Psychology*, 2001, 21(1), 25–41.
- Nas, Masja (1995) "Green, greener, greenest". In *The impact of values*. J. W. Van Deth & E. Scarborough, eds. 275–300, Oxford: Oxford University Press.
- Neuvonen, Marja E. (1998) *Arvojen ja itsemonitoroinnin yhteys kuluttajakäyttäytymiseen* (Unpublished master's thesis). Helsinki: University of Helsinki.
- O'Riordan, Timothy (1995). Frameworks for choice. *Environment*, 37, 8, 11.
- Puuhiniemi, Martti (1995) *Values, consumer attitudes and behavior*. Helsinki: University of Helsinki.
- Pohjanheimo, Esa (1997) *Arvojen muutos, työ ja sosiaalinen tausta*. Helsinki: University of Helsinki.
- Prince-Gibson, Eetta & Schwartz, Shalom H. (1998) "Value priorities and gender". *Social Psychology Quarterly*, 61, 1, 49–67.
- Raudsepp, Maaris (2001) "Environmental belief systems: empirical structure and a typology". *Trames*,
- Rayner, Steve & Malone, Elizabeth L., eds. (1998) *Human choice and climate change* (Vol. 1). Columbus, OH: Battelle Press.
- Redclift, Michael & Woodgate, Graham, eds. (1997) *The handbook of environmental sociology*. London: Edward Elgar.
- Rokeach, Milton (1973) *The nature of human values*. New York: The Free Press.
- Sagiv, Lilach & Schwartz, Shalom H. (1995) "Value priorities and readiness for out-group social contact". *Journal of Personality and Social Psychology*, 69, 3, 437–448.
- Sagiv, Lilach & Schwartz, Shalom H. (2000) "Value priorities and subjective well-being: direct relations and congruity effects". *European Journal of Social Psychology*, 30, 2, 177–198.
- Schultz, P. Wesley & Zelezny, Lynnette C. (1998) "Values and proenvironmental behavior: A five-country survey". *Journal of Cross-Cultural Psychology*, 29, 4, 540–558.
- Schwartz, Shalom H. (1992) "Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries". In *Advances in experimental social psychology*. M. Zanna, ed. (Vol. 25, pp.1–65). Orlando: Academic Press.
- Schwartz, Shalom H., & Bardi, Anait (1997) "Influences of adaptation to communist rule on value priorities in Eastern Europe". *Political Psychology*, 18, 2, 385–410.
- Schwartz, Shalom H., & Huisman, Sipke (1995) "Value priorities and religiosity in four Western religions". *Social Psychology Quarterly*, 58, 2, 88–107.
- Schwartz, Shalom H., & Sagiv, Lilach (1995) "Identifying culture-specifics in the content and structure of values". *Journal of Cross-cultural Psychology*, 26, 1, 92–116.
- Seippel, Ornulf (1999) Political environmentalism: class interests, modern values or postmodern feelings? *Innovation: The European Journal of Social Sciences*, 12, 2, 129–134.
- Smith, Peter B., & Schwartz, S. H. (1997) "Values". In *Handbook of cross-cultural psychology*. J. Berry et al., eds. (Vol. 3, pp. 77–118). New York: Allyn & Bacon.
- Stern, Paul C. (1992) "Psychological dimensions of global environmental change". *Annual Review of Psychology*, 43, 269–302.
- Stern, Paul C., Dietz, Thomas & Kalof, Linda (1993) "Value orientations, gender and environmental concern". *Environment and Behavior*, 25, 3, 322–348.
- Stern, Paul C. & Dietz, Thomas (1994) "The value basis of environmental concern". *Journal of Social Issues*, 56, 121–145.

- Stern, Paul C., Dietz, Thomas & Guagnano, Gregory A. (1995) "The new ecological paradigm in social psychological context". *Environment and Behavior*, 27, 6, 723–743.
- Stern, Paul C., Dietz, Thomas & Guagnano, Gregory A. (1998) "A brief inventory of values". *Education and Psychological Measurement*, 58, 6, 18–30.
- Uljas, Jüri, Hellström, Kristiina, Post, Ruuben & Sagara, Kiti (1996) *Hiiumaa ja hiidlane. Sotsioloogiline uurimus*. Kärdla: Biosfääri Kaitseala Hiiumaa Keskus.
- Valsiner, Jaan (1998) *The guided mind: A sociogenetic approach to personality*. Columbus, MA: Harvard University Press.
- Verkasalo, Markku (1996) *Values - desired or desirable?* Helsinki: University of Helsinki.
- Verkasalo, Markku, Daun, Ake & Niit, Toomas (1994) "Universal values in Estonia, Finland and Sweden". *Ethnologia Europaea*, 24, 2, 101–117.
- Wagner, Wolfgang (1998) "Social representations and beyond: Brute facts, symbolic coping and domesticated worlds". *Culture and Psychology*, 4, 3, 297–330.
- Wojciszke, Bogdan (1997) "Parallels between competence- versus morality-related traits and individualistic versus collectivistic values". *European Journal of Social Psychology*, 27, 245–256.