Environmental Values in the Structure of Student Values

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Abstract. The study expands ideas of the role of environmental values in environmentally oriented behavior. The work aims to specify the structure of students’ ecological values, their relationship with other types of deals, as well as to analyze the intensity level of students’ environmental values compared to previously published works. An original standardized questionnaire was used to examine environmental values. Factor analysis of the obtained data revealed the structure of values. The ANOVA single-factor dispersion analysis was conducted to identify the effects of environmental matters on environmental behavior orientation. As a result, the students’ environmental costs were structured into three groups – the values of responsibility for the environment, the amount of pragmatic attitude to nature, and the importance of unity with the natural environment (as opposed to material costs well-being). Despite the high level of environmental values among students, their willingness to take personal responsibility for environmental issues is weak. The significant effects of values on behavioral intentions have been found only in terms of the certainty that environmental problems must be addressed at the level of political decisions and social activities. The results point to the need not only to promote environmental values among young people but also to engage them in conservation activities actively.

Keywords: Environmental Values · Pro-Environmental Behavior · Environmental Psychology · Students

1. Introduction

Due to the increased human impact on the biosphere in the second half of the 20th century, large-scale environmental problems such as pollution of all habitats, the decline in biodiversity, and depletion of nonrenewable natural resources are now coming to the fore. Ultimately, this could definitively undermine nature’s ability as a self-healing system and call into question the very existence of human civilization. Analyzing the social community’s negative trends in implementing current environmental management forms will create the need to develop new models of human interaction with the environment.

The latter becomes especially important, as the only prospect of a way out of the ecological crisis changes in people’s minds, the formation of a new system of values, which is declared in the primary set of documents defining strategic directions for the protection of the environment – “Concepts of Sustainable Development.” This idea is reflected in numerous studies and psycho-correctional and educational programs that have recently appeared in psychology and pedagogy. Although many of these programs have proven effective, experts stress the importance of the following problem. The environment that serves as the background for the individual’s functioning is generally vague in his mind. The associated environmental issues are also weakly reflected, which slows down the assimilation of new behaviors [5, 6, 17].
Values are a form of expression of socially significant ideals and have significant motivating potential, as they contribute to the definition of goals and choices of behavior [16].

This is what has supported the interest of many environmental psychology researchers over the past decades. Attempts are being made to establish links between ecological values, environmental attitudes, and environmental behavior [8, 14]. However, the results of these studies have allowed accumulating of very ambiguous material, according to which ecological values can both serve as a predictor of environmental behavior and not affect it [1, 20].

As a rule, environmental values are considered in the structure of more complex integrative formations of the individual – most often in this role is environmental consciousness. Environmental consciousness is a set of ideas about the natural environment, emotional attitudes to natural objects, and interaction strategies [3, 12, 16, 21]. According to the concept of S. D. Deriabo [3] and V. A. Yasvin [21], the axiological component is the central element of ecological consciousness and defines its two main types – anthropocentric (based on pragmatic values that consider nature in terms of usefulness for human needs) and ecocentric (the highest value is the attitude to nature as an equal subject). V. I. Panov [12] complements this theory with a description of the third type of ecological consciousness – synergistic, which is based on the value of the harmonious development of man and nature as a whole system. The importance of a sense of identity with the natural environment in the structure of values is also noted by E. Van der Werff, L. Steg, and K. Keizer [19].

Despite the importance of values in the ecological worldview structure, few studies are revealing their specific types. They are often described as a generalized group of biospheric values (e.g., [11]), which does not stand out as an independent scale in traditional surveys of the study of values. Thus, in the method of M. Rokeach [13], found this sphere is reflected only in the scale of “beauty of nature.” The most popular is the involvement of the Schwartz S. H. [15] approach to global environmental issues. The value of “universalism” is most associated with the protection of the natural environment. The essence of this value is the exit of the individual beyond his interests and his striving for all mankind’s well-being. In this context, concern for the biosphere’s integrity for future generations’ survival is of great importance [9, 16]. There is evidence that prosocial values, in particular altruism, are also associated with a focus on environmentally friendly behavior [2]. N. N. Khashchenko and her colleagues propose to single out one specific type of value in the structure – environmental well-being because they consider the environment’s safety one of the most critical priorities in life [10].

The findings prove the importance of the scientific problem of determining the role of values in environmentally oriented behavior. In this regard, the main research task we set ourselves in our work is to specify the structure of students’ environmental costs and determine their relationship with other types of values and intentions of ecological behavior. Identifying the level of representation of environmental importance in the minds of students is also an important issue. Simultaneously, we assume that compared to the situation described 10–20 years ago, young people will have more pronounced environmental orientations. We attribute this assumption to active propaganda of ecological issues in the media and observations of the modern world’s growing environmental threats.

2. Materials and Methods
The main method of obtaining primary empirical data is questioning, which was conducted on students of the humanities sphere of Pskov State University (N=557). A survey was performed with an original questionnaire developed by the authors to identify values (environmental and general), perceptions of the natural environment, and behavioral intentions to protect nature. These scales have previously been psychometrically tested. As specific ecological values in the questionnaire were included “the beauty of nature”, “the feeling of having done something for the protection of nature”, “the unpolluted environment”, “the well-being of future generations”, “life”, “the unity of man and nature”, “responsibility for nature”, “environmental security”, “the future of the planet”. This list of values has been integrated into a broader set that reflects the social, cognitive, and professional values typical of adolescents.

The study analyzed low, medium, high scores (points on a 4(5)-point Likert-type scale) that
correspond to statements of “never”, “rarely”, “sometimes”, “often”, “always”. When generalizing the subjects’ responses, we accepted the degree of certainty (uncertainty) of their judgments as a reflection of the probabilistic confidence (tension) of the events assessed and the relationship to them. At the same time, responses with a probability above 0.6 (“yes”, “agree”, ”always”, “often”, or “no”, “never”, “rarely”) were analyzed as affirmative with the appropriate vector of directions; answers with a probability below 0.6 (“hard to say”, “rather agree than disagree”, “rather disagree than agree”, “sometimes” etc.) were treated as a zone of subjective uncertainty, reflecting the subject’s uncertainty about social reality phenomena.

To describe the internal structure in more detail, factor analysis was carried out using the primary component method (Varimax rotation method). There were so many factors whose own values were greater than one. The importance of factor weights of variables, more than 0.4, the accumulated variance rates on the integral index were above 50%. As a system-forming value of personal attitude to nature, we believe, will be environmental safety and responsibility.

The study also gave great importance to analyzing the frequency distribution of empirical indicators within the scale structure, allowing for a more thorough disclosure of the scale’s content by describing its intensity levels in the student sample.

ANOVA single factor dispersion analysis was used to analyze the effects of orientation on behavioral intentions to protect the environment.

3. Results

Thanks to the factor analysis, it was possible to describe the students’ sphere’s structure and determine the place of environmental values. Factor analysis revealed five factors that combine values.

1 factor. “Value of responsibility for the environment”, (15.5% variance), including the cost of responsibility for nature (0.852), unity of man and nature (0.769), the feeling of having done something for the protection of nature (0.768), unpolluted environment (0.693), the well-being of future generations (0.649), beauty of nature (0.644), environmental safety (0.616). This factor, on the one hand, unites the intangible values of human identification with the character on a planetary scale and its relationship with the future of humankind; on the other hand, there are personal values of protection from natural threats, the importance of living in a clean environment and enjoying its beauty. These values are intertwined with an awareness of the importance of caring for nature and a sense of self-involvement in protecting the environment.

2 factor. “Value of stability”, (10.8% variance), includes: self-respect (0.741), health (0.736), family safety (0.726), own security (0.581), life (0.515), the safety of his state (0.508), study (0.491). We see that the second factor includes values that reflect the desire for stability at all levels of human life – physical existence, individual psychological well-being, the nearest social environment, the most sigindividual’s exited individual’s exit opinion, the set of values reflected in this factor is based on the importance of security needs and social needs in the Maslow pyramid of needs.

3 factor. “Perception of the natural environment”, (8.9% variance), includes a set of ideas about the nature of different orientations: nature is a fragile structure, which balance is easy to break (0.749), nature – the mastermind of art (0.683), nature – unbridled element, which can be dangerous (0.622), nature – the source of knowledge of the patterns of the world (0.548), nature – a place of rest, a source of replenishment of human forces (0.456), peace on earth (0.432), nature – a condition of harmonious human development (0.416). Almost all statements that have got into this factor are predominantly cognitive and reflect different aspects of the natural environment’s perception. Since there are no values of conservation in the element, it can be stated that in the structure of respondents’ ecological consciousness, the cognitive component is represented in isolation from the axiological one.

4 factor. “Value of Nature as a Resource”, (8.2% of variance), including beautiful, adventurous life (0.708), nature – a model for the creation of new technology and technology (0.622), respect for friends (0.612), nature – a source of resources for the development of the economy and industry, as well as
personal use (0.573), freedom (0.434), free time (0.415). The fourth factor’s composition proves the relationship between hedonistic values, which are realized through communication, rest, and getting new impressions, with a useful attitude to the natural environment as an inexhaustible resource source.

5 factor. “Value of material well-being or the value of nature as a habitat” (7.8% variance), including material well-being (- 0.645), equality (- 0.566), and nature – an integral human habitat (0.512). The factor reflects the opposite value, perhaps even mutually exclusive deals. On the one hand, these are the maximum values of modern civilization – high quality of life at the expense of material well-being and democratic ideals. On the other hand, it is the value of a way of life that allows you to achieve unity with nature.

Student distribution, in terms of the importance of generalized values, is presented in table 1.

Table 1. Student distribution (%) in terms of the importance of generalized values.

| No | Factor                                                                 | Confidence in weak importance | Uncertainty zone | Confidence in high importance |
|----|------------------------------------------------------------------------|------------------------------|-----------------|-------------------------------|
| 1  | “Values of responsibility for the natural environment”                  | 24                           | 46              | 30                            |
| 2  | “Values of stability”                                                  | 18                           | 40              | 32                            |
| 3  | “Value of nature as a resource”                                        | 30                           | 42              | 28                            |
| 4  | “Value of material well-being or the value of nature as a habitat”     | 24                           | 52              | 24                            |

Source: Compiled by the authors.

The tremendous confidence (32% of respondents) showed in assessing the values of stability that ensure their daily lives’ well-being. At a reasonably high level, 30% of students pointed to the importance of a responsible attitude to nature – unity with nature, unpolluted environment, environmental safety, etc. Simultaneously, just under half of the respondents are unsure of the importance of these values.

Approximately the same proportion of the high and low level of confidence in the values of Factor 4, which reflect hedonism and utilitarian attitudes to nature (28 and 30% respectively), was detected among respondents. The most significant difficulty for students is the decision on the natural environment’s preference instead of material values (factor 5). Most respondents (52%) are in a zone of uncertainty.

Overall, the data presented in Table 1 show that respondents dominate respondents’ sample with an uncertainty of judgment across value groups. People who evaluate most of the proposed value categories depending on the situation, attribute them to the higher and lower importance. From this, we can consider that the sphere is actively developing in adolescence, undergoing significant changes. Students as a social group can be viewed as a target audience, guided by environmental activities.

The study also identified factors that characterize respondents’ behavioral intentions in the field of environmental protection. The result was four factors that reflect students’ desire for personal participation in ecological actions (internal factors) or the belief that this is the task of public structures (external factors).

1 factor. “Internal Factors – Active Participation in environmental protection”, (12.2% variance), included personal participation in the organization of an environmental circle, community (0.698), participation in public events (meetings, pickets, etc.) (0.580), support for politicians who pay attention to environmental issues (0.551), active participation in environmental protection as a volunteer (0.530), involvement in “green” movements (0.504), the desire to instill environmental values in their children (younger brothers, etc.) (0.463). This factor combines behavioral intentions to take a personal part in public life related to protecting the natural environment - to discuss environmental problems and involve others in their resolution.
2 factor. “External factors - Influence of politicians, media, and administration on the protection of the environment” (11.8% of variance), included beliefs for what can affect the change of the environmental environment: each person in his daily life (0.784), party politics and politics (0.718), sources of information (newspapers, radio, TV, The Internet) (0.575), strengthening of the environmental component in education (0.551), diseases related to adverse environmental conditions (0.515), representatives of responsible business (0.482), the problem of household and industrial waste disposal (0.470) Administration of Industrial Enterprises (0.462).

3 factor. “External Factors - Influence of Environmental Organizations, Researchers” (8.9% Of Variance), including environmental organizations in regions (0.749), scientists, nature researchers (0.683), volunteers (0.558). Most of the variables that make up factors 2 and 3 show the role of different social structures and social groups in solving environmental problems, but do not consider the respondents’ participation.

4 factor. “Internal Factors – Targeting Environmental Behavior in Everyday Life” (10.5% Variance), including the active promotion of environmental principles among their environment (family, friends, colleagues) (0.708), the desire to instill environmental values in their children (younger brothers, etc.) (0.622), personal implementation of wildlife conservation rules (saving water, electricity, garbage sorting, etc.) Behavioral intentions, combined with this factor, relate to individual actions implemented in everyday life and express personal responsibility for the environment.

The distribution of students by the importance of external and internal factors of participation in environmental protection is presented in Table 2.

Table 2. Student distribution (%) in terms of the importance of external and internal factors of participation in protecting the environment.

| No | Factor                                                                 | Confidence in weak importance | Uncertainty zone | Confidence in high importance |
|----|------------------------------------------------------------------------|-------------------------------|------------------|-------------------------------|
| 1  | “Active participation in the protection of the environment”            | 24.5                          | 41.5             | 34                            |
| 2  | “Influence of politicians, media, administration”                      | 34                            | 33.9             | 32.1                          |
| 3  | “Influence of environmental organizations, researchers”                | 30.2                          | 37.7             | 32.1                          |
| 4  | “Propaganda and implementation of environmental values in everyday life”| 34                            | 32               | 34                            |

Source: Compiled by the authors.

Students’ distribution in terms of the importance of internal and external factors of participation in protecting the environment is reasonable. The high level of significance is expressed roughly the same in all four elements and makes up about a third of the respondents. The factor I have the largest number of students (41.5%) who have expressed an uncertain opinion. On the one hand, they recognize the importance of everyone’s social activity in protecting the environment; on the other hand, not everyone is personally ready to participate.

Based on the theoretical concept that values mediated by situational conditions can determine behavior motivation, we have attempted to identify the effects of values on behavioral intentions using the ANOVA method (see Table 3).
Table 3. Significant effects of the influence of generalized value factors on behavioral intentions.

| Indicators of value factors that influence | Indicators of behavioral factors that have a significant impact | F     | P<   | Levene’s test P< |
|------------------------------------------|---------------------------------------------------------------|-------|------|-----------------|
| Factor “Values of responsibility for the natural environment” | Factor “Influence of politicians, the media, the administration on the protection of the environment” | 3.970 | 0.056 | 0.850 |
| Factor “Influence of environmental organizations, researchers” | | 3.233 | 0.042 | 0.351 |
| Factor “Values of stability.” | Factor “Active participation in environmental protection” | 2.970 | 0.056 | 0.301 |
| Factor “Influence of environmental organizations, researchers” | | 3.838 | 0.029 | 0.828 |
| Factor “Value of nature as a resource.” | Factor “Influence of politicians, media, and the administration on the protection of the environment” | 3.758 | 0.054 | 0.735 |
| Factor “Influence of environmental organizations, researchers” | | 4.856 | 0.029 | 0.831 |

Source: Compiled by the authors.

The data presented in the table reflect the influence of different value groups, mainly on external factors of behavioral intentions. This applies both to the power of environmental values (unity of man and nature, ecological safety, the beauty of nature, etc.), and the costs of pragmatic attitude to nature (nature as a resource for economy and personal use). Thus, even with a high level of environmental values, students tend to reduce the importance of individual contributions to global environmental issues and perhaps shift responsibility from them to society as a whole.

It is interesting to analyze the impact of stability values on the environmental intentions of behavior. The effect of influence was significant for both external and internal behavioral factors. In another way, the desire to participate in environmental protection is shaped by the individual’s security and stability at the individual and social levels. An individual first of all, provides favorable conditions of his immediate existence, and only then he forms a readiness to solve global natural problems.

4. Discussion

Analysis of the data, which characterizes the students’ sphere structure, allows us to talk about the following trends. The values studied were differentiated into groups where environmental orientations were presented quite separately. Simultaneously, the costs of responsible attitude to nature have formed the most generalized factor, which confirms the idea that it is through the experience of human identity with nature that ecological responsibility develops. These results are in line with the views of V. I. Panov [12], who considers the harmonious development of man and nature as a single holistic system to be one of the most critical conditions for overcoming the ecological crisis.

Our study also suggests that recreational and communicative values that reflect the desire to experience pleasant emotions are linked to nature’s perception as an origin of resources. By summarizing this idea, we can correlate it with the data of ecopsychological studies, which argue that hedonism as a value is inherently contrary to biospheric values and generates consumer attitudes towards nature [14, 16].

The dichotomy inherent in the fifth-factor structure reflects the moral conflict facing humanity today, between the benefits of civilization and the need to limit them for the sake of nature conservation. It is difficult to imagine that a modern person would be ready to give up the comfort provided by the level of scientific and technological progress, even if he understands that it is detrimental to the environment. Perhaps this is the main reason for the slow changes in the ecological outlook.

Interestingly, a group of values (factor 2) was singled out, reflecting the desire for stability in all areas of life. Simultaneously, the natural environment’s safety was not included in this factor; i.e., it is
not associated with protecting everyday living conditions in students’ minds. Thus, in respondents’ perception, global environmental risks are assessed as something distant, mediated, which has only an indirect relation to the person. Although the value of responsibility for the natural environment cannot be considered low (high level of almost a third of students on all three factors that formed environmental costs), about half of the respondents note difficulties in judging this issue. We believe that this group of students should be most actively involved in environmental action, contributing to the development of their ecological consciousness.

The interpretation of our results in a comparative aspect with the data published in Russian environmental psychology over the past decades confirms our assumption that the situation is gradually changing for the better. Thus, V. A. Yasvin’s review of several studies noted the dynamics of students’ environmental values between 1994 and 2000. For example, in the mid of the nineties, research with a sample of 198 students found that the amount of “understanding and feeling for nature” ranks 19 out of 22. According to another study, an emotional and aesthetic attitude to nature prevails in adolescents, but it does not predetermine the activity’s orientation to protect it [21]. A low level of interest in environmental issues among students (N=486) was indicated in 2014 [7].

The study of students’ environmental intentions differentiated them in two ways. Internal behavioral factors have been identified that consider personal involvement in environmental activities, from activities in communities focused on specific conservation issues to changing daily behavior habits. External factors of behavior summarize the individual’s beliefs that ecological problems are solved only on a global scale at the level of major political, bureaucratic, economic, scientific, or media activities.

The identified juxtaposition can be interpreted from the concept of internality. In this case, external factors of behavioral intentions reflect the external locus control, and internal factors originate from the internal locus control. Thus, the evidence of internal factors is a predictor of environmental responsibility and environmental behavior [4].

Simultaneously, the respondents’ distribution by the degree of internality and externality of environmental activity was roughly the same. The greatest challenge for students is to decide on personal participation in social activism and community.

An attempt to identify a correlation between environmental values and behavioral intentions to protect nature disclosed a mixed impact of value variables. It can be argued that the development of a high level of ecological value does not guarantee the realization of personal responsibility in personal behavior. The effects of the influence identified in this study suggest that even while acknowledging the importance of environmental measures, students believe that these processes should be regulated at the state or world level by professionals, not personally by each individual.

5. Conclusion

Our research continues several works in addressing the internal definition of environmental behavior, the views, and the structure of the ecological values of young people are specified.

The study was able to identify three groups of environmental value – the values of responsibility for the environment, the amount of pragmatic attitude to nature, and the cost of unity with the natural environment (as opposed to the value of material well-being). The relationship between hedonistic values and the attitude to nature as a resource to meet human needs has been established. At the same time, environmental matters are virtually unrelated to the costs of everyday living conditions’ security and stability.

About 30% of students who took part in the study have a high level of development of environmental values, proving positive dynamics compared to similar studies conducted by Russian researchers in recent 20 years.

The study found no significant effects of environmental values on behavioral intentions of personal participation in conservation. However, the high ecological value level leads respondents to the conviction in administrative structures’ effectiveness and public organizations’ environmental activities.
This exacerbates the discrepancy between personality dispositions and the desire to take active action in solving ecological problems. The willingness to take personal responsibility for environmental issues among young people has so far been weak.

Thus, to date, the research situation in the field of environmental psychology proves that the search for socio-psychological mechanisms to overcome the global ecological crisis must be intensified, as there is still a serious gap between the level of scientific progress and the spiritual development of humanity.

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