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## **THE STATE OF ECOLOGICAL KNOWLEDGE AS AN ELEMENT OF ECOLOGICAL AWARENESS**

Key words: ecological awareness, pro-environmental behavior, sustainable development,  
knowledge, environment

**ABSTRACT.** The aim of the article is to present the state of environmental knowledge of young people. Contemporary perception of environmental problems has been evaluated in recent decades. More and more often are the problems related to climate change and our role in activities to maintain the values of the natural environment directly visible. The implementation of the idea of sustainable development not only in economic but also social life creates opportunities for both broadening one's knowledge and taking actions for nature. Environmental awareness presented in the article is based on the assessment of the state of ecological knowledge. The research, on the basis of which the article was developed, was carried out in 2004 on a group of students from Warsaw University of Life Sciences, and was repeated in 2019. The research was carried out in a group of students of the faculty of Economics. The obtained results indicated that the main sources of acquiring knowledge on topics related to the environment are changing, and the role of education and training in the educational institution is increasing. On the other hand, the level of ecological awareness, expressed in the state of knowledge, varies in terms of subject matter. In the case of defining the five researched terms, it was possible to observe a higher correctness of the assignment of terms and their definition among the respondents from the second survey carried out in 2019. The respondents from the repeated survey also showed a higher level of knowledge in the field of knowledge of national parks in Poland.

### **INTRODUCTION**

The issue of sustainable development is an issue that is currently interdisciplinary in nature. It is of interest to, among others, economists, sociologists and philosophers. One of the assumptions of sustainable development is to ensure lasting improvement in the quality of life. This pursuit is associated with shaping the right proportions between economic, human and natural capital [Piontek 2012]. The factor that has the greatest impact on the process of practical implementation of sustainable development is environmental awareness [Mazur-Wierzbicka 2005]. There are three categories of environmental awareness [Górka et al. 1995]:

- colloquial, it is based on the use of common sense in observation and relations with nature;
- ideological, it is related to, inter alia, beliefs, views, values;
- scientific, based on scientific research.

The concept of ecological awareness is an interdisciplinary concept and is defined ambiguously [Hull 1996, Domka 1998, Sadowski 2000, Poskrobko 2007, Zaremba-Warneke 2009]. Following the deliberations of Jan Frątczak, the components of ecological awareness are: the basis of knowledge about the environment, the ability to see the specificity and complexity of natural phenomena, and the ability to think creatively, which makes it possible to implement innovations that increase the possibility of ecological safety [Frątczak 1995]. In order to be able to talk about raising environmental awareness, one of the essential elements that must be followed is the expansion of environmental education understood as a process during which “... individuals and societies acquire knowledge and values, master skills and gain experience, as well as shape the will of an individual and collective action to solve current and future environmental problems” [Konstańczak 2001, p. 188]. Raising environmental awareness causes actions to be taken by individual persons related to care for the environment. These activities are defined by the term pro-environmental, i.e. all kinds of activities carried out and undertaken by households aimed at reducing the use of resources (e.g. water, energy). Andrzej Papuźiński points out that the education process should disseminate knowledge and skills necessary for activities for a sustainable lifestyle and management [Papuźiński 2007]. At the same time, this process, by increasing ecological knowledge, will influence the formation of ecological awareness.

It can be assumed that the higher the level of ecological knowledge, the higher the ecological awareness, and the higher the pro-ecological activity. Therefore, efforts should be made to raise public awareness of the use of environmental resources and care for them. The times of student life is one of the last periods where it is possible to influence a young person. However, such activities should be undertaken from the earliest stages of education.

## MATERIAL AND METHODS

The aim of the article is to present the state of environmental knowledge of young people. The research itself focused on a broader aspect of environmental awareness, and also included opinions on the impact of individual entities and organizations on the environment, as well as opinions on the respondents’ own activities for environmental protection.

The selection of the research sample was non-random, the purposeful selection method was used<sup>1</sup>. The subjects of the research were students of Warsaw University of Life Sciences at the Faculty of Economics. The surveyed respondents were second and third year students of undergraduate studies of Economics. The first research was carried out in 2004 among students of Warsaw University of Life Sciences, and the next in 2019 - among students of the same University and the same faculty and fields of study. Each time the group of respondents consisted of one hundred people. A questionnaire consisting of

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<sup>1</sup> The purposeful selection method assumes that the type and structure of the sample result from the assumed research objectives, the elements of the sample are objects that, according to the researcher, correspond to the research objectives.

thirty questions was used as a research tool, eight of which were open questions and the rest closed ones. The respondents completed a paper-based research questionnaire during classes. When filling in the questionnaire, students were obliged to work independently, without using additional sources of knowledge (e.g. the Internet, textbooks).

### FINDINGS

The group of respondents were students of the Faculty of Economics of Warsaw University of Life Sciences. Research was conducted twice for the first time in 2004 and again in 2019. A group of 100 people took part in both cases. The mean age of the respondents was 22.34 (standard deviation 1.97). When analyzing the age for individual research, there were no significant differences (research in 2004 – mean age 22.14, research in 2019 – 22.56). The vast majority of respondents were city residents. However, over the analyzed period, there is a visible change indicating an increasing number of students from rural areas (Table 1).

One of the factors that significantly influences the shaping of the level of environmental awareness is the intellectual culture with which respondents deal. It is reasonable to suppose that the education of parents, their lifestyle and professed values may be important for the perception of the environment by young people [Edsand, Broich 2019, Altin et al. 2014]. Most of the respondents' parents had basic vocational education. This is true for both fathers and mothers. Analysis of the level of parents' education in two time points indicates a changing tendency in this respect. Both among mothers and fathers there was an increase in the number of people with higher and secondary education (Table 1).

The element creating the level of ecological awareness is the state of knowledge about the issues of the natural environment. The studied respondents declared three most important sources from which they obtain information related to the discussed issue. It is worth noting that the leading source of information in the opinion of the respondents was television, which was indicated by the largest group. For nearly 3/4 of all participants in both studies, it was an irreplaceable source of information. It is worth noting, however,

Table 1. Socio-demographic characteristics of the studied group

Description	Total	Research carried out in	
		2004	2019
<b>Age</b>			
- mean age [years]	22.34	22.14	22.56
- standard deviation	1.972	1.50	2.374
<b>Sex [%]</b>			
- female	28.3	31.9	24.4
- male	71.7	68.1	75.6
<b>Permanent place of residence [%]</b>			
- city	72.3	76.1	68.2
- village	27.7	23.9	31.8
<b>Father's education [%]</b>			
- higher	5.4	3.4	7.7
- secondary	28.3	23.9	33.3
- basic vocational	41.6	48.9	33.3
- basic	24.7	23.9	25.6
<b>Mother's education [%]</b>			
- higher	2.4	2.2	2.6
- secondary	18.6	13.5	24.4
- basic vocational	47.3	57.3	35.9
- basic	31.7	27.0	37.2

Source: own study based on research results

that in the case of the research repeated in 2019, the role and importance of this medium was much smaller. Despite the fact that more than half of the respondents indicated it as important, this figure was much lower than in the research carried out in 2004 (57.6%).

An important change that took place over the years was the impact of education at school on expanding knowledge in the field of the environment. In most of the respondents' responses, this source was indicated as the third one, however, in the research carried out in 2019 it was 37.0% of respondents, and in the previous one 22.1%. Over time, scientific books also began to play a smaller role.

It is worth noting that the Internet was not included among the discussed sources of knowledge, it was related, *inter alia*, to the fact that in 2004 this medium was not so readily available among young people and the repeated research focused on the use of the same research tool.

One of the areas of creating the level of ecological awareness is the state of knowledge of society in the field of the natural environment, its scope, development and protection. The studied respondents were asked to assess their level of knowledge in this area, this assessment was made using a scale from 1 to 5, where 1 meant a very low level, and 5 – a very high level. The results obtained in this way showed that the assessment of the state of knowledge in both studied groups is average. The mean for all respondents over two periods of time was 2.54 with a standard deviation of 0.92. However, it was slightly higher in the second research carried out in 2019. And so, in the research carried out in 2004, the analyzed value was 2.62 (standard deviation 1.03), in the research conducted

Table 2. Media constituting the leading source of information about the environment in the opinion of the respondents

Description	Total			Research carried out in					
				2004			2019		
	Indicator [%]								
	I	II	III	I	II	III	I	II	III
TV	74.0	-	-	88.5	-	-	57.6	-	-
Radio	2.2	28.9	-	2.1	29.0	-	2.4	28.7	-
National daily press	1.7	6.9	7.1	1.0	10.8	7.0	2.4	2.5	7.4
Local press	2.8	6.9	4.3	1.0	9.7	7.0	4.7	3.8	7.4
Magazines	7.7	18.5	10.0	4.2	24.7	11.6	11.8	11.3	-
Posters and announcements	3.3	15.0	17.1	-	11.8	15.1	7.1	18.8	20.4
Scientific books	3.9	11.0	21.4	2.1	9.7	26.7	5.9	12.5	13.0
Conversations with friends	2.2	3.5	4.3	-	2.2	3.5	4.7	5.0	5.6
Education at school	0.6	5.8	27.9	-	-	22.1	4.7	12.5	37.0
Visiting exhibitions	0.6	1.7	7.1	1.0	1.1	7.0		2.5	7.4
Hard to say	1.1	1.7	0.7	-	1.1	-	2.4	2.5	1.9

Source: own study based on research results

in 2019 – the mean rating was 2.70 (standard deviation 1.12). The obtained data show that the state of knowledge in the field of environmental issues is definitely rated low by the respondents. Considering that these are young people, who, to a large extent, should have a lot of knowledge in this area, this indicates a need to look for solutions that allow building a much greater level of environmental awareness. What is also interesting is that there was a statistically significant difference between the subjective assessment of the state of knowledge between women and men ( $p = 0.002$ ; chi-square = 20.859). Women assessed their knowledge much lower than men. In other cases, there are no statistically significant differences: place of residence ( $p = 0.416$ ), mother’s level of education ( $p = 0.781$ ), father’s level of education ( $p = 0.641$ ), and respondent age ( $p = 0.415$ ).

One of the tools used to define the state of knowledge was a question that allowed respondents to define five concepts: “environment”, “nature”, “ecosystem”, “ecology” and “atmosphere”.

The term „atmosphere” was correctly defined by most of the respondents. All participants in the second research and 98% of those in the first one correctly defined it. The second term was the word “ecology”, in this case it was defined by 82-84% of the respondents in both studied groups. The respondents had the greatest difficulty with the definition of the term “environment” and “nature”. It should also be noted that in the majority of the studied cases, the respondents participating in the second research had greater knowledge of the analyzed issue.

Another tool allowing to determine the level of knowledge in the field of environmental issues was to examine the state of knowledge of respondents in the field of knowledge of National Parks in Poland. There are 23 National Parks in Poland. The respondents were asked to mention the names of National Parks they know. The parks they mainly indicated were: Białowieża National Park, Tatra National Park and Biebrza National Park. When

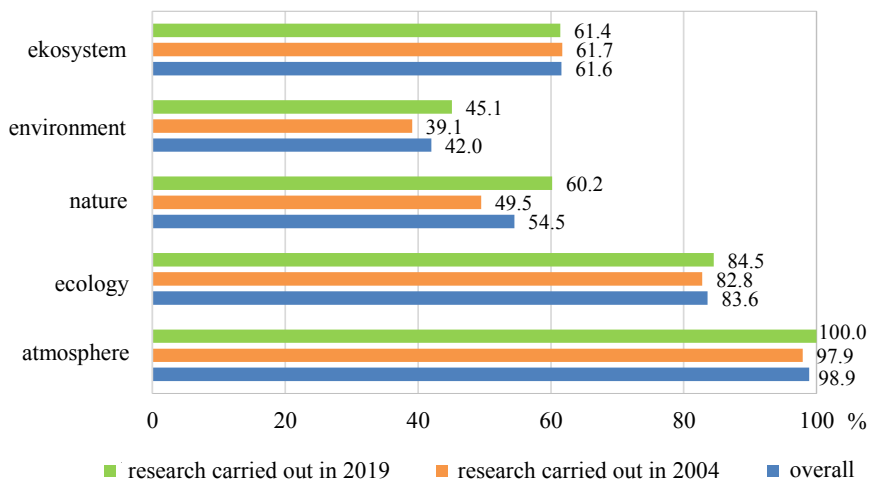


Figure 1. The ability to explain selected terms in the study group  
 Source: own study based on research results

Table 3. Mean number of listed species of protected plants and animals in the study group

Description	Total	Research carried out in	
		2004	2019
<b>Plants</b>			
- mean number	1.01	1.13	0.87
- standard deviation	1.08	1.14	1.00
<b>Animals</b>			
- mean number	1.82	2.10	1.51
- standard deviation	1.54	1.61	1.40

Source: own study based on research results

analyzing the obtained data in terms of the number of named objects, it can be observed that the mean number of parks mentioned in the research carried out in 2019 was higher than the one from 2004. It was as follows: 2004 – 4.30 (standard deviation 4.51), 2019 – 4.94 (standard deviation 3.81). Only four respondents knew the full number of National Parks, and twelve could not name a single one.

The next stage in the analysis of the level of knowledge in the field of broadly understood environmental issues was the knowledge of protected species. According to Annex 1 to the Regulation

of the Minister of the Environment of 9<sup>th</sup> October 2014 on the protection of plant species, in Poland there are 415 species of plants under strict protection and 300 species under partial protection [Journal of Laws, 2014, item 1409]. The mean number of plants under protection mentioned by the respondents was at a level of 1.01 (standard deviation 1.08), in the case of animals this value was higher and amounted to 1.82 (Table 3). The most frequently mentioned species were: edelweiss, lily of the valley and mountain pine.

In Poland, there are 592 species of animals under strict protection, as well as 211 species under partial protection [Journal of Laws of 2016, item 2183]. In this case, we can talk about a higher recognition of species by respondents, but it is definitely very low.

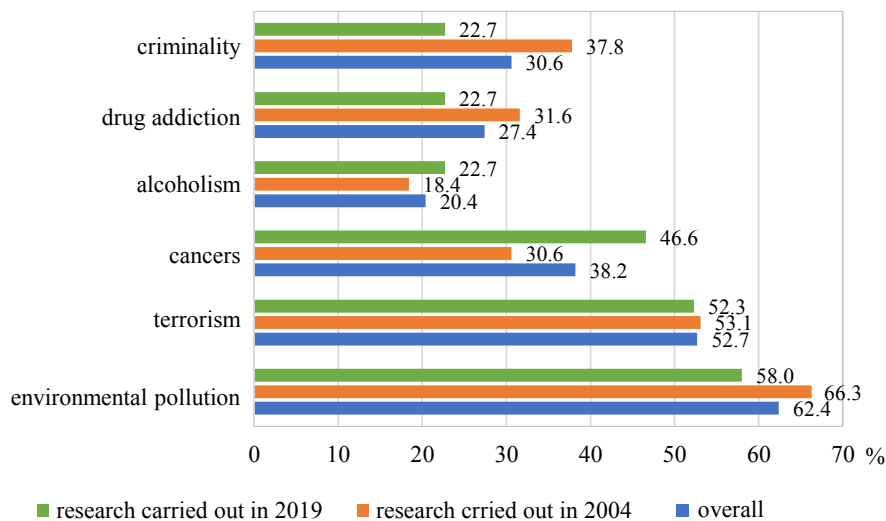


Figure 2. Main civilization threats in the opinion of respondents

Source: own study based on research results



The mean number of species of protected animals mentioned by the subjects was 1.82 (standard deviation). Bisons, storks and wolves were mentioned most often – these species were mentioned in the case of both groups of respondents. The comparative analysis shows, however, that there are significant discrepancies in terms of time. Definitely more species of both animals and plants were mentioned by respondents participating in the research in 2004.

The issues of the natural environment, its threats and loss of value are topics widely discussed in social discussions, both in traditional and modern media, such as social media. The threats related to the natural environment are reflected in the classification of threats to both national security and human existence. The very notion of threat is understood as „insecurity, which makes it unchanging and inevitable, and in some cases a common, reality of human life” [Ciekanowski, p. 28]. The identification of threats and knowledge about their existence and evaluation is an important condition for taking action to prevent them. The obtained research results indicate that problems related to the loss of natural environment values are most often indicated as factors posing a threat to civilization. Over 60% of respondents noticed this threat (Figure 2).

The second as often mentioned was terrorism. It can be assumed that it is connected with the fact that every action or attack of this nature is widely publicized in the media. More than half of the students participating in the research indicated this threat. The group in both studies was similar.

## CONCLUSIONS

The aim of the article is to present the state of ecological knowledge of young people. The knowledge level was assessed in three categories – defining terms related to environmental issues, knowledge of National Parks and knowledge of protected species of plants and animals.

The obtained results do not allow to clearly answer the question on which group of respondents is characterized by a higher level of awareness expressed in the analyzed level of knowledge. In the case of defining the five researched terms, a higher correctness of the assignment of terms and their definitions could be observed among respondents from the second research carried out in 2019. Also, the respondents in the repeated research showed a higher level of knowledge in the field of knowledge of National Parks in Poland. On the other hand, when referring to the knowledge of protected species of plants and animals, we can observe greater knowledge of issues among students from the first research. It can be assumed that such a distribution of analyzed issues in the two studied groups is the result of access to information, increased mobility of young people – their trips both domestic and foreign.

Equally interesting conclusions can be drawn by analyzing the sources of information indicated by respondents that allow to increase knowledge about the environment. There was a decline in the role of television as a medium influencing the expansion of knowledge in this field, and the role of education and training in schools definitely increased. It seems reasonable to say that one should strive to introduce new curriculum content at a level of both higher and lower levels of education.



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## STAN WIEDZY EKOLOGICZNEJ JAKO ELEMENT ŚWIADOMOŚCI EKOLOGICZNEJ

Słowa kluczowe: świadomość ekologiczna, prośrodowiskowe zachowania, rozwój zrównoważony, wiedza, środowisko

### ABSTRAKT

Celem artykułu jest przedstawienie stanu wiedzy ekologicznej młodych ludzi. W ostatnich dziesięcioleciach współczesne postrzeganie problemów środowiskowych ulegało ewaluacji. Coraz częściej dostrzega się problemy związane ze zmieniającym się klimatem oraz rolę człowieka w działaniach na rzecz utrzymania walorów środowiska przyrodniczego. W artykule świadomość ekologiczną oparto na ocenie stanu wiedzy ekologicznej. Badania przeprowadzono w 2004 roku na grupie studentów kierunków ekonomicznych SGGW w Warszawie i ponowiono je w 2019 roku. Z uzyskanych danych wynika, że zmieniają się główne źródła pozyskiwania wiedzy na tematy związane ze środowiskiem, a także zwiększa się rola edukacji i kształcenia w instytucjach szkolnictwa. Natomiast poziom świadomości ekologicznej wyrażony stanem wiedzy, był zróżnicowany pod względem tematyki. W przypadku definiowania pięciu badanych terminów zaobserwowano wyższą poprawność przyporządkowania terminów i ich definiowania wśród respondentów z drugiego badania realizowanego w 2019 roku. Respondenci z badania powtórnego wykazali się również wyższym poziomem wiedzy w zakresie znajomości parków narodowych na terenie Polski.

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