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Author: Natalia Tomczewska-Popowycz

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Approaches to teaching high school students about environmental protection in the Greater Bielsko-Biała Metropolitan Area (Poland)

Natalia Tomczewska-Popowycz

Department of Regional Geography and Tourism, Faculty of Earth Sciences, University of Silesia, Będzińska Str. 60, 41-200 Sosnowiec, Poland
E–mail address: natalia.tomczewska.p@gmail.com

ABSTRACT

The purpose of the present study is to assess the level of knowledge about local environmental protection among high school students in Bielsko-Biała and the surrounding areas. This sort of knowledge is part of the curriculum and is covered in various natural science school courses, such as geography, biology, chemistry, and social sciences. Various laws and regulations mandate that ecology is part of the secondary education curriculum – "Podstawa programowa kształcenia ogólnego" (2002, 2008 a, b). The Bielsko-Biała area is known for its valuable natural resources and natural attractions. It is home to twelve protected natural areas, including: two sanctuaries, two scenic landscape parks, four nature and landscape complexes, two unique endangered ecosystems, and two protected Natura 2000 areas, as well as 62 natural landmarks. The present paper presents results of a study that was conducted by means of a survey of Bielsko-Biała's high school students with respect to their knowledge about these protected natural areas. The results of the study revealed that the vast majority of the students do not take an interest in environmental protection issues. Moreover, the high school students displayed unsatisfactory knowledge about the protected natural areas around their city. The survey revealed that the study subjects were unable to identify the types of natural protected areas surrounding their city, let alone list or name the specific sanctuaries or natural landmarks. These disappointing findings generalize for both the students who live in Bielsko-Biała, and those who live in the distant northern provinces of the region. The results of the study stress the need for field trips and other programs aimed at advancing students' knowledge in this area. The need to incentivize teachers to organize field trips and other events of this kind is also highlited.

KEY WORDS: social research, perception, ecology education, environmental protection

1. Introduction

The people of Poland have displayed a steady improvement in their attitudes towards environmental protection (KĘDER ET AL., 2008). Similar trends could also be observed among youths. However, the youths display rather limited knowledge about their local natural environment, including that of their immediate city or town. The general public tends to be unaware of the natural landmarks and points of interest in their locality and the rules of use and conduct in these areas.

2. The Purpose and Method of the Study

The Natural Environment Protection bill passed on Jan 31st, 1980 mandates that natural environment protection issues take a prominent place in the school curriculum at all levels of education. A number of other state policies and regulations prescribe natural environmental protection as part of the curriculum. Among them are: AGENDA 21 (1992), CONVENTION ON BIOLOGICAL DIVERSITY (1992), LAW ON THE EDUCATION SYSTEM (7.09.1991) and others. According to the concept of the STRATEGY OF EDUCATION FOR SUSTAINABLE DEVELOPMENT UNITED NATIONS (2008) it is providing training for future generations with an appropriate quality of life, without diminishing the beauty and richness of the natural environment.

That is why it was decided to investigate how high school students learn the knowledge of the environment of the city. The main aim was to investigate the state of environmental awareness of students in the field of knowledge about nature protection within Bielsko-Biała. Also to check

whether youths know how to call cities that are protected, and that protection should rank in comparison to the whole country. An additional aim was to investigate whether high school pupils are interested in nature protection of the city, what is the main source of their knowledge and what other territories they offered as valuable areas that need to be protected. How residents use the protected area to spend their time or are they interested in valuable natural objects and how often do they go to these places. According to the United Nations' Sustainable Development strategy, this sort of education is essential in ensuring that the future generations can continue to enjoy a quality of life without depleting the natural resources and damaging the natural beauty of the environment.

Twelve protected natural areas are located within the vicinity of the city of Bielsko-Biała: two sanctuaries, two landscape parks, four natural landscape areas, two protected ecosystems, and two protected natural areas (Tab. 1). Additionally, 62 natural landmarks are located in and around the city, 53 of which are self-standing trees, 8 tree complexes, and one boulder. Other valuable natural attractions and landmarks are located in the city (KLAMA ET AL., 1996; 1999; POLAK, 2000; ZACHARA & MIKLER, 2004).

High school students were selected as subjects for the present study because their curriculum has already covered the basics of environmental science and environmental protection. Students in Bielsko-Biała's state-run schools also participated in the study. These schools are primarily located in the inner city areas, therefore the survey questions were adjusted to take into consideration the areas of residence of the students. One class was selected in each high school at random to participate in the study. This yielded a total of 206 usable fully-completed surveys. The data were stored and managed in MS Excel and the analyses were conducted using the SPSS statistical software.

Table 1. List of the types of nature protection in Bielsko-Biała

Lp.	Types of nature protection		Year of creation	Area [ha]
1.	Nature reserves	Szyndzielnia slope	1953	54,96
2.		Jaworzyna	2003	40,03
3.	Landscape parks	Little Beskids Landscape Park	1998	480*
4.		Silesian Beskids Landscape Park	1998	2 440*
5.	Nature and landscape complexes	Wapienica Valley	2001	1 519,02
6.		Sarnia slope	2002	11,19
7.		Cygański forest	2004	593,00
8.		Gościnna Valley	2006	39,18
9.	Ecological sites	Żabiniec	2006	0,7986
10.		Weldro	2008	0,2131

* territory in the city

3. Sample characteristics

The sample was comprised of 112 male and 94 female participants, representing 56% and 44% of the study participants respectively. About a third of the respondents (30%) reside in areas that are in direct proximity to the natural areas that were mentioned in the survey, while the rest of the respondents reside in locations that are more distant. As illustrated in Fig. 1, nature is seen as playing an important role in their lives by the vast majority of the respondents (75%). Only 2.5% reported that they see no value whatsoever in nature and 22.4% reported that they were indifferent about the issue.

Among the respondents who live in areas distant to the natural attractions and protected natural areas mentioned in the survey, 70% of the respondents reported that they see nature as an important part of their life. In contrast, 26% of the respondents were indifferent about the issue. A similar tendency was observed for the respondents who live in direct proximity to the natural areas mentioned in the survey (Tab. 2).

Self-assessed knowledge about the natural environment of the city was poor in over 48% of the study participants, while over 40% of the respondents assessed their knowledge as strong. Only 1.3% feel they have very strong knowledge about the natural environment of their city, and 8.9% reported their knowledge was very poor (Fig. 2).

The study participants residing in areas outside the city limits reported the lowest level of knowledge about the natural environment of the city. Compared to 14.3% of the respondents who

live within the city limits in direct proximity to the natural attractions mentioned in the survey, 85.7% of those who live in more distant locations reported that they felt they had limited knowledge about the city's natural environment. A similar correlation is observed with a poor assessment of knowledge. 57% of respondents living in remote areas said they appreciate a good knowledge of the nature of the city (Tab. 3). Over 57% of the study participants believe that the state of the natural environment of Bielsko-Biała is satisfactory and 35% see it as good (Fig. 3).

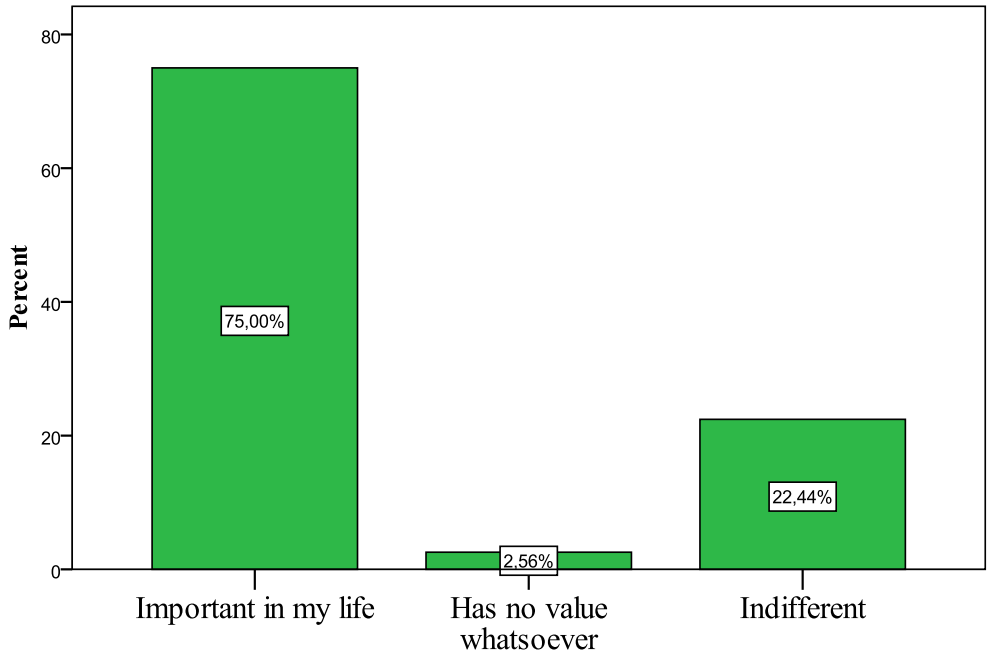

Fig. 1. The perceived importance of nature in life of high school students of Bielsko-Biała

Table 2. Cross-analysis of the role of nature in the lives of high school students under the residence

District	The role of nature (in %)			
	Important in my life	Has no value whatsoever	Indifferent	Total
removed from the protected area	70.6	2.8	26.6	100
bordered by protected area	85.1	2.1	12.8	100

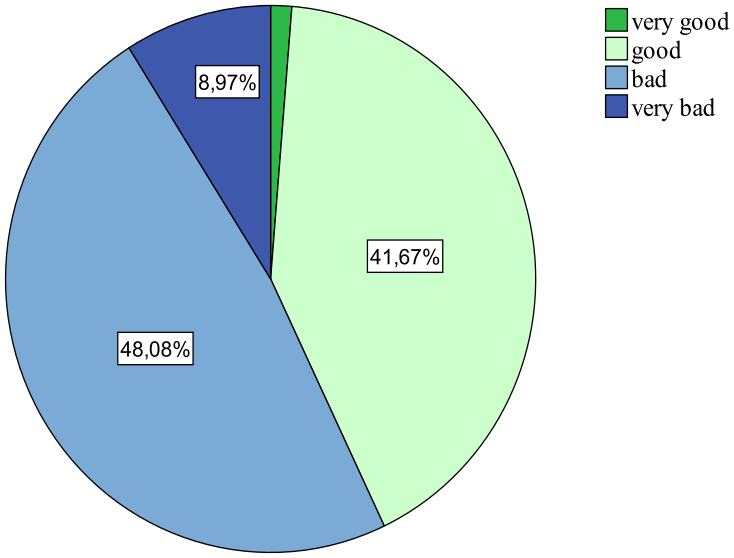

Fig. 2. Evaluation of the knowledge of pupils about the natural environment of Bielsko-Biała

Table 3. Self-reported knowledge about the natural environment of Bielsko-Biała, by their area of residence

District	Assessment of their knowledge of the natural environment of the city (in %)			
	very good	good	bad	very bad
removed from the protected area	50.0	57.0	78.7	85.7
bordered by the protected area	50.0	43.0	21.3	14.3
Total	100	100	100	100

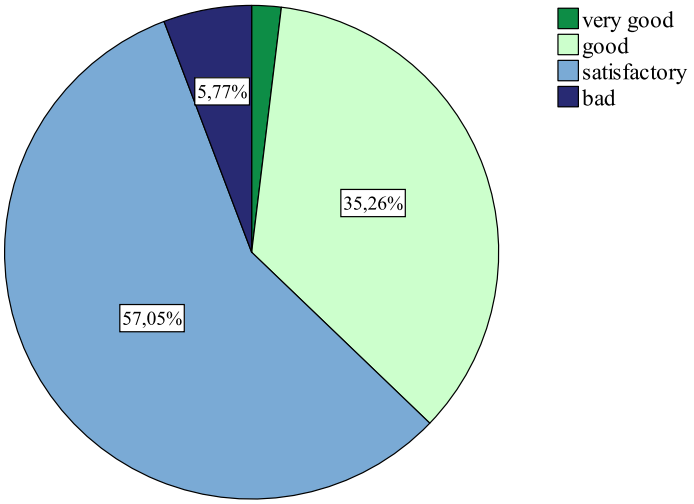

Fig. 3. Evaluation of the current state of the environment by high school students in Bielsko-Biała

4. High school student views on the environmental protection of Bielsko-Biała

The survey revealed that the high school students have very limited knowledge about natural environmental protection issues. Only 21.9% of the respondents could name a specific protected natural area and knew its type. Of those, only 58% could name at least one protected natural area. In other words, only 11.6% of the respondents knew the correct names of the protected natural areas of Bielsko-Biała. The survey questions inquiring about the types of the protected natural areas and landmarks also showed a very low level of knowledge among the surveyed high school students. In second place (32.9%) in the number notation forms of nature protection are documentary sites, which do not exist in the city. In fifth place by number notation are forms of Nature Conservation Landscape Reserve, which are also not found in the city, instead of landscape parks, which is two, but in seventh place by the number of signs. Nature reserves are positioned in ranking by the number of times mentioned in the survey , and there are also two in the city (Tab. 4).

Table 4 provides a summary of the high school student perceptions about the relative prevalence and occurrence frequency of the various forms of natural protected areas in Bielsko-Biała. Natural landmarks were perceived be the most common form of natural protected areas (89.0%), followed by registered geological sites (32.9%). The majority of the youths did not know the typology of the natural protected sites. Consequently, 70% of the respondents were uncertain whether or not the number of protected natural landmarks within the city limits was sufficient. Almost 13% of respondents believed that the present number of protected areas is sufficient, while 9.7% felt more natural areas must be formally protected, citing Slovatsky Part and Strazenen Boulevard as examples of areas that should be formally protected. The survey also included questions about the ways the city residents use the protected natural areas. The high school students most commonly listed activities such as family hikes in the natural areas (73.5%), walks (71.6% observations) and bike rides (58% observations). Significantly less than half of the respondents mentioned missing classes for a walk outside, picking mushrooms and berries, observing nature and field trips. For most of the respondents, the Internet is the main source of information about natural environmental protection (76%), followed by information received from teachers, newspapers, magazines, and also television. In school, the subjects that provided most information about natural environmental protection were reported to be geography, biology (about 70% of the responses), as well as chemistry.

Over 40% of the respondents are not interested in the any sort of information about natural environmental protection. Over 27% felt such information is not readily available. In contrast, almost 35% of the respondent felt that such information is easily, or very easily available (Fig. 4).

The majority of the respondents do not visit protected natural areas (36.5%) or visit them only once a year (35.9%). Notably, even the students who live in direct proximity to the mentioned areas reported that they visit them only once or twice a year. The percentage of students who visit the mentioned natural sites weekly is similar amongst those who live close and those who live far from these areas (Fig. 5).

Table 4. Perceptions of high school students
about the prevalence of the various types of protected natural areas in Bielsko-Biała

Types of protected natural areas in Bielsko-Biała	Answers of pupils [%]	Percent of observations [%]	Ranking*
National parks	0.3	0.7	9
Nature reserves	2.6	6.2	8
Landscape parks	7.1	17.1	7
Protected areas	9.7	23.3	5
Natura 2000 designated areas	11.1	26.7	3
Geological "documentary sites"	13.6	32.9	2
Ecological sites	10.5	25.3	4
Nature and landscape complexes	8.2	19.9	6
Natural monuments	36.9	89.0	1
Total:	100%	241.1%	

* Based on the number of times mentioned in the survey, most popular first

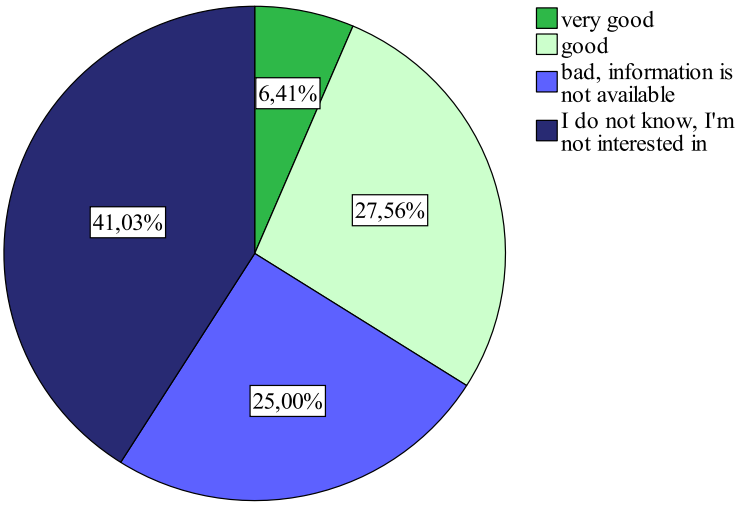

Fig. 4. The perceived availability of information about natural environmental protection in Bielsko-Biała

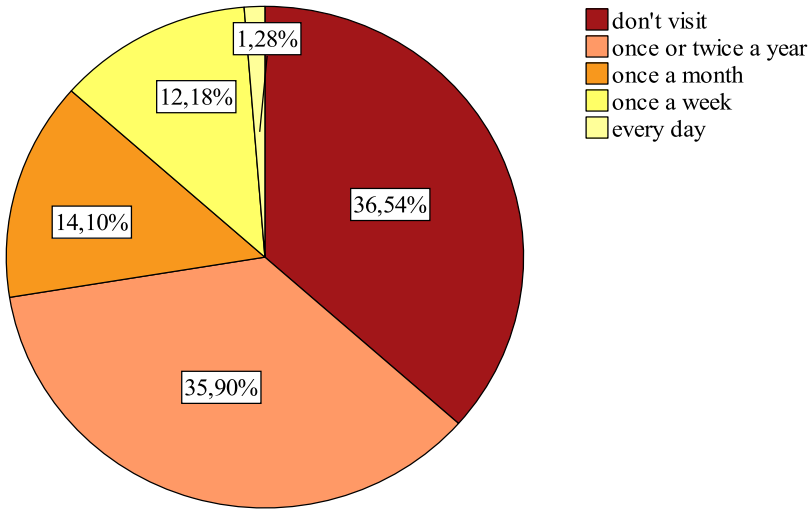

Fig. 5. Fequency of visits to natural protected areas in Bielsko-Biała

5. Conclusions

The level of knowledge about the forms of natural environmental protection in BB among high school students is unsatisfactory. The majority of the students, who are expected to graduate soon, were unable to correctly identify the forms of natural environmental protection, let alone name the sites. The results of the present study corroborate the findings reported earlier for Katowice (HIBSZER & HIBSZER, 2012) and other regions of Poland (HŁOBIŁ, 2010; DOMKA, 1996).

A substantial proportion of youths report no interest in natural environmental protection. Most high school students feel that environmental protection information is unavailable or not readily available, which is not true provided that such information is readily available on the city's government websites, natural protection agencies, and in the natural protection registries of the Silesian voivodeship. The lack of interest in natural environmental protection could be a result of limited information on the issue in the school curriculum.

Information on natural protection that the students receive in school does not appear to be related to the areas of their residence. A focus on local, rather than global environmental protection issues in the school curriculum would be beneficial, as it would allow them to ignite an interest in and take ownership of and to take good care of the natural environment in the areas where the students actually reside. It is also recommended that alternative methods of information delivery are explored to aid the dissemination of information about the local natural attractions and protected natural areas. The City government could conduct a variety of activities for pupils, students, residents and tourists.

In connection with the program "Digital School" organized by the Ministry of Education in Poland at different stages of schooling and the proliferation of information and communication technologies the city government can provide schools with a multimedia interactive whiteboard and a slide projector that provide an interesting way to present the information in order to increase interest in the topic of nature protection of the city.

Given that school teachers remain among the main sources of information about the natural environment for the students (the second most popular source of information, as per the present study), teachers should be incentivized to organize field trips to local natural attractions and protected areas. Teacher's skills and qualifications to provide such information should also be given more attention.

References

Agenda 21, United Nations Conference on Environment and Development (Earth Summit), 1992.

Convention on Biological Diversity, United Nations Conference on Environment and Development (Earth Summit), 1992.

Domka L. 1996. *Kryzys środowiska a edukacja dla ekorozwoju*. Wyd. Nauk. UAM, Poznań.

Hibszer A., Hibszer B. 2012. Formy ochrony przyrody na terenie Katowic w świadomości uczniów szkół ponadgimnazjalnych. *Kształt. środ. geogr. i ochr. przyr. na obsz. uprzem. i zurb.*, 44: 41-49.

Hłobił A. 2010. Edukacja ekologiczna w praktyce. *Rocz. ochr. środ*. Środk.-pomor. Tow. Ochr. Środ., 12: 277-298.

Kęder R., Hyska M., Komornik K. 2008. *Współczesne wyzwania ochrony przyrody a zrównoważonego rozwoju*. Wyd. Uniw. Warsz. Uniw. Centrum Badań nad środ. przyr., Warszawa.

Klama H., Włochowicz A., Żarnowiec J. (eds.) 1996. *Przyroda województwa bielskiego – stan, zagrożenia i ochrona*. Zesz. Nauk. Polit. Łódz. – Inż. Włókien. i Ochr. Środ., 40(12).

Klama H., Żarnowiec J., Jędrzejko K. 1999. *Przyrodnicza ścieżka dydaktyczna w Cygańskim lesie (Bielsko-Biała)*. Liga Ochr. Przyr., Urząd w Bielsku-Białej.

Podstawa programowa kształcenia ogólnego, MEN, 2002.

Podstawa programowa kształcenia ogólnego dla szkół podstawowych, MEN, 2008a.

Podstawa programowa kształcenia ogólnego dla gimnazjów i szkół ponadgimnazjalnych, MEN, 2008b.

Polak J. 2000. *Przewodnik po Bielsku-Białej*. Tow. Miłośn. Bielska-Białej.

Strategia Edukacji dla Zrównoważonego Rozwoju, Europejski Komitet Ekonomiczny ONZ, [Strategy of Education for Sustainable Development United Nations], Warszawa, 2008.

Sustainable development, World Commission on Environment and Development, 1987.

Ustawa z 31.01.1980 r. o ochronie i kształtowaniu środowiska.

Ustawa z 7.09.1991 r. o systemie oświaty.

Zachara J., Mikler W. 2004. *Przyroda Bielska-Białej*. Stow. "Olszówka".