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Original research paper

WHAT SHAPES ENVIRONMENTAL IDENTITY: INSIGHTS FROM HIGHLY ENVIRONMENTALLY LITERATE STUDENTS*

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ABSTRACT

The paper aimed to describe features of the environmental identity of primary school students (age 13-14) in Serbia, as well as the experiences they find most influential in shaping their environmental identity. Specifically, students from the two best-performing classes (N=34), based on their scores on environmental literacy assessment responded to an open-ended questionnaire regarding their relationship with nature and the most important experiences shaping this relationship, in both private and school contexts. The students offered evidence of features of their environmental identity in terms of: environmental affect-sensitivity, environmental concern, moral reasoning, as well as pro-environmental behavior as its correlate. Both private life and school experiences were recognized as essential in shaping positive environmental dispositions and behaviors. The most important incentives to fostering environmental identity in the school context involved: a) teacher as a role model; and b) variety of outdoor teaching activities and approaches, such as visits to locations characterized by natural beauty, exposure to degraded environments, and activities involving planting and cleaning, including group discussions on the experiences. Different students emphasize different aspects of their relationship towards nature, allowing for the differentiation of respondents into three

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groups that also differ regarding the incentives for environmental identity formation and class affiliation.

Key words:
environmental education, environmental identity, environmental literacy, Serbia, MSELS.

INTRODUCTION

Serbian society has been confronting severe environmental issues and problems, such as air pollution, deforestation, unsanitary landfills, and lack of wastewater treatment (UNEP, 2023), which call for urgent change of policy and citizens' behavior. Certainly, in order to achieve the systemic changes, it is necessary to turn to education (UN, 1973, 1993, 2002, 2015; UNESCO-UNEP, 1976, 1978; WCED, 1987), since the most important outcome of environmental education is environmentally responsible behavior of the citizens (Hungerford & Volk, 1990), which is widely recognized as a component of environmental literacy and a correlate of environmental identity.

Environmental literacy (EL) according to Roth (1992) refers to understanding the relationship between natural and social systems and recognizing the unity of humans and nature. The author emphasizes the interdisciplinary character of the EL and active participation as its constituent, describing basic EL as „the capacity to perceive and interpret the relative health of environmental systems and take appropriate actions to maintain, restore and improve the health of those systems" (Roth, 1992: 10). The Intergovernmental Conference on Environmental Education held in Tbilisi by UNESCO (1978) offered a baseline for the definition of EL, since the categories of objectives accepted there have served as the mostly widely accepted definition of environmental education globally. Those categories of educational objectives are: Awareness (to facilitate awareness and sensitivity to the environment and its problems); Knowledge (gaining variety of experience and understanding of the environmental topics and problems); Attitudes (developing environmental values and concern, as well as the motivation for action); Skills (developing the skills of identifying and solving problems); and Participation (providing the opportunity for active involvement towards solving or mitigating problems). With these objectives in mind, Disinger and Roth (1992) emphasized that the ultimate real-world measure of EL is responsible behavior towards nature (i.e., what people do).

The present study relies on the definition and measure of EL applied in the first national assessment of EL performed in the USA (McBeth et al., 2008), based on

the Tbilisi declaration (UNESCO-UNEP, 1978) and other sources (e.g., Hollweg et al., 2011; Leeming et al, 1995; Marcinkowski, 1993, 2004; McBeth, 1997; Simmons, 1995; Wilke, 1995). That measure consists of four components: *ecological knowledge* (knowledge of concepts such as pollination, food web, circulation of water, energy transfer), *cognitive skills* (problem identification, problem analysis, action planning), *environmental affect* (sensitivity and associated influential life experiences, love for nature, willingness or verbal commitment to protect environment), and *pro-environmental behavior* (involvement in eco-management, consumer action, and persuasion actions at home). In an attempt to enhance the frequency of participation in and effectiveness of pro-environmental behavior, we should rely on the findings underlying the importance of the affective component of EL, and its mediating role between cognitive skills and behavior (Blagdanić et al., 2024). The EL framework has been widely used and recognized since its introduction in the USA (McBeth et al., 2008, 2011). For example, it has been used or adapted for studies in the Czech Republic (Svobodova, 2017), Israel (Negev et al., 2008), Korea (Shin et al., 2005), and Turkey (Erdogan, 2009), and in the pilot study performed in Belgrade before this study (Marušić Jablanović et al., 2022).

The main construct of this research is environmental identity (EI), which is described as a person's understanding of themselves as an integrated part of the natural environment, with the potential to influence any behavior that an individual perceives as environmentally relevant or having environmental impact (Clayton et al., 2021). It is a complex phenomenon presented in values, actions and sense of self, referring to the various ways people construe themselves in interconnection with nature (Thomashow, 1995). It is stressed that when students connect with nature, they will care more for the sustainability and preservation of nature (Inwood, 2008). "Through increased sensitivity towards the richness and diversity of life, landscapes of free Nature", the care for the nature and protection of the nature is not sacrifice, but pleasure, and „protection of ourselves" (Naess, 1987: 40) to the point that one perceives that a threat towards the nature is threat towards himself/herself (Strumse, 2007). When identified with other living beings and ecosystems, the behavior of an individual "naturally and beautifully follows norms of strict environmental ethics" (Naess, 1987: 40). However, EI can also be related to people who simply care about the environment, but do not necessarily give it top priority (Kals & Ittner, 2003). In addition to emotional affinity towards the nature, EI also includes moral reasoning, as focusing instead on consideration of the short-term interest of an individual,

to long-term benefit of nature and society as a whole. It comprises: "general and specific concerns about environmental risks, perceived control over these risks, and attributions of responsibility to reduce these risks" (Kals & Ittner, 2003: 142). Expectedly, a developed sense of EI can be reflected in our career choices and political action (Thomashow, 1995).

Research on EI and its formation have found that EI is grounded and developed through the interaction with nature, and must be facilitated further through the interaction with social surrounding (Zavestoski, 2003). Outdoor experiences, including the subsequent discussion on the experience are a significant factor for the affinity towards nature (Aguirre-Bielschowsky et al., 2011; Jaksha, 2013; Kals & Ittner, 2003). Moral reasoning about nature can be facilitated through various teaching methods, including group discussions and mutual interventions, intended to solve or mitigate environmental problems (e.g., Chazan, 1985; Hersh et al., 1980). Other significant factors are found in special childhood places related to pleasant memories, "formed through their connections to the earth via some kind of emotional experience", which typically involve "play experiences,…exploration, discovery, adventure" (Thomashow, 1995: 9). The "ecological identity" can also be created through the confrontation with damaged places and the pleasant experiences with wild places in the nature that inspire, bring joy and cheerfulness (Thomashow, 1995).

To date, even though EL and EI share much of the same focus, there have been few, if any, attempts to compare these two constructs within the literature (i.e., including comparisons from a theoretical perspective, based on research findings, or from the perspective of educational practice). Thus, this is one of the first attempts to include features of EL and EI into one research framework. We have come to view EL and EI as largely overlapping and interrelated constructs, recognizing that both constructs include sensitivity and care, personal values, and a sense of responsibility towards nature, as well as involvement in service and initiatives intended to protect and restore natural areas (as constituent of EL and correlate of EI).

From a theoretical perspective, EI emphasizes defining our role in relation to nature (preservation), which co-evolves with the development of EL. EL influences our choices, orientation, our interests and pursuing particular goals and certainly, our behavior regarding nature. However, as described in the literature, EI does not focus on the development of environmental knowledge and the strategies we can develop to solve or mitigate problems (as components of EL), but it predisposes

people to attain knowledge and develop strategies. On the other hand, knowledge and cognitive strategies can promote moral reasoning, which is a constituent of EI (Kals & Ittner, 2003). Because EL attempts to balance emphasis on and attention to knowledge, skills, dispositions, and behavior, in comparison to EI, EL focuses more on the cognitive domain and emphasizes understanding of the interdependence of humans with nature. At the same time, EI focuses more on the feeling of this interdependence that is embedded in our sense of self. Individuals with prominent EL are very likely to feel interdependent with nature, feeling uneasiness for its destruction – which are both characteristics of EI. The overlap between EL and EI is apparent when care for the environment is taken as the basic criterion for recognizing EI (Kals & Ittner, 2003). We can consider that the relationship towards nature and the way we treat it is the place of overlap between EL and EI.

Therefore, we can hypothesize that individuals with high levels of EL (as defined by McBeth et al., 2008), will have a fairly well-developed sense of EI. This premise has been embedded into the methodological framework of this study, which sheds light on the experiences that support EI of the students with a highly favorable relationship with nature, reflected in their EL score. Furthermore, in Serbia, there have not been any research efforts aiming to hear the voice of students on the factors that appear to stimulate their EI, much less to base it on the level of their EL. This study intends to describe the features of EI of Serbian primary school students (age 13-14) who had previously obtained the highest scores in EL, as well as incentives and experiences contributing to their EI, relying on their own perspective.

METHOD

This study is a part of the broader project *Environmental Identity of Primary School Students in Serbia* – ELIPS funded by Science Fund of the Republic of Serbia. This project consisted of two phases. The first phase applies a quantitative approach and measures EL to a stratified cluster sample of 877 7th grade students of primary school, attending 46 classes selected randomly from 46 schools that were also selected randomly. It applies the MSELS instrument (McBeth et al., 2008, 2011)[1] in order to measure EL and rank the classes. It was conducted during the 2022/2023 school year.

1 The content of the instrument and its characteristics are described in the pilot study performed in Serbia (Marušić Jablanović et al., 2022).

The second phase of the project was conducted at the beginning of the 2023/2024 school year, involving qualitative research. Firstly, the selected students answered an open-ended questionnaire referring to their EI. Subsequently, the selected students, teachers, and school principals were interviewed for the purpose of obtaining a wider and deeper understanding of EI and its formation. The data collected by the open-ended questionnaire are presented in this paper.

The aim. The aim of the paper was to describe features of environmental identity of primary school students (age 13-14) in Serbia who obtain the highest scores on the EL assessment (i.e., based on the MSELS), as well as the experiences these students find most influential in shaping their environmental identity (in private and school context).

The particular goals were:

1) to explore the features of EI: How do respondents feel about nature, to what extent do they appear to engage in moral reasoning toward nature protection, and how do they describe their pro-environmental behavior?;
2) to describe influences that shape the respondents' EI in a personal context: Which personal experiences, important places, and people do they find to be influential for their relationship with nature?; and
3) to describe influences that shape the respondents' EI in the educational context: Which teachers, teaching methods, and school activities do they describe as influencing their relationship with nature?

Selection of the classes. The overall EL score of the examined students is 147.93 (SD= 26.10) out of a possible 240 points. The two best-performing classes on MSELS were identified The first placed class obtained an average score of 168.65, and students from the second placed class obtained an average score of 164.63. A comparison between the two best-performing classes and the remaining 44 classes indicates that the difference in overall EL scores, as well as the scores for each EL component, is statistically significant. Namely, on the overall literacy the best performing classes obtain mean score 166.29, and the other classes 147.30 (t= 3.87, sig < .01). Regarding ecological knowledge, the best performing classes scored 41.25, the other classes 37.72 (t= 2.77, sig.=.000), on environmental affect score the results are: Mbp[2] = 46.84, Moth[3] = 44.01 (t= 2.30, sig.=.021), and on behavior: Mbp = 43.52, Moth = 39.89 (t

2 bp- best performing classes

3 oth- other classes

= 2.00, sig.=.045). The score difference is the most prominent on cognitive skills: Mbp=34.68, Moth=25.67 (t=3.63, sig.=.000).

Context of two selected classes. The responses were obtained from 34 students from two best-performing classes. The first school is situated in a small multicultural town in the north of Serbia. The surrounding of the town is known for its fertile agricultural land and a clean water artificial lake, belonging to a nature park. Nevertheless, the town faces several environmental problems, including pollution of air, soil and local river, due to meat industry facilities, pesticides overuse and inadequate waste management, and burning fossil fuels. All those problems harm the quality of life of the local population. The second school is located in the centre of South Serbia city, near a memorial park, rich with flora and fauna species. The city faces several environmental challenges, primarily related to air pollution, illegal waste disposal sites, and insufficient infrastructure for waste management, similar to other urban areas in the country. The concern is particularly raised about poor air quality during winter months, caused by the use of fossil fuels for heating. Both schools are surrounded by the greenery of the schoolyard with trees; each has an outdoor classroom and school garden with herbs planted by students and teachers.

Instrument. The students responded anonymously to a questionnaire that consisted of 4 sets of open-ended questions. First, students were asked if they identify themselves as nature-loving persons, and to elaborate on the answer. Furthermore, two sets of questions led them to recall and describe important experiences (i.e., key events, activities, and important persons that influenced their relationship towards nature), and then to express how these experiences influenced their feelings and changes in their behavior towards nature. Finally, the students were asked about the school and their school experiences that they perceive as incentives for their relationship towards nature.

Data processing. For the purpose of data analyses, a thematic analysis was applied. The process of coding scheme development was inductive and deductive and the scheme relies on content obtained from the participants and on previous findings. Through repeated reading of the complete raw material by two independent teams we identified key ideas presented in conversational units of different size that share the same meaning in order to develop preliminary coding scheme consisting of codes and superordinate categories. After creating codes and categories, the whole team related them to themes that correspond to previous research findings on the

definition of EI and the previous results on the factors contributing to its formation (Aguirre-Bielschowsky et al., 2011; Clayton, 2003; Clayton et al., 2019; Kals & Ittner, 2003; Naess, 1987; Thomashow, 1995; Zavestoski, 2003). The preliminary scheme was discussed in order to establish the consent and define the codes and categories of the final scheme, having in mind the particular goals of the study. Disagreement between teams appeared regarding the size of the category, and several codes were merged (for example pleasant activities in nature with people and with animals). Besides that, it was difficult to distinguish categories *teacher as incentive* and *teaching and classes as incentive* and it demanded returning to the raw data and discussing the particular conversational units.

After establishing the final, common coding scheme, the teams returned to the material in order to code it and check the inter-rater agreement. Coding process was performed on all the segments of the raw material, and one team of researchers used the MAXQDA software for thematic coding, while the other team conducted manual coding. The use of software tools such as MAXQDA provides structure and enables precise organization of data, ensuring that the coding process is systematic and transparent (Basit, 2023). On the other hand, manual coding allows researchers to engage more deeply with the data, capturing contextual nuances and subtleties (Basit, 2023). By combining these two approaches, we aimed to reduce the potential subjectivity of individual analysts and ensure a more comprehensive interpretation of the data. Furthermore, a coding reliability approach to thematic analyses was applied (Braun & Clarke, 2021). To ensure the reliability of the coding process, we calculated the inter-coder agreement using Cohen's kappa statistic (Hsu & Field, 2003), which indicated a substantial level of agreement between the two teams. The inter-rater reliability ranged between .76 and 1, measured by Cohen's kappa, which is considered a strong consistency coefficient in qualitative research (Landis & Koch, 1977).

Finally, the respondents were grouped according to the prevailing motive of the overall answer regarding their attitude towards environment, and compared the groups in terms of their EI incentives and class affiliation.

RESULTS AND DISCUSSION

Table 1 outlines the derived codes, their superordinate categories and the associated themes.

TABLE 1. Coding scheme

Theme	Category	Code
EI features	Environmental affect – Sensitivity	Showing sensitivity for the beauty, diversity of nature; sense of pleasure and relaxation when being in the nature.
	Environmental concern	Sense of concern and uneasiness when nature is endangered. Feeling sad/threatened when nature is endangered.
	Moral reasoning	Recognizing and criticizing inappropriate behavior; sense of internal award when doing something appropriate; sense of responsibility; naming what one ought to do in order to solve or mitigate the problems.
	Pro-environmental behavior – activities of protecting nature	Naming specific behaviors like garbage collecting or planting, or general activity of protecting the nature.
Private life experiences as incentive for environmental affect and identity	Activities in the nature, with company	Naming pleasant activities in nature with family, friends or animals as incentive.
	Activities in the special place	Naming pleasant activities in a particular place in nature as incentive.
	Experiences of disturbed places	Naming damaged natural sites and behaviors of people that disturb nature as incentive
School life experiences as incentive for environmental affect and identity	Teacher as incentive	Naming particular teachers as key incentive.
	Teaching and classes as incentive	Naming subjects and contents referring to nature and its endangerment as incentive.
	Environmental action & outdoor learning	Naming particular activities in the school as incentive – cleaning, planting, and classes in a natural site.

Features of Environmental Identity

Environmental affect–sensitivity. Concerning their feelings toward nature, students perceived themselves as nature loving persons in general. That was expected, having in mind that in the quantitative phase of ELIPS project, students had the highest score on the affective component of EL. In the qualitative phase, the students had a chance to elaborate on their feelings. The students mention sensory experiences in nature, the interaction with nature, a sense of pleasure and relaxation when being outside. In the responses of the participants, we can recognize sensitivity towards variety and beauty of natural sites that Naess (1987) identifies as indicators of ecological self.

> *I love nature because it offers a sense of peace and tranquility. When surrounded by the greenery, mountains and wood, I feel connected with nature, and it fills me with positive energy.* (SC 13[4])

Environmental concern. When elaborating their feelings towards nature, students also expressed a *sense of concern and uneasiness when they perceived that nature was endangered*. They expressed being sad when confronted with garbage in greenery, worried when they see the trees cut in the forest, and unrest and anxious when they see the garbage in the sea.

> *I have always felt saddened by polluted nature, destroyed trees and contaminated rivers.* (SC 14)

The uneasiness and sadness these students feel about the environmental problems they witness is similar to the feelings of environmentally responsive persons who perceive "a threat towards the environment… as a threat against the self" (Strumse, 2007: 14). Students express concern when nature is threatened, which we understand as an indicator of care and appreciation of nature, including both, cognitive and affective aspect of the relationship towards nature. The fact that they are affected by injustices or harm done to nature can be understood as an indicator of deeper connection and interdependence of these students with nature, which, according to Clayton et al. (2019), are typical of people with a pronounced EI.

Moral reasoning. When elaborating on their relationship with nature, some students expressed a critical attitude towards the behavior of other people, reflecting

4 The students' responses are coded to indicate the class they attend (FC for the first rated class and SC for the second rated class) and the corresponding student number.

on what people ought to do to help solve or mitigate problems and the sense of internal reward when doing something appropriate.

> *While walking in nature I saw a friend throwing garbage on the grass. I was surprised and I told him to pick [up] his garbage… After I repeated the request several times, he finally did pick [up] his garbage and I felt satisfied.* (FC 2)

> *I understood that many countries introduce regulations in order to keep the cities clean. I have decided to take care of the planet, for the future children and the people who are not born yet.* (FC 13)

These responses indicate situation-specific (i.e., the former) or broader (i.e., the latter) aspects of moral reasoning of the students regarding nature and environmental problems. The obtained answers are in accordance with what Kals and Ittner (2003) regard as moral reasoning. It includes concerns about ecological problems (that is present in the answers belonging to the Environmental concern category defined in this study), belief of being able to reduce environmental problems, and attribution of responsibility (the answers show their attempts to bring change or to induce change in behavior of others) and is an indicator of one's EI.

Pro-environmental behavior as EI correlate. When describing their relationship with nature the students also mention pro-environmental behavior. More precisely, all students reporting some form of pro-environmental behavior expressed sensitivity towards nature, environmental concern and/or some aspect of moral reasoning about it. This is in line with the results of research and the reasoning of numerous authors on the correlation between a person's emotional connection with nature and participation in its preservation (Clayton, 2003; Clayton et al., 2021; Inwood, 2008; Thomashow, 1995).

The students mention specific behavior of protecting nature (throwing garbage into the bin, recycling, planting and watering the plants, cleaning public surfaces, interpersonal or public persuasion) or they generally mention taking care without specifying particular behaviors.

> *This experience [running with a friend in a peaceful natural site] has influenced me to take care of nature and throw the garbage appropriately…* (FC 1)

Almost all of the students who mention particular behavior referred to the garbage disposal and collecting of garbage on public surfaces as solution to those environmental problems or the consequences they witnessed. Whether improper waste disposal is a dominant problem in local communities, or whether it is simply most easily perceived and taught about, remain questions for some new research. It is certainly unusual that not a single student from second class, in a city with very pronounced air pollution during the heating season, did not mention this problem.

Private Life Experiences as an Incentive for Environmental Affect and Identity

When asked about the key factors that influenced their relationship towards nature, the majority of students refer to the private context; they mention the *company of family, friends, or animals* while spending time in nature. The activities in nature with family members or friends are frequently mentioned in the students' narratives.

> *Many times I visit the natural sites in Serbia with my family. It has facilitated my love for nature and taking care of it.* (FC 8)

> *Previously I did not care about nature, but my sister did. She persuaded me to go for a walk. She started talking to me about different kinds of plants, and that is how I became interest. The next day I asked her to go for a walk, and this is how it all began.* (FC 4)

Two students have emphasized the company of pets while walking in nature as an important factors for developing a love for nature.

> *I started loving nature thanks to long walks with dogs in the fields.* (FC 14)

Another group of responses refers to *special places in nature, and outdoor activities* as incentives for a positive environmental attitude. Spending time in nature and some special sites have a specific role in their attitude. When specifying the events that shaped their relationship towards nature, they say:

> *Sometimes I go alone to the park Bubanj. I walk through the forest, and it is pleasant to me.* (SC 12)

> *I have always liked going to Fruška Gora mountain, to walk, watch the surrounding and feel the freshness of the air.* (FC 5)

Personal experiences in nature are inherent in the responses of respondents who expressed sensitivity towards nature. This confirms the research results according to which sensitivity towards nature is generated and increased primarily through direct interaction with nature (Jaksha, 2013; Kals & Ittner, 2003; Myers & Russel, 2003; Pastor, 2023; Thomashow, 1995). According to Holmes "what matters to most people is not 'the planet' as a whole, but rather specific places" (Holmes, 2003: 29). In addition, there are numerous studies in which the influence of important others was singled out as a factor in the development of sensitivity towards nature (D'Amore & Chawla, 2020; Pastor, 2023; Peterson, 1982, Tanner, 1980, according to Pastor, 2023), which is in line with the obtained responses.

Another group of responses refers to the *wrong behavior of other people and the sites of damaged nature* that they recognize as incentives for their positive attitude and environmental protection. By identifying these behaviors as bad and motivating, these students also display critical attitudes and moral reasoning. When describing the experience that has influenced her/his relationship towards nature a pupil says:

> *…at the seaside, I saw a child running beside the sea and opening the sandwich. He threw the wrapper beside him. After a few minutes, the wave took the wrapper into the sea. I will never forget this experience; it made me aware of the pollution problem.* (SC 11)

Negative examples as incentives were far more common than positive examples as incentives.

A small number of students do identify *good practice examples* as inspiring.

> *I was surprised when I was in the mountain Fruška Gora because the people were keeping the place clean and taking care of where they were allowed to start the fire.* (FC 11)

For several students, familiarity with concrete solutions can be an incentive to strengthen their responsibility and willingness to participate in the preservation of nature. On the other hand, the results also indicate that the students who underline their exposure to sites of harmed nature express sadness/uneasiness about it and even more often certain aspects of moral reasoning. The students' responses indicate that witnessing an environmental problem or its consequences is an incentive to students' reflection on inappropriate behaviors, and contributes to moral reasoning.

Based on the responses of several students who expressed concern and moral reasoning regarding environmental problems, it seems that they needed the

experience of contrasting images of untouched and damaged nature. Therefore, the subject of research could be a strategy to encourage reactions and deeper reflections on the state of the environment precisely by contrasting examples of pristine and endangered nature. In addition to being exposed to such experiences, students should be encouraged to verbalize them, since certain research showed that discussions about environmental topics and experiences in nature are effective in developing EI (Aguirre-Bielschowsky et al., 2011; Zavestoski, 2003).

Important Experiences as Incentives for Relationship towards Nature – School Context

One of the main goals of this paper is to distinguish and analyze the experiences and activities in the school context which appear to have influenced the development of students' positive attitudes towards nature. When asked about the way the school has affected their relationship towards nature and the important experiences from the school context, the students have mentioned different topics. Students often mentioned explicitly the influence of teachers - class teachers, biology teachers, chemistry teachers or teachers of technical engineering. It is important to stress that the roles of teachers are articulated more frequently and directly among students in the first class.

> *We are particularly fortunate that our class teacher is a Biology teacher. He teaches us a lot about nature and animals, as well as the survival of some endangered plants and various animals.* (FC 5)

> *The school is also one of the key factors influencing my decision to help our planet. Especially my Biology teacher (the name of the teacher) who sometimes takes us outdoors and there he holds lessons about nature. In the classroom, we have a rule that every time we see the trash, we collect everything and throw it in the bin. A teacher talks frequently about ecology and how to help future generations.* (FC 13)

These responses confirm that teachers can have a very influential role, being a role model for students with their knowledge and pro-ecological behavior, which is in accordance with previous findings (Pastor, 2023; Shapiro & Pilsitz, 1995; Stanišić, 2010; Zak & Munson, 2008). Teachers transfer important information and facts, but

they can also offer first-hand experience visiting nature, advising students on how to save nature and pointing out the negative behavior (Cheng & So, 2014).

Furthermore, some students emphasize classes of a particular subject or content, bringing out biology, geography or chemistry classes, depending on the school. We can classify students' responses into two wider groups. The first one stresses lectures on nature's diversity, its beauty and facts. The second group recalls more the lectures and debates on the environmental problems and threats towards nature (learning about the endangered species, their survival, the ways the environment can be protected and the information on the major environmental problems). It is important to stress that many students find influential frequent discussions on nature and environmental problems. We can say that the continuity and frequency of bringing up these topics are rather important.

> *In school we often talk about nature, the problems happening with it, the ways we can solve them. That influences our behavior towards nature.* (FC 8)

> *The school had a great effect on our relation to nature. At the Biology, Geography classes we found out about various …., plants and animals who live in nature.* (SC 13)

> (*The school*) *influences the way it helps me to discover more beauties in nature.* (SC 20)

Another group of responses reflects on particular environmental actions in the schoolyard, or the school surroundings, as influential. Examples of those activities are: cleaning the school yard, collecting garbage in the greenery, collecting recycling materials, and planting flowers or trees. Outdoor learning seems a rather important experience. The students emphasize the examples of teachers and peers collecting the garbage together while having outdoor classes and the walk around the nearby lake with teachers, discussing the characteristics of the site.

> *The walks around the lake had the biggest impact on me. The class teachers [from the first and second cycle of primary school] were frequently teaching about nature, its protection and sustainability. We were talking all the time. We had various activities collecting garbage and outdoor classes. These moments raised my awareness of nature preservation.* (FC 14)

Interestingly, certain students from the second-placed class mentioned the flower planting action with their class teacher, although it happened at least four years ago, and only two of them mentioned cleaning or recycling during the second cycle of primary school. It can be interpreted as more devoted work of the teacher who was teaching students in the first cycle of the primary school, or a deeper connection of students with this teacher.

> *When we were younger, with the class teacher we were buying flowers every spring and planted them in the schoolyard.* (SC 18)

The respondents of our study found that extracurricular and outdoor activities have a special importance and impact, which is in accordance with previous studies (Fang et al., 2022; Jaksha, 2013; Pirchio et al., 2021). Kals and Ittner (2003) single out the influence of outdoor experience with a subsequent discussion about that experience. They emphasize the positive effects of group discussions and interventions intended to solve environmental problems on moral reasoning and the affinity towards nature.

Some students in our research stated explicitly that the school overall did not influence their relationship towards nature, although they do recognize the importance of particular school activities. For example, one student mentions an excursion with the class teacher as an incentive but does not recognize the school in general as an important factor.

> *I started to love nature thanks to my grandmother… The school did not influence a lot, even though there were some efforts. Together with the primary teacher we planted flowers and arranged the school yard.* (SC 6)

This result can be interpreted as a sign of their distance from the school influence in general, rather than animosity towards environmental education activities. All in all, most students stated that the school did influence positively their attitude towards nature.

From Nature Lovers to Greenies – Grouping the Students According to the Emphasized EI Features

The analysis of overall students answers indicated certain regularities, providing the possibility of classifying the students into three groups regarding their attitude towards nature and the aspects of EI they emphasize in their answers. This analysis indicates that not all the identity features are equally represented in the answers

of students – the individuals emphasize different aspect of their relationship with nature, with a part of students who display a rather comprehensive approach and more abundant EI features. The groups were compared in terms of EI incentives and class affiliation.

The first group, labeled *nature lovers* (N=11) focuses on pleasure, joy and sensory experiences that nature brings to them. Some of them mention the general positive attitude towards nature preservation, but these students do not express the intention to participate in protection activities. Regarding the incentives for their attitude towards nature, most of them name private context activities (with family, friends) in nature. The second group labeled *environmentally concerned* (N=9) emphasizes concern for nature. Their answers focus on unpleasant experiences and sights of threatened plants or animals, and part of them do express the intention to participate in nature protection. Describing the incentives, they mostly focus on concrete negative examples that have caused uneasiness and concern. However, their answers regarding nature protection are rather generalized and mainly refer to criticizing the examples of misbehaviors that they witnessed. The members of the largest group, labelled *greenies* (N=14) offer the most complex answers: they name the most concrete examples of their own appropriate behaviors, elaborate on sensory gratification and/or joy that nature brings to them, and display environmental concern as well. The incentives they underline are various - family, special places, negative experiences, and school activities. The analysis of the answers concerning school influence indicates that the importance of the school is growing starting from the group of *nature lovers*, that recognizes this influence as the least important, while the group of *greenies* contains the most students who attribute great importance to school activities and teachers. Importantly, most of the students from the *greenie* group, 11 out of 14 come from the best-performing class. Having in mind the class affiliation (pripadnost odeljenju) of the three groups (*nature lovers, environmentally concerned* and *greenies*), we assume that these differences can be attributed to the teaching approaches and teacher (environmental) identities.

CONCLUSION

Environmental literacy and environmental identity are two interrelated concepts that play a critical role in individuals' engagement with environmental issues. We see the basic overlap of identity and literacy in environmental affect, values, and behavior. Environmental identity does not have to imply vast knowledge of ecology and high problem-solving cognitive skills, but it must imply experiencing the importance of nature and its preservation and seeing oneself in relation to other living beings. As individuals further develop their environmental literacy, they become more aware of environmental challenges and their own role in addressing these issues, which can strengthen their environmental identity. Conversely, a robust environmental identity can drive individuals to deepen their knowledge and skills, thereby further enhancing their environmental literacy. This interconnection has significant implications for socially acceptable and environmentally responsible behavior. Individuals who possess both high levels of environmental literacy and a well-developed environmental identity are more likely to engage in behaviors consistent with sustainable living, such as recycling, reducing energy consumption, and participating in environmental conservation initiatives. Our respondents offer answers that were classified into the following categories: Environmental affect – Sensitivity, Environmental concern, Moral reasoning and Pro-environmental behvaior – activities of protecting nature. The categories can be understood as features and correlates of EI, sinse they largely correspond to EI characteristics found in the previous studies.

Further on, the selected students mention both the family and school incentives that contributed to their EI shaping. It seems that a foundation of EI should be laid through experiences with family and friends. Particularly, activities such as riding a bicycle, hiking with family, walking with dogs and sports with peers proved to be fruitful. The school can and should base its further effort to develop EI on the values and habits regarding nature that have been developed through interaction with significant others. This conclusion is supported by the answers of the *greenie* group of students. This group offers the most complex answers with abundant identity features, and emphasizes the importance of school experiences more than the groups of *nature lovers* and *environmentally concerned* group. It is important to underline that the students in the *greenie* group predominantly come from the best

performing class, and that almost all the students from the best performing class belong to this very group.

The obtained responses indicate that students from the same class can stress different aspects of education and various activities inside and outside the classroom as the most beneficial and exciting (e.g. planting flowers, walks around the lake with appropriate discussion, the teacher giving an example of garbage collection, frequent lectures on nature preservation). Various incentives can facilitate their love and care for nature, and we can conclude that the most effective approach to fostering both students' EI (as well as EL) involves planning and providing a variety of teaching activities and approaches. These include outdoor activities, visits to locations characterized by natural beauty, and exposure to degraded and damaged environments, with subsequent discussion on the experiences. Further on, we can conclude that continuity of talking and learning about nature can also be fruitful. Teachers and schools in general must provide positive experiences and hands-on activities that facilitate reflection on possible solutions and their realization. This can motivate students, enhance their sense of self-efficacy, and move their locus of control to themselves. The examples that students name as influential are not too demanding in terms of time and finance, and they should be rewarded, and regarded as good practice examples, in order to spread this seed throughout the country. In addition, an appropriate pro-environmental behavior should become part of the whole school experience and part of the lifestyle in general, which can be achieved through providing positive experiences with nature, preferably shared with significant others. These experiences can provoke interest and affective connection to nature as important component of EI.

Concerning the limitations of this study, the sample consisted of primary school students from a limited number of schools, which may impact the generalizability of the findings. The results reflect the views and perspectives of the students who participated in the study and should be interpreted within the context of their specific geographical and cultural settings. Additionally, the study focused on students aged 13 to 14, which presents a limitation, having in mind that at this age, certain characteristics related to EI may still be in the process of forming.

This study represents an initial step towards understanding the complex concept of EI, particularly in students with high EL. In further studies, the authors intend to compare the perspectives on EI between students with the highest and the lowest EL achievements, in order to better understand the role of school influences.

The best performing class deserves special research attention, due to the answers obtained on both, MSELS and the questionnaire. The responses of the *greenie* group of students allow to the researchers to conclude that the teaching practice in this class is an example of good practice of environmental education. Additionally, it is advisable to correlate individual students' results on EL and EI, which could provide deeper insights into their relationship.

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