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Environmental Literacy of Students in Belgrade Schools: Results of a Pilot Research²

Extended summary

The environmental problems that Serbia is confronted with are numerous and the consequences of environmental degradation impact citizens' health and the quality of their life. Bearing this in mind, environmental education and environmental literacy are constantly gaining momentum.

The theoretical and methodological framework of our study is based on the analysis of previous contributions in the field of environmental literacy research performed by McBeth and associates (McBeth et al., 2008) for the purpose of the National Environmental Literacy Assessment – NELA Project in the USA. The framework relies on a comprehensive contemporary definition of environmental literacy that was previously empirically checked in several countries. It is important to emphasize that there are no studies concerning the environmental literacy of elementary school students in Serbia defined in the way the present study defines the concept.

The research applies survey methodology. The data were analyzed using descriptive statistics. The sample consisted of 111 elementary school students of the 7th grade from Belgrade. Having collected the data, the authors conducted five group interviews designed to benchmark the clarity of the instrument content. The objective of the study was to check the applicability

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of the instrument MSEL³ in Serbian context on the population of the 7th grade students and describe the indicators of environmental literacy, in terms of components and subcomponents defined by the model ecological knowledge (basic knowledge in the domain of ecology). Environmental affect (verbal commitment, sensitivity, feelings), cognitive skills (issue identification, issue analysis, action planning) and behavior (McBeth et al, 2008). The applicability of the instrument was tested by estimating the following: compatibility of the knowledge test with the curricula of Biology and Civic Education and educational standards for the subject of Biology; compatibility of scales used to measure environmental affect, cognitive skills, and behavior with the curricula; clarity of the translated instrument; reliability of scales and subscales.

The study finds that the instrument is applicable for the target population, apart from good theoretical foundations; it is adequate from the perspective of the elementary school curricula and presents fine metrical characteristics (with the acceptance of knowledge test). The overall instrument reliability is .87. Concerning the results that reflect the four environmental literacy components, the highest score was obtained on the environmental affect, surpassing other components and even the environmental affects cores obtained in the two countries used for comparison (USA and Greece). The answers indicate that the students have affirmative attitudes towards various measures that contribute to environmental protection. On the other hand, less than a half of students are ready to get engaged through environmental activism (sending letters, communicating information). The possible reason might be deficient skills or a lack of role models. Having in mind the strong verbal commitment of students, the fact that three quarters of them do not find models among teachers and peers for developing a positive attitude towards nature is troublesome.

Compared to students from the USA, Serbian students have a lower score in issue identification, but they are more successful in issue analysis and making strategies for problem solving. Nevertheless, the results cannot be considered satisfactory, since the content of the test corresponds to the curricular outcomes of the mandatory subject Biology and the mandatory optional subject Civic Education, and given that the overall score is below the scale average.

The lowest score was obtained in ecological knowledge, compared to other environmental literacy components and other countries. The achievement proposed by educational standards for the subject Biology was not fully achieved.

Given the fact that the study was conducted on a sample of students from Belgrade, it is not possible to generalize the obtained data on the population of Serbian students nationwide. The results indicate that the educational process should encourage a proactive attitude of students toward their social surroundings, intended to collect data and search for solutions to environmental problems. As the main limitation of the study the authors identify the time necessary for filling in MSEL³, due to the extent of its content.

Keywords: environmental literacy, environmental education, students, MSEL³

³ Permission to use this instrument was obtained on February 18, 2022 from prof. Thomas Marcinkowski, STEM Education Programs, Florida Institute of Technology.

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