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Environmental Attitudes and Behaviors of High Secondary School Students in Kosovo

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ABSTRACT

Environmental education is very important for preparation of young generation to solve. The purpose of this study was to evaluate the New Environmental Paradigm (NEP) Scale's dimensionality among high school students in two secondary schools in Malisheva, Kosovo, and to use it to examine the worldviews of young people in both the Municipality of Malisheva and the Republic of Kosovo regarding the environment. In total, 1453 students from 2 secondary schools, ages 14 to 18, participated in this study. A varimax rotation was used after the dataset acquired from the scale was analyzed using the principal component analysis factor extraction method. According to this study, all five dimensions balancing, anti-anthropocentrism, the fragility of nature's balance, rejection of exceptionalism, and the possibility of an eco-crisis—are loaded equally. The frequency distribution of the students' replies was used to determine their worldviews with regard to the environment. The frequency distribution of the students' responses has shown pro-ecologically or pro NEP attitudes and behaviors with the average mean NEP score 68.91%, comparing to pro-anthropocentrism or Dominant Social Paradigm DSP endorsed by 28.6%. We concluded that although the NEP score is relatively high, the DSP paradigm is also present among the High school students. There were no significant differences between NEP and DSP views which is typical for less industrialized societies. Our findings indicate that students are concerned about the environment, however they still need to be environmentally educated in order to develop positive attitudes and behaviors toward the nature.

1. INTRODUCTION

Due to the intensification of the environmental problems in the last 30 years period, environmental topics are becoming the most widely discussed global issues [1]. Environmental problems in Kosovo have been inherited for many years of misuse and uncontrolled exploitation of natural resources, growth of industrial production, bad waste management and lack of appropriate instruments for environmental management [2]. Although environmental degradation in Kosovo is in alarming situation, people's knowledge and attitude about environmental issues has been found to be very limited [3]. Numerous studies have shown that having environmental issues taught at school are seen as the crucial first step toward development of environmental attitudes and behaviour to students. Even more, it is important though environmental education to educate young individuals to have pro-environmental (eco-centric) attitude rather than an anthropocentric attitude [4]. The environmental attitudes will be decisive whether a person will make an environmentally friendly decision or act an environmentally friendly behavior [5].

In Kosovo there are not many studies about integration of Environmental Education in educational system in Kosovo. The revised curriculum in 2016, among other competences to be developed during the lower and higher secondary education (grade 6-9 and 10-12), includes the development of the environmental competences and also in the curriculum areas, in addition to natural sciences, the area of Society and Environment is also included [6]. Most of environmental topics are included in four different courses like biology, geography, chemistry, and civic education, while there were hardly any topic at primary-school courses. In total 130 books were scrutinized and in only 13 out of them include environmental issues [6].

Regarding the studies about the environmental attitudes and behaviour of people in Kosovo, it should be stated that they are in its early stage. Until now there are some studies about the survey of the environmental worldview of students in a secondary school in the city of Malisheva [7], the NEP scale was used to evaluate the teacher's worldview in 6 cities in Kosovo [8], and a survey was conducted to measure the worldview of the three groups of employees in the city of Kacanik [9].

Different type of scales during years were used to measure environmental behaviour; scale about what people state on

willing to do regarding ecology and pollution issues [10, 11], scales that include environmental concern [11], scale on Behaviour-based environmental attitude [12], scales that are based on translation from beliefs, attitudes, views and values to actual behaviour based on the value–belief–norm (VBN) model of environmental concern and behaviour [12].

The New Environmental Paradigm (NEP) Scale is one of the most used theoretical model to measure the ecological beliefs in studies predicting environmental attitudes and behaviour. Dunlap and Van Liere [13] first designed the measurements of environmental concern of different groups of people in 1978 and later on revised it in 2000 by using an instrument consisting of 15 statements. The revised NEP scale, Dunlap et al. [13] developed a modified 15 statement which offers more complete coverage of the main aspects of an ecological worldview, avoids the lack of fat-free balance in the direction of article of the original scale and removes obsolete and sexist terminology at some points of initial scale [13, 14]. The aims of this paper are (i) to assess the students' level of environmental attitudes of secondary schools in Malisheva by using the revised NEP scale, and (ii) to compare the results with those obtained from other authors around the world.

By conducting this study, we aim to provide a small contribution to the understanding of environmental worldviews among a sample of Kosovian school pupils, keeping in mind the fact that there is still very little information available in this sector. Additionally, because earlier instruments were focused on specific environmental issues and environmental attitudes like pollution and the mismanagement of natural resources, this research will help evaluate and compare the effectiveness of various interventions carried out in the last few decades in the fields of education and environmental protection.

2. METHODS AND METHODOLOGY

This study was carried out with 1453 High school students from two different schools in Malisheva, which is a relatively rural area in the central part of the country. In Malisheva region there are only two high schools with total 3179 students. Student's age was between 14 and 18 years and the study was conducted during the years 2017 and 2018. The surveyed schools are public institutions and both implement the national curriculum. Among the participants 59% were female and 41% were male. The 15- item NEP questionnaire (Table 1) was translated by a professional translator in Albanian language, which is the mother tongue of the respondents, and were carried out in person within 45 minutes time. The selection of the classes for the survey was random whereas the participation of the students in the survey was voluntary. All this procedure was supervised by one of the authors of this study. The 5- point Likert scale is applied to measure those items. The measurement ranges from 1- strongly disagree to 5- strongly agree.

The evaluation of the NEP score is calculated as the summary of the positive response frequency for each item: The responses SA'+'A' for the items 1, 3, 5, 7, 9, 11, 13, 15, indicate the endorsement of pro-ecological attitudes and behaviours, whereas the responses 'D'+'SD' for the items (2, 4, 6, 8, 10, 12, 14) endorses the anthropocentric orientation. All analyses were carried out with SPSS 24. By using the framework of NEP, we applied descriptive analysis: percentage and mean in order to calculate the NEP score and its dimensions (Table 2); we used one-way ANOVA; taking into consideration the conceptual NEP dimensions, a test of reliability was applied to measure the internal consistency of the full NEP scale, and a Cronbach's alpha value was obtained with Varimax rotation with eigenvalue greater than 1; and in the second step we chose fixed number of factors which were two (NEP and DSP) to figure out how many dimensions we will have based on responses.

The NEP score 45 and lower tends to support the pro anthropocentric orientation - DSP (dominant social paradigm) worldview, whereas NEP score higher than 45 tends to support pro-ecological conceptions or NEP [15].

Table 1. Revised NEP item scale [13]

	NEP Items Scale
1.	We are getting close to having too many people on earth
2.	Humans have the right to change the natural environment to fit their needs
3.	When humans disturb nature, it often produces terrible results.
4.	Human cleverness and skill will make sure that we do NOT ruin the earth
5.	Humans are greatly mistreating the environment
6.	The earth has plenty of natural resources if we just learn how to develop them
7.	Plants and animals have as much right as humans to live
8.	Nature is strong enough to handle the bad effects of modern developed countries
9.	Even with our special abilities, humans must still obey the laws of nature
10.	The so-called "environmental crisis" facing humans has been blown out of proportion (exaggerated)
11.	The earth is like a spaceship with very limited room and resources
12.	Humans were meant to rule over the rest of nature
13.	Nature is very delicate and easily harmed
14.	Humans will someday learn enough about how nature works to be able to control it
15.	If things continue as they are going, we will soon experience a major environmental disaster

3. RESULTS AND DISCUSSION

The mean score on the seven pro-DSP items is 28.6%, ranged from 19.7 (The so-called "environmental crisis" facing humans has been blown out of proportion exaggerated) to 35.9 (Nature is strong enough to handle the bad effects of modern developed countries), while mean of the eight pro-NEP items is 68.91, ranged from 50.4 (Nature is very delicate and easily harmed.) to 82.6 When humans disturb nature, it often produces terrible results).

The NEP scale is designed to tap into five hypothesized facets (dimensions) of an ecological worldview. These five hypotheses are: 1. Reality of limits to growth that includes items 1, 6 and 11; 2. Anti-anthropocentrism that includes items 2, 7 and 12; 3. Fragility of nature's balance that includes times 3, 8 and 13; 4. Rejection of exceptionalism that includes items 4, 9, and 14; and 5. Possibility of an eco-crisis that includes times 5, 10 and 15 [13]. In comparison to the pro-DSP orientation items, the pro-NEP orientation items examine an anthropocentric "people as rulers over nature" view. Examples of ecological statements are "Plants and animals have as much right to life as humans do," while "Humans were meant to rule over the rest of nature" is an anthropocentric statement.

Table 2. Frequency distributions and the dimensionality of the NEP items (N=1453)
*SD- strongly disagree, D- disagree, U-unsure, A- agree, SA- strongly agree

	Do you Agree or Disagree that:	SD	D	U	A	SA	DSP	NEP
Reality of limits to growth (49%)	1. We are getting close to having too many people on earth	5.8(84)	11(159)	27.4(395)	35.2(507)	20.5(295)		55.7
	6. The earth has plenty of natural resources if we just learn how to develop them	13.2(190)	19(273)	31.8(457)	27.4(393)	8.6(123)	32.2	
	11. The earth is like a spaceship with very limited room and resources	6.9(98)	11.9(169)	22.1(313)	41.5(588)	17.6(249)		59.1
Anti-anthropocentrism (45.4%)	2. Humans have the right to change the natural environment to fit their needs	12.7(182)	14(201)	14.8(212)	39.7(570)	18.8(270)	26.7	
	7. Plants and animals have as much right as humans to live.	4.4(63)	6.8(98)	13.9(200)	37.9(544)	37.0(531)		74.9
	12. Humans were meant to rule over the rest of nature	16.5(234)	18.1(256)	26.5(376)	29.0(411)	9.9 (141)	34.6	
Fragility of nature's balance (56.3%)	3. When humans disturb nature, it often produces terrible results.	3.9(56)	4.7(68)	8.7(125)	34.9(501)	47.7(684)		82.6
	8. Nature is strong enough to handle the bad effects of modern developed countries	13.1(188)	19.1(274)	31.9(458)	27.3(392)	8.6(124)	35.9	
	13. Nature is very delicate and easily harmed.	19.7(281)	10.6(151)	19.3(274)	33.5(476)	16.9(241)		50.4
Rejection of exceptionalism (42.67%)	4. Human cleverness and skill will make sure that we do NOT ruin the earth.	12(172)	13.8(197)	14.5(207)	37.8(542)	21.9(314)	25.8	
	9. Even with our special abilities, humans must still obey the laws of nature	3.6(51)	4.5(63)	12.6(178)	46.6(659)	32.7(462)		79.3
	14. Humans will someday learn enough about how nature works to be able to control it.	9.3(133)	13.6(196)	23.2(333)	37.5(538)	16.4(236)	22.9	
Possibility of an eco-crisis (57.04%)	5. Humans are greatly mistreating the environment	2.7(39)	6.2(88)	10.7(152)	35.1(500)	45.3(646)		80.4
	10. The so-called "environmental crisis" facing humans has been blown out of proportion (exaggerated)	7.7(110)	12(172)	37.1(531)	31.7(453)	11.5(164)	19.7	
	15. If things continue as they are going, we will soon experience a major environmental disaster.	6.9(100)	8.3(120)	13.7(197)	26.3(379)	44.7(643)		71
Average DSP/NEP							28.6	68.91 50.08

As Kosovo is a developing country, the value of NEP-score was expected to be relatively low based on different studies [16] who stated that competing social needs are far more pressing than pollution control, which contributes to a generally permissive set of environmental attitudes in developing countries, as a result environmental policies are less stringent and, compared with developed countries, the difference was significant.

Some studies [17] specified a limit rate of NEP by 45%, in order to have pro ecological conceptions a NEP score has to be above 45%. Regarding to conceptualized NEP, the results of this study show that the sample has relatively low mean of Pro-NEP score 50.08 % which shows a promising stability for the future of environment, and this can be as the result of the learning the students gained in Environmental courses during their high school education.

Reality of limits to growth. The NEP suggests that growth and development have a limit, which is based on the limitedness of the resources in the world. Regarding to the item 1, most of the students agreed (35.2) and strongly agreed (20.5) that we are getting close to have too many people on earth, whereas for item 6 the respondents are "unsure" (31.8) and agreed (27.4) that earth has plenty of natural resources if we just learn how to develop them. For the last item most of the students (41.5) agreed or were unsure (22.1) that earth is like a spaceship with very limited room and resources. In our opinion, the structure of this item causes unclearness and confusions to students' responses due to the used terminology such as spaceship and limited room. Our suggestion is that in the future surveys to better explain to students the meaning of this item.

Anti-anthropocentrism. It is the theoretical dimension involving the view that nature exists for meeting the needs of human beings in the first place as well as the view rejecting it. Students show anthropocentric approach where 39.7 agree and 18.8 strongly agree with item 2. On the next item 7, students show eco-centric view with 37.8 that agrees and 37.0 strongly agrees that plants and animals have as much right as humans to live. Again on item 12 students are more likely to show anthropocentric attitude and behaviour when 29.0 agreed that humans were meant to rule over the rest of nature.

Fragility of nature's balance. NEP claims the existence of a balance that can be disrupted by increasing impact of human beings. Under item 3 students strongly show their eco-centric view with (47.7) that strongly agree and (34.9) of them that agree that when humans disturb nature, it often produces

terrible results. 33.5 of students agreed with the item 13 stating, 'Nature is very delicate and easily harmed'. Whereas 32.2 of them rejected, Nature is strong enough to handle the bad effects of modern developed countries and a considerable number of students (31.9) were unsure about it.

Rejection of exceptionalism. It is one of the theoretical dimensions that is based on the idea that the people who accept the NEP are supposed to reject the idea that human being is exempt from nature and the laws of nature. Most of the students agree (59.7) and (53.9) with items 4 and 14 that human cleverness and skills will make sure that we are not going to ruin the earth and humans will someday learn enough about how nature works to be able to control it, which is an anthropogenic view. In contrary to this, almost all students agreed (79.3) with item 9- Even with our special abilities, humans must still obey the laws of nature which is obviously and eco-centric view.

Possibility of an eco-crisis. NEP assumes that humans are abusing the environment, and with potentially disastrous consequences. Almost all of students agree (80.4) and (71.0) with items 5 "Humans are greatly mistreating the environment" respectively item 15 "If things continue as they are going, we will soon experience a major environmental disaster", both of them show eco-centric view from students.

Reliability test was carried out in order to measure the internal reliabilty of the full NEP scale, and test of Cronbach's alpha value of 0.49 was obtained (Table 3). Researchers have suggested that confirmatory factor analysis should be used to verify the hypothesized relationships between the five facets of the NEP, especially in such contexts as that of the current study [18]. However, low Cronbach's alpha values can be found in different studies, they fluctuate between 0.47 and 0.61 [19-22]. Our result show that the students of two High secondary schools in Malisheva have endorsed the pro ecocentric orientation or pro NEP perspective (average NEP mean score 68.91%). Pro ecocentric attitudes and behaviours support the statement that humans are equal to other organisms (plant and animals) and must obey the laws of nature. In our survey 79.6% of the students agreed with the item 9 - Even with our special abilities, humans must still obey the laws of nature, which also supports. Despite this, the endorsement of pro anthropocentric attitude from students is still high (average DSP mean score 28.6).

This is confirmed with the high percentage (39.7% of respondents agree and 18.8 strongly agree) of the endorsement of item 2- Humans have the right to change the natural environment to fit their needs, which strongly rejects the pro-ecocentric attitude in favour of anthropocentric attitudes. Other studies that measured the environmental worldviews in Kosovo [8] and Zhushi Etemi et al. [9] with different groups of respondents also revealed that pro anthropocentrism (DSP) or the dominant human role in nature is not rejected as it happened in the Western, developed countries. Atabey & Topcu in their study with Middle School Students' [5] concluded that the majority of the eighth grade participants (57.7%) had an anthropocentric attitude, whereas 19.2% had an eco-centric attitude, and 23.1% have both an anthropocentric and eco centric orientation. In all similar studies is revealed that the two paradigms are present (NEP and DSP) and they do not exclude each other. The changes related to environmental attitudes develop in the time preceding high school and are hardened and become difficult to change during the high-school period.

Similar environmental worldviews have shown students in two neighbouring countries with Kosovo, North Macedonia and Serbia with average NEP mean score 2.83 and 2.50, respectively [23]. Like many other developing countries, these countries have a lower pro-NEP score than developed countries Belgium [24, 25]. The most pro-environment countries (Scandinavian countries and the Netherlands) are grouped together, followed by the three 'Germanic' countries (Austria, Germany and Switzerland). Here we can also add the following countries: Australia 3.96 [26], the United Kingdom 3.31 [27], the United States 3.57 [28], Turkey 3.50 [22], and Brazil 3.55 [29]. These are followed by Czech Republic and Slovenia which are the post-socialist countries; then Southern European countries of Portugal and Spain; and finally, eastern European countries of Latvia and Bulgaria [30].

Table 3. Distribution of items of the new ecological paradigm scale and their factor loadings

Rotated Component Matrix[a]				
	Component		Corrected item- Total correlation	Cronbach's alpha if items deleted
	1	2		
N15	.701	-.027	0.379	0.382
N5	.525	.102	0.269	0.437
N9	.494	-.187	0.205	0.460
N3	.488	.056	0.227	0.452
N7	.476	-.125	0.215	0.456
N1	.397	.282	0.216	0.456
N13	.372	.127	0.179	0.477
N12	.048	.607	0.199	0.276
N2	-.091	.541	0.198	0.276
N8	-.071	.532	0.206	0.275
N10	.051	.476	0.158	0.304
N14	.065	.372	0.166	0.298
N11	.158	.251	0.093	0.503
N4	-.059	.157	0.072	0.357
N6	.055	.110	0.040	0.368
Eigen values	1.86	1.54		
Variances	12.17	10.45		
Cronbah's Alpha	0.49	0.34		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Results of this paper suggest that ecological attitudes among the sample are more closely characterized by the DSP, with other words, there were no clear differences between NEP and DSP views. This situation is typical for less industrialized societies implicating a holistic view of the relationship between people and environment [31, 32]. Dualism was found in many other communities such as Zimbabwean [15], Mexican and Brazilian ones [32, 31]. In these countries, people believe in the profound connection between humanity and nature; that is, they find compatibility between a natural balance and the needs of humans in using natural resources [23]. Contrary to this situation, in industrialized countries, there is a very clear difference between NEP and DSP views. This means that acceptance of the NEP implies a clear rejection of the anthropocentric views of the DSP.

The changes in development of environmental attitudes and behaviours during the age is also revealed in a study with children in local schools in New York [33] where the children at the mean ages 6.6 where assessed and the same were reassessed at the ages 10.3, 14.2, and 17.5. The results of this study have shown variation of the attitudes and behaviour in children during the years. Children's environmental attitudes and behaviour increased from ages 7–10 and stayed at the same level until age 14, from age 14-18 they decreased. According to the authors of this research, this age effect among adults is not a direct effect of maturation but reflects the acquisition of more knowledge about environmental issues [33].

The role of culture and socio economic factors, as well as the role of religion, living area and education system in development of pro environmental attitudes and behaviours has been emphasized in many studies [2, 23]. Our views toward nature are in fact influenced by culture because all of us are raised within certain culture and therefore our views toward nature are different, so we consider that these factors must have influenced the pro-environmental orientation of our respondents, too.

During analysing of our results, we identified several limitations of this study which need to be addressed; as first, the sample is small and do not represent the general worldview of all high secondary schools in Kosovo; as second, it is still unclear for us if all the respondents have had clear understanding of all the NEP Scale items-statements before answering to them, and if all items are applicable in our circumstances, and third, limited statistical analyses of the results. These dilemmas should provoke other researchers to expand and intensify surveys on the impact of the environmental education toward more pro environmentally oriented attitudes and behaviours of students.

From our survey we can summarize that the high school students in Malisheva have pro NEP (eco centric) attitudes, at comparable level with the NEP scores in some developed countries. However, the anthropocentric attitudes are still very high, thus we consider that the impact of school environmental education in students' attitudes should be higher and contribute to transform these attitudes in active behaviours, which will mitigate and solve future environmental problems in the country.

4. CONCLUSION

In order to comprehend the environmental behaviour of the high school students and the way they feel, think, and behave in relation to the environment, the environmental attitude of the high school students Malisheva was investigated in this study. The NEP was used as the primary instrument for gauging environmental attitudes because of this.

Although Kosovo faces major environmental problems every day, the results of this paper show that NEP is still low. Like in every developing country, results of study with high school students from Malisheva shows that DSP had the highest impact on decreasing the total pro-NEP score, similar results are found in different developing countries too. Comparing to previous NEP studies in Kosovo, our results slightly have increased in positive direction. The fifth dimension of NEP, the possibility of an eco-crises, has the highest endorsement score compare with others, revelling that respondents have started to be more ecologically sensitive. We expect this study to contribute in expanding the knowledge about the environmental attitudes and behaviours of young peoples in our country and will encourage more intensive research in this discipline.

Contrary to what some people in industrialized cultures believe, the participants did not regard the two perspectives as mutually exclusive. In contrast to less industrialized countries, where the NEP and DSP might coexist in a holistic environmental perspective, the rejection of the DSP by the NEP is a phenomenon that may only be present in Western societies. The NEP Scale will demonstrate more universal applicability outside developed communities with small adjustments such word replacements to promote simple comprehension of items by the respondents.

Regarding the content of the Environmental education in High secondary education curriculum in the country, we suggest that it should increase and change from the theoretical knowledge toward skills development, critical thinking and problem solving. Although our research is a small contribution about the environmental worldview of our high school students, we consider it important as we expect the young generation to be more actively engaged in environmental issues in the future.

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