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Original paper

Gender Differences in Environmentalism: A Case Study of Macedonian Students

***Summary*:** *This study focuses on the impact of gender on environmental worldview in a sample of Macedonian students. The sample used in the final analysis consisted of 448 Macedonian students from 7 elementary and high schools. Participants completed the New Ecological Paradigm scale (NEP; Dunlap et al., 2000). Empirical findings suggest that no firm and clear conclusions can be drawn about the effects of gender on (NEP) environmental concern in a sample of Macedonian students. Findings are discussed in terms of differences between two groups.*

***Key words**: environmentalism, NEP scale, students, gender, Macedonia.*

Introduction

"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development" (1987: 16). This requires profound changes in thinking, in economic and social structures and in consumption and production patterns (European Commission, 2016). Human behavior change is also necessary for mitigation and adaptation. This means that the psychological and sociological study of sustainable behavior and environmentalism are important. Environmentalism is defined as "a different way of thinking in which people try to care more about the planet and the long-term survival of life on Earth" (Chris Woodford, 2016: 1).

One of the ways psychologists can promote environmentalism is to understand the relationship between personal factors and environmental attitudes and behaviors. "Although at first glance, the relationship between human society and the physical environment seems to be gender neutral, affecting both women and men in a similar way, upon closer examination one realizes that the relationship is not neutral. The differentiated socio-cultural construction of men and women's roles means that the linkages between people and the physical environment impact differently on both sexes. As men and women have different roles in

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the family, community and work-force, they are likely to have different personal attitudes, priorities and power over resources when it comes to environmental protection. Men and women also interact differently with the environment, which provides them with different opportunities to protect it" (OSCE, 2009: 17).

This study focuses on the impact of gender on environmental worldview and concern. Environmental worldview can be defined as "the collective beliefs and values that give people a sense of how the world works, their role in the environment, and right and wrong behavior toward the environment. Environmental worldviews dictate how we interact with nature and our attitude toward how we use the natural resources it contains" (Gillaspy, 2015: 1). Environmental concern is defined as "the affect (i.e., worry) associated with beliefs about environmental problems" (Schultz et al., 2004: 31). "Social scientists are motivated to study environmental concern because if we are to move towards environmental sustainability, we need to better understand the environmental worldviews that influence resource consumption and pollution" (Castro, 2006: 248), as a relevant part of the "circumstances under which individuals and groups make decisions and enact behaviors that affect levels of resource consumption and environmental pollution" (Stokols, 1995: 828).

There are many scale to measure environmental attitudes and concern (see: Maloney, Ward, and Braucht, 1975; Weigel and Weigel, 1978; Wiseman and Bogner, 2003; Dunlap and Van Liere, 1978). A widely used measure of environmental worldview is Dunlap and Van Liere's New Environmental Paradigm (NEP) scale, first published in 1978. The scale was revised by Dunlap et al. (2000) and became the New Ecological Paradigm Scale (Dunlap et al., 2000: 433). The revised NEP Scale appears to be an improved measuring instrument compared to the original version, as it (1) provides more comprehensive coverage of the key facets of an ecological worldview: the reality of limits to growth, antianthropocentrism, the fragility of nature's balance, rejection of exemptionalism, and the possibility of an ecocrisis, (2) avoids the unfortunate lack of balance in the item direction of the original scale (where only four items, all dealing with anthropocentrism, were stated in an anti-NEP direction, and (3) removes the outmoded, sexist terminology in some of the original scale's items (Dunlap et al. 2000: 425).

Relatively little information yet exists regarding gender differences in environmental worldview and environmentalism. In that direction, Mohai, P. (1992) point out: "although numerous studies have examined the relationship between demographic variables and environmental attitudes and behaviors, researches on environmentalism and gender have been somewhat limited" (Mohai, 1992: 2).

Although a few studies do not find differences (Stern et al., 1993; Arcury & Christianson, 1993; Widegren, 1988), most find that women score higher than men on environmental concern (Zelezny et al., 2000; Tuncer et al., 2005: Schahn & Holzer, 1990). For example, Zelezny et al. (2000: 443), found college women had higher NEP scores than college men in 10 of the 14 countries they surveyed (men had higher scores in three countries and there were no gender differences in one country- the United States). They also found women reported stronger environmental concern (more specifically, concern for nature, the biosphere, and all living things) in 12 of the 14 countries they studied. A cross-national analysis provides support for gender distinctions with regard to some environmental behaviors within most of the incorporated 22 national contexts (Hunter et al. 2004). However, Chinese women expressed lower levels of concern than men—a finding opposite of most Western studies (Xiao & Hong, 2010). Likewise, Stern and Dietz (1994) reported that women had stronger biospheric and social-altruistic environmental values (cited by Burn et al., 2012). Schultz (2001) found women to score higher on all three value bases of environmental concern: egoistic, altruistic, and biospheric (cited by Burn et al., 2012).

Environmental worldview in the Republic of Macedonia have been studied by many authors: Srbinovski 2001, 2004, 2005a, 2005b, 2006; Ismaili et al., 2009; Idrizi et al., 2014 etc. In the last twenty years approximately 74% of Macedonian students have been demonstrated mainly pro-environmental attitudes. With this study, we hope to give a modest contribution to the clarification of gender differences in environmental worldview in a sample of Macedonian students.

Methods

Base on the above rationale, the following hypothesis was put forward: Because most studies comparing women and men on the NEP found that women scored higher than men, we expected the same. We used revised New Environmental Paradigm scale or New Ecological Paradigm scale also known as the NEP scale developed by Dunlap et al. (2000). In contrast to the "dominant social paradigm" (DSP), which views humans as separate from, and superior to nature, the NEP conceives of environmental concern as endorsement of a new ecological worldview where humans are a part of nature (Burn et al.: 137). The 15-item revised NEP scale (Dunlap et al., 2000: 433) uses a 5-point Likert scale to measure endorsement of an ecological worldview (Table 1). Each item was measured on a scale ranging from 1 to 5: strongly agree (5), agree (4), neither agree or disagree (3), disagree (2), and strongly disagree (1). The NEP score is calculated as the sum of positive responses for each item: strongly agree plus agree. As the directionality of the anthropocentric items was reversed, the NEP score of these items was adjusted. Mean total pro-NEP% is average NEP score.

Agreement with the eight odd-numbered items indicates pro-NEP orientation, while agreement with the seven even numbered ones indicates pro-DSP orientation. The boundary between a pro-ecological perspective and a human–dominance one is generally held to be a NEP score of 45 (Rideout, et al. 2005, cit. in Van Petegem and A. Blieck, 2006). People scoring below 45 tend to be more in favour of the DSP worldview, whereas those with scores higher than 45 tend to be more in favour of the NEP worldview (Van Petegem and A. Blieck, 2006).

Table 1. Items in revised NEP Scale (Dunlap et al., 2000).

1. We are approaching the limit of the number of people the earth can support
2. Humans have the right to modify the natural environmental to suit their needs
3. When humans disturb interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do NOT make the earth unlivable.
5. Humans are severely abusing 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 exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. The earth is like a spaceship with very limited room and resources.
12. Humans were meant to role over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

The NEP scale was tested for reliability using Cronbach's α. For the pilot study, Cronbach's α for this scale was within acceptable internal consistency (.71).

The sample used in the final analysis consisted of 448 Macedonian elementary and high school

students (193 or 43.1% boys, and 252 or 56.3% females). The schools (7) were chosen for reasons of attainability and willingness to cooperate.

The principal components factor analysis (PCA) with varimax rotation was carried out in order to find out the existence of dimensions. The main goal of this transformation technique is to detect the correlation between variables. If a strong correlation between variables exists, the attempt to reduce the dimensionality only makes sense (Raschka, 2015). Varimax rotation is used to simplify the expression of a particular sub-space and to create orthogonal dimensions. In order to test the equality of two population (or treatment) means by examining the variances of samples that are taken, we used a hypothesis-testing technique or analysis of variance (ANOVA). ANOVA allows one to determine whether the differences between the samples are simply due to random error (sampling errors) or whether there are systematic treatment effects that cause the mean in one group to differ from the mean in another (UALR College of Business, 2016). In this study we analyzed the differences between the samples.

Results

Mean total pro-NEP% of females and boys are almost identical (56.63% and 56.80%, respectively). The chi-square tests provided no support on 11 items for the hypothesis (Table 2). Chi square test results showed that females and boys significantly differ in 4 out of 15 items. There were significant differences of opinion on two statements at .05 level (items 4 and 15) and two at .01 level (items 11 and 13).

Range on the agreement responses of females and boys on the pro-environmental items are 50.0 to 96.05% and 58.03 to 92.71%, respectively. Mean total on these items of females and boys are in favor of the NEP worldview (80.91% and 80.40%, respectively).

There is no difference in worldviews of boys and females on pro-NEP statements (χ^2=0.267). The range of differences in responses between females and boys are from 1.5% to18.23%. Maximum differences are regarding the (11th and 13$^{th)}$ statements "The earth is like a spaceship with very limited room and resources" (boys=68.23%, female=50%), and "The balance of nature is very delicate and easily upset" boys=86.01%, female=95.68%).

Although mean total pro-DSP% of females and boys are also almost identical (48.02% and 47.96%, respectively), there is marked difference in worldviews of boys and females on these statements (χ2=21.71, p=.01). The range of differences in responses between females and boys are from 0.26% -7.03%. Maximum differences are regarding the (8th and 4th) statements: "The balance of nature is strong enough to cope with the impacts of modern industrial nations" (boys= 49.74%, female=56.87%), and "Human ingenuity will insure that we do NOT make the earth unlivable" (boys=32.64%, female=27.45%). Perhaps this difference is due to fact that the boys students have more positive attitude towards science than female students (Banu, 1986). From that, they might have higher level of knowledge about science and human abilities.

We agree with Rideout et al., (2005), and Van Petegem and A. Blieck (2006) that NEP item 6 ("The earth has plenty of natural resources if we just learn how to develop them") was probably misinterpreted by the respondents. Perhaps this is due to its content. This item includes two different elements: knowledge of natural resources, and knowledge about learning process and education. It appears ambiguous or not clearly understandable for Macedonian children.

In order to simplify the expression of a particular sub-space in terms of just a few major items each, we used a principal components factor analysis (PCA) with varimax rotation, showing four dimensions named "Balance of Nature", "Humans over Nature", "Anti anthropocentrism" and "Limit to growth". Items 5, 3, 15, 9 and 8 loaded heavily on the 'Balance of Nature' component, four items (14, 2, 10 and 6)

Table 2. Frequency distributions for the NEP scale by gender

Item	Gender	SD	D	Neither A or D	A	SA	Missing cases	NEP score	χ^2
1	boys	1.55(3)	15.54(30)	24.87(48)	39.38 (76)	18.65(36)	0 (0)	58.03	1.88
	female	.4 (1)	16.6(42)	26.48(67)	38.74(98)	17.79(45)	.78(2)	56.53	
2	boys	5.7 (11)	8.81 (17)	11.4 (22)	22.28(43)	51.81(100)	0 (0)	14.51	2.79
	female	2.76 (7)	8.27(21)	11.42(29)	25.20(64)	52.36(133)	.4(1)	11.03	
3	boys	1.04 (2)	3.13 (6)	3.13 (6)	26.56(51)	66.15(127)	.52 (1)	92.71	2.23
	female	.78 (2)	1.57(4)	3.92 (10)	30.59(78)	63.14(161)	0 (0)	93.73	
4	boys	6.22(12)	26.42(51)	37.31(72)	25.91(50)	4.15(8)	0(0)	32.64	10.28*
	female	3.53(9)	23.92(61)	38.82(99)	21.96(56)	11.76(30)	0(0)	27.45	
5	boys	2.08(4)	5.21(10)	11.46(22)	43.75(84)	37.50(72)	.52(1)	81.25	8.81
	female	.39(1)	3.53(9)	8.63(22)	38.04(97)	49.41(126)	0 (0)	87.45	
6	boys	0(0)	.52(1)	3.63(7)	33.68(65)	62.18(120)	0(0)	.52	6.64
	female	0(0)	.78(2)	4.31(11)	22.75(58)	72.16(184)	0(0)	.78	
7	boys	1.55(3)	4.15(8)	5.70(11)	29.53(57)	59.07(114)	0(0)	88.6	5.84
	female	.39(1)	1.96(5)	3.92(10)	26.27(67)	67.45(172)	0(0)	93.72	
8	boys	10.36(20)	39.38(76)	27.46(53)	19.17(37)	3.63(7)	0(0)	49.74	4,36
	female	8.63(22)	48.24(123)	22.75(58)	15.69(40)	4.71(12)	0(0)	56.87	
9	boys	.52(1)	4.15(8)	15.03(29)	46.11(89)	34.2(66)	0(0)	80.31	7.38
	female	1.57(4)	5.88(15)	18.43(47)	50.59(129)	23.53(60)	0(0)	74.12	
10	boys	9.84(19)	31.09(60)	27.98(54)	24.35(47)	6.74(13)	0(0)	40.93	6.69
	female	4.71(12)	35.29(90)	30.20(77)	20.39(52)	9.41(24)	0(0)	40.00	
11	boys	1.04(2)	13.54(26)	17.19(33)	33.33(64)	34.90(67)	.52(1)	68.23	32.43**
	female	6.69(17)	20.47(52)	22.83(58)	35.43(90)	14.57(37)	.4(1)	50.00	
12	boys	15.54(30)	31.09(60)	24.35(47)	20.21(39)	8.81(17)	0(0)	46.63	5.57
	female	8.63(22)	35.69(91)	27.06(69)	20.39(52)	8.24(21)	0(0)	44.32	
13	boys	2.59(5)	3.63(7)	7.77(15)	30.57(59)	55.44(107)	0(0)	86.01	13.73**
	female	.39(1)	1.18(3)	2.75(7)	34.9(89)	60.78(155)	0(0)	95.68	
14	boys	7.25(14)	16.58(32)	23.32(45)	33.68(65)	19.17(37)	0(0)	23.83	9.11
	female	2.36(6)	19.29(49)	30.71(78)	29.92(76)	17.72(45)	.4(1)	21.65	
15	boys	1.04(2)	4.66(9)	6.22(12)	20.21(39)	67.88(131)	0(0)	88.09	13,05*
	female	1.19(3)	0.79(2)	1.98(5)	19.37(49)	76.68(194)	.78(2)	96.05	
Mean total pro-NEP%	boys							56.80	
	female							56.63	

N = 448; frequency displayed in percentages, counts noted in brackets, χ^2- chi square test.
SD- strongly disagree, D- disagree, A- agree, SA- strongly agree
* $p = .05$. ** $p = .01$.

loaded on the 'Humans over Nature' component, two items (13 and 1) on the 'Limits to Growth' component and items 7, 4, 12 and 11 loaded on the "Anti anthropocentrism" component. Each of the four factors contains at least two out of five NEP dimensions which include issues of fragility of nature's balance, possibility of eco-crisis, anti-anthropocentrism, anti-exemptionalism and limits to growth. The first one of these four factors ("Balance of Nature") contains three related dimensions focusing on the issues of fra-

gility of nature's balance, possibility of eco-crisis and anti-exemptionalism. These three dimensions include two items on the possibility of eco-crisis (item 5 and 15), two items on the fragility of nature's balance (items 3 and 8), and one item on anti-exemptionalism (item 9). The second factor ("Humans over Nature") has 4 items and includes one item on the possibility of eco-crisis (item 10), one on anti-exemptionalism (items 14), one on limits to growth (item 6) and one on anti-anthropocentrism (item 2). The third factor ("Anti-anthropocentrism") includes two items on anti-anthropocentrism (items 7 and 12), one on limits to Growth (item 11) and one on anti-exeptionalism (item 4). The fourth factor ("Limit to growth") consists of one item on limit to growth (item 1) and one on the fragility of nature's balance (item 13). Dunlap et al. (2000) cautioned that the dimensionality may depend on the specifics of the sample. The primary factors explained a total of 41% of the variance in results obtained (Table 3 and 4).

Table 3. Factor loadings in the PCA of the revised NEP items with varimax rotation.*

	Dimensions			
	1	2	3	4
NEP 5	**.692**	.083	.266	-.043
NEP 3	**.685**	.249	.030	.023
NEP 15	**.631**	.098	.177	.184
NEP 9	**.469**	.393	-.222	-.013
NEP 8	**-.426**	.425	-.264	.131
NEP 14	-.149	**.617**	-.078	-.049
NEP 2	-.270	**.527**	.232	-.055
NEP 10	-.346	**.445**	.196	-.181
NEP 6	.350	**.372**	-.148	-.230
NEP 7	.461	.209	**-.512**	-.072
NEP 4	-.232	.417	**-.483**	-.020
NE 12	-.419	.385	.445	.173
NEP 11	.222	.341	**.399**	.213
NEP 13	.110	.120	-.080	.822
NEP 1	.226	.167	**.342**	-.359

*PCA- principal component analysis

Table 4. Total variance explained, rotated components.

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	1.689	11.263	11.263
2	1.673	11.157	22.420
3	1.441	9.604	32.024
4	1.296	8.643	40.668

In order to describe the results, we use descriptive table (Table 5). The descriptive table provides some very useful descriptive statistics, including the mean, standard deviation and 95% confidence intervals for the dependent variable for each separate factor, as well as when both groups are combined (Total).

The output of the ANOVA analysis and whether we have a statistically significant difference between our group means are shown on the Table 6.

The test statistic for FA4 is the F value of 4.121. Since the test statistic is larger than the critical value, we reject the null hypothesis of equal population means and conclude that there is a (statistically) significant difference among the population means (Mean female = 3.84, SD=0.61; Mean boys = 3.71, SD=0.70) in terms of FA4, F (1.44) = 4.12, p< .043).

Discussion and conclusion

Although more studies using the new ecological paradigm (NEP) typically find that women more strongly endorse the new ecological paradigm (Tikka et al., 2000; Blocker & Eckberg, 1997; Scannell & Gifford, 2013; Luchs & Mooradian, 2012; Gutteling & Wiegman, 1993), we found almost identical results for both groups, probably due to cultural similarity in traditional socialization. Smaller gender differences we might expect where traditional gender roles are more equal. A large majority of both female and boys students agree on all pro-environment statements.

Table 5. Descriptive table

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
FA1	boys	192	4,4260	,42334	,03055	4,3658	4,4863	3,20	5,00
	female	250	4,4744	,39605	,02505	4,4251	4,5237	2,40	5,00
	Total	442	4,4534	,40836	,01942	4,4152	4,4916	2,40	5,00
FA2	boys	193	2,9767	,67804	,04881	2,8804	3,0729	1,00	5,00
	female	251	3,0169	,61965	,03911	2,9399	3,0940	1,50	4,75
	Total	444	2,9994	,64524	,03062	2,9393	3,0596	1,00	5,00
FA3	boys	191	3,7906	,68595	,04963	3,6927	3,8885	1,67	5,00
	female	251	3,7782	,61315	,03870	3,7020	3,8544	2,00	5,00
	Total	442	3,7836	,64489	,03067	3,7233	3,8438	1,67	5,00
FA4	boys	193	3,7133	,70433	,05070	3,6133	3,8133	1,00	5,00
	female	251	3,8406	,61486	,03881	3,7642	3,9171	2,33	5,00
	Total	444	3,7853	,65753	,03121	3,7240	3,8466	1,00	5,00

Table 6. ANOVA table

		Sum of Squares	df	Mean Square	F	Sig.
FA1	Between Groups	,254	1	,254	1,525	,218
	Within Groups	73,286	440	,167		
	Total	73,540	441			
FA2	Between Groups	,177	1	,177	,424	,515
	Within Groups	184,261	442	,417		
	Total	184,437	443			
FA3	Between Groups	,017	1	,017	,040	,842
	Within Groups	183,388	440	,417		
	Total	183,405	441			
FA4	Between Groups	1,769	1	1,769	4,121	,043
	Within Groups	189,761	442	,429		
	Total	191,531	443			

No significant difference between boys and females on (NEP) environmental concern found others studies (Arcury and Christianson, 1993; Widegren, 1988). No clear gender differences in environmental attitudes and behaviors support Hines et al., (1986–87). Although the majority of studies from 1988 to 1998 found that women reported significantly more general environmental concern than men, the effect of gender on NEP environmental attitudes was small (Zelezny et al, 2000: 444). In both adults and youth, the effect of gender (female) was stronger on proenvironmental behaviors than NEP environmental concerns (Zelezny et al, 2000). Their findings strongly suggest that environmentalism does not begin in adulthood, thus debunking the argument that gender differences in environmentalism arise with motherhood and protecting children from environmental threats (Hamilton, 1985; Levine, 1982; cited by Zelezny et al, 2000: 449). Mohai (1992) stated that "no firm conclusions can be drawn about the effects of gender on concern about general environmental issues, and more analysis and explanation clearly needs to be done in this area" (Mohai (1992: 2).

Females and boys in a sample of Macedonian students significantly differ in 4 out of 15 items, in 1 out of 4 factors, and on pro-DSP statements. Differences between the groups are probably resulting of their different level of knowledge about the environmental segments included into these items. In that direction, NEP scale was criticized for measuring cognitive beliefs based on learned facts rather than affective experience, based on emotional bond with nature (Mayer and Franz, 2004). We must not omit "the wealth of formative influences or significant life experiences that individuals bring to their further learning. Research has demonstrated that these may indeed be more significant than planned formal educational programs in the development of environmental understanding and concern" (Palmer, 2003).

Many factors create gender differences in environmental attitudes. The influences are grouped into 18 personal and social factors. A personality, for example, is more prominent among women (Luchs & Mooradian, 2012). Compared to boys, females have higher levels of socialization to be other oriented and socially responsible (Zelezny et al., 2000). According many researches (Blocker & Eckberg, 1997; Dietz et al., 2002; Stern et al., 1993; Zelezny et al. 2000), gender differences arising from traditional gender socialization. The reasoning is that females are more likely to be socialized to be communal and other-centered (which is more consistent with values of self-transcendence related to environmentalism), while boys are socialized to be agentic and competitive- which is more consistent with self-enhancement values contrary to environmentalism- (Burn et al. 2012). Women express more concern, but men are more knowledgeable (Arcury and Christianson, 1993; Gambro and Switzky, 1999; Gifford et al., 1982–83; Levine & Strube, 2012; Arcury, Scollay and Johnson, 1987; Grieve VanStaden, 1985; Schahn and Holzer, 1990; Stern et al., 1993). Another explanation is that "altruistic concerns such as health and safety (which can be threatened by a degraded environment) are more important to women, especially to women with children at home" (Davidson and Freudenburg, 1996; Dietz et al., 2002). Environmental worldview may also differ based on culture. For example, due to cultural differences in traditional socialization, we might expect greater gender differences where traditional gender roles are the norm and smaller ones where gender roles are more equal (Burn et al., 2012).

Of course, there may be other explanations for gender differences in environmental attitudes. The relationship between gender and environmental concern has also tended to isolate gender without considering that the influence of gender may depend on other "intersectional" variables such as ethnicity, class, nationality, and region. In the case of gender and environmental concern, most of the research was conducted over a decade ago and the intersection of gender and culture is unexplored" (Burn et al. 2012).

Empirical findings suggest that no firm and clear conclusions can be drawn about the effects of gender on (NEP) environmental concern in a sample of Macedonian students. In general, these findings suggest that genders do not differ on the NEP scale. A large majority of both female and boys students agree on all pro-environment statements. These findings support Davidson and Freudenberg's (1996) claim that gender differences in environmentalism are not universal (Davidson and Freudenberg, 1996). We cannot say whether existing differences are due to gender socialization and gendered roles but we can say that more research are needed on gender and the environment in environmental psychology and environmental sociology. From that, future studies should focus on all factors that create gender differences in environmental worldview. The number of these influences suggests that understanding pro-environmental concern is far more complex than previously thought (Gifford and Nilsson, 2014).

In general, across-gender differences do not exist between two groups. Few gender differences in environmental orientations are limited on some items or factors. From that, results do not support hypothesis. Our findings also suggest that equal attention should be paid to the role of both genders in the promotion of sustainability, although according to some studies, women tend to score higher on the environmental values that underlie environmental action.

It is important to note the limitations of this investigation. First, the random sample is relatively small. Second, the sample consisted only of students from elementary and secondary schools. Future researchers will use large, representative "mixed" samples to explain gender differences. In that direction, studying the cultural and contextual factors may explain gender differences, and provide information useful for the effective design of actions aimed at increasing environmental responsibility in a society.

Despite these limitations, these results provide an intriguing insight into gender differences in student's worldviews. Anyway, the present study is only a small part of ongoing studies of environmental worldview of the people in developing countries. In further research it would be interesting to explore other age groups, cultures and contexts with different educational activities and background.

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Родне разлике и еколошки поглед на свет: студија случаја из Македоније

Резиме: *У овој студији бавимо се утицајем пола на еколошки поглед на свет и забринутост за животну средину. Еколошки поглед на свет може се дефинисати као „колективна уверења и вредности који људима дају представу о томе како свет функционише, која је њихова улога у животној средини, као и које понашање је исправно или погрешно у односу на животну средину" (Gillaspy, 2015: 1). Забринутост за животну средину дефинише се као „афект (то јест бригa) повезана са уверењима о еколошким проблемима" (Schultz et al., 2004: 31). „Научници из области друштвених наука имају мотив да се баве еколошком забринутошћу зато што, ако желимо да идемо у правцу одрживости животне средине, морамо боље да разумемо еколошки поглед на свет који утиче на потрошњу ресурса и загађење" (Castro, 2006: 248), као важан део „околности у којима појединци и групе доносе одлуке и понашају се на начин који утиче на ниво трошења ресурса и загађења животне средине" (Stokols, 1995: 828).*

Изнета је следећа хипотеза: Будући да су многа истраживања у којима су мушкарци и жене поређени коришћењем ревидиране скале Нове еколошке парадигме (НЕП) показала да жене имају већи број поена од мушкараца, ми очекујемо исти такав резултат. Користили смо ревидирану скалу Нове еколошке парадигме, познатију као НЕП скала, коју су конструисали Данлап и сарадници (Dunlap et al., 2000). У овој скали од петнаест ставки користи се петостепена Ликертова скала за мерење прихватања еколошког погледа на свет. Свака ставка мерена је на скали од 1 до 5: потпуно се слажем (5), слажем се (4), неодлучан сам (3), не слажем се (2) и уопште се не слажем (1). Слагање са осам ставки под непарним бројевима указује на про-НЕП оријентацију, док слагање са седам ставки под парним бројевима указује на про-ДСП оријентацију (доминантна социјална парадигма). Поузданост НЕП скале тестирана је помоћу Кронбах α коефицијента. У пилот истраживању, Кронбах α коефицијент за ову скалу био је у границама прихватљиве унутрашње конзистенције (α=,71).

Узорак коришћен у финалној анализи чинило је четиристо четрдесет осам ученика македонских основних и средњих школа (сто деведесет три дечака или 43,1% и двеста педесет две девојчице или 56,3%). Школе су одабране на основу доступности и жеље да сарађују у истраживању.

Извршили смо факторску анализу главних компоненти (Principal Components Analysis, PCA) са варимакс ротацијом како бисмо утврдили присуство или одсуство димензија. За тестирање (или третирање) једнакости средње вредности између ове две популације, испитивањем варијанси узорака, коришћена је техника тестирања хипотезе или анализа варијансе (Analysis of Variance, ANOVA).

Укупна средња вредност про-НЕП% девојчица и дечака скоро је идентична (56,63% и 56,80%). Хи-квадрат тестови (Chi-square test) нису били примењиви на једанаест ставки наведених у хипотези. Према резултатима ових тестова, постоје знатне разлике између

девојчица и дечака у четири од петнаест ставки. Уочена је значајна разлика у ставовима у две изјаве на .05 нивоу и .01 нивоу.

По питању про-НЕП изјава, не постоји разлика између ставова дечака и девојчица (χ^2=0.267). Иако су средње вредности про-ДСП% готово идентичне (48,02% девојчице и 47,96% дечаци), уочена је велика разлика у ставовима који се односе на ове изјаве између два пола (χ2=21.71, p=.01). Факторска анализа главних компоненти са варимакс ротацијом указала је на четири димензије: Равнотежа у природи, Људи изнад природе, Антиантропоцентризам, и Ограничавање раста. Постоји (статистички) значајна разлика у средњим вредностима између две групе испитаника (средња вредност за женски пол = 3.84, SD=0.61; средња вредност за мушки пол = 3.71, SD=0.70) у погледу четврте димензије (Ограничавање раста , F (1.44)=4.12, p< .043).

Емпиријски резултати истраживања спроведеног на узорку македонских ученика указују на чињеницу да се не могу извући чврсти и јасни закључци о утицају пола на (НЕП) забринутост за животну средину. Генерално, на основу налаза истраживања могло би се закључити да на НЕП скали нема разлике између полова. Већина ученика и ученица има исте ставове када је реч о проеколошким изјавама. Ови налази потврђују мишљење Дејвидсона и Фројденберга (Davidson & Freudenberg, 1996) да родне разлике нису универзалне у еколошком погледу на свет. Мада не можемо са сигурношћу тврдити да су родна социјализација и родне улоге узрок постојећих разлика, извесно је да еколошка психологија и еколошка социологија треба дубље да истраже проблематику везану за род и животну средину. У неким будућим научним студијама треба се фокусирати на све факторе који доводе до родних разлика у еколошком погледу на свет. Бројност ових фактора указује на чињеницу да је разумевање забринутости за животну средину много сложеније него што се до сада мислило (Gifford & Nilsson, 2014: 114).

Уопштено говорећи, не постоје родне разлике између две групе тестираних ученика. Неколико родних разлика у погледу еколошке оријентације уочено је само код неких ставки и једног фактора (димензије). Резултати истраживања не подржавају изнету хипотезу. Они такође указују на потребу да се посебна пажња посвети улози оба пола у промовисању одрживости, упркос чињеници да, према неким истраживањима, особе женског пола остварују бољи резултат када је реч о еколошким вредностима на којима се заснива еколошко деловање.

***Кључне речи**: еколошки поглед на свет, НЕП скале, ученици, пол, Македонија.*