

# Ecocentric attitudes of in-service and pre-service teachers measured by New Ecological Paradigm scale

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## ABSTRACT

This study aims for the first time to analyze and compare ecocentric and anthropocentric attitudes of two socioeconomic groups: in-service and pre-service teachers in Kosovo. Respondents' attitudes are measured through the New Ecological Paradigm scale, an internationally standardized metric devised for measuring the environmental concern of different socio-economic groups. This quantitative research study surveyed a sample of 261 respondents. Results of the research show that respondents evaluate global and country environments worsening in the last decade, while share limited optimism for improvements in the next decade. As for the New Ecological Paradigm scale, both groups show an ecocentric approach for ten of the New Ecological Paradigm statements and the anthropocentric approach in four of them. In one of the statements, one group shows an ecocentric approach, while the other group endorses the anthropocentric approach.

**Keywords:** anthropocentric, dimensions, eco-centric, ecological paradigm, statements

## INTRODUCTION

Homo sapiens is one of the millions of species living on this planet but also ruling with the rest of the nature due to its brain and intellectual development. Moving away from the idea of dominance over nature makes possible human life in harmony with nature (Mollison, 2014). Furthermore, Alagoz and Akman (2016) pointed out that "a human is not superior to the other living beings, and that all living beings are an expression of life". The exploitation of natural resources without considering the Earth carrying capacity, is part of the socio-economic development of human society in our recent history (Ogunbode, 2013).

The attempts for measuring public concern regarding environmental quality have mainly concentrated on issues such as water, air and soil pollution, loss of natural esthetic values, and preservation of natural resources with special attention to energy (Weigel & Weigel, 1978). However, in the last century, global concerns have been rising over environmental problems. Moreover, the causes of these environmental problems became more complex and effective on one side, while on other side, solutions are becoming more and more problematic (Erkal et al., 2012; Stern et al., 1992).

For all these reasons, people's assumptions about ecological worldview in one side and increase their credibility in other in the 1990s were used (Olsen et al., 1992). More

specific tools such as "ecological consciousness" (Ellis & Thompson, 1997), "anthropocentrism" (Chandler & Dreger, 1993), and "eco-centrism" (Thompson & Barton, 1994) have been used to measure to measure general environmental concerns.

Researchers who investigate how society perceives environmental problems are increasingly interested in the current "attitude issues" (Stern et al., 1995), and the number of studies examining perceptions on environmental issues. According to Clayton and Myers (2009), human attitudes toward the environment are based on "complex moral and social values" and comprise "the beliefs, affective responses, and behavioral intentions that people hold concerning environmental issues" (Schultz et al., 2004).

One of the most disputed questions today is an open debate between the anthropocentric and eco-centric worldviews of people. The term "eco-centrism" refers to only one variety of non-anthropocentric approaches. An anthropocentric approach is "a system of values with emphasis on anthropocentric thinking that the environment should be protected because the quality of life for humans" (Thompson & Barton, 1994). The hierarchy of living beings in nature, where humans are above all other biota is the core of anthropocentric worldview (Kortetmäki, 2013). In addition, views such superiority of humans above other species; no need for conservation of natural resources; technology in possession of humans can adapt nature to our needs rather

than adapt to the environment; and humans as exempt from ecological constraints raised a paradigm called dominant social paradigm (DSP) (Dunlap, 1980). DSP supports belief in the “limitless of natural resources, a continuation of human progress, needs for economic and social growth, faith that science and technology will solve all problems of the planet sustainability” (Albrecht et al., 1982).

With increasing concern for the environment, a shift from DSP or anthropocentric view to eco-centric or new ecological paradigm (NEP) has emerged. NEP worldview focused on beliefs that human’s are able to upset the balance of nature (BN), existing limits to human growth and humanity’s right “to rule over the rest of nature” (Dunlap et al., 2000). Eco-centric oriented individuals value nature and promote nature conservation because of its intrinsic value (Thompson & Barton, 1994).

NEP scale is a survey instrument measuring the environmental concerns of various socio-economic groups of people. The concept of NEP or the current revised version of NEP is developed by Dunlap et al. (2000). NEP scale consists of 15 statements (as opposed to the original NEP, which consisted of 12), where respondents are asked to support or oppose each of the statements.

Eco-centric worldview is based on NEP dimensions (Milbrath, 1984), and in its multidimensionality suggests that environmental attitudes are more complex than was originally thought. Dunlap and Van Liere (1978) introduced NEP scale as unidimensional. Gooch (1995), Bechtel et al. (1999), and Nooney et al. (2003) identified two dimensions in NEP scale, La Trobe and Acott (2000) four dimensions, Lück (2003) five dimensions, and Manoli et al. (2007) three dimensions. All this research supports the argument that a definite number of NEP dimensions is not yet fixed (Lalonde & Jackson, 2002). Soyez et al. (2009) conceptualized pro-environmental value orientation as a four-dimensional construct, consisting of egocentrism, eco-centrism, anthropocentrism and environmental apathy. A study of Dyr and Prosika (2020) through exploratory structural equation modeling, identified a two-factorial structure of NEP scale as more appropriate.

Many studies with different socio-economic groups such as college or school students, tourists tried to test NEP scale. Rideout et al. (2005) implemented a longitudinal study of environmental college students, using NEP scale, resulting in weak endorsement of NEP worldview. In their research with teacher-students, Alagoz and Akman (2016) observed that gender did not show any influence on their anthropocentric or eco-centric approach. Chinese students of Xi’an Jiaotong-Liverpool University supported a so-called Western world view with respect to limits to growth (LG) and anti-anthropocentrism (AA), however, differs from the Western view with respect to BN dimensions of NEP (Wells & Petherick).

Findings from the study with students indicated that NEP scale should be carefully evaluated according to the historical and cultural context of the populations under the study (Erdogan, 2013). Using the modified NEP scale, a study of Luzar et al. (1995) analyzed the decision of tourists in Louisiana (USA) to participate in eco-tourism activities and identified factors, that influenced their decision. Other

researchers conducted cross-sectional analyses using NEP scale in various variables. Johnson et al. (2004) measured ethnic variation in environmental belief, using NEP for four environmental behaviors: environmental reading, household recycling, environmental group joining, and participation in outdoor recreation. Poortinga et al. (2004) analyzed the seven value dimensions and found statistically significant changes between respondents living in urban and rural areas. On the contrary, Noblet et al. (2013) questioned the reliability of NEP in capturing ecological worldview.

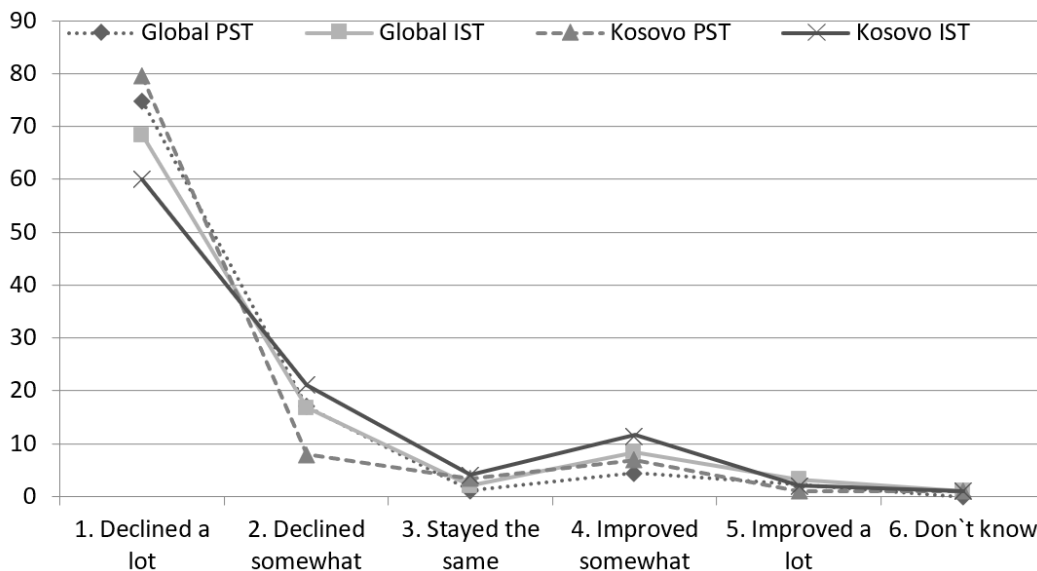
NEP scale is also being used in different sectors such as in national parks, wildlife, and environmental beliefs. In general, environmentalists support statements with eco-centric worldview, while commercial fishers, however, strongly reject NEP scale (Edgell & Nowell, 1989). Other studies conducted aimed to investigate cross-national or cross-cultural comparisons using NEP. The study of Soyez et al. (2009) about the structure of pro-environmental value orientation of two different ethnic groups, appeared to be largely equivalent in Russian and German cultures. Bechtel et al. (1999) studied the environmental beliefs of Americans, Brazilians, and Mexicans using NEP scale and found no interrelation between different cultures. The study with Dutch children, argued that NEP scale needs adaption in the environmental education programs (Kopnina, 2011). Atav et al. (2015) used NEP scale to determine environmental attitudes of secondary school students, finding out that the attitudes were closer to eco-centric than anthropocentric worldview.

In the region of the Balkans, there is a limited number of studies testing pro-ecological worldviews of different groups. Srbinovski and Stanišić (2020) assessed NEP scale to explore the environmental worldviews of Serbian and North-Macedonian students, that resulted with higher NEP support by the Macedonian students.

The Republic of Kosovo as the youngest country in Europe is facing a heavy environmental legacy: pollution from old technologies of lignite power plants, extracting industries, and limited water resources (Veselaj & Torkar, 2016). Among the six objectives of the curriculum framework is “the development of responsibilities of students towards themselves, others, and the environment” (Veselaj & Krasniqi, 2014). Analysis about measuring people’s environmental concerns and particularly their eco-centric attitude in Kosovo is very limited. Considering this, NEP scale is tested only in two surveys. Bytyqi et al. (2017) tested NEP scale with Kosovar high school students, while Veselaj et al. (2019) used NEP scale to measure eco-centric attitudes of in-service teachers (IST) in elementary education.

## METHODOLOGY

The aim of this research is to analyze and compare the level of eco-centric views of two different groups: pre-service (teacher-students) and IST in Kosovo. The research method is quantitative using a questionnaire as the research instrument. The first part of the questionnaire, in addition to socio-economic data, addressed respondents’ perceptions about the environmental changes in the last decade and their expectations for developments in the next decade, both at the



**Figure 1.** Perceptions of the respondents about the changes occurred in the environment in past decade (in %) in global and country level (Source: Author's own elaboration)

global and country level. The key component of the survey questionnaire addressed the respondents' compliance with 15 statements of NEP scale, to measure eco-centric views of the respondents. Respondents from groups, using the Likert scale (Likert, 1932) were able to either endorse or not NEP statements. This would reveal whether the respondents were more eco-centric or anthropocentric-oriented. NEP scale score is calculated as sum of responses for each of 15 NEP items.

The research sample is composed of 261 respondents belonging to two groups: IST and pre-service teachers (PST). The first group of respondents (IST) consists of teachers working at the primary education level, while PST group are students of primary education program of faculty of education completing teacher training for teaching. IST group consisted of 95 primary education level teachers: 76 or 80% females and 19 or 20% males. IST group participated in the training on a sustainable development educational kit called the green pack junior during the survey. Green pack junior is an educational kit aiming to support education for the environment and sustainable development for the students at the primary level in Kosovo (grades 1-5). To use the kit, ISTs had to participate in a series of training. Once the training was completed, participants filled out a questionnaire. PST sample consisted of 166 student teachers in their third year of studies: 154 or 93% females and 10 or 7% males that are part of the compulsory course on environmental education in their study program. The questionnaire for PST group is filled-out before they entered the course. Out of 95 IST respondents, 54 (56.8%) are from urban areas and 43 (43.2%) from rural areas; while from the 166 PST respondents, 126 (75.9%) are from urban areas and 40 (24.1%) from rural areas.

## RESULTS AND DISCUSSION

The survey addressed the perception of respondents regarding the changes that have taken place in the environment over the last ten years at the global and country levels. The respondents were able to make the choice about the

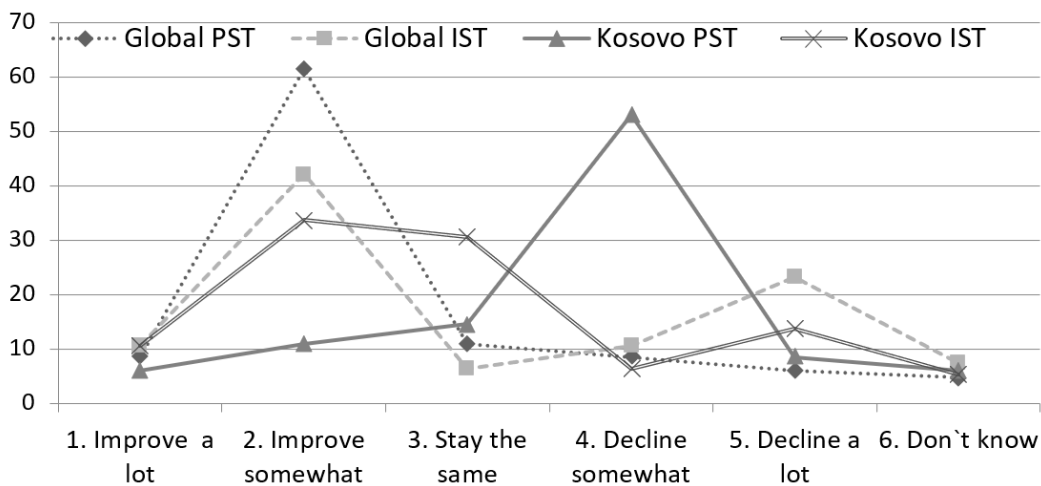
perceived changes in the environment from: worsened a lot, worsened, stayed the same, improved and improved a lot, including. The respondents' perceptions over the last 10 years are presented in **Figure 1**.

The data presented in **Figure 1** show both groups agree on a worsening of the environmental situation in the last decade. IST group, with 85.3% estimates worsening of the global environment and 81.1% of the country environment. Worsening of the global environment is case for 92.1% and in the country level for 87.5% PST group. Improvements of global and country environment are relatively minor, evaluated as such by only 13.7% of IST and 10.3% of PST. No changes in environment are indicated by 7.6% of total respondents. According to results, it turns out that environmental situation has worsened in last decade, while PST group as a younger generation feels a greater sense of decline.

Part of the survey consists of assessing respondent's expectations of environmental changes in the environment, again at the global and country levels over the next decade. The results of the expectations of the environmental changes in the next decade are shown in **Figure 2**. The data in **Figure 2**, shows that 69.9% of PST expects improvement of the global environment, while this is true for only 16.8% for the country's environment. IST group expects improvement of global environmental situation by 52.6% and 44.2% for country level.

Future teachers are on the one hand optimistic that the global environment can be improved, but on other hand quite skeptical about the national level. A worsening of the global environment is expected by 33.7% of PST and 14.5% of IST, while at the country level, a worsening is expected by 61.5% of PST and 20% of IST group. PST assumes the worsen at both levels if the environmental degradation continues. That environmental situation will remain unchanged and in current path of degradation is the expectation for 30.5% of IST and 14.5% of PST group.

The goal of the research is to investigate the endorsement of NEP scale by both groups of respondents and to identify orientation based on individual choice. Endorsement of the 15



**Figure 2.** Respondent's expectation for changes in the environment in next decade (in %) in global and country level (Source: Author's own elaboration)

**Table 1.** Endorsement of NEP scale by IST & PST respondents

15 NEP statements (Dunlap et al., 2000)	D	SD (%)		D (%)		U (%)		A (%)		SA (%)	
		IST	PST	IST	PST	IST	PST	IST	PST	IST	PST
1. We are approaching the limit of the number of people the Earth can support.	LG	16.8	7.8	27.4	30.7	23.2	12.7	21.0	43.4	11.6	5.4
2. Humans have the right to modify the natural environment to suit their needs.	AA	20.0	19.9	40.0	33.7	10.5	1.2	26.3	27.7	3.2	17.5
3. When humans interfere with nature it often produces disastrous consequences.	BN	1.0	2.4	5.3	4.8	3.2	6.0	46.4	59.1	44.2	27.7
4. Human ingenuity will ensure that we do not make the Earth unlivable.	AE	5.3	3.6	15.8	5.4	24.2	9.1	35.8	33.1	18.9	48.8
5. Humans are severely abusing the environment.	EC	2.1	0.0	5.3	6.0	2.1	1.2	48.4	56	42.1	36.8
6. Earth has plenty of natural resources if we just learn how to develop them.	LG	2.1	0.0	3.2	1.2	1.0	2.4	37.9	53.6	55.8	42.8
7. Plants and animals have as much right as humans to exist.	AA	0.0	1.2	3.2	1.2	1.0	0.0	25.3	38.0	70.5	59.6
8. Balance of nature is strong enough to cope with impacts of modern industries.	BN	12.6	10.8	43.3	51.2	18.9	16.3	18.9	15.7	6.3	6.0
9. Despite our special abilities' humans are still subject to the laws of nature.	AE	1.0	0.0	6.3	20.5	20.0	13.3	51.6	55.4	21.1	10.8
10. So-called ecological crisis facing humankind has been greatly exaggerated.	EC	13.7	16.3	45.3	44.0	12.6	9.6	20.0	21.7	8.4	8.4
11. Earth is like a spaceship with very limited room and resources.	LG	9.5	2.4	27.4	19.9	18.9	18.1	37.9	48.8	6.3	10.8
12. Humans were meant to rule over the rest of nature.	AA	10.5	1.2	40.0	30.1	21.1	16.3	22.1	46.4	6.3	6.0
13. Balance of nature is very delicate and easily upset.	BN	3.2	1.2	9.5	9.6	9.5	6.0	47.3	57.9	30.5	25.3
14. Humans will eventually learn enough about how nature works to be able to control it.	AE	3.2	0.0	10.5	13.9	16.8	10.8	49.5	53.6	20.0	21.7
15. If things continue their present course, we will soon experience a major ecological catastrophe.	EC	1.0	1.2	2.1	7.2	12.6	10.8	34.8	42.8	49.5	38.0

Note. D: Dimension; SD: Strongly disagree; D: Disagree; U: Unsure; A: Agree; & SA: Strongly agree

NEP's statements, according to five-dimension categorization is presented in **Table 1**.

*LG* dimension suggests limits to the growth and development. Regarding the statement that we are approaching the border that the Earth can hold (statement 1), 44.2% of IST group disagree (anthropocentric approach), while 48.8% of PST group agree with this statement, so they have almost eco-centric approaches.

About 35.9% of the total respondents are unsure in this attitude. Regarding the statement 6, both groups identify strong anthropocentric views: IST group with 96.6% and PST group with 93.7% supporting limitless resources. Perceiving "planet Earth as a space shuttle with limited resources" (statement 11), PST group has moderate eco-centric approaches with 59.6%, endorsing it, while 44.2% of IST group agree with a more anthropocentric view. Still about 37% of total respondents are unsure of this attitude.

*AA* dimension suggests rejecting the view that nature exists primarily for meeting the needs of human beings. Regarding the statement 2, both groups hold an eco-centric

view: 60% of IST group and 63.6% of PST group disagree with the statement. Strong eco-centric views about the "rights of animals and plants to exist just like humans" (statement 7) is strongly endorsed in both groups: 97% of PST group and 75.8% of IST group. Whether people are created to govern the nature (statement 12) both groups show anthropocentric views: 50.5% of IST group and 52.5% of PST group endorsing this statement. About 32% of total respondents have no opinion about this statement.

*BN* dimension claims the existence of a balance that can be disrupted by increasing impact of human beings. About serious consequences that humans are producing with their intervention in nature (statement 3) both groups have a strong eco-centric approach: 90.6% of IST group and 86.8% of PST group support it. About the idea that the balance of nature can cope with the impacts of modern industries (statement 8), both groups have moderate eco-centric views: 62% of PST group and 55.9% of IST group disagreeing with this statement. About 35% of total respondents are undecided about this. For delicateness and easily vulnerable balance of nature

(statement 13) a strong eco-centric view is shown in both groups: 83.2% of PST group and 77.8% of IST group endorsing it.

*Anti-exclusion (AE)* dimension is one of the theoretical dimensions that is based on the idea that eco-centrics are supposed to reject exclusion of the humans from the laws of nature. That ingenuity of a human being will cause the Earth to become uninhabitable (statement 4), both groups show an anthropocentric view with obvious differences in endorsing: 54.7% of IST group and 81.9% of PST group. About one-third (33.3%) of the total respondents who were unsure on this statement. That man is subject to the laws of nature, (statement 9), respondents have eco-centric worldviews: 72.2% of IST group and 66.2% of PST group supports this statement, while 43.3% of the total respondents are unsure about this. That people will learn enough about the way nature functions and how to control it (statement 14), IST group have anthropocentric approaches with 69.5% endorsing the statement, while 75.3% of PST group agrees. About 27.6% of total respondents are undecided about this.

*Ecological crisis (EC)* dimension assumes that humans are abusing the environment. Strong eco-centric views are present in both groups about the statement that people are severely abusing the environment (statement 5), where 90.5% of IST group and 92.8% of PST group endorsing it. That EC is exaggerated by environmentalists (statement 10) shows a moderate eco-centric approach: 59% of IST group and 60.3% of PST group disagree with this statement. The greater concern is still that 28.4% of IST group and 30.1% of PST group think that the crisis is being exaggerated. About the fear of ecological collapse if things continue at the current path (statement 15), both groups have strong eco-centric views: 84.3% of IST group and 80.8% of PST group agree with the statement. About 23.4% of total respondents are unsure or have no opinion about this statement.

## CONCLUSIONS

This study is a comparative study between two different socio-economic groups in Kosovo: between PSTs (teacher-students) that are in training phase and ISTs that are already in their profession. This argues the novelty of the research in the sense of assessing attitudes toward NEP scale of two different socio-economic groups in Kosovo and in the region as well.

Concerning developments in the environment, both groups have perceived environmental deterioration at the global and country level. There is clear concern among respondents about the deterioration of the global and country environments.

Regarding expectations for environmental changes in the next decade, over two-thirds of PST group expect improvement at the country level, while the same is expected by over half of IST group. Almost half of the respondents from both groups expect that the environmental situation will remain unchanged at the country level and one-fifth of them expect it for the global environment.

Concerning the support of NEP scale, results show that for the statements: 2, 3, 4, 5, 7, 8, 9, 10, 13, and 15 both groups have an eco-centric approach in general. The strongest eco-centric approach by both groups is about statement 5 (that people are abusing the environment very badly), where 92.8% of PST and 90.5% of IST endorse this statement. The most eco-centric statement by PST group is seven (about equal rights of plants and animals to exist) endorsed with 97.6%, while for IST group is statement 3 (disastrous consequences of the human interference in the nature), supported by 90.6% of respondents. The least endorsed eco-centric attitude in both groups is statement 8: IST group endorsed with 55.9% and PST group with 62%.

The six NEP statements of the BN and EC dimension are clearly eco-centric in both groups. Dimensions of AE and AA are partially eco-centric (two out of three statements) in both groups. LG dimension shows fully anthropocentric approach of the respondents of both groups. The anthropocentric approach of both groups is strongest in the dimension of limited natural resources, more specifically for statements 1 and 6. The same is the case for statement 12 (about the man ruling over the rest of nature) and statement 14 (about humans' ability to learn how nature works and how to control it) in the anti-anthropocentrism dimension. Statement 6 is supported by all respondents, meaning both groups want to believe that planet Earth still has enough resources to sustain humanity. The less supported anthropocentric approach is statement 1, where IST group disagree with 44.2% while PST group agree with 48.4% (almost an eco-centric view).

The statement, where one group has an eco-centric approach while the other has anthropocentric approach is statement 11 with Earth as a concept of spaceship with limited resources: PST group show anthropocentric while IST group show moderate eco-centric approach. There are some statements, where respondents are unsure whether supporting eco-centric or anthropocentric approaches such: statement 11 with 37%, statement 8 with 35% and statement 4 with 32% of total respondents.

The findings of the study may also encourage future comparative surveys among other socio-economic groups in Kosovo, but also with different countries in the Balkan region.

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**Data sharing statement:** Data supporting the findings and conclusions are available upon request from author.

## REFERENCES

- Alagoz, B., & Akman, O. (2016). Anthropocentric or ecocentric environmentalism? Views of university students. *Higher Education Studies*, 6(4), 34-53. <https://doi.org/10.5539/hes.v6n4p34>

- Albrecht, D., Bultena, G., Hoiberg, E., & Novak, P. (1982). Measuring environmental concern: The new environmental paradigm scale. *Journal of Environmental Education, 13*(3), 39-43. <https://doi.org/10.1080/00958964.1982.9942647>
- Atav, E., Altunoglu, B. D., & Sonmez, S. (2015). The determination of the environmental attitudes of secondary education students. *Procedia-Social and Behavioral Sciences, 174*, 1391-1396. <https://doi.org/10.1016/j.sbspro.2015.01.765>
- Bechtel, R. B., Corral Verdugo, V., & de Queiroz Pinheiro, J. (1999). Environmental belief systems: United States, Brazil, and Mexico. *Journal of Cross-Cultural Psychology, 30*(1), 122-128. <https://doi.org/10.1177/0022022199030001008>
- Bytyqi, P., Etemi, F. Z., Ismaili, M., Srbinovski, M., Fetoshi, O., & Shala-Abazi, A. (2017). The environmental worldview of youth in a secondary school in Kosovo-A pro NEP perspective. In *Proceedings of the 5<sup>th</sup> International Conference on Waste Management, Ecology and Biological Sciences* (pp. 22-26). <https://doi.org/10.15242/DIRPUB.ER0517021>
- Chandler, E. W., & Dreger, R. M. (1993). Anthropocentrism: Construct validity and measurement. *Journal of Social Behavior and Personality, 8*(2), 169-188.
- Clayton, S., & Myers, G. (2009). *Conservation psychology: Understanding and promoting human care for nature*. Wiley-Blackwell.
- Dunlap, R. (1980). Paradigmatic changes in social science. *American Behavioral Sciences, 24*, 5-14. <https://doi.org/10.1177/000276428002400102>
- Dunlap, R. E., & Van Liere, K. D. (1978). The "New environmental paradigm". *The Journal of Environmental Education, 9*, 10-19. <https://doi.org/10.1080/00958964.1978.10801875>
- Dunlap, R., Van Liere, K., Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Sociology, 56*, 425-442. <https://doi.org/10.1111/0022-4537.00176>
- Dyr, W., & Prusika, M. (2020). Measurement of proecological attitudes within new ecological paradigm in Polish current settings. *Social Psychological Bulletin, 15*(3), e3697. <https://doi.org/10.32872/spb.3697>
- Edgell, M. C. R., & Nowell, D. E. (1989). The new environmental paradigm scale: Wildlife and environmental beliefs in British Columbia. *Society & Natural Resources, 2*(1) 285-296. <https://doi.org/10.1080/08941928909380692>
- Ellis, R. J., & Thompson, F. (1997). Culture and the environment in the Pacific Northwest. *American Political Science Review, 91*(4), 885-897. <https://doi.org/10.2307/2952171>
- Erdogan, N. (2013). Exploring the new ecological paradigm scale on environmental worldviews of Turkish university students. *Global Journal on Advances in Pure & Applied Sciences, 1*, 77-83.
- Erkal, S., Kilic, I., & Sahin, H. (2012). Comparison of environmental attitudes of university students determined via the new environmental paradigm scale according to the students' personal characteristics. *Eurasian Journal of Educational Research, 49*, 21-40.
- Gooch, G. (1995). Environmental beliefs and attitudes in Sweden and the Baltic states. *Environment and Behavior, 27*, 513-539. <https://doi.org/10.1177/0013916595274004>
- Johnson, C. Y., Bowker, J. M., & Cordell, H. K. (2004). Ethnic variation in environmental belief and behavior: An examination of the new ecological paradigm in a social psychological context. *Environment and Behavior, 36*(2), 157-186. <https://doi.org/10.1177/0013916503251478>
- Kopnina, H. N. (2011). Applying the new ecological paradigm scale in the case of environmental education: Qualitative analysis of the ecological world view of Dutch children. *Journal of Peace Education and Social Justice, 5*(3), 374-388.
- Kortetmäki, T. (2013). Anthropocentrism versus ecocentrism revisited: Theoretical confusions and practical conclusions. *SATS: Northern European Journal of Philosophy, 14*(1), 21-37. <https://doi.org/10.1515/sats-2013-0002>
- La Trobe, H. L., & Acott, T. G. (2000). Modified NEP/DSP environmental attitudes scale. *Journal of Environmental Education, 32*, 12-20. <https://doi.org/10.1080/00958960009598667>
- Lalonde, R., & Jackson, E. L. (2002). The new environmental paradigm scale: Has it outlived its usefulness? *Journal of Environmental Education, 33*, 28-36. <https://doi.org/10.1080/00958960209599151>
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology, 140*, 1-55.
- Lück, M. (2003). The new environmental paradigm: Is the scale of Dunlap and Van Liere applicable in a tourism context? *Tourism Geographies, 5*, 228-240. <https://doi.org/10.1080/1461668032000068298>
- Luzar, E. J., Diagne, C. G., & Henning, B. R. (1995). Evaluating nature-based tourism using the new environmental paradigm. *Journal of Agriculture and Applied Economy, 27*(2), 544-555. <https://doi.org/10.1017/S1074070800028571>
- Manoli, C., Johnson, B., & Dunlap, R. E. (2007). Validating the new ecological paradigm scale for use with children. *Journal of Environmental Education, 38*(4), 2-13. <https://doi.org/10.3200/JOEE.38.4.3-13>
- Milbrath, L. W. (1984). *Environmentalists: Vanguard for a new society*. SUNY Press.
- Mollison, B. (2014). *Permakültüre giriş* [Introduction to Permaculture]. (trans. E. Özkan). Sineksekiz Publishing.
- Noblet, C. L., Anderson, M., & Teisl, M. F. (2013). An empirical test of anchoring NEP scale in environmental ethics. *Environmental Education Research, 19*(4), 540-551. <https://doi.org/10.1080/13504622.2012.704899>

- Nooney, J. G., Woodrum, E., Hoban, T. J., & Clifford, W. B. (2003). Environmental worldview and behavior: Consequences of dimensionality in a survey of North Carolinians. *Environment and Behavior, 35*(6), 763-783. <https://doi.org/10.1177/0013916503256246>
- Ogunbode, C. (2013). The NEP scale: Measuring ecological attitudes/worldviews in an African context. *Environment, Development and Sustainability, 15*, 1477-1494. <https://doi.org/10.1007/s10668-013-9446-0>
- Olsen, M. E., Lodwick, D. G., & Dunlap, R. E. (1992). *Viewing the world ecologically*. Westview Press.
- Poortinga, W., Steg, L., & Vlek, C. (2004). Values, environmental concern, and environmental behavior: A study into household energy use. *Environmental Behavior, 36*, 70-93. <https://doi.org/10.1177/0013916503251466>
- Rideout, B. E., Hushen, K., McGinty, D., Perkins, S., & Tate, J. (2005). Endorsement of the new ecological paradigm in systematic and email samples of university students. *Journal of Environmental Education, 36*, 15-23. <https://doi.org/10.3200/JOEE.36.2.15-23>
- Schultz, P. W., Shriver, C., Tabanico, J. J., & Khazian, A. M. (2004). Implicit connections with nature. *Journal of Environmental Psychology, 24*, 31-42. [https://doi.org/10.1016/S0272-4944\(03\)00022-7](https://doi.org/10.1016/S0272-4944(03)00022-7)
- Soyez, K., Hoffmann, S., Wünschmann, S., & Gelbrich, K. (2009). Pro-environmental value orientation across cultures: Development of a German and Russian scale. *Social Psychology, 40*(4), 222-233. <https://doi.org/10.1027/1864-9335.40.4.222>
- Srbinovski, M., & Stanišić, J. (2020). Environmental worldviews of Serbian and Macedonian school students. *Australian Journal of Environmental Education, 36*(1), 20-43. <https://doi.org/10.1017/ae.2020.1>
- Stern, P. C., Dietz, T., & Guagnano, G. A. (1995). The new ecological paradigm in social-psychological context. *Environment and Behavior, 27*(6), 723-743. <https://doi.org/10.1177/0013916595276001>
- Stern, P. C., Young, O. R., & Druckman, D. (1992). *Global environmental change: Understanding the human dimensions*. National Academy Press.
- Thompson, S. C. G., & Barton, M. A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology, 14*(2), 149-158. [https://doi.org/10.1016/S0272-4944\(05\)80168-9](https://doi.org/10.1016/S0272-4944(05)80168-9)
- Veselaj, Z., & Krasniqi, Z. (2014). Mapping of education for sustainable development in the new curriculum of Kosovo and challenges of implementation. In *Proceedings of the SGEM Conference on Psychology and Psychiatry, Sociology and Healthcare and Education* (pp. 803-810). <https://doi.org/10.5593/sgemsocial2014B11>
- Veselaj, Z., & Torkar, G. (2016). The acceptability of teachers' value related statements about sustainable development and climate change among non-science and science major students from Kosovo. *European Journal of Sustainable Development, 6*(1), 221-232. <https://doi.org/10.14207/ejsd.2017.v6n1p221>
- Veselaj, Z., Behxhet, M., & Zenel, K. (2019). Pro-ecological views of Kosovar teachers measured by endorsement of the new ecological paradigm statements. *Journal of Teacher Education for Sustainability, 21*(1), 1, 88-102. <https://doi.org/10.2478/jtes-2019-0007>
- Weigel, R. H., & Weigel, J. (1978). Environmental concern: The development of a measure. *Environment and Behavior, 10*(1), 3-15. <https://doi.org/10.1177/0013916578101001>
- Wells, M., & Petherick, L. (2016). New ecological paradigm and sustainability attitudes with respect to a multi-cultural educational milieu in China. In *Proceedings of the International Conferences ITS, ICEduTech and STE 2016* (pp. 311-316).