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Which attitudes preservice teachers' have towards environmental ethics

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Abstract

The purpose of this study is to find “which approaches preservice teachers' have regarding environmental ethics”. Preservice teachers from different teacher education programmes (science education, pre-school education, primary school education, social sciences education) in Department of Elementary Education in two universities were participated for this study. All of the participants were seniors who were ready to be teachers in elementary schools. A questionnaire about environmental ethics was completed by them. Responses of the questionnaire were analysed by using statistical methods. It was found that while no difference were found in levels of ecocentric approach statistically, in levels of apathy approach significant differences were found between teacher education programmes, and also it was found that preservice teachers participated an environmental course have higher level of ecocentric concern.

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1. Introduction

Environmental ethics, which is part of the broader concept of bioethics (Macer, 1998), is to value nature or the environment and live sustainable in harmony within nature and requires respect for the autonomy of not only human beings but of all creation (cited in Anemiya & Macer, 1999; Huiying, 2004). This kind of ethics examines the relationship between human beings and nature from the moral perspective (Huiying, 2004).

The paramount function of environmental ethics is to regulate the relationship between human beings and nature. Environmental ethics is not based on blood ties, but on facts, science, and the relationship of humankind to nature. “It accommodates humankind to the earth to the fullest extent possible, and to accommodate in an ethical manner” (quoted from Huiying, 2004).

The principle approaches of environmental ethics are anthropocentrism, biocentrism and ecocentrism (Anemiya & Macer, 1999). Researchers have also complex approaches that consider the degree to which individuals are concerned for the environment and also the reasons they are concerned for the environment (Amerigo et al., 2007; Stern, Dietz & Kalof, 1993). They have proposed that environmental concern is related to social-altruistic, egoistic and biospheric value orientations and beliefs (Stern, Dietz & Kalof, 1993). People who emphasize the consequences of environmental deterioration for oneself (one's own health, lifestyle, etc.) seem to base these beliefs on *egoistic* values; those who underline the consequences of environmental deterioration for human beings in general base their beliefs on *socioaltruistic* values; and lastly, those who underscore the consequences of environmental deterioration for animals, plants, and ecosystems base their beliefs on *biospheric* values (Amerigo et al., 2007). Amerigo et al. (2007) clarified that *egoistic* and *socioaltruistic* dimensions would merge into a single dimension in which the human being would be the center of the relation and defined as *anthropocentric*. Thompson and Barton

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(1994) also asserted two value orientations which concern for the *ecocentric* and *anthropocentric* environment (Casey & Scott, 2006). On the other hand, they indicated third group of individuals, those who are apathetic about and even antagonistic toward environmental issues.

Ecocentric concern for the environment or ecocentrism predisposes individuals to value nature for its own sake judging that it deserves protection because its intrinsic value, irrespective of its usefulness to humans (Casey & Scott, 2006; Kortenkamp & Moore, 2001). This approach considers whole nature, including ecosystem, landscape, rocks and so on (Anemiya & Macer, 1999). For example one could judge that it would be wrong to cut down the rainforests because it would cause the extinction of many plant and animal species (Kortenkamp & Moore, 2001).

Anthropocentric concern, or anthropocentrism refers to the idea that humans are the centre of the universe (Casey & Scott, 2006), it considers humans to be the most important life form and non-human natural entities to be only means for human well-being (Anemiya & Macer, 1999; Kortenkamp & Moore, 2001). Anthropocentric individuals judge that environment should be protected because of its value in maintaining or enhancing the quality of life for humans (human comfort, quality of life and health) (Casey & Scott, 2006). These peoples hope that the world will develop in a way desired by human beings and that human beings can utilize natural resources to create a better environment so as to attain what they consider to be the ideal and happy world. However through this desire, people have caused damages to the earth that are hard to heal (Huiying, 2004).

Both ecocentric and anthropocentric individuals are concerned for the environment and both deserve moral consideration (Kortenkamp & Moore, 2001). However while ecocentric parallels the biospheric value orientation, anthropocentrism appears to be a combination of socialtruistic and egoistic value orientation (Casey & Scott, 2006). Thompson and Barton (1994) also claimed ecocentric individuals are more likely to act to support the environment even if such action involves discomfort, inconvenience and expense. Anthropocentric individuals on the other hand, are less likely to act to support the environment because such support may often threaten other human centred values (eg. quality of life, and the accumulation of wealth). Furthermore these researchers hypothesised that ecocentrism would be associated with a higher rate of concerning behaviours and anthropocentrism with a lower rate of conserving behaviours.

Researchers emphasized that human beings are bonded with moral imperatives when interacting with nature; in other words, people are required to respect nature, care for it, preserve the equilibrium of the natural environment, and voluntarily perform the duty and obligation of protecting nature (Huiying, 2004). They believed that most people who are concerned with environmental ethics care about and respect things like wilderness, endangered plants and animals; vanishing old, growth forests; clean, free-flowing rivers and streams; food free of toxic chemicals; pure air, healthy prairie ecosystems and much more (Knapp, 1999) in other words, these people have ethical behaviour towards the environment (Anemiya & Macer, 1999). Kato (1991) believed that individuals should no longer be anthropocentric in order to continue exist on earth (cited in, Anemiya & Macer, 1999).

If we consider young children generally start their life self-centred, students may have anthropocentric approach and with this approach they may not admit the right to live of other things, including species, ecosystems, and landscape, teachers' have an important role to educate these students to make them give consciously decisions about environmentally issues and to make them leave anthropocentric approach. As elementary teacher candidates, preservice students' need to learn which approach they have regarding to environmental ethics before learning their future students' approaches. Driven this idea, the aim of this study is to find "which approaches preservice teachers' have regarding environmental ethics".

2. Method

Preservice teachers from different teacher education programmes (science education, mathematics education, pre-school education, primary school education, social sciences education) in Department of Elementary Education in two educational faculties from different universities were participated for this study. All of the participants were seniors who were ready to be teachers in elementary schools.

For this study the scale about the consequences of environmental deterioration, developed by Thompson and Barton (1994) was used and preservice students were completed this scale (Cited in Erten, 2007).

The questionnaire consisted of two standardised sets of environmental concern, namely, the ecocentric, antropocentric and apathy subscales made on 5 point Likert scale, ranging from strongly disagree to strongly agree and a set of demographic questions. The reliabilities (Cronbach's alpha) of the ecocentric, anthropocentric and apathy scales as reported in Thompson and Barton (1994) were .78, .67 and .82; .81, 67, .82 in Casey & Scott (2006) and also and .77, .78 and .92 in Erten (2007) respectively. The reliability coefficients for the ecocentric and apathy subscales were .72 and .82 respectively in this study. However the reliability of anthropocentric subscale was found lower than acceptable level (.70). Due to this result the data of anthropocentric subscale was not used for analysis.

For obtaining sociodemographic data, participants were asked about their participation in a variety of pro-environmental activities, environmentel courses or courses related to environmental issue. Students' age, gender and departments were also asked to obtain data.

In this study, to check the distribution of this sample, Kolmogorov-Smirnov test was done. The results of this test indicated a deviation from normality ($p < .05$) which means that the distribution is significantly different from a normal distribution (Field, 2000, p.46-47). Considering this result non-parametric analysis were done for the data analysis.

3. Findings

Table 1. Sample characteristics

	f	%	Valid %	Cumulative%
Gender				
Girl	393	62	62	62
Boy	241	38	38	100
Total	634	100	100	
Department				
Social sciences education	171	27	27	27
Science Education	193	30.4	30.4	57.4
Pre-school education	149	23.5	23.5	80.9
Primary school education	121	19.1	19.1	100
Total	634	100	100	
Course				
Yes	395	62.3	62.9	62.9
No	233	36.8	37.1	100
Total	628	99.1	100	
Course related to environmental issues				
Yes	469	74	74	74
No	165	26	26	100
Total	634	100	100	
Activity				
Yes	209	33	33.2	33.2
No	421	66.4	66.8	100
Total	630	99.4	100	

The sample consisted of 634 preservice teachers of whom 393 were girls (62%) and 241 were boys (38%); 171 were social sciences education students (27%), 193 were science education students (30.4%), 149 were pre-school education students (23.5%), and 121 were primary education students (19.1%).; 395 were participated an environmental course (62.3%), 233 were not participated an environmental course (36.8%); 469 were participated a course related to environmental issues (74%), 165 were not participated a course related to environmental issues (26%); 209 were participated an activity related to environmental issues (33%) and 421 were not participated an activity related to environmental issues (66.4%).

Table 2. The Results of Kruskal Wallis Test Used to Test Differences for Ecocentric Subscale Means and Apathy Subscale Means According to Department Variable

	Department	N	\bar{X}	M.R.	X ²	df	P
Ecocentric Attitude	Social sciences education	171	35.5	323.7	4.0	3	.25
	Science Education	193	34.9	311.1			
	Pre-school education	149	34.6	299.4			
	Primary school education	121	36.0	341.1			
	Total	634	35.2				
Apathy Attitude	Social sciences education	171	19.4	302.7	16.5	3	.00
	Science Education	193	19.6	312.1			
	Pre-school education	149	22.1	368.0			
	Primary school education	121	18.6	284.6			
	Total	634	20.0				

The results of the Kruskal Wallis test indicated that the average rank of primary school preservice teachers' ecocentric attitudes is more than the other groups. However, results also shows that there is not statistically significant difference between groups (p>.05). The results of this test also indicated that the average rank of pre-school preservice teachers' apathy attitudes is more than the other department groups and statistically significant differences were found between these groups (p<.05).

Table 3. The Results of Mann Whitney-U Test Used For Testing Differences Between Apathy Subscale Means According to Department Variable

	Social sciences education	Science Education	Pre-school education	Primary school education
Social sciences education	\bar{X} :19.4	p>.05	p<.05	p>.05
Science Education	p>.05	\bar{X} :19.6	p<.05	p>.05
Pre-school education	p<.05	p<.05	\bar{X} :22.1	p<.05
Primary school education	p>.05	p>.05	p<.05	\bar{X} :18.6

Mann Whitney tests revealed the following statistically significant department groups differences on the scale. On the apathy scale, the pre-school education preservice teachers' mean (\bar{X} :22.1) was significantly higher than other groups ($p < .05$). It can be concluded from this result that pre-school education preservice teachers' environmental apathy were higher than other groups.

Table 4. Correlation Between Ecocentric and Apathy Subscale Scores

	N	r	p
Ecocentric Apathy	634	-.62	.00*

Table (4) showed the result of Pearson moment correlation test between ecocentric and apathy subscale scores. Result of this table indicated that there was a negative and statistically significant difference between these subscales.

Table 5. The Results of Mann Whitney-U Test Used For Testing Differences Between Ecocentric Subscale Means According to the Gender and Course Variables

	Gender	N	M.R.	S.R.	U	Z	P
Ecocentric Attitude	Girl	393	319.2	125454.5	46679.5	-.303	.76
	Boy	241	314.6	75840.5			
	Total	634					
	Course	N	S.O.	S.R.	U	Z	P
Ecocentric Attitude	Yes	395	330.2	130452	39398	-2.93	.00*
	No	232	286.3	66426			
	Total	62					

The results of the Mann Whitney-U tests indicated that statistically significant differences were not found between boys and girls. On the other hand statistically significant difference was found between the groups of pre-service teachers participated and not participated an environmental course and the test statistics was based on the pre-service teachers who participated an environmental course. This value is significant at $p : .00$. Therefore, because this value is based on the pre-service teachers who participated an environmental course, it can be concluded that environmental course has a positive impact on pre-service teachers.

Table 6. The Results of Mann Whitney-U Test Used For Testing Differences Between Apathy Subscale Means According to the Gender and Course Variable

	Gender	N	M.R.	S.R.	U	Z	P
Apathy Attitude	Girl	393	323.2	127038.5	45095.5	-1.01	.31
	Boy	241	308.1	74256.5			
	Total	634					
	Course	N	M.R.	S.R.	U	Z	P
Apathy Attitude	Yes	395	285.4	112747.5	34537.5	-5.15	.00*
	No	232	362.6	84130.5			
	Total	62					

The results of the Mann Whitney-U tests for apathy subscale indicated that there was not statistically significant differences between boys and girls. On the other hand statistically significant difference was found between the groups of pre-service teachers participated and not participated an environmental course and the test statistics was based on the pre-service teachers who was not participated an environmental course. This value is significant at $p : .00$.

4. Conclusion

Starting with elementary education, environmental education takes its shape with secondary education and takes its final form with undergraduate education (Yücel, Morgil, 1995). Preservice teachers' have an important obligation to educate their students with ecocentric approach, for this reason learning preservice teachers' ethical attitudes is an important issue. The results of this study have provided a description of environmental concern between elementary school preservice teachers.

Studies indicated that within the Thompson and Barton concern scales, score on ecocentric concern was significantly related to apathy score ($r: -.61$) (cited in Casey and Scott, 2006). The same pattern of correlation also found in this study ($r: -.62; p<.05$).

In regard to ecocentric dimension, the results here found no statistically significant difference among preservice teachers from different teacher education programmes. However the results indicated that primary school preservice teachers showed more ecocentric concern compared with other preservice teachers, and pre-school preservice teachers showed low ecocentric concern compared with other preservice teacher. Considering these results it can be thought that preservice teachers who scored highest ecocentric concern were more likely to carry out environmental activities (Amerigo, 2007). However in our study we found that preservice teachers in primary education were attended less activities related with environmental issues compared to others. On the other hand, in regard to apathy scale, pre-school preservice teachers' scores found higher compared to the other teacher education programmes (Table 2). This was an expected result due to preschool preservice teachers not participated an environmental course or a course related with environmental issue. From this result it can be concluded that preservice teachers who showed low apathy attitude took precedence protecting environment over their own desire.

From the results of this study it was also found that environmental course was a significant predictor of both ecocentric concern with, preservice teachers who attend the course higher than preservice teachers not attend the course ($p<.05$) and environmental apathy, with preservice teachers who attended the course lower than who did not attend the course ($p<.05$). It can be concluded from these results that environmental courses have a positive effect on preservice teachers' environmental concern.

Although past studies showed that females being more concerned for the environment than males (Hunter, et al., 2004; Zelezny, et al. 2000) while some have found that males expressed more environmental concern than females (Macdonald & Hara, 1994). In this studies it was mentioned that gender was a significant predictor of ecocentric concern for the environment, with women higher than men and also of environmental apathy, with women lower than men. However in this study the results found no difference between girls and boys in regard to ecocentric and apathy scale (Table 5-6).

In conclusion, this study showed that preservice elementary teachers' environmental ethics approaches were related with ecocentric dimension, nevertheless this approaches were enough due to their apathy approach. Consequently preservice teachers need to support environmental ethics courses.

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